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Folder Title:
Staff Secretary (Cicconi) (1990)

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U.S. Department of
Transportation

Office of the Secretary
of Transportation

GENERAL COUNSEL

400 Seventh St., S.W.
Washington, D.C. 20590

December 14, 1990

J
The Honorable John H. Sununu
Chief of Staff to the President
The White House
Washington, D.C. 20500

THE CHIEF of STAFF
has seen

Dear Governor Sununu:

Thank you for the opportunity you afforded me yesterday to discuss the upcoming vacancy on your staff. I was honored to be included among those viewed as potential candidates. As Andy may have already advised you, I am very much interested in pursuing that potential, and I would be committed to meeting your expectations and those of the President as you identified them during our meeting.

Again, thank you for your consideration.

Sincerely,

Phillip D. Brady

P.S. Please find attached a copy of the Post story I referenced during our meeting on Marlin's very understandable reaction to lawyers...

A

THE WHITE HOUSE
WASHINGTON

May 16, 1990

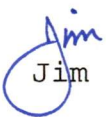
THE CHIEF of STAFF
has seen

TO: CHIEF OF STAFF

Attached are the two submissions
for aid to Panama and Nicaragua.
They went to the Hill on February 6
and March 13 respectively.

Let me know if you need further info
on this.

Also, FYI, I've been holding the
DC abortion information you asked
for since the matter looks like it may
be resolved. If you want it, though,
I can forward to you immediately.


Jim Cicconi

THE WHITE HOUSE
WASHINGTON

February 6, 1990

The Speaker of the
House of Representatives

Sir:

I ask the Congress to consider requests for supplemental appropriations for fiscal year 1990 in the amount of \$500,000,000 for the Economic Support Fund and \$70,000,000 for the Department of State, as well as supplemental appropriations language for the U.S. Governor of the International Bank for Reconstruction and Development. In addition, I am concurrently sending the Congress a special message reporting a set of deferrals of certain Department of Defense obligations. The budget authority for the supplementals would be fully offset by transfers I am proposing. The associated outlays would also be fully offset by the transfers and the deferrals.

The details of these proposals are set forth in the enclosed letter from the Director of the Office of Management and Budget. I concur with his comments and observations.

Sincerely yours,



Enclosures

ENCLOSED FOR THE
To: Hill
Date: 2/6/90
Time: 3:00
Panama



EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

THE DIRECTOR

February 6, 1990

The President

The White House

Sir:

Attached for your consideration are requests for supplemental appropriations for fiscal year 1990 in the amount of \$500,000,000 for the Economic Support Fund and \$70,000,000 for the Department of State. The purpose of the request for the Economic Support Fund is to provide the economic assistance to Panama that you announced on January 19, 1990. The purpose of the request for the Department of State is to provide for an increase in the number of refugees admitted to the United States, as well as to fund high priority assistance requirements for some 14 million refugees worldwide.

The budget authority and outlays for these requests would be offset by transfers and deferrals of certain Department of Defense obligations. A table is enclosed with this letter that shows the cost of the supplemental requests and the savings associated with the transfers and deferrals.

Also included for your consideration is a request for FY 1990 supplemental appropriations language for the U.S. Governor of the International Bank for Reconstruction and Development. This proposal would allow the U.S. to keep its 1988 agreement to purchase shares in a general capital increase of the Bank. This language does not affect budget authority.

We have carefully reviewed the requests contained in this document and are satisfied that they are necessary at this time. We recommend, therefore, that they be transmitted to Congress.

Respectfully yours,

A handwritten signature in cursive script, reading "Richard G. Darman".

Richard G. Darman
Director

Enclosures

PANAMA SUPPLEMENTAL APPROPRIATION LANGUAGE

Of the funds available to the Department of Defense in fiscal year 1990, not to exceed \$500,000,000 may be transferred to and be merged with, funds appropriated to the President under the heading "Economic Support Fund" to be available for the same purposes and the same time period as funds appropriated for the Fund: Provided, That, the amounts transferred shall be from the following appropriations in not to exceed the following amounts: "National Defense Stockpile Transaction Fund", \$216,800,000; "Family Housing Construction, Air Force", 1989/93, \$8,000,000; "Family Housing Construction, Air Force", 1990/94, \$17,800,000; "Military Construction, Defense Agencies", 1990/94, \$21,000,000; "Missile Procurement, Air Force", 1989/91, \$49,802,000; "Research, Development, Test, and Evaluation, Army", 1989/90, \$10,000,000; "Defense Production Act Purchases", \$13,000,000; "Research, Development, Test, and Evaluation, Defense Agencies", 1989/90, \$44,500,000; "Research, Development, Test, and Evaluation, Navy", 1990/91, \$14,598,000; "Research, Development, Test, and Evaluation, Navy", 1989/90, \$5,000,000; "Research, Development, Test, and Evaluation, Air Force", 1989/90, \$19,900,000; "Other Procurement, Navy", 1988/90, \$16,500,000; "Weapons Procurement, Navy", 1989/91, \$40,600,000; "Other Procurement, Army", 1988/90, \$22,500,000: Provided further, That, Section 8115(a) of the Department of Defense Appropriations Act, 1988 (Public Law 100-202; 101 Stat 1329-82), is amended by striking out "90,895,000" and inserting in lieu thereof "\$68,395,000".

This request would provide \$500 million to help Panama improve its relations with the International Financial Institutions, for balance of payments support and business credit, for a public investment program, for public sector restructuring and for development support. The largest component of this program consists of restocking of inventory, replenishment of capital equipment, and economic reactivation. This assistance would focus on encouraging economic policy reform.

DEPARTMENT OF STATE
OTHER

Migration and Refugee Assistance

For an additional amount for "Migration and refugee assistance", \$70,000,000, which is to be derived by transfer from the "National Defense Stockpile Transaction Fund".

This request would support the authorized fiscal year 1990 worldwide refugee admissions ceiling of 111,000 persons. This is an increase of 27,000 admissions over the budgeted ceiling. In addition, it would cover high priority assistance requirements for some 14 million refugees worldwide.

Both of these proposals would be fully offset by transfers of budget authority. Outlays would be offset by a group of Department of Defense deferrals that is part of this package.

FUNDS APPROPRIATED TO THE PRESIDENT
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

Limitation on Callable Capital Subscriptions

The United State Governor of the International Bank for Reconstruction and Development may subscribe without fiscal year limitation to the callable capital portion of the United States share of increases in capital stock in an amount not to exceed \$1,609,671,408.

The purpose of this language is to allow the purchase of callable capital in the International Bank for Reconstruction and Development (IBRD). Callable capital serves as a guarantee provided in the form of a program limitation. Outlays would only be incurred in the event of a call by the IBRD. In 1988, the United States agreed to purchase shares in a general capital increase (GCI) of the IBRD. The purchase of each IBRD GCI share requires a fixed proportion of paid-in capital (3 percent) and callable capital (97 percent). The Foreign Operations, Export Financing, and Related Appropriations Act, 1990 (P.L. 101-167) provided \$49,785,792 in budget authority for the paid-in portion of such shares, but did not provide the callable capital component of \$1,609,671,408 required to purchase the shares.

THE WHITE HOUSE

Office of the Press Secretary
(Fort Irwin, California)

For Immediate Release

February 6, 1990

The President today is transmitting to Congress a \$570 million package of FY 1990 supplementals that includes the following:

-- \$500 million for increased aid to Panama, as announced by the President on January 19th;

--\$70 million for increased refugee assistance;

--appropriations language that would allow the United States Governor of the International Bank for Reconstruction and Development to purchase shares in a general capital increase of the Bank.

The budget authority and outlays for these requests would be fully offset by transfers and deferrals from the Department of Defense.

#

Nicaragua

THE WHITE HOUSE

WASHINGTON

March 13, 1990

The Speaker of the
House of Representatives

Sir:

I ask the Congress to consider a request for supplemental appropriations for fiscal year 1990 in the amount of \$300,000,000 for the Economic Support Fund. This request is the third and final element of the supplemental package for which I am requesting Congressional approval by April 5th. Requests for \$500 million for Panama and \$70 million for Refugee Assistance, the two other elements, have already been transmitted to Congress.

The budget authority for the supplemental would be fully offset by new transfers I am proposing. The associated outlays would also be fully offset by the transfers and by outlay savings associated with Department of Defense deferrals transmitted in the Special Message of February 6, 1990 that go beyond those needed to offset the supplemental requests for Panama and Refugee Assistance.

The details of this proposal are set forth in the enclosed letter from the Director of the Office of Management and Budget. I concur with his comments and observations.

Sincerely yours,



Enclosures



THE DIRECTOR

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

March 13, 1990

The President

The White House

Sir:

We are submitting for your consideration a request for supplemental appropriations for fiscal year 1990 in the amount of \$300,000,000 for the Economic Support Fund. The purpose of this request is to provide the economic assistance to Nicaragua that you announced today. This request is the third and final element of the supplemental package for which you requested Congressional approval by April 5th. Requests for \$500 million for Panama and \$70 million for Refugee Assistance, the two other elements, have already been transmitted to Congress.

The budget authority for this supplemental would be fully offset by proposed transfers from the Department of Defense. The associated outlays would also be fully offset by the transfers and by outlay savings associated with Department of Defense deferrals transmitted in the Special Message of February 6, 1990 that go beyond those needed to offset the supplemental requests for Panama and Refugee Assistance. A table is enclosed with this letter that displays the cost of the supplemental request and the savings associated with the transfers and deferrals.

We have carefully reviewed the proposal contained in this document and are satisfied that this request is necessary at this time. We recommend, therefore, that it be transmitted to Congress.

Respectfully yours,

A handwritten signature in dark ink, appearing to read "Richard G. Darman". The signature is fluid and cursive, with a long horizontal stroke at the end.

Richard G. Darman
Director

Enclosures

NICARAGUA SUPPLEMENTAL APPROPRIATIONS LANGUAGE

Of the funds available to the Department of Defense in fiscal year 1990, not to exceed \$300,000,000 may be transferred to and merged with, funds appropriated to the President under the heading "Economic Support Fund" to be available for the same purposes and the same time period as funds appropriated for the Fund: Provided, That the amounts transferred shall be from the following appropriations in not to exceed the following amounts: "Operation and Maintenance, Army", \$23,305,000; "Operation and Maintenance, Navy", \$38,834,000; "Operation and Maintenance, Marine Corps", \$1,582,000; "Operation and Maintenance, Air Force", \$16,528,000; "Operation and Maintenance, Defense Agencies", \$7,132,000; "Operation and Maintenance, Army Reserve", \$896,000; "Operation and Maintenance, Navy Reserve", \$209,000; "Operation and Maintenance, Air Force Reserve", \$1,190,000; "Operation and Maintenance, Army National Guard", \$2,125,000; "Operation and Maintenance, Air National Guard", \$2,199,000; "Aircraft Procurement, Air Force", 1990/1992, \$69,115,000; "Research, Development, Test and Evaluation, Navy", 1990/1991, \$38,100,000; "Military Construction, Army", 1990/1994, \$31,070,000; "Military Construction, Navy", 1990/1994, \$10,000,000; "Military Construction, Air Force", 1990/1994, \$25,942,000; "Military Construction, Defense Agencies", 1990/1994, \$4,810,000; "Military Construction, Army National Guard", \$9,063,000; and of the amount to be obligated only for the procurement of 20 Mobile Armed Reconnaissance Vehicles from "Other Procurement, Air Force", 1989/1991, \$17,900,000.

This request would provide \$300 million for economic assistance for Nicaragua to finance: 1) urgently needed imports of agricultural supplies and petroleum for spring planting and to prevent stoppage of transportation and other activities that depend on oil; 2) the return of refugees to Nicaragua; 3) emergency employment and medical programs; 4) resumption of development assistance programs; and 5) efforts to put Nicaragua's relations with the international financial institutions on a business-like basis.

This proposal would be fully offset by budget authority transfers from the Department of Defense. Outlays would be offset by outlay savings from the proposed budget authority transfers and by outlay savings associated with Department of Defense deferrals transmitted in the Special Message of February 6, 1990 that go beyond those needed to offset the supplemental requests for Panama and Refugee Assistance.

Offsetting Transfers and Deferrals

(in millions of dollars)

	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
<u>Budget Authority</u>						
Aid to Nicaragua.....	300.0	---	---	---	---	---
Aid to Panama.....	500.0	---	---	---	---	---
Refugee Assistance.....	70.0	---	---	---	---	---
Defense transfers						
Nicaragua.....	-300.0	---	---	---	---	---
Panama and Refugee Assistance.....	-570.0	---	---	---	---	---
Defense deferrals.....	---	---	---	---	---	---
Net budget authority change.....	---	---	---	---	---	---
<u>Outlays</u>						
Aid to Nicaragua.....	195.0	70.0	12.0	8.0	5.0	3.0
Panama.....	300.0	150.0	50.0	---	---	---
Refugee Assistance.....	52.5	14.0	3.5	---	---	---
Defense transfers						
Nicaragua.....	-125.9	-85.0	-50.4	-18.8	-10.9	-4.1
Panama and Refugee Assistance.....	-79.8	-87.2	-55.4	-25.5	-9.2	-6.3
Defense deferrals.....	-344.9	-178.0	23.0	350.6	55.0	78.0
Net outlay change.....	-3.1	-116.2	-17.3	314.3	39.9	70.6

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01. Letter	From James Cicconi to John Sununu Re: Paper prepared by Bill Martin (1 pp.)	9/12/90	P 5	

Collection:

Record Group: Bush Presidential Records
Office: Chief of Staff to the President, Office of the
Series: Sununu, John, Files
Subseries: White House Offices File
WHORM Cat.:
File Location: Staff Secretary
(Cicconi) (1990)

Open on Expiration of PRA
(Document Follows)
By JP (NLGB) on 10/28/05

Date Closed:	12/16/2004	OA/ID Number:	29185-001
FOIA/SYS Case #:	1998-0004-F[1]	Appeal Case #:	
Re-review Case #:	2005-0426-S	Appeal Disposition:	
P-2/P-5 Review Case #:		Disposition Date:	
AR Case #:		MR Case #:	
AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

RESTRICTION CODES

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

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

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

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

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

THE WHITE HOUSE
WASHINGTON

September 12, 1990

TO: GOVERNOR SUNUNU

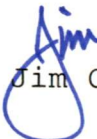
THE CHIEF of STAFF
has seen

The attached was prepared by Bill Martin, the former Deputy Secretary of Energy under Reagan. You may recall him from his help on the platform in New Orleans.

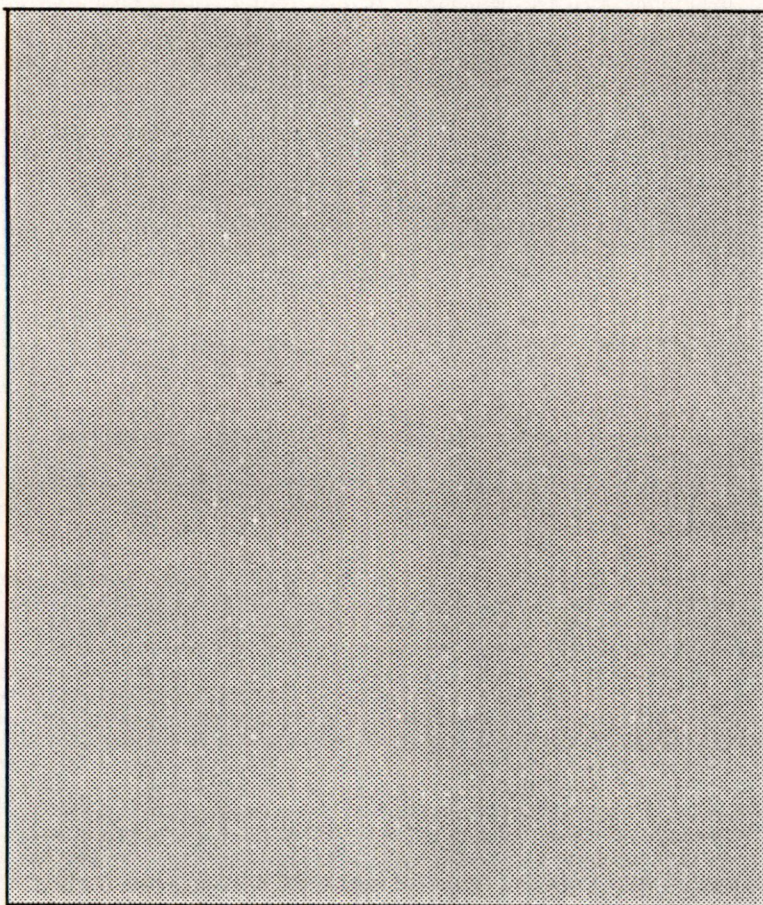
This piece by Bill is interesting-- especially the policy prescriptions portion at the end. We may not agree with all his points, including his rationale for modest use of SPR, but they are worth considering.

Outside of SPR use on modest basis to cool down price expectations (as it was apparently used once before), Bill makes a point (verbally) that the level of leadership we're exercising now at IEA leaves something to be desired, and should perhaps be taken up a notch or two during this crisis.

Given that both points are aimed at keeping energy prices from spiraling out of control-- with attendant impact on the economy-- some lesser steps to enhance our leadership and coordination may be in order.

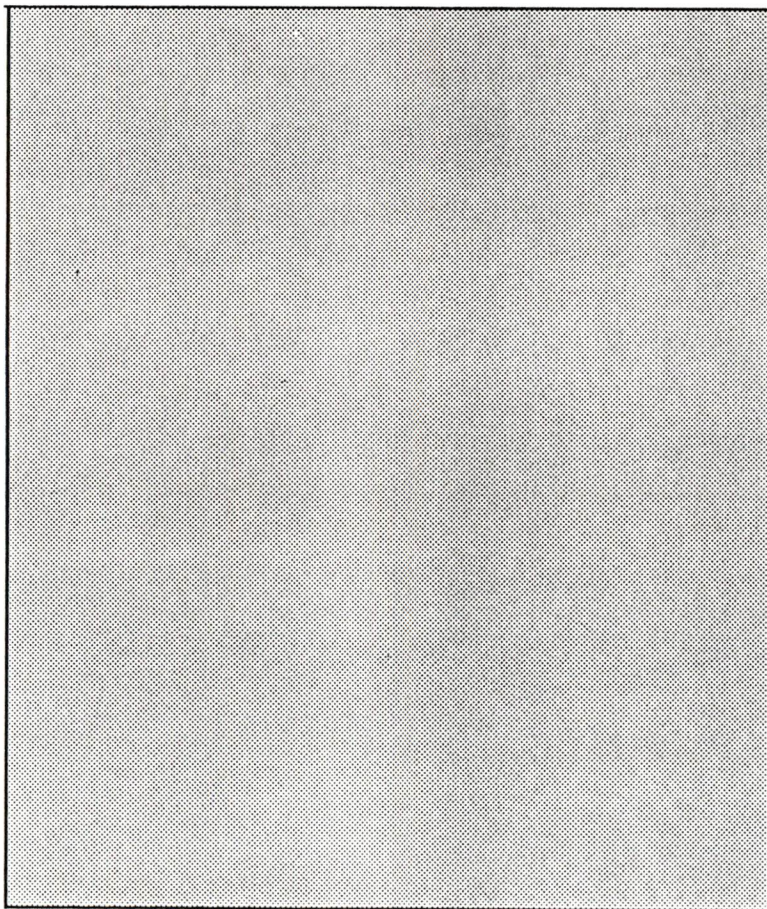

Jim Cicconi

The Gulf Crisis: Energy Implications and Solutions



William F. Martin
Washington Policy and Analysis
A Miller & Chevalier Consulting Group

The Gulf Crisis: Energy Implications and Solutions



William F. Martin
Washington Policy and Analysis
A Miller & Chevalier Consulting Group

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Executive Summary

1. There have been several threatening situations over the last twenty years in the world oil market. Today's situation is a reminder of the serious problems the U.S. and other countries encountered in the 1970s and 1980s in securing adequate oil supplies. The Arab-Israeli War in 1973 and the Iranian Revolution in 1978-79 wreaked havoc on international oil markets. However, faced with the Iran/Iraq war in 1980 which escalated into a tanker war in 1984-87, the IEA/OECD responded more effectively and price disruptions were minimized. These experiences have demonstrated what might happen when oil supplies are threatened and what approaches are most effective in dealing with the problem.
2. Saddam Hussein's aggression throws world oil prices into an upward spiral....a situation that may get worse before it gets better. The UN-imposed embargo against Iraq effectively removed 4 million barrels a day of oil from world markets and world oil prices shot upwards as concern over future oil supplies heightened. While sufficient excess capacity exists elsewhere to cover this shortfall, concern over the security of Gulf oil supplies—which could be damaged as a result of military action in the region—will keep oil prices above \$25 in the short- to medium-term. A serious supply disruption to Saudi oil fields or infrastructure would sent prices skyrocketing to \$50 a barrel or higher.
3. A major oil supply disruption would undermine global prosperity, development and security. An adequate supply of affordable oil is vital to the economic prosperity of both industrialized and developing countries. Higher fuel bills mean inflationary pressures and less discretionary spending, driving personal consumption downwards with a resulting drop in corporate profitability, employment and tax revenues. The effect of oil price increases has historically been most pronounced in developing countries, some of which are still servicing mountains of debt acquired during oil price hikes a decade ago. Eastern European economies would also be hard hit by high oil prices, compounding an already worsening energy situation brought on by Soviet demands for hard currency and market prices for Soviet oil exports.
4. Led by George Bush, the world's leaders banded together in an unprecedented show of unity and force against Hussein's aggression. The level of international unity and commitment shown has been hailed by many as a new approach to conflict resolution made possible by the reduction of East-West tensions, and President Bush has been praised around the world for building this extraordinary consensus. The U.S. has a strong interest in sustaining an organized, international response to the Gulf crises and is looking for all countries with a significant stake in the outcome to participate. Even without military escalation, it could be months before the conflict is resolved—a conclusion that argues for a strong international effort to seek oil market equilibrium until oil supplies are once again relatively assured.
5. The crises of the 1970s and 1980s have left us better prepared to deal with energy emergencies, but there could be the temptation to "go it alone" by many countries. Previous oil disruptions have taught us that international energy cooperation minimizes the disruptions—both economic and political—from an oil shock to all countries. We also learned that relatively small supply disruptions can result in large price increases, oil markets are highly interdependent, and market forces are the superior method of price determination and oil allocation. Nevertheless, the economic and political costs a shortage could entail could tempt some countries to abandon international coordinated response efforts set in place to prepare for energy emergencies and pursue country-specific solutions instead. Previous efforts in 1973 and 1979 to "go it alone" heightened confusion, exacerbated supply shortfalls and sent prices spiralling upwards. On the other hand, a coordinated response in 1981 and 1984 minimized the effects of oil disruptions and enabled prices to remain stable.

6. With history as our guide, we can tailor an international energy response to the Gulf crises. The international consensus and resolve so aptly demonstrated in the political/military arena should characterize our energy response as well. A combination of increased oil production, coordinated stockdraw of government-controlled stocks, limited demand restraint and fuel-switching could provide 9 million barrels a day of oil relief....a sizeable cushion that will go a long way to calm oil markets now and in the uncertain months ahead. Circumstances permit us to rely primarily on market mechanisms to resolve the short term problem; significant government intervention could be counterproductive.

7. To secure U.S. energy security in the long run, the Bush Administration should implement the comprehensive energy policy outlined by George Bush during the Presidential campaign in 1988, including incentives for U.S. oil exploration, allowing exploration in the Alaska Natural Wildlife Refuge, continued support for DOE's clean coal technology program and stepped-up research in conservation technology, renewable energy sources, alternative fuels and nuclear power. Efforts taken since January 1989 to enact this plan including decontrolling natural gas and simplifying the nuclear licensing process will provide significant security benefits as well.

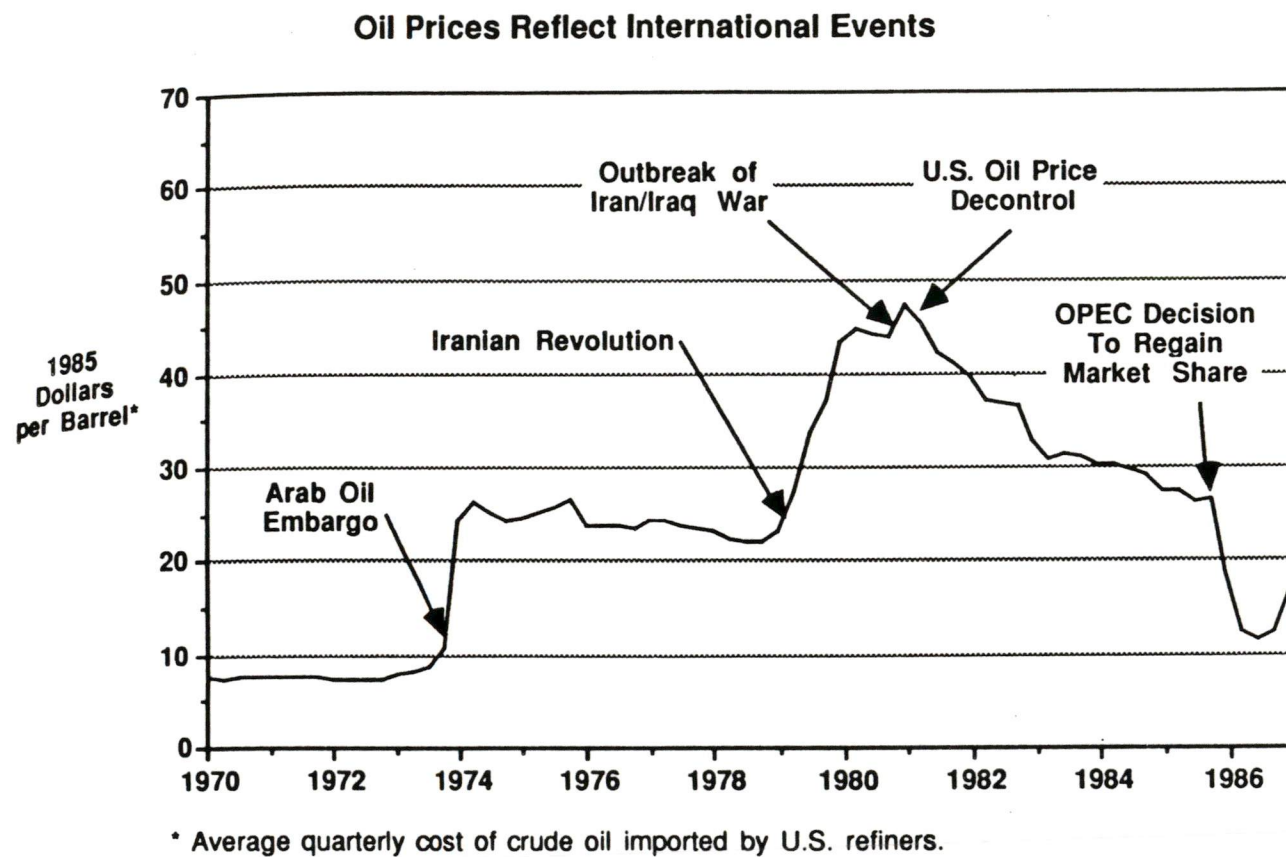
8. Long-term international energy strategies will reduce the possibility of debilitating oil disruptions in the future. In general, there are two tasks well-suited to international energy security policy: emergency preparedness and long-term energy supply and demand strategies. Improvements in IEA capabilities to respond to emergencies, expanding government stockpiles, pursuing a more diversified global energy mix (based on coal, nuclear power, natural gas and new technologies) and international energy research activities could make a valuable contribution to ensuring a more stable energy future for all countries.

9. Finally, policymakers must strive to achieve a balance between three critical objectives: energy security, environmental quality and economic competitiveness. Together we must seek solutions including reconciliation of conflicting objectives of efficient energy objectives with the need for reliable energy sources and concern over public safety.

10. If energy security is not achieved in the coming decade, other important objectives such as the successful transition of the communist world to market economies, economic growth in the Third World, sustained economic success in the U.S., Japan and Europe and the integration of Europe may well be jeopardized. Now is the time to consider energy strategies consistent with broader economic and environmental objectives and develop international policies that ensure our long-term energy future.

HISTORICAL PERSPECTIVE

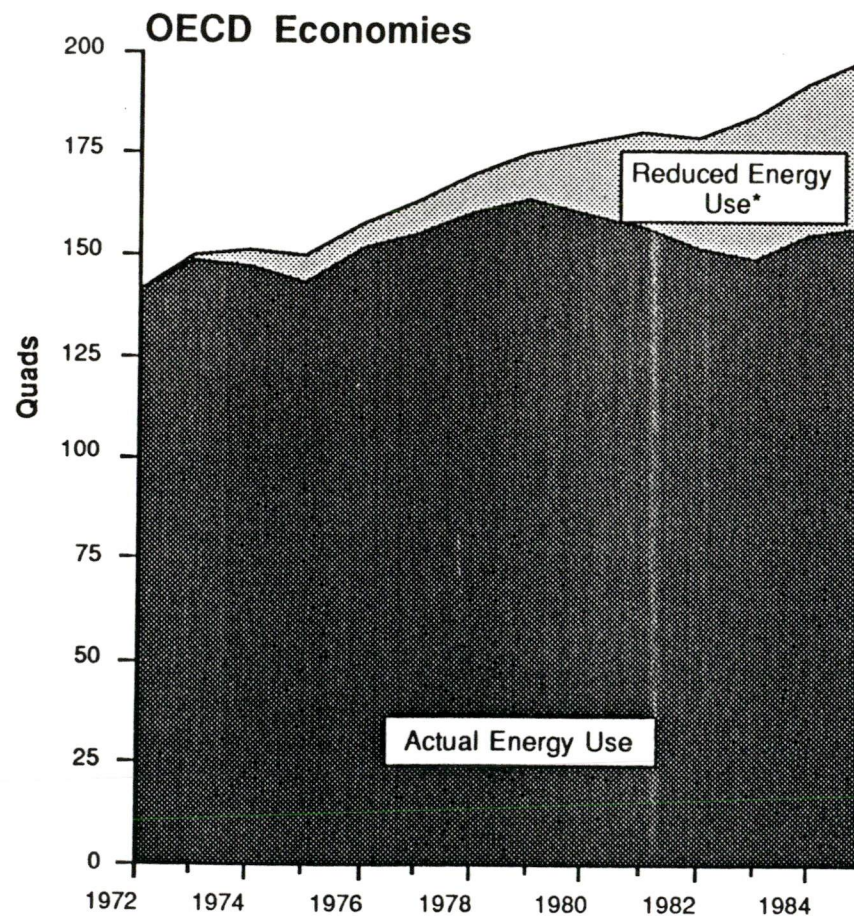
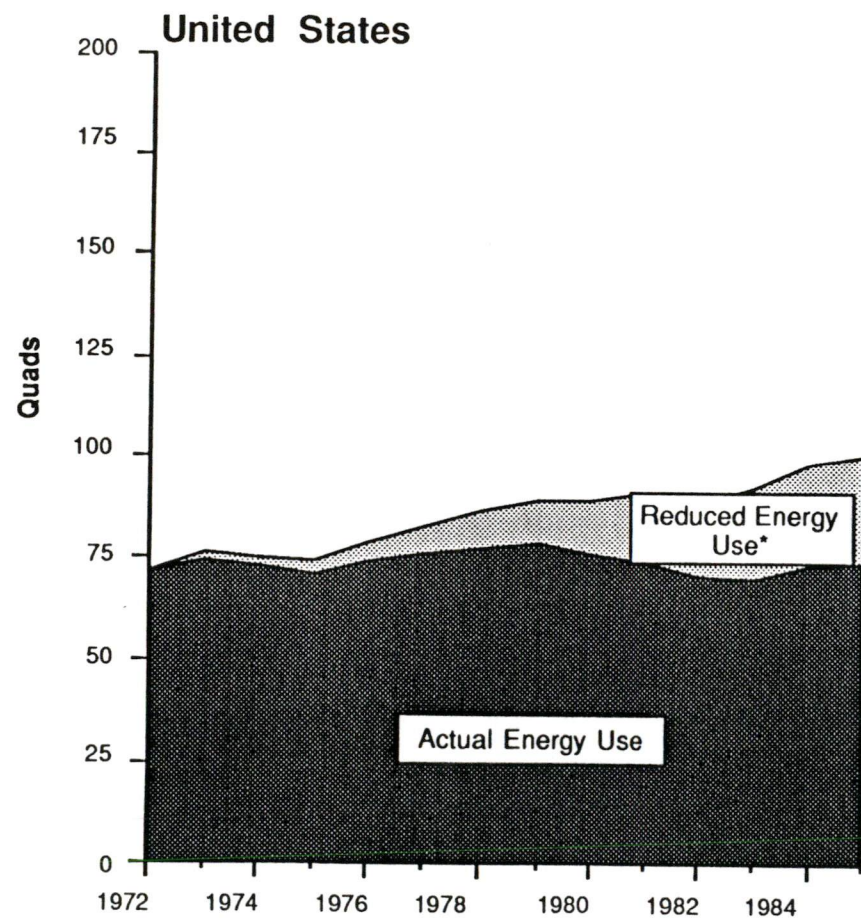
Since the Early 1970s, Oil Prices Have Reflected International Events



There have been several threatening situations over the last twenty years in the world oil market

- Today's situation is a reminder of the serious problems the U.S. and other OECD countries encountered in the 1970s and 1980s in securing adequate oil supplies. Revolution, war and a politically-inspired embargo resulted in several major supply disruptions that sent prices sky-rocketing and wreaked havoc on international oil markets in 1973-74 and 1979-80. However, faced with the Iran/Iraq war in late 1980, which escalated to a tanker war, the IEA/OECD responded more effectively and price disruptions were minimized. These experiences have demonstrated what might happen when oil supplies are threatened and what approaches are most effective in dealing with the problem.
- At the outbreak of the Arab-Israeli War in the fall of 1973, member countries of the Organization of Arab Petroleum Exporting Countries (OAPEC) imposed an oil embargo against selected countries—including the U.S.—to retaliate for support to Israel; they also cut back on total production. Although the overall cutback was as high as 3 to 4 million barrels a day (mbd), the average net supply disruption over a 6-month period was about 1.5 mbd. As a result of the cutback in production, prices on the world market tripled from \$4 a barrel to more than \$12 a barrel. During this time there was no mechanism for international coordination and individual oil companies were left to "go it alone" and scramble for supplies in a tightening market.
- Oil consuming countries learned two very important lessons from the 1973 experience: *international oil markets are extremely interdependent*—a loss of supply anywhere in the world affects prices for all nations; and *energy could be used effectively as a political weapon* especially if the world was caught unprepared. Emergency planning procedures were needed to limit vulnerability to these tactics. Also, government efforts to control prices and allocate oil supplies were unsuccessful and led to confusion, tightening supplies and consumer hardship. Allowing market forces to allocate worldwide and domestic supplies and set prices kept world oil markets in equilibrium and minimized price increases. These conclusions argued strongly for international cooperation in dealing with oil disruptions and, as a result, the International Energy Agency was established in 1974 to assist its twenty-one member countries in developing coordinated mechanisms to limit oil disruptions in the future.
- The next major supply disruption episode was precipitated by the Iranian Revolution in 1978-79 which eliminated up to 6 mbd a day from Iran's average production. Other oil producing countries stepped-up production to help cover this shortfall, but there was still a net supply loss to the world market of 2-2.5 mbd for six months. In response, the IEA called for 5% voluntary reduction in consumption which was supplemented by country-specific oil import targets devised at the Tokyo Summit. This action was insufficient to calm fears of a serious, prolonged shortage and nations scrambled for oil. As a result of this frantic buying, prices sky-rocketed from \$14 a barrel to well over \$30 a barrel. The lesson was clear: left unchecked, uncertainty about future oil supplies leads to "panic buying" exacerbating an already-tightening world market.

Using Energy More Efficiently in the 1980s Has Reduced Our Vulnerability to Energy Emergencies Today



We learned some difficult lessons in the 1970s which were applied successfully to the crises in the 1980s

- In 1980, war broke out between two major Gulf oil suppliers: Iran and Iraq. Remembering 1979, IEA countries called for specific measures to lower stocks and avoid “abnormal highly priced purchases” on spot market. This action was effective—prices increased only marginally (\$4 a barrel) and quickly dropped back to previous levels.
- In 1984, escalating hostilities between Iran and Iraq resulted in the beginning of a tanker war in the Persian Gulf. A coordinated international response including countries’ willingness to drawdown stocks if necessary, combined with U.S. military muscle that protected the free flow of oil in the Gulf, and sufficient excess oil capacity worldwide to cover potential shortfalls, reassured the market and price increases were minimized. President Reagan announced his intention to tap the SPR if needed and the IEA agreed upon a coordinated stock drawdown policy. Largely as a result of this action, these attacks ultimately had little noticeable impact on the world oil market.
- The final major event in world oil markets in the 1980s was the price collapse of 1986 that persisted until earlier this year. Excess production by OPEC countries, and conservation and fuel switching actions spawned by earlier price hikes and shortages, created a situation where there was an oil “glut.” Oversupply exerted downward pressure on prices, which dropped from \$24.09 a barrel in 1985 (average annual price) to \$12.45 in 1986.

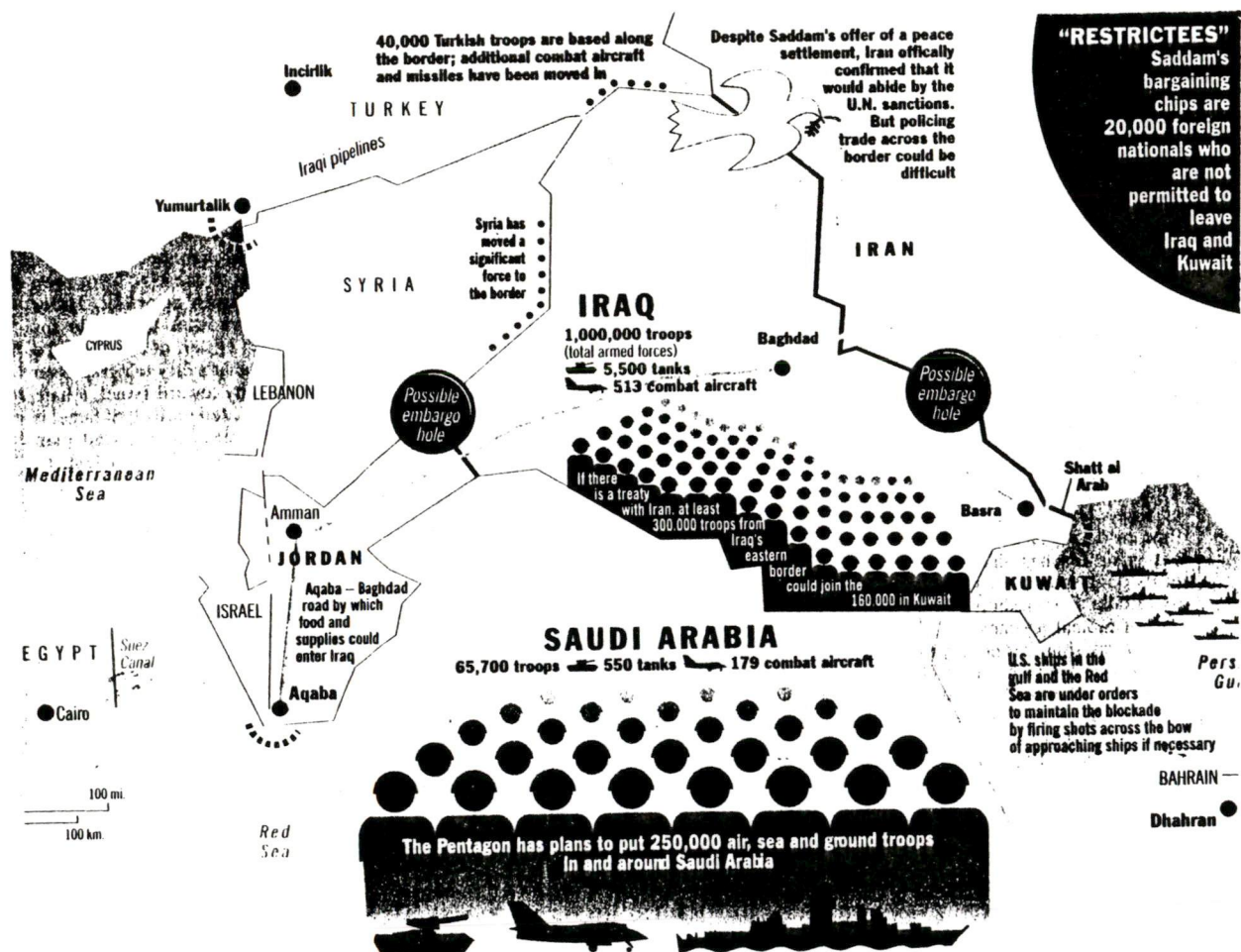
President Reagan’s *Energy Security* study in 1987 warned that lower prices would encourage greater dependency on oil—increasing our vulnerability to future disruptions—and encouraged action to counter that trend; nevertheless, attention to energy security matters dwindled in those days of cheap, plentiful fuel. And for good reason. Lower priced oil was a boon for the U.S. and world economy—inflation was low and the 1980s decade represented the longest period of economic growth in the post-World War II period, due in no small part to lower oil prices. Nevertheless, our energy industry was hurt badly—drilling dropped, conservation slowed and development of alternatives was hampered due to low oil prices.

As we entered the late 1980s, a sense of complacency regarding energy supply issues emerged in many consuming countries as energy policy became driven by environmental and fiscal—not security—concerns. Attention to environmental matters is a top priority in all nations, including the United States, but policies appeared to be tilting too far in favor of environmental quality, at a cost of energy security.

- Saddam Hussein’s invasion of Kuwait on August 2 altered this situation, perhaps forever, by reminding us our vulnerability had not disappeared and, for the U.S. and other countries, had actually grown worse. Overnight, an oil glut was transformed into an impending oil shortage, and energy security was thrust back to the top of the global agenda.

THE CURRENT SITUATION

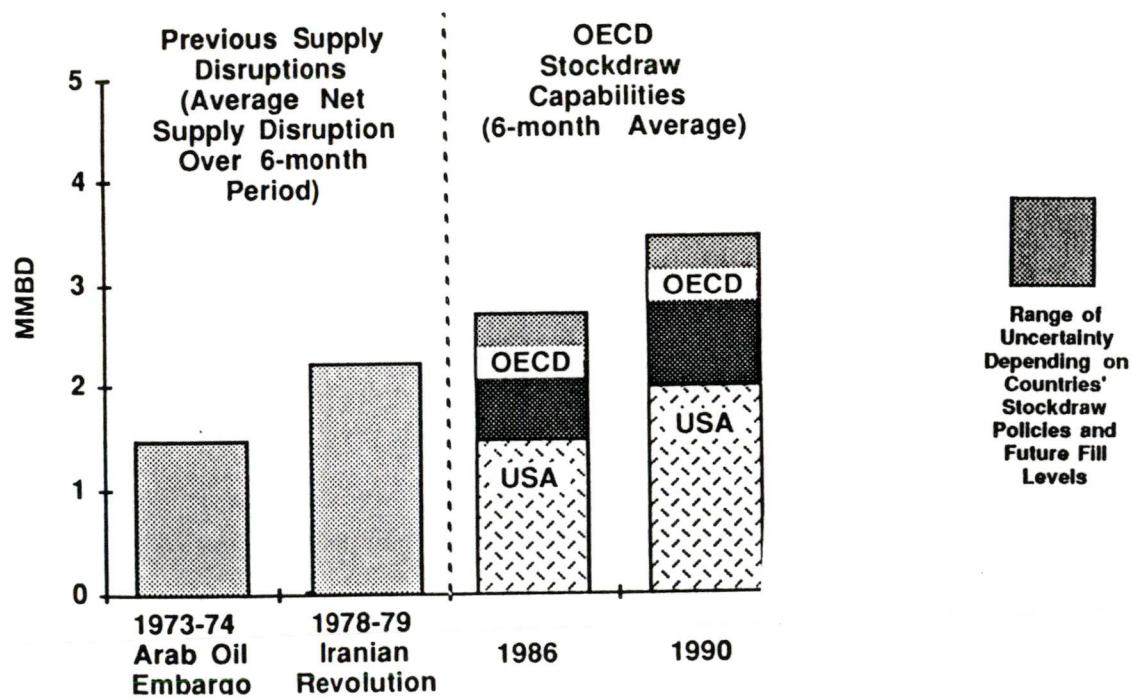
A Multinational Force is Organized to Counter Saddam Hussein



Led by George Bush, the world's leaders ban together in an unprecedented show of unity and force against Hussein's aggression.

- Experts around the world agree that President Bush's political/military response to Iraqi aggression deserves praise—especially for building extraordinary international consensus. Within hours of the invasion, the President had issued Executive Orders freezing Iraqi and Kuwaiti assets and blocking trade, and had started building consensus for an international embargo of Iraqi trade. Japan's early support, despite the country's well-known dependence on imported fuel, was seen as a courageous move and helped sustain the momentum that culminated in the historic UN vote to launch (and subsequent vote to use force as necessary to enforce) an international embargo on August 6.
- The level of international unity and commitment shown has been hailed by many as a new approach to conflict resolution made possible by the reduction of East-West tensions. The UN—unencumbered by superpower conflict—has acted with uncharacteristic swiftness and boldness to condemn and punish Iraqi aggression. There is an awareness among foreign policy experts that we are setting out in uncharted territory and establishing new forms of cooperation that will become precedent in the post-Cold War era.
- The overall strategy being pursued by the U.S. and its Allies is to condemn Iraqi aggression, protect Saudi Arabia from attack, insist upon complete Iraqi withdrawal from Kuwait, restoration of the legitimate Kuwaiti government, and protect foreigners held in Kuwait and Iraq. To this end, an international military effort was organized by the Bush Administration (including the largest U.S. overseas military deployment since Vietnam) to counter Iraq's 160,000+ troops in Kuwait. At this stage the posture of the international forces is defensive only, although there are those who advocate a preemptive strike to eliminate Iraqi capabilities to disrupt world peace in the future. The U.S. has a strong interest in sustaining an organized, international response to the Gulf crises and is looking for all countries with a significant stake in the outcome—including both oil consumer and producers—to participate. Individual countries' contributions of troops, arms, materiel and funds commensurate with their interests in the region are valued and will continue to be encouraged.
- A quick solution seems increasingly unlikely. By most accounts, Hussein is an ambitious and tenacious leader, unafraid to sacrifice his people's well-being to achieve his military goals of supremacy in the Arab world—a personality profile that seems incompatible with retreat. On the other hand, the UN stands by its resolutions that demand a return to the *status quo* in the Middle East. Even without military escalation, it could be months before the conflict is resolved—a conclusion that argues for a strong international effort to seek market equilibrium until oil supplies are once again relatively assured.

Emergency Stocks Provide an Effective First Line of Defense Against Oil Disruptions



Today's oil market situation is serious, but containable.

- Oil markets in the first half of this year continued to be characterized by oversupply, and oil prices fell to their lowest real price in a decade. OPEC struggled to drive up prices by imposing quotas that would reduce production and minimize member countries "cheating." In particular, Iran and Iraq—struggling to rebuild their economies under a mountain of war-induced debt and destruction—were desperate to raise oil revenues through a price increase. On July 17, Saddam Hussein of Iraq accused neighboring states (specifically, Kuwait and UAE) of exceeding OPEC oil-production quotas and threatened retaliatory action. Four days later, Iraq moved tens of thousands of troops to the Kuwaiti border. On August 2 Iraq overwhelmed Kuwait.
- Days after Iraq invaded Kuwait, the UN Security Council unanimously voted to impose an economic embargo against Iraq which prohibited export of Iraqi and Kuwaiti oil, as well as imports of consumer and military goods. As a result, 4.mbd of oil was withdrawn from the world oil market. The most significant customers of Iraqi oil were the U.S. (620,000 barrels/day), Japan (230,000 barrels/day) and Turkey (335,000 barrels/day). Prior to the embargo, the US imported 8% of its oil from Iraq and Kuwait and Japan imported 13.5% of its oil from the two countries. The most dependent IEA country is Denmark, where almost 85% of its oil imports came from Kuwait.
- Fortunately, both private and strategic stocks are quite high. By summer 1990, *private oil inventories* among IEA countries had reached an eight-year high, and floating stocks were also high. At the end of June worldwide composition of stocks above normal commercial levels were approximately 180 million barrels.
- In addition, there are sizeable *government stocks*: the U.S. Strategic Petroleum Reserve (SPR) holds almost 600 million barrels, West Germany has 190 million barrels and Japan has 175 million barrels. In addition, other IEA countries hold 90 days of imports in government-controlled company stocks. Together, these stocks would cover major oil consuming nations total oil imports for 5 months; government stockpiles alone could cover Iraqi and Kuwaiti oil production for over six months.
- Despite these relatively high stock levels, Iraq and Kuwait are major oil suppliers and Iraq's invasion of Kuwait—and the subsequent embargo—fundamentally changes the oil market outlook from one of surplus to one of impending shortages.
- The IEA estimates world demand for oil in the fourth quarter of 1990 will be 55.3 mbd, an increase of 2.7 mbd over third quarter demand due to seasonal factors. We believe that this is a conservative estimate. The ultimate level could be much higher in the event countries and their oil companies seek to build stocks in light of market uncertainties.
- The IEA predicts that a shortfall in oil will begin to be felt in September, which they estimate to be in the .7 mbd range. They expect the shortfall to become more severe in the fourth quarter when increased seasonal demand kicks in, resulting in a shortfall of up to 5 mbd (with the .6-3.5 mbd range most likely) depending on other producers' willingness to increase production and pending problems in other oil-producing areas. The most severe IEA scenario, which calls for a North Sea strike in addition to embargo restrictions, predicts a shortfall of 5 mbd which is approximately 10% of world supplies.
- In addition, there is growing concern about the supply of oil products. Kuwait was a major supplier of refined products to the United States. Certain regions of the United States, including Hawaii, are having difficulty finding alternative sources and there could be shortfalls as soon as November.

OPEC CRUDE OIL PRODUCTION AND CAPACITY

Country	OPEC Quota	Capacity Available	
		in 1 month	in 3 months
Saudi Arabia	5.38 mbd	7.0 mbd	7.5-8.0 mbd
Iran	3.14 mbd	3.2 mbd	3.3 mbd
Iraq	3.14 mbd	(3.5 mbd)	(3.5 mbd)
UAE	1.50 mbd	2.2 mbd	2.2 mbd
Kuwait	1.50 mbd	(2.0 mbd)	(2.3 mbd)
Qatar	.37 mbd	.5 mbd	.5 mbd
Nigeria	1.61 mbd	1.9 mbd	2.0 mbd
Libya	1.23 mbd	1.4 mbd	1.5 mbd
Algeria	.83 mbd	.8 mbd	.8 mbd
Gabon	.2 mbd	.3 mbd	.3 mbd
Venezuela	1.95 mbd	2.4 mbd	2.5 mbd
Ecuador	.28 mbd	.3 mbd	.3 mbd
Indonesia	1.37 mbd	1.3 mbd	1.4 mbd
TOTAL CRUDE OIL	22.49 mbd	21.4 mbd	22.8-23.3 mbd

Other producers can help offset some of the loss from world oil markets, but consuming countries could aggravate the problem by building stocks.

- One of the major factors affecting the worldwide flow of oil in the short - to medium-term future is the capacity of other oil exporters to increase production. Saudi Arabia has announced its intention to increase production substantially, and the IEA estimates that they can produce an extra 2 mbd immediately with an additional .7 mbd following in 2-3 months. Venezuela and the UAE—the only two other countries with significant surplus capacity—are expected to increase production for a total of about 1 mbd. Other producers (Algeria, Gabon, Indonesia, possibly Iran) could add another .5 mbd to world oil supplies. Thus, most of Iraq and Kuwait production could be covered by other producers.

- In addition to production capacity, there are two other critical factors to consider when predicting future oil flows. The first is the *security of Gulf oil supplies*, namely from Saudi Arabia and UAE. Damage to oil fields, pipelines or transportation infrastructure as a result of military action in the area could cause an additional drop in OPEC production which some experts predict could be as high as 10-14 mbd (two-thirds of US, European and Japanese oil imports). A disruption of this magnitude—20% or more of world oil supplies—is unprecedented.

- Second, *oil demand* could veer away from predicted levels in either direction with prices shifting accordingly. Forces that could keep consumer demand for oil in check include: (1) *reaction to higher prices* (demand elasticity). A hard-learned lesson by oil producers in the 1970s and 1980s was that given time to adjust, consumers do cut back on oil consumption in the face of higher prices; (2) *demand restraint*. Government-initiated demand restraint measures including driving restrictions and fuel taxes could dampen demand for oil; and (3) *economic conditions*. A sustained oil supply disruption with attendant high prices will result in slower economic growth, reduced industrial activity and lower demand for oil.

- History has shown us, however, that there are competing forces that could drive oil demand upwards even when prices are high, including: (1) *concern over security of supply*. Previous energy crises have demonstrated that the universal approach to a perceived shortage of oil is to build inventories—countries do it, companies do it, individuals do it. Experts estimate that this “panic buying” can add as much as 2 mbd to oil demand. Even during periods of very high prices in 1979-80, major oil consumers worked desperately to increase stocks, with some buyers paying a “premium” to secure contracts; and (2) *fuel needed for military purposes*. Maneuvers in the Gulf have already caused minor disruptions in the delivery of some oil products, with Saudi Arabia diverting diesel fuel away from Japanese and other customers to provide for military needs.

- Finally, psychology of the marketplace is a subjective factor that cannot be underestimated, and should be considered within the context of the political/military policymaking that is unfolding. Events that have no apparent direct effect on the availability of oil supplies can nevertheless exert strong influence on world oil markets.

FUTURE PROSPECTS — WHAT IF?

"WHAT IF?"

Scenario	Effect on Oil Supplies	Effect on Oil Prices
NEGOTIATION	• Stepped up production by OPEC countries covers Iraqi/Kuwaiti shortfall • Oil markets in fragile equilibrium	\$21-\$25/barrel
ESCALATING STALEMATE	• Concern over future supplies pushes demand for oil upwards, despite higher prices • Demand exceeds supply by 2.5-4.0 mbd	Close to \$30/barrel
WAR	• Gulf production infrastructure is damaged • 10 mbd or more (20% of world supplies) is removed from world oil markets	\$50+/barrel

In a climate of uncertainty, looking ahead to ask "What if?"

It is against this backdrop of competing forces and uncertainty that we look ahead to try and predict what is likely to happen in the world oil markets over the coming month. Three scenarios are provided below that we feel cover the range of possibilities:

- *Scenario A—Negotiation*—is a situation similar to early August, with the embargo in effect (with minimal leakage), Hussein in Kuwait and an international military force in the region to protect Saudi Arabia. With Hussein unwilling to withdraw—yet not launching any new attacks—and the international community committed to UN resolutions condemning the occupation of Kuwait, the situation would settle into a stalemate and uncertainty would slowly diminish from today's levels. All but 1 mbd of Iraqi and Kuwaiti oil production would be offset by other producers and a serious supply disruption would be avoided. Linger uncertainty will continue to exert pressure on oil prices which will be sustained at \$25-\$30 level; although if additional conflict is avoided, markets will calm in 6-9 months and prices will settle in the \$21-\$25 range. Although this scenario, which does not offer a solution to the problem of returning Kuwait to the *status quo* or limiting Hussein's capabilities for future aggression, may pose some political problems over time (particularly for George Bush), overall disruptions to oil markets and global economic growth would be relatively minor.
- *Scenario B—Escalating Stalemate*—the trends revealed in August continue: escalating rhetoric, a growing international military presence, concern over the hostages and a general sense of foreboding about future hostilities. Military activity may be stepped up somewhat, perhaps as a result of enforcing the embargo, resulting in some casualties. This situation, while falling short of a full-fledged war in the region, would continue to focus global attention on the conflict and uncertainty would persist. Although Saudi Arabia, Venezuela and other countries would step up production 3-3.5 mbd, concern over the security of future oil supplies would exert upward pressure on demand which, combined with winter demand for heating oil, would result in a shortfall of 2.5-4.0 mbd. Shortages and uncertainty would maintain prices at August high levels of \$30 a barrel or higher. Although oil supplies would probably not drop below the 7% "trigger" that requires IEA action, government stocks would be released to counter oil consumers' increased stockpiling activity. As government stocks are tapped, prices will ease somewhat, but due to uncertainty about the long-term energy picture, they will remain over \$25 a barrel.
- *Scenario C—War*—our "worst case" option, predicts a more serious disruption than that posed by the IEA. (The maximum shortfall predicted by the IEA is 3.5 mbd, or 6.8% of world supplies). In this scenario, international forces are provoked into a shooting war with Iraq and, as a result, Persian Gulf oil production infrastructure is damaged. Either as a result of damage to the oil fields in Saudi Arabia or the UAE, pumping stations, pipelines and/or shipping infrastructure, Persian Gulf production outside of Iran is seriously curtailed. Some experts predict that as much as 10 mbd could be taken off the oil market in addition to Iraq and Kuwait's 4 mbd—a major disruption that could send prices skyrocketing to \$50 a barrel or higher. Total excess production capacity in other countries, including Libya and Iran, at approximately 1.5 mbd would come nowhere close to covering this major shortfall. Coordinated stock drawdown procedures would be implemented; however, prices would be prohibitively high and serious economic repercussions would reverberate around the world.

High Oil Prices Exert Upward Pressure On:

- Unemployment
- Inflation
- Demand/Strength of the Dollar
- Demand for U.S. Exports
- Interest Rates
- LDC Debt
- Social Payments

High Oil Prices Exert Downward Pressure On:

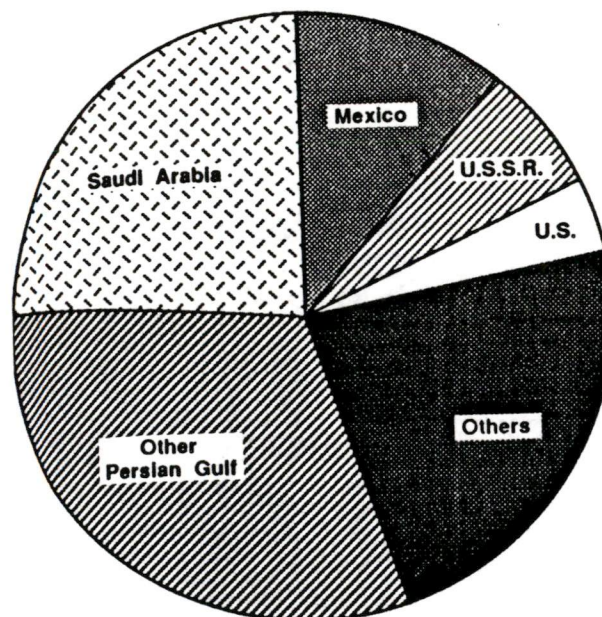
- Economic Growth:
 - Consumer Spending
 - Business Investment
 - Demand for Imports
- Corporate Profits
- Hard Currency (\$) Reserves
- Stock Prices

A major oil supply disruption would undermine global prosperity, development and security.

- An adequate supply of affordable oil is vital to the economic prosperity of both industrialized and developing countries. An oil price increase has a strong effect on the operating costs of many industries including chemicals, airlines and trucking. These higher costs are passed along to consumers, who must contend with higher costs for home heating fuel and gasoline as well.
- Higher fuel bills mean less money is available for discretionary goods and personal consumption falls. Corporate profitability and investment decline, unemployment rises and tax revenues drop. Economists predict that a sustained oil price increase in the \$26 range would increase inflation in OECD countries on average between 1-2% over previous forecasts, while economic growth (Gross Domestic Product) would slow by .3-1%. Conversely, lower-priced oil augments consumers' purchasing power and favors economic expansion. Low-cost oil during the Reagan years fueled the country's longest peacetime expansion in history.
- The effect of oil price increases is most pronounced in developing countries. The oil price hike in the 1970s demonstrated that Third World economies are particularly hard-hit during supply disruption. Many developing countries still struggle today under crushing debts acquired over 10 years ago to cover prohibitive fuel bills. Furthermore, worldwide recessions brought on by previous oil shocks resulted in loss of export markets for developing countries, further exacerbating their balance of payments problem.
- High oil prices pose special problems for emerging market economies in Eastern Europe. The price and supply ramifications of the Iraqi invasion compound East Europe's already worsening energy situation brought on by Soviet oil producers' demands for hard currency transactions and market prices. Growing oil bills will worsen the region's balance of payments, particularly in Bulgaria, Czechoslovakia and East Germany where \$30 oil prices would absorb 66-120% of these countries' hard currency reserves. Crushing energy bills could complicate the region's transformation to market economies and planned economic growth and development.
- The U.S. fiscal situation has policymakers particularly worried about the effect that the current supply disruption will have on an economy that is arguably in the early stages of a recession. There is growing concern that increasing oil prices will exert further downward pressure on the economy and cause a serious recession or a depression. The next troubling economic indicator will be the August trade deficit, swollen by high oil bills. A second pressing problem is devising a politically-acceptable deficit reduction package; the Iraqi invasion preempts two of the major components of plans proposed early this summer: energy taxes and major defense cuts. At this point, it is unclear how Gramm-Rudman mandated deficit reduction levels of \$50 billion will be achieved in time to avoid a sequester. Left with few politically-viable, economically-sound options, the Bush Administration may opt for reducing ambitious Gramm-Rudman deficit reduction targets to \$20 billion or lower.

TOUGH POLICY CHOICES — MAINTAINING MARKET APPROACHES IN A CRISIS

**World Crude Oil Reserves
(700 Billion Barrels)**



The crises of the 1970s and 1980s have left us better prepared to deal with energy emergencies, but there could be the temptation to "go it alone" by many countries.

- Our understanding of oil markets has improved as a result of painful oil disruptions, yielding information we can put to use in grappling with today's problems. In particular, we learned that :

—Relatively small supply disruptions can result in large price increases. The oil shocks in 1973 and 1978-79 reduced the world oil supply by less than 5%, yet prices skyrocketed in both situations .

—Oil markets are highly interdependent. Oil is a fungible commodity; thus, a shortage in one country affects prices around the globe. Likewise, if one country releases stocks, prices are reduced everywhere.

—Reliance on market forces is the superior method of price determination and oil allocation. Government efforts to establish price controls and dictate allocation patterns, including those imposed by the U.S in the late 1970s, exacerbated supply problems and compounded consumer hardship.

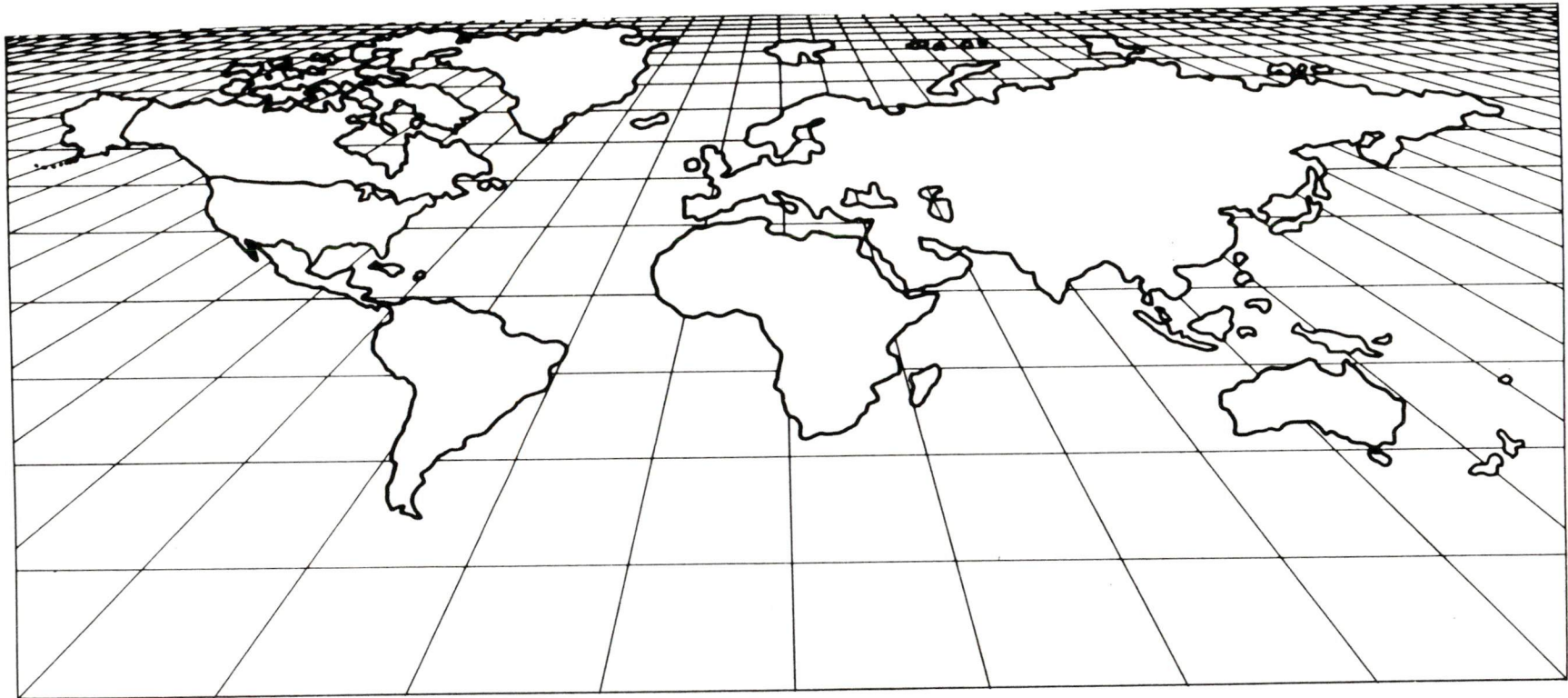
- These previous energy emergencies had serious economic repercussions, and countries have worked diligently to reduce their vulnerability to future disruptions. Progress was made on a number of fronts that enhanced our capability to respond to energy emergencies, including:

—The IEA was established to provide the mechanism and procedures to organize a coordinated response to minimize the effects of oil supply disruptions. A central feature of the IEA is its emergency sharing mechanism which can be triggered if there is an oil shortfall of 7%. The IEA has never triggered the system, preferring to rely on market forces. Nevertheless, it represents an important "last resort" option which can also serve as a useful deterrent to politically motivated cutoffs of oil.

—Strategic stocks were significantly increased, helping to offset the danger of dependence on imported oil. At the time of the 1973 oil crisis, government stocks were practically non-existent. Currently, government controlled stocks in IEA countries cover 151 days of net oil imports, providing some "breathing room" to resolve short-term production shortfalls.

—Oil price increases spurred major efforts to reduce oil consumption and use energy more efficiently. Significant developments include substitution of alternative fuels for oil in generating electricity (in the U.S., since 1970 oil's share of the utility market dropped from 11.4% to 5.7%), advances in technology that provided sizeable energy-productivity improvements in industry consumption and the transportation sector, and improvements in home construction that dramatically decreased household energy consumption.

—High oil prices encouraged new oil production in countries in North and South America, Asia, Europe and the Soviet Union, resulting in a reduction in OPEC's market share (and leverage). However, the price collapse of the last three years has discouraged new exploration and many fields in the OECD region are depleting at an alarming rate.



Facing the first major challenge to oil supplies in almost a decade, and recognizing the economic and political costs a shortage could entail, there is a temptation to "go it alone" in securing adequate oil supplies.

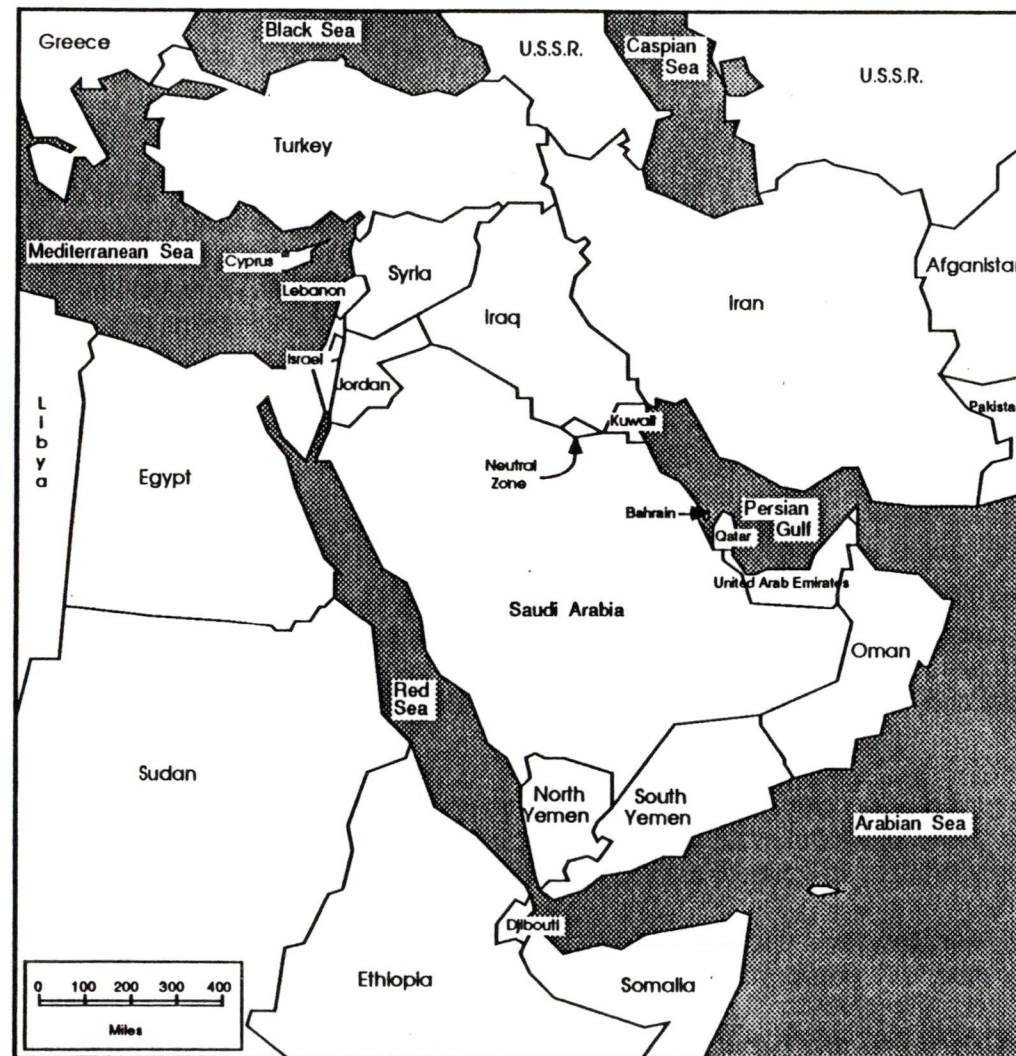
- Devising a coordinated response requires time and may result in a solution that appears less than optimally suited to any one country's national interest. It may seem more efficient to forgo the international process and devise a country-specific solution instead. Decisive, early action could lock in needed oil supplies and preempt shortages and price increases. Why not "go it alone?"
- Emergency preparedness is a global responsibility; moreover, our experience in dealing with energy emergencies has demonstrated that a coordinated response maximizes benefits to all economies:
 - coordinated stock draw down policies minimize increases in the world price of oil and help ensure equitable allocation;
 - concerted action by the U.S., Japan and Europe to discourage "abnormally high priced oil purchases" has been a moderating factor in the past;
 - international response diminishes political conflict and reduces tension between consuming countries;
 - coordinated behavior, consistent with the principles upon which the IEA was founded, helps ensure the viability of this organization. The future availability of valuable IEA services such as monitoring oil markets are dependent, in part, on the organization's ability to meet its primary objective.
- Previous efforts in 1973 and 1978-79 to ignore the international process and build individual stockpiles heightened confusion and uncertainty, exacerbated supply shortfalls, and sent oil prices spiraling upwards. On the other hand, a coordinated response in 1980 and 1984-85 enabled prices to remain stable.
- The evidence is clear: international energy cooperation minimizes the disruptions—both economic and political—from an oil shock world-wide and should be vigorously pursued by all member countries of the IEA.

A Framework for Action: Making up for Iraqi & Kuwaiti Production

—Stepped up production from OPEC and OECD producers.....	3 mbd
—Coordinated Drawdown of Government Stocks.....	4 mbd
—Limited Demand Restraint	1 mbd
—Fuel Switching.....	1 mbd
TOTAL SAVINGS	9 mbd

With history as our guide, how can we best deal with the current supply disruption?

- The international consensus and resolve that has been demonstrated in the political/military arena in condemning Saddam Hussein's aggression should characterize our energy response as well.
- A variety of actions can ensure adequate oil supplies to offset Iraqi and Kuwaiti production of 4 mbd:
 - Major oil producers, including Saudi Arabia, the UAE and Venezuela are increasing their oil production. Sufficient excess capacity exists in the world to add approximately 3 mbd to oil supplies within 60-90 days.
 - A coordinated stock draw of government-controlled stocks could add (at a maximum) an additional 4 mbd to oil markets, while preserving significant stocks to protect against future disruptions;
 - Limited demand restraint policies could be encouraged, reducing demand by approximately 1 mbd. Legislating and implementing conservation policies can be time-consuming; "easy" measures should be emphasized to provide timely, effective demand reduction.
 - Although the most significant easily-implemented oil savings from fuel-switching practices in OECD countries have already been realized, additional effort to substitute gas for oil in industry could probably reduce oil demand by 1 mbd.
- Together, these measures provide 9 million barrels a day of oil relief....a sizeable cushion that will go a long way to calm oil markets, now and in the uncertain months ahead.

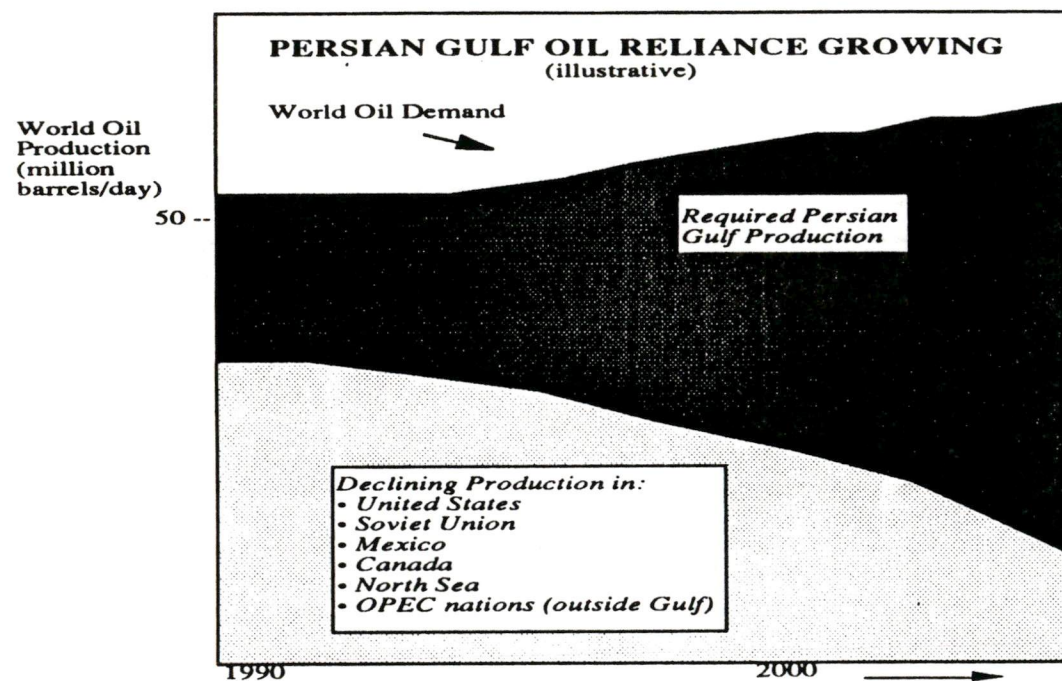


Tailoring a short term international energy response to the Gulf Crisis

- With regard to the current oil disruption, the U.S. should insist upon the same level of international cooperation in the energy arena that was successfully achieved in devising a political/military response.
- The U.S. should make clear that as long as the embargo is in effect, "abnormal" buying behavior will not be tolerated. Since the U.S. is carrying the bulk of the military burden of securing Gulf oil flows for worldwide consumption, it seems only fair to expect that the energy burden be equitably shared by all.
- A major policy question is whether to draw down government strategic stocks in the U.S., Germany and Japan. There are two contrasting views. The first is that stocks should be drawn early in a crisis, thereby reducing the potential for oil price spikes. This strategy seeks to protect the world economy early in a crisis but has the downside that stocks can be used only once and then must be replenished. Also, there might be less incentive for producing countries with available surplus to put their added production on the market, if the OECD countries are lowering their stocks. Another view is that stocks should be used as a last resort. If the military confrontation is prolonged these stocks would be available in potentially desperate situations (such as, for example, restriction of oil flow from Saudi Arabia). This approach appears to be favored at the moment by the U.S., Japan and Germany. However, reluctance to draw any stocks at this time could result in much higher oil prices with damaging impact on the world economy.
- We believe that there may be a compromise position between these two extremes. Our approach would be to use some stocks today as a reminder to markets and to Mr. Hussein that we have the potential to greatly expand stock draw should the situation necessitate. Given other options available to OECD nations such as increased production, demand restraint and fuel switching, we believe that a stock draw of 1-1.5 million barrels a day would be adequate to send the appropriate signals, but at the same time not deplete the reserves at an alarming rate.
- Considering the contribution already provided by the U.S. military—and the U.S.' relatively minimal dependence on Kuwaiti and Iraqi oil—an equitable coordinated drawdown policy could call for Germany, Japan and the U.S. to draw equal amounts (for example, 300-500,000 barrels per day) beginning in early October. Since the U.S. has a larger SPR than either Japan or Germany, this plan would in effect proportionally reduce the U.S. burden, and provide Japan and Germany the opportunity to make a sizeable contribution to the international effort commensurate with their interest in the region.
- Countries that do not have stocks to provide to the world market should be called upon to do their part through demand restraint measures and fuel switching that yield comparable oil supply savings (1.5 mbd). Together these measures would reduce demands on world oil supplies by at least 3 million barrels per day which, combined with increased production by OPEC suppliers, would cover the most likely oil supply disruptions.
- A disproportionate burden on American soldiers, taxpayers and energy consumers would certainly be resented at home, and should not be the price of leadership. Using our strategic petroleum reserve—without comparable effort from other countries—would be politically unwise and internationally unfair.

LONG TERM ENERGY POLICY

We Will Remain Vulnerable to Oil Supply Disruptions in the Future



Even if we resolve the short term crisis successfully, dangers still exist for future oil markets

- Hussein's aggression is a stark reminder that we cannot afford to take our energy security for granted, now or in the future. Trends that have increased our vulnerability to oil shocks in the past persist and are seemingly irreversible, including:

—*Oil production outside of OPEC is faltering.* With the exception of OPEC countries, most other major oil producers (U.S., USSR, Mexico) have reached their peak and production has leveled off or is in decline. OPEC's share of the oil market, held in check during periods of high exploration and drilling in the 1980s, is once again on the rise.

—*Oil reserves are concentrated in the Persian Gulf.* The disruption that we are struggling with today focuses on oil production: Hussein is in control of about 8% of current world oil production capacity. A more ominous fact is that 25% of the world's proven oil reserves are in Iraq and Kuwait. In total, 63% of the world's known oil reserves that can be recovered economically with current technology are in the countries surrounding the Persian Gulf. As time goes on, and non-OPEC production continues to decline, our dependence on Persian Gulf oil supplies will grow even stronger.

—*Continued Middle East conflict.* Revolution, wars and other armed hostilities that have affected life in the Middle East for centuries show no sign of abating. In addition to the ongoing Arab-Israeli conflict, the resurgence in Islamic fundamentalism, terrorism sponsored by the PLO, Libya and Syria, the refusal to release Western hostages and the failure of the UN forces to sustain a peace-keeping mission in Lebanon, Hussein's tactics are a reminder of two new threats to stability and peace in the region: the growing ability of countries to acquire advanced military technology and the growing dissatisfaction over the gap between the "haves" (in Kuwait, Saudi Arabia, UAE) and the "have nots" (in Jordan, Syria, Iraq, Yemen). The Arab-Israeli and Iran-Iraq wars demonstrated that intra-regional conflict can threaten oil supplies and prices around the globe. Future skirmishes could be equally disruptive.

These facts lead foreign policy and energy experts to conclude that the concentration of oil reserves in the world's most unstable region poses a threat to world peace and global prosperity. Pursuing an energy policy that limits our vulnerability to disruptions is a matter of national security and a paramount diplomatic objective.

*"We need to bring some common sense to the table
and face up to the looming challenge of our increasing
reliance on unstable foreign sources of oil."*

Vice President George Bush
1988 Presidential Campaign
Houston, Texas
July 24, 1988

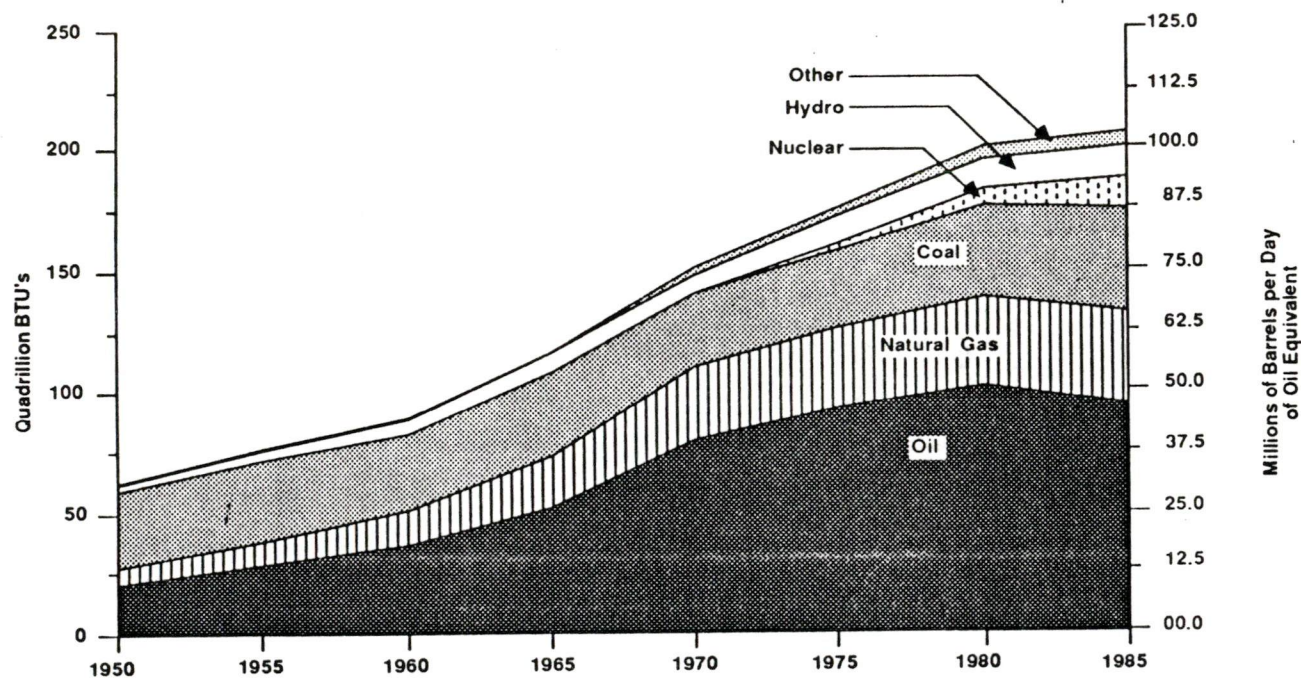
What the U.S. can do to ensure energy security in the long run...

- There are a number of cost-effective policies, consistent with a market-driven approach, which can ensure long-term U.S. energy security. The following actions would reduce our vulnerability to energy emergencies in the future:

- (1) Implement tax incentives for exploration to restore the U.S. oil industry;
- (2) Allow oil and gas exploration in the Alaska Natural Wildlife Refuge and in promising offshore areas—all in an environmentally sensitive manner;
- (3) Encourage greater use of abundant natural gas;
- (4) Increase the fill rate of the Strategic Petroleum Reserve (SPR), with a goal of 750 million barrels by 1993.;
- (5) Continue DOE's clean coal technology program to reduce acid rain and other environmental problems;
- (6) Encourage coal exports by fighting foreign coal subsidizes and promoting long-term contracts with U.S. suppliers;
- (7) Support nuclear power by streamlining licensing and funding research into new reactor designs;
- (8) Support conservation strategies;
- (9) Encourage research and development of renewable energy resources such as geothermal, solar and windpower.
- (10) Support a major effort to develop alternatives to oil for the transportation sector, including electric and solar-powered cars and natural gas-based fuels.

- These actions, taken together, comprise an energy strategy that has clear security benefits, provides for economic growth and is consistent with environmental objectives and public safety concerns, while not detracting from the quality of life that Americans have worked hard for and come to expect. Many of these policies are consistent with the energy platform enunciated by George Bush during his 1988 Presidential campaign.

Global Energy Use, 1950-1985*



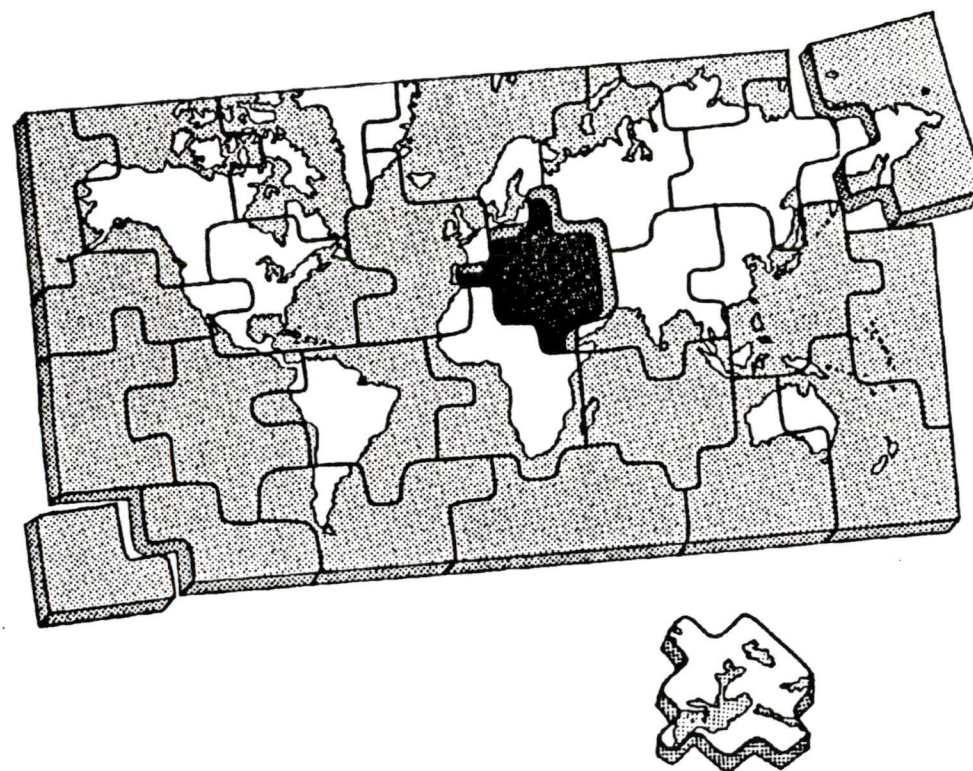
*Excludes centrally planned economies

Source: U.S. Energy Information Administration, United Nations,
Shell Briefing Service

A more diversified global energy mix can be facilitated by international action.

In addition to efforts undertaken by the U.S. and other individual countries to limit their vulnerability to energy disruptions, coordinated international energy action can make important contributions to global energy security. A nuclear power plant in Japan, a clean-coal generation project in Italy, a geothermal project in Central America or a hydropower plant in China all serve to reduce world demand for oil—and all countries reap the benefits. Important alternatives include:

- *Coal*—which has increasingly been used as a substitute for oil in generating electricity in the U.S., Japan and other countries—can be expanded further to reduce oil consumption in the utility sector. Currently, concern over the relatively high environmental costs associated with coal burning has limited the appeal of this important and abundant fuel. However, clean coal technology research in the U.S. and Japan has yielded some promising developments, which will enable coal to be more burned more cleanly in the future. Expanded international trade in steam coal can help lower energy costs in coal-importing countries. Effort should be made to reduce local subsidies (particularly in Germany, the UK and Belgium) which raise costs and lower economic efficiency.
- The future outlook for *natural gas* is bright. We predict that the environmentally superior attributes of natural gas—and its abundant worldwide reserves and relative low price—will make natural gas the world's fastest growing fossil fuel in the next two decades. Many countries are expressing interest in expanding consumption of natural gas—stepped up production in the North Sea, Alaska, the Pacific and USSR would help ensure supplies that could keep pace with demand. European efforts to deploy timely investment in gas infrastructure and diversify gas supplies would contribute to a more secure supply of natural gas in the years to come.
- *Nuclear power* has been a major contributor to reducing major energy consumers reliance on imported oil (including the U.S., France and Japan) in the utility sector, and continued or expanded use could extend these benefits further. Public opposition remains a constraint to further development of nuclear power, but new more modular and standardized designs may help nuclear energy regain its momentum. International efforts to develop the new generation of "inherently safe" reactor technology, establish efficient and safe procedures for nuclear waste disposal, and enforce stringent international public safety standards when operating nuclear power plants—particularly in developing countries and the Soviet Union—could go a long way in reassuring the public about nuclear power and protect its position in a diversified global energy portfolio.
- *Finding substitutes for oil in the transportation area* offer promise for the future and provide security benefits by reducing dependence on oil; international research collaboration could help bring these technologies to market in a timely, cost-effective manner. Non-oil-based transportation fuels offer special promise in this regard, since so much of the world's oil consumption is devoted to the transportation sector. International research programs on effective, economic conversion technologies for non-petroleum transportation fuels such as electric vehicles, solar power autos, and natural gas based fuels such as methanol could go a long way toward realizing the potential contribution of renewable resources to worldwide energy security.
- *Conservation technologies*. Largely as a result of significant advances in transportation technologies and residential construction designs that did not adversely affect consumers' lifestyles, OECD countries consumed slightly less oil in 1989 than in 1970, despite significant economic growth during this period. Future breakthroughs in conservation technologies could help maintain this significant progress.



Conclusion — finding the balance between energy security, environment and economic competitiveness

- There has been a growing awareness in the past few years that the environment is a global responsibility. Water and air pollution, acid rain, "greenhouse gases" and nuclear radiation know no national borders and a consensus has emerged that the global nature of these problems dictates a global response.
- These arguments are equally compelling for energy security policy: interconnected world markets require an international approach. Efforts to "go it alone" and ignore the international process are not only inefficient from a market perspective, but can result in creating conflict among consuming nations that could damage overall bilateral relationships including security alliances, trading relationships, cultural exchanges etc.
- Finally, policymakers must strive to achieve a balance between three critical objectives: economic competitiveness, energy security, and environmental quality . While some policies may be consistent with all three goals, others may not. Together we must seek solutions including reconciliation of conflicting objectives of efficient energy consumption with the need for reliable energy sources and concern over public safety. The events of the past few weeks have demonstrated that we cannot forget the security aspect of energy policy, even during periods when oil is cheap and plentiful.
- If energy security is not achieved in the coming decade, other important objectives such as the successful transition of the communist world to market economies, economic growth in the Third World and in industrialized countries, and the integration of Europe may well be jeopardized. Now is the time to consider energy strategies consistent with broader economic and environmental objectives and to develop international policies that ensure our long-term energy future.

ORGANISATION FOR ECONOMIC
CO-OPERATION AND DEVELOPMENT

INTERNATIONAL ENERGY AGENCY

RESTRICTED

Paris, drafted: 28 August 1990

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GOVERNING BOARD AND MANAGEMENT COMMITTEE

IMPLICATIONS OF THE GULF SITUATION FOR IEA/OECD COUNTRIES

(Note by the Secretariat)

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I. INTRODUCTION AND SUMMARY

1. At its meeting on 9th August, the Governing Board found that "the present oil supply situation is such that, given the availability of supplies at sea, the high level of company and government controlled stocks, as well as the possibility of higher output from oil producers, including OPEC Member states, sufficient oil supplies are currently available to compensate for the loss of Iraqi and Kuwaiti crude and product to the market". And, as a result, there was "no need for recourse to the IEA emergency response system at this time".

2. The SEQ met on 16th August to prepare "the necessary steps and instruments for implementation of co-ordinated actions, including stockdraw", should the activation of emergency response measures be deemed appropriate by the Governing Board. Following a preliminary review in the SEQ of the emergency response potential of Member countries, each administration provided information on measures it might use to meet theoretical and illustrative losses of supplies to the OECD of the following magnitudes: 1.5 mbd, 2.5 mbd, and 3.5 mbd.

3. In addition to examining hypothetical responses to supply shortfalls, the SEQ received reports from administrations on measures already taken. Since the Iraqi invasion of Kuwait, IRA/OECD Governments have implemented a wide range of measures for oil saving, replacement and increased production. Moreover, they have encouraged switching to other fuels notably in electricity generation. While the impact of measures such as exhortations about driving behaviour are difficult to quantify, other effects can be calculated with some precision. These include postponement of purchases for strategic stockpiles, and fuel switching. On conservative assumptions, the combined effect of all measures is estimated to be not less than 500 000 bd. This does not take account of the policy of most IEA governments on higher oil prices which is to allow them to be passed on to final consumers such as motorists and airline operators thus providing a strong incentive to reduce demand.

4. The Standing Group on the Oil Market (SOM) met on 23rd August to review further the effect of the embargo of Iraqi and Kuwaiti crude oil and products on international oil markets and in individual Member countries. The Secretariat's analysis of the supply demand situation leads to the following conclusions:

- The oil market at present is generally well supplied as most crude oil arrivals in August were largely loaded in July. The small shortfall in late August arrivals has been easily made up by stock draw.

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- The full loss of Kuwait and Iraqi crude oil (4.3 mbd) will be initially felt during September. The onset of production increases from other OPEC countries was delayed in August and will not reach significant levels until September. Thus, there will be little increment in September arrivals from the other OPEC producers. However, with sufficient stocks available worldwide, a large stockdraw in September will help compensate for much of the shortfall.
- In October, much of the shortfall is expected to be made up from higher OPEC production that is expected in September. Statements by Saudi Arabia and Venezuela indicate that their increased production will be forthcoming even without an OPEC consensus. Once this has been established, we expect that other OPEC members will raise production and take advantage of the higher prices. Further stockdraw will also help cover the shortfall in October.
- While shortfalls in September and October should be adequately made up from stockdraw, higher production, and somewhat lower demand should the shortfall persist, the market will become increasingly tighter during the winter months. This will come at a time when demand is seasonally highest and as the ability for significant commercial stockdraw gradually diminishes. Severe cold weather and/or industry accidents (refineries, platforms and equipment will be running flat out) could complicate the situation further. A more critical element is that if the shortfall indeed continues, the industry will be up against capacity in the supply/demand chain and thus be extremely vulnerable to any further disturbance.
- The degree of refinery flexibility to feedstock change is another factor affecting the supply/demand balance for petroleum products. Any new "surge" supplies achieved in the context of the current crisis -- regardless of their magnitude -- cannot avoid changing to a greater or lesser degree the menu of crudes from which refiners must select. Those oils considered most likely to replace Kuwaiti and Iraqi crudes, which average around 32.5 degree API and have a sulphur content of over two per cent, are probably going to be heavier (ca. 30 degrees API), but lower in sulphur. Since some important upgrading capacity has now been lost in Kuwait itself, refiners will be constrained to produce more heavy products than would normally be the case. Light oils will increasingly be at a premium.
- In sum, company stock draws and producer country short-haul inputs should dovetail with the receipt of expected increases in OPEC output in a manner which will keep global net primary supply reductions measurably under one half a million barrels per day through October. This order-of-magnitude loss will, we believe, be manageable in view of anticipated market-induced demand reductions. Beginning in November, however, expected supply shortfalls are likely to climb significantly at a time when seasonal demand is strongest and regional product supply imbalances -- particularly for transportation and heating fuels -- may be encountered.

If the current crisis continues as it now is, and if global stocks, as well as excess production and refining capacity are seen to be depleted, we might confront an absolute physical shortfall situation sometime before the end of the year.

5. Under these circumstances and given the uncertainties which prevail, it would appear prudent for Member governments to indicate now that they are prepared to implement additional emergency measures, including coordinated stockdraw and demand restraint, should the situation so warrant.

II. SUPPLY/DEMAND SITUATION

A. Global Supply/Demand Balance

Supply/Demand Balance 3Q90-1Q91

6. Table 1 presents a supply/demand balance as prepared before and after the Gulf crisis erupted. The new estimates assume oil prices at US\$ 26 throughout the forecast period and of OPEC crude production rising to 21.6 mbd in October and essentially remaining at that level (Saudi Arabia at 7.0 mbd).

7. Higher prices will increasingly have a dampening effect on world oil demand. In 4Q90 and 1Q91, the price induced reduction is some 0.7 mbd (see following section on the impact on consumption and the economy). With total OPEC production at 23.5 mbd (including NGLs), a global stockdraw will be required of 2.1 mbd in 4Q90 and 2.4 mbd in 1Q91. This would result in a stockdraw of about 400 million barrels which could result in severely depleted stocks by winter's end. Indeed, the figures for 2Q91 show that it would be extremely difficult to replenish those stocks next spring if the crisis remains unsolved.

8. It may be possible to squeeze a further 1.0 mbd out of OPEC during the winter and alleviate some pressure on the implied stockdraw, but that would effectively exhaust supply possibilities. There is also some doubt as to whether Saudi Arabia could reach 7.5-8.0 mbd; in any event it might not be possible for a few months. Thus the industry could be strained to near capacity during the winter under normal weather/operating conditions. Severe weather and/or accidents would be likely to have significant impact both on prices and physical supplies (particularly products to consumers).

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Table 1
World Oil Supply/Demand Balance¹⁾

End-July Estimate	3Q90	4Q90	1Q91	2Q91
Demand				
OECD	37.3	39.6	39.6	37.0
non-OECD	15.3	15.7	15.9	15.4
Total	<u>52.6</u>	<u>55.3</u>	<u>55.5</u>	<u>52.4</u>
Supply				
OPEC (incl. NGL)	24.7	24.9	24.3	24.5
Non-OPEC ⁽²⁾	28.4	28.8	28.7	28.9
Total	<u>53.1</u>	<u>53.7</u>	<u>53.0</u>	<u>53.4</u>
Global Stock Change	0.5	(1.6)	(2.5)	1.0
Current (Post-Disruption) Estimate				
Demand				
OECD	37.4	38.9	38.9	36.4
Non-OECD	15.3	15.6	15.8	15.3
Total	<u>52.7</u>	<u>54.5</u>	<u>54.7</u>	<u>51.7</u>
Supply				
OPEC (incl. NGL)	23.2	23.5 ⁽¹⁾	23.5	23.5
Non-OPEC ⁽²⁾	28.5	28.9	28.8	29.0
Total	<u>51.7</u>	<u>52.4</u>	<u>52.3</u>	<u>52.5</u>
Global Stock Change ⁽⁴⁾	(1.0)	(2.1)	(2.4)	0.8

- (1) Outside 'CPEs'
- (2) Non-OPEC supply comprises oil production in OPEC and developing countries, CPE net exports and processing gain
- (3) Assumes average OPEC crude production of 21.4 mbd is, other OPEC producers make up two-thirds of the loss of 4.3 mbd of Iraqi and Kuwaiti oil
- (4) Implied global stock change to balance supply and demand

Impact on Consumption and Economic Activity

9. Oil consumption is highest in the fourth and first quarters of each year mainly due to winter demand for space heating. Most of the seasonal increase occurs in the OECD countries due to their predominantly northern geographical location. Between the third and fourth quarters of 1990, world oil consumption was expected to increase by 2.7 mbd, of which the OECD share of the seasonal increase would have been 2.3 mbd. Due to the effects of higher prices and some transfer of deliveries forward, the seasonal global increase may only be 1.8 mbd (see Table 1).

10. The IEA Secretariat estimates that an increase in the price of crude oil from \$19/bbl to \$26/bbl, if this higher price were to persist until the end of the year, would reduce global oil demand by about 0.7 mbd in 4Q90. The reduction in oil demand would rise progressively from 0.1 mbd in August to about 0.9 mbd in December and would occur mainly in the OECD area. Only a small reduction in oil demand in non-OECD areas would be expected.

11. When prices are rising and are expected to continue to rise, there is the tendency for producers, wholesalers and distributors, and to a lesser extent consumers, to build stocks. The issue of primary stocks is discussed elsewhere in this paper. Data on secondary and tertiary stocks are few and, hence, it is difficult to ascertain the level and behaviour of these stocks. It is quite possible that there was a buildup in secondary and tertiary stocks prior to, and since the invasion of Kuwait, as wholesalers, distributors and consumers stocked up due to rising prices. The extent of the rise of these stocks and the behaviour of wholesalers, distributors and consumers over the coming months with respect to stocks is difficult to ascertain and predict. The estimate of a net reduction in global oil demand of 0.7 mbd for the fourth quarter of 1990 is predicated on the assumption that economic agents are behaving and will continue to behave, in terms of their stock holding positions, as they have done, on average, in response to crude oil price increases.

12. The projections in Table 1 assume that deliveries were augmented by an extra 0.2 mbd of extraordinary secondary/tertiary stockbuilding in 3Q90. This was partly offset by a price-induced decline in demand of 0.1 mbd, resulting in a net gain in deliveries of 0.1 mbd in 3Q90. For the fourth quarter, global demand has been lowered by 0.8 mbd, of which 0.7 mbd is the price-induced portion, and 0.1 mbd is that delivered in 3Q90 due to the secondary/tertiary stockbuilding noted above.

13. If \$26/bbl oil were to persist through 1991, world oil demand could be about 1 mbd lower (a drop of less than 2 per cent from forecast levels). A further \$10-\$12/bbl increase would reduce oil demand by an additional 1 mbd (i.e., an additional drop of less than 2 per cent) from what it was otherwise forecast to be. Such price increases would also have broader economic implications, affecting both inflation and economic growth, among other things. These impacts will vary for different countries, depending on their oil intensity, their oil import dependence, any possible compensating measures taken by governments, and exchange rate fluctuations.

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14. The OECD is analysing the broader economic effects of an embargo related oil price rise on Member countries. This work will be discussed by the Economic Policy Committee Working Party No. 3 at its 12 September 1990 meeting. Preliminary estimates indicate that a sustained crude oil price of \$26/bbl in for a year and a half would increase the rate of inflation in OECD countries on average in 1991 by between 1 and 2 percentage points above previous base forecasts, depending on monetary policy. At the same time, such a sustained price level would affect the rate of growth of GDP on average by between 0.3 to -1.0 percentage points from base forecasts, again depending on monetary policy.

15. The effect of this same price increase among non-member countries, particularly LDCs is estimated to be even more pronounced. Low income oil importing countries - and especially Eastern Europe -- will suffer most from the effects of the price rise, through inflation, worsening terms of trade and losses in real income. Heavily indebted oil importing LDCs will suffer an increase in debt burden as a consequence of significant interest rate rises resulting from the oil price hike. In contrast, oil producing LDCs, even if heavily indebted, will benefit from the recent price increases.

B. Stocks

Company-Owned Primary Stocks in OECD Countries

16. Company-held primary stocks in OECD countries at the beginning of July were estimated to have been 331 million metric tons or 70 days of forward consumption.¹ Government-owned and entity amounted to a further 139 million metric tons or 30 days of forward consumption. During the 1980s, public stocks increased from 47 million tons in 1980 to 139 million tons on 1 July 1990 representing today 30 days of forward consumption. During this period, company stocks declined by 100 million tons from 432 to 331 million tons reflecting the on-going industry rationalisation and tight stock management.

Stocks Outside the OECD Reporting System

17. Stocks outside the OECD reporting system (entrepot crude storage in Rotterdam, Caribbean and Singapore, floating storage and stocks ashore in non-OECD countries) were reported at high levels at the end of July but there are signs that they have begun to be drawn. Floating storage declined from 70 million barrels at end-June to 59 million barrels at end-July. In the period from 26 July to 23 August, crude oil and product stocks in independent Caribbean storage (excluding that owned by Venezuela) fell from 28 million barrels to 25 million barrels. Rotterdam entrepot crude storage was believed to be full at the end of June at 34 million barrels (4.6 mt), the highest

¹This should not be confused with the IEP obligation to hold 90 days of "net imports". In many countries "net imports" is close to "forward consumption".

level ever recorded. Much of this oil was owned by OPEC producers, principally sold would, in principle, count against their respective quotas. By the end of September, short-term floating storage and traders' stocks in independent storage are expected to be drawn down extensively. No further drawdown from these sources is expected in the

18. Overall, reliable information on commercial stock levels in non-OECD countries is scarce. In the absence of compulsory stock obligations, stocks are believed to represent, on average, 40-45 days of consumption. It is understood that those countries most heavily dependent on short-haul Kuwaiti and Iraqi supplies (Pakistan and India) are already being forced to draw down oil stocks.

19. The only non-OECD countries which have strategic stocks of oil are South Africa and South Korea. Stockpiles in Israel and South Africa, amounting to an estimated 40 million barrels each, are unlikely to be drawn down. South Korean Energy Ministry officials announced on 17 August that their strategic stocks of 40 million barrels of crude would begin to be drawn down at an unspecified rate. Kukdong, a Korean refiner which has lost 25 kbd of Kuwaiti crude, was apparently allowed to draw from government stocks with immediate effect.

Global Stockdraw Requirements

20. The requirements for stock draw have shifted significantly since the crisis began. Table 2 presents the revised quarterly supply/demand outlook with some details on changes in stocks that would be required to balance the market through the winter.

Table 2

OIL SUPPLY/DEMAND BALANCE

	3Q90	4Q90	
Demand	52.7	54.5	
Supply	51.7	52.4	
Stock Changes	0.1	(2.1)*	1)
OECD Commercial	-	-	
OECD Strategic	(0.1)	(0.1)	1)
Non-OECD	(0.5)	(0.1)	1)
OPEC/Floating Storage	(0.5)	0.2	
Oil in Transit	(1.0)	(2.1)	4)
Total Stock Change			

*implied OECD Commercial Stockdraw to balance supply and demand.

21. OECD commercial stocks are now estimated to show a small build of 0.1 mbd in the third quarter, instead of the anticipated pre-crisis build of 0.6 mbd. Thus, companies may begin the fourth quarter without the benefit of a normal build in the third quarter. The implied stock draw required of OECD commercial stocks is estimated at 2.1-2.2 mbd for 4Q90 and 1Q91. It should be noted that this stockdraw is necessary to balance supply and demand but for various reasons may not occur, especially in 1Q91. It would suggest a level of OECD commercial stocks of around 300 million tons on 1 January 1990 and 275 million tons on 1 March 1991. It is more likely that the OECD commercial stock draw will be closer to 1.3-1.4 mbd in 4Q90 and approaching less in 1Q91.

III. SUPPLY DISRUPTION ASSESSMENT

A. Disruption of Iraqi and Kuwaiti Oil Supplies

22. IEA/GB(90)23 contained two supply disruption scenarios. Given the manner in which responses to the Gulf crisis have evolved during the past three weeks, however, this paper will treat only one -- the "most likely" -- of these two scenarios. This is a supply loss of 4.3 mbd from September now projected through December 1990, as the result of the removal from the market of Kuwait's entire petroleum production, including NGL/condensates, and an effective embargo of all Iraqi oil exports with the exception of those small amounts (less than 40 000 bpd) to Jordan. It should be noted that our new figures estimate a somewhat higher loss of supplies (1.4 mbd) in August than that presented in the earlier paper. This is due to a more precise estimate of tanker travelling times for immediate pre-embargo Kuwaiti and Iraqi shipments.

23. Table 3 shows the anticipated supply reductions and expected supply increases by source through December which are now projected as likely to result from the current situation. The data are presented on an arrival basis. Projected net supply reductions take account of commercial stock changes and do not reflect results of either market forces or government actions which restrain demand, or of the potential effects of government stock draws.

24. Anticipated OPEC production increases, which are explained later in this document, now seem to be forthcoming, although somewhat slower than originally thought. This has affected most particularly the August and September OPEC supply increases indicated in Table 3. There continue to be indications that some OPEC countries possessing surge capacity would like to see a signal of willingness from major consuming countries to draw stocks, and thus to share with them the responsibility for compensating supply shortfalls. Conversely, other producer states appear eager to exploit current high prices. These producer "price hawks" are less interested, for the time being, in seeing releases of OECD government stocks.

Table 3

IMPACT OF OIL SUPPLY DISRUPTION

(million barrels per day crude oil equivalent)

	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>
Supply Loss¹				
Kuwait	0.5	1.6	1.6	1.6
Iraq	0.9	2.7	2.7	2.7
Total Supply Loss	1.4	4.3	4.3	4.3
Supply Increase²				
Production- OPEC	0.2	1.3	2.9	2.9
- other non-OECD	-	0.1	0.1	0.1
Total Production Increase	0.2	1.4	3.0	3.0
Stockdraw³				
- OPEC	0.4	0.2	-- ⁷	-- ⁷
- other non-OECD	0.5	0.6	-	-
- OECD Company	0.3	1.6	0.5 ⁴	0.3 ⁴
Stockdraw Increase	1.2	2.4	0.5	0.3
Total Supply Increase	1.4	3.8	3.5	3.3
Net Supply Change⁵	0.0	0.5	0.8	1.0
(Potential Market-Induced Demand Reduction) ⁶	+0.1	-0.3	-0.7	-0.8
IEA Government Encouraged Oil Saving and Replacement ⁸	-0.1	-0.5	-0.5	-0.5

- 1) Expressed on arrival basis at destination; disruption to August exports will therefore be reflected only partially in August arrivals. Assumes effective embargo on Iraqi oil.
- 2) Arrival basis.
- 3) Sensitive to price expectations and movements in secondary product stocks.
- 4) These stockdraw figures differ from those shown in Table 1. Stockdraw figures in Table 1 are theoretically to balance supply and demand.
- 5) Before any adjustment due to demand changes.
- 6) Demand changes due to higher oil prices and some immediate secondary and tertiary stock building.
- 7) This includes: voluntary and mandatory demand restraint, postponement of strategic stock purchases, fuel switching in electricity generation, and some OECD oil production increases.
- 8) The higher than initially expected draw of floating storage in 3Q90 could negatively affect OPEC's ability to draw stocks in 4Q90.

25. In August, the 1.4 mbd supply loss is evenly balanced by only 0.2 mbd of production increases combined with 1.2 mbd of non-governmental stockdraw. Part of this necessary stockdraw comes from a run-down of OPEC-owned oil stocks ashore and in floating storage ("short-haul crude"). The rest of the draw comes from commercial company stocks, both inside and outside the OECD. We should soon have first empirical data indicating the relative stockdraw¹ of IEA countries in August.

26. For the period September through December our scenario projects a constant total supply loss for each month of 4.3 mbd. It is anticipated, however, that this loss will be offset -- or partially offset -- by a market dynamic which will change from month to month. In September, 2.4 mbd of the supply loss will be made up of stock draw, while only 1.4 mbd of supply increases are anticipated as the result of the slow start in OPEC surge production. Conversely in October, the composition of the offset shifts significantly with 3.0 mbd of OPEC and other non-OECD production increases and a much lower stockbuild. Thus, the table indicates our belief that companies' capabilities to continue drawing at relatively high rates will diminish over time as more and more of them approach either government-mandated stock levels or their minimum operating requirements (MOR). Towards the end of October, commercial stocks could be drawn down to critical levels in some regional markets and countries if the current situation prevails. In certain countries, these levels may be reached even earlier, while others will have comfortable stock levels for much longer periods (see later pages for a full discussion of this aspect). From end-October onwards, therefore, the size of the net supply shortage, as shown in Table 3, will become more and more dependent on the willingness and the physical ability of several OPEC countries to increase their production. Initially OPEC floating storage had been expected to be drawn over the second half of the year with a stronger draw in 4Q90. All of this is now expected to have occurred by the end of September.

27. In sum, we now expect a manageable situation in September and October. This view is based upon anticipation of significant increases of supplies from some OPEC countries in combination with company stock draw. Table 3 shows the remaining net supply reduction for September projected as a relatively small 0.5 mbd. This is, however, expected to rise to 0.8 mbd in October and 1.0 mbd in November. Part of this supply shortfall will be compensated in 4Q90 and later periods by price-induced demand restraint. Should the situation which actually develops vary significantly from the one here projected -- in particular, should additional supplies from OPEC not materialize -- the remaining global net supply shortage would be considerably larger than indicated in September and October. In such a situation, government action would become necessary, but the composition and extent of such action will depend on the degree of shortfall then foreseen.

28. Thus, the "manageable" September/October projection given here should not be considered a "comfortable" projection. There is no room whatsoever for complacency in the current situation.

¹ Data in Table 4 reflect the changes between the projections in the end-July Oil Market Report and the revised estimate as shown in Table 1.

The market over the next two months can be likened to an acrobat upon a flying trapeze. The acrobat will perform smoothly if the moving parts of the trapeze remain synchronized. Should commercial stock draws and short-haul crude inputs not move out and meet surged OPEC production, the safety net provided by our emergency measures may unavoidably need to be used.

B. Supply Responses Outside OECD

OPEC Production Capacity and Responses

29. Table 4 gives an estimate of OPEC crude production from July to October 1990. It includes an estimated measure of how new production could be brought on-line within one month, and up to three months hence. Within OPEC -- and excluding Kuwait and Iraq -- up to 4-4.5 mbd spare crude oil production capacity exists. This could more than compensate for the entire current loss of Kuwaiti and Iraqi oil. Most OPEC spare capacity resides in Saudi Arabia and Venezuela. Outside OPEC, the potential is relatively limited since fields in most countries are currently producing the maximum levels. The degree of speed with which OPEC spare capacity will be activated in coming months is, of course, primarily a political question to which some affirmative answers have already clearly been given. Nevertheless, to utilise all sustainable capacity, some producing countries will have to de-mothball shut-in fields and associated facilities. This will require some extended work, and corresponding time lags have therefore been introduced in Table 4.

30. OPEC maximum crude oil production available within about one month, excluding that in Iraq and Kuwait, is estimated to be 21.4 mbd. Within 2-3 months the productive capacity could be as high as 23.3 mbd, but output levels necessary to maintain this figure might not be sustainable in all countries, and in others it could entail the production of grades which will be difficult to sell. OPEC's short-term production capacity, assuming an effective Iraqi embargo, is about 22 mbd. Other published estimates range from 21.5 to 22.2 mbd.

31. There is currently little prospect of a co-ordinated or collectively agreed increase in OPEC crude production. It is uncertain at the moment whether or not a consensus is achievable in support of Venezuela's and Saudi Arabia's call for output increases. Each OPEC member country may find itself obliged simply to act unilaterally or collectively with other 'like-minded' producers. As noted, any increases in crude oil exports will not be immediate due to technical constraints associated with raising wellhead output, and also the need to arrange transportation. There is naturally a further lag between raising exports and the arrival of the oil at refineries. Since most spare capacity is in the hands of long-haul Gulf producers, this lag alone would be in the range of 10-35 days.

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Table 4

OPEC CRUDE OIL PRODUCTION AND Capacity

(million barrels per day)

	Production					Capacity Available	
	OPEC Quota	July	August (estimate)	September (estimate)	October (estimate)	in 1 Month	within 2-3 months
Saudi Arabia	5.380	5.4	5.45	6.7	7.0	7.0	7.5 - 8.0
Iran	3.140	2.9	3.3 ²	3.2	3.2	3.2	3.3
Iraq	3.140	3.2	0.9	0.4 ³	0.4 ³	[3.5]	[3.5]
UAE	1.500	2.0	1.6	1.9	2.0	2.2	2.4
Kuwait	1.500	1.6	-	-	-	[2.0]	[2.3]
N. Zone	-	0.3	0.25	0.25	0.25	0.3 ⁴	0.3 ⁴
Qatar	0.371	0.4	0.4	0.4	0.4	0.5	0.5
Nigeria	1.611	1.7	1.75	1.8	1.9	1.9	2.0
Libya	1.233	1.3	1.35	1.4	1.4	1.4	1.5
Algeria	0.827	0.8	0.8	0.8	0.8	0.8	0.8
Gabon	0.197	0.3	0.3	0.3	0.3	0.3	0.3
Venezuela	1.945	2.0	2.0	2.3	2.3	2.4	2.5
Ecuador	0.273	0.3	0.3	0.3	0.3	0.3	0.3
Indonesia	1.374	1.3	1.3	1.3	1.3	1.3	1.4
Total Crude Oil	22.491	23.3	19.7	21.1	21.6	21.4 ⁴	22.8 - 23.3 ⁴
NGL/Condensate		1.9	1.8	1.9	1.9		
Total Production		25.2	21.5	23.0	23.5		

(1) Production based on observed export liftings, excludes sales from floating storage and stocks in consumer countries.

(2) Excludes about 0.3 mbd stockdraw of crude ashore and afloat.

(3) Assumes effective embargo with production to meet domestic consumption.

(4) Excludes Iraq and Kuwait.

(5) Excludes onshore production.

32. It now appears reasonable, based on the latest available information (27 August), to assume the following OPEC country crude oil production increases versus the production quotas agreed on at their 27 July meeting:

	mbd			
	September	October	November	December
Saudi Arabia	1.3	1.6	as in October	
Venezuela	0.3	0.3		
UAE	0.3	0.4		
Nigeria	0.2	0.2		
Libya	0.1	0.1		
Iran	0.2	0.2		
Total	2.4	2.8	2.8	2.8

33. The Secretariat has learned that Venezuela raised its production to 2.2 mbd in mid-August and that this will reach 2.3 mbd by end-August, thereby filling its available storage capacity in Venezuela and the Caribbean. Iran has also raised its production to an estimated 3.3 mbd. Libya too is estimated to have started to lift production somewhat. Other OPEC countries such as Indonesia and Gabon appear willing to increase their output but their added contributions will by definition be small. Higher NGL and condensate production in Saudi Arabia is also expected to make up for corresponding lost production in Kuwait.

34. The confusion over September nominations for Saudi crude oil serves to identify two important features of any increase in Saudi oil production. Firstly, internal consumption in Saudi Arabia will rise considerably under current circumstances; and secondly, Saudi Arabia is likely to reserve 0.2-0.3 mbd of higher crude oil exports for KPC for its European refining system. It may as well set certain amounts aside for countries such as Pakistan, which are in great need of replacements of lost Kuwaiti supplies and which have assisted in the defence of Saudi Arabia.

Response Capabilities of Non-OPEC/Non-OECD Countries

35. The scope for higher production from non-OPEC producers outside the OECD in response to either a physical shortfall or higher prices is strictly limited. We estimate that it will be 0.1-0.2 mbd over the remaining months of the year. It has been expected for many months that production from the non-OPEC developing countries would rise through 2H90 to reach a level of almost 10.0 mbd in 1Q91, 0.1-0.15 mbd above the average of 9.85 mbd in 1H90. These projections (which include NGLs) and non-conventional oil) have not been substantially changed.

36. Mexico, the largest non-OPEC oil producer, has announced its intention to increase exports by 100 kbd, principally through an increase in deliveries to Spain, Korea, Israel and the U.S. This

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increase will be achieved in part by drawing on stocks and is likely to be short-lived. The increase in production is likely to be considerably smaller. In June 1990, the last month for which data is available, Mexican crude production slipped further to 2.45 mbd, the lowest level for two years.

37. Modest increases in production have been announced by Malaysia (10 kbd) and Colombia (30 kbd). Small-scale unannounced increases are expected elsewhere either to take advantage of higher prices or to mitigate the loss of imports, for example in India and Brazil.

C. Commercial Supply Responses Inside OECD

UK North Sea Production

38. On 21 August, Chevron and British Petroleum announced that they had decided to postpone the non-essential maintenance work on the Ninian System, scheduled for September, until next spring. Shell Expro, the Shell/Exxon joint-venture operating company, announced also that the major shutdown of the Brent system in October will be put back several weeks. Installation of emergency shut-down valves on the platforms in the Brent system will still have to be completed by the end of the year unless the UK government were to relax the existing 31 December 1990 deadline. The scheduled maintenance programme which began in early July was expected to depress UK crude oil production through to early November. From an estimated 1.9 mbd in the first six months of this year (well below the notional capacity of 2.1-2.2 mbd because of persistent problems) production was expected to be 1.6 mbd in 3Q90 recovering to 1.85 mbd in 4Q90. Production in both September and October was not expected to exceed about 1.5 mbd.

39. There have in recent weeks been five one-day unofficial strikes by maintenance workers, ostensibly over union recognition and safety standards. Current production, which is under the control of the operators' own employees, has not been affected but the industrial action has caused a further slippage in the maintenance programme and expected delays in the start-up date of fields which had been out of production.

40. The effect of the above announcements will be to increase UK production in September to about 1.8 mbd. More importantly, it promises to increase the number of Brent cargoes in September from 20 to 35, still below the 38 in August but sufficient to alleviate the fears of a tight North Sea market in the period 10-30 September. (Since 1 August, production from all fields in the Brent and Ninian systems have been co-mingled and delivered as Brent Blend). Since Brent has a key role as a reference grade in the Atlantic Basin, alleviation of the potential supply squeeze in September will at the same time indirectly alleviate price pressure on all other crude grades.

Commercial Stockdraw

41. The end-July Oil Market Report forecast an OECD company stockbuild of 0.6 mbd in 3Q90 and a stockdraw of 1.0 mbd in 4Q90. The stockbuild in 3Q90 was assumed to be somewhat

lower than normally due to the comfortable company stock position on 1 July and in view of the expected close adherence of OPEC countries in 3Q90 to the new production quota. Nevertheless, some stockbuild in 3Q90 was considered to be necessary to cope with seasonally higher winter demand.

42. We now estimate that OECD company stocks at the end of 3Q90 will be about the same as on 1 July 1990. This stock level would provide at the end of September a coverage in days of forward consumption of around 67 days. This represents about the same degree of days forward consumption coverage as at the end of 3Q89. While this situation still seems to be feasible, it can not continue for very long. The supply/demand situation as described in Table 1 would require a theoretical company stockdraw in 4Q90 of 2.1 mbd (as compared to 1.0 mbd projected in the end-July Oil Market Report) or down to a forward consumption coverage of only 60 days -- a level never reached before, as shown in the following table.

Table 5

COMPANY STOCKS IN DAYS OF FORWARD CONSUMPTION

	<u>1 January</u>	<u>1 April</u>	<u>1 July</u>	<u>1 October</u>
1980	76	85	92	88
1981	80	91	92	82
1982	82	84	81	85
1983	82	80	78	75
1984	71	73	76	75
1985	72	73	72	68
1986	68	68	70	73
1987	69	70	67	70
1988	69	69	69	67
1989	65	67	67	66
1990	64	70	70	67*
1991	60*	59*		

* Estimated

43. If commercial stocks are required to absorb the expected loss of supply not compensated for by higher OPEC and non-OPEC production, they will begin to reach critical levels in the 'fourth' quarter as many companies reach legal minimum stock levels (or in certain exceptional cases minimum operating levels). The position is, of course, more complex than that outlined above since the degree of forward consumption coverage afforded by commercial stocks varies considerably from one OECD country to another, as does the stringency of IEA/EEC minimum

requirements. Some countries which had less than five days of discretionary commercial stocks at the beginning of July will perhaps reach their minimum legal levels in September; others will no doubt be able to draw down commercial stocks until the end of December.

IV. EMERGENCY RESPONSE CAPABILITY OF IEA/OECD COUNTRIES

44. In IEA/GB(90)23, the Secretariat reviewed the potential of IEA countries for stockdraw, demand restraint, fuel switching and surge crude oil production. The overall response capacity as presented in that note was broadly confirmed at the SEQ meeting of August 16th and in bilateral discussion with administrations. The present chapter takes the analysis a step further in moving from a global approach to an examination of potential country by country. This is done on the basis of three illustrative assumptions on the loss of supplies to the OECD -- 1.5 mbd, 2.5 mbd and 3.5 mbd. These three assumptions are not linked to specific scenarios.

45. Nine tables (three sets of Tables 10a through 10c from the CERM Manual) shown in Attachment I present response capabilities reported by Member countries for the months of September, October and November on the basis of the three assumptions. The following section examines overall emergency response capability on the basis of the individual country data submitted.

46. Caveats have been attached to the data by some countries. These are shown in the country notes which follow the tables and must be taken into account in interpreting the data. Many of them refer to conditions which have to be fulfilled under national legislation before certain types of measures can be implemented or the fact that the data do not indicate commitments of any kind. In some cases, countries emphasised that data submitted were tentative and subject to revision. In general, however, data submitted appear to be consistent with countries' oil demand structures, legislation and approaches to crisis management. While individual items of information may be subject to query, the overall picture of the IEA's emergency preparedness at the three hypothetical levels of disruption provides a useful general guide to Member countries' potential in case of need.

A. Demand Restraint Measures

47. Over the period September to November 1990 the importance of demand restraint measures in the total IEA response to the three supply reduction assumptions reflects administration policies and attitudes towards management of the shortages as a mild disruption and requires strong measures such as government stockdraw. In the event of the 1.5 mbd shortfall, demand restraint measures amount to 43 per cent to 47 per cent of total IEA responses, but only for 35 per cent to 37 per cent in the 2.5 mbd shortfall and 24 per cent to 29 per cent in the event of the 3.5 mbd shortfall. Stockdraw measures are the main compensating element as the supply reduction becomes

more serious. It seems probable that consideration of a longer period or deeper disruption might have influenced administrations somewhat more in the direction of demand restraint in an effort to conserve stocks.

48. Similar considerations have doubtless influenced Member countries in their choice of "persuasion" as the main measures, accounting for more than half of all demand restraint under all three scenarios. Germany and Japan will rely entirely on persuasion, while the United States envisages using some "other compulsory measures" after the first month in all three cases. Many countries have assumed that price increases would underpin persuasion effects. Although the United States would envisage other compulsory measures, persuasion would nevertheless make the greatest contribution to demand restraint efforts, thanks mainly to a reduction in gasoline demand. In most countries, in fact, the transport sector is a main target for demand restraint. This is hardly surprising since its importance has risen from about one third of demand in the mid-1970's to one half at the end of the 1980s.

49. "Rationing/Allocation" and "Other Compulsory Measures" count for a rather weak second place in the importance of the various demand restraint possibilities. While Canada uses rationing/allocation throughout, Belgium, Ireland, the Netherlands and Spain would also foresee taking these measures in the more serious shortfalls. Other compulsory measures envisaged later by the U.S. are planned to be effective immediately by Sweden, Australia and Spain in the 4 per cent scenario, followed by the Netherlands, Italy, Portugal and New Zealand in the 7 per cent and 10 per cent cases.

50. "Fiscal Measures", while generally not popular among the demand restraint options, are planned by Denmark, Portugal, Turkey and Greece, varying with the importance of the shortfall.

51. The considerable variation in the approach to demand restraint among countries has to be seen against a similar diversity of national attitudes and traditions, administrative procedures and powers of central government. The fact that a measure looks weak or implausible in one national context may not be an accurate guide to its efficacy in another.

B. Emergency Reserves

52. Table 6 shows the overall stock position of IEA and OECD countries on the 1st of July 1990. For the OECD as a whole, the level was higher than a year earlier at 9470 million metric tons following unusual stockbuilding in the first quarter continuing into the second quarter. Some 200 million tons of this was products and 270 million tons of crude oil. This represented about 150 days of net imports and 100 days of forward consumption. The implications of this for market developments are discussed above. The present section considers the data from the viewpoint of emergency response.

C. Industry and Public Stocks

53. The crude oil stocks of 270 million tons mentioned above are split fairly evenly between public and industry stocks. Public stocks are dominated by the U.S. SPR, German EBV and Federal Crude Oil Reserve and the stocks of the Japan National Oil Corporation. They consist mainly of crude oil (125 million tons) but include 14 million tons of products. Industry stocks, on the other hand, contain more product (161 million tons) than crude oil (137 million tons). From the viewpoint of emergency response, the implications of this are important. In general, industry product stocks are available for immediate delivery while public crude oil stocks are subject to release procedures and refining delays. On the other hand, crude oil can be used flexibly to produce varying proportions of products to meet seasonal demand and to respond to possible imbalances produced by demand restraint (e.g. proportionately more savings of heavy fuel oil than middle distillates).

Public Stocks

54. Attachment I shows that, under three assumptions, Austria, Denmark, Germany, the Netherlands and the U.S. indicated that their government and/or other public stocks could be used. Japan also holds considerable public stocks but considers industry stockdraw more appropriate for the early stages of a supply disruption.

55. Under the three assumptions, the reported total public stockdraw accounts for about 0.02 mbd, 0.5 mbd and 1.0 mbd, respectively, for the three month period, while the reported total stockdraw accounts for about 0.2 mbd, 0.9 mbd and 1.7 mbd. As the average of three month period, the public stockdraw represents about 10 per cent, 57 per cent and 60 per cent of total stockdraw, for the three assumptions.

56. Under the three assumptions, should the reported stockdraw response measures be taken, remaining public stock level at the end of November would be, approximately, as follows:

(million tons)

<u>Shortfall</u>	<u>North America</u>	<u>Pacific</u>	<u>Europe</u>
1.5 mbd	79	28	31
2.5 mbd	75	28	30
3.5 mbd	69	28	29

57. The only major impact is, therefore, in North America. That in Europe is significant while no public stocks are used in the Pacific.

Table 6
STOCKS ON LAND IN IEA COUNTRIES: 1 JULY 1990
("millions of metric tons" or "days")

	Company Stocks			Government Classified Stocks			Total Stocks			Days '89 Net Imports
	Crude Oil	Product	Company Stock Total	Crude Oil	Products	Public Stock Total	Crude Oil	Products	Total Stocks	
	6.1	9.7	15.8	-	-	-	6.1	9.7	15.8	-
	57.2	63.3	120.6	79.5	-	79.5	136.7	63.3	200.1	198
AEBCA	63.3	73.0	136.4	79.5	-	79.5	140.8	73.0	213.8	198
	2.2	3.5	5.7	-	-	-	2.2	3.5	5.7	324
	33.2	15.7	48.9	28.2	-	28.2	61.4	15.7	77.1	138
	0.4	0.6	1.0	-	-	-	0.4	0.6	1.0	179
	35.9	19.8	55.7	28.2	-	28.2	64.1	19.8	83.9	124
	1.0	1.4	2.3	0.3	-	0.3	1.3	1.4	2.7	94
	1.1	3.7	4.8	-	-	-	1.1	3.7	4.8	93
	0.7	2.2	2.9	-	1.8	1.8	0.7	4.5	4.7	505
	5.7	7.5	13.2	15.0	10.9	25.9	20.7	18.4	39.1	141
	1.7	2.8	4.5	-	-	-	1.7	2.8	4.5	130
	0.1	1.0	1.1	-	-	-	0.1	1.0	1.1	104
	5.8	14.8	20.6	0.4	0.4	0.8	6.1	15.2	21.4	97
	-	0.3	0.3	-	-	-	-	0.3	0.3	78
	1.9	4.8	6.7	1.1	1.2	2.3	2.9	6.0	9.0	239
	3.2	1.2	4.5	-	-	-	3.2	1.2	4.5	-
	1.2	1.5	2.7	-	-	-	1.2	1.5	2.7	97
	4.1	5.6	9.7	-	-	-	4.1	5.6	9.7	83
	1.7	4.4	6.1	0.2	-	0.2	1.9	4.3	6.4	159
	0.3	5.3	5.6	-	-	-	0.3	5.3	5.6	123
	2.3	1.3	3.6	-	-	-	2.3	1.3	3.6	68
	6.8	10.4	17.2	-	-	-	6.8	10.4	17.2	-
Japan	37.5	68.3	105.8	17.0	14.4	31.4	54.5	82.7	137.2	121
	136.7	161.2	297.8	124.7	14.4	139.1	261.4	17.5	437.0	151
U.S.	1.9	1.6	3.4	-	-	-	1.9	1.6	3.4	-
	7.6	12.0	19.6	-	-	-	7.6	12.0	19.6	-
TAL	146.1	185.2	331.3	124.7	14.4	139.1	270.9	198.6	470.4	-

Industry Stocks

58. Company held stocks in OECD countries as of 1 July 1990 are estimated to have been 331 million metric tons, corresponding to 70 days of forward consumption and 70 per cent of total OECD stocks. Company stocks were somewhat higher than they had been at the same time last year as companies had generally been increasing crude oil stocks during the first half of the year. The company stockbuild averaged 1.2 mbd during this time (1.0 mbd crude and 0.2 mbd products), and company stocks are estimated to have been 15 million metric tons higher on 1st July 1990, than at the same time in 1989.

59. Although total stock levels have increased continuously since 1974, this reflects the build up of government-held public stocks. Company stock levels, on the other hand, particularly product stocks, have declined significantly during this time. Total company stocks have declined from a level of 427 million metric tons and 92 days of forward consumption on 1 July 1980 to 331 million metric tons and 70 days of forward consumption on 1 July of this year. It will be seen in the graph below that company crude stocks have remained at rather steady levels while product stocks account for most of the decline.

60. The coverage of product stocks held by companies had declined significantly in the last decade. This reflects tighter stock management as part of a general drive to cost-cutting, but is due also in part also to a reduction in industry stockholding obligations as governments build public strategic reserves. In considering the level of accessible stocks or potential company stock drawdown rates, composition of stocks becomes an important element. As will be seen from the table below, although total volume of company inventories were in a stronger position just before the supply disruption than the previous year, product stocks were still at reduced levels. This confirmed the long-term trend towards lower product stocks but may also reflect bottlenecks here and there as refinery capacity was being used to near capacity.

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- ii) Minimum Operating Requirements were calculated using data submitted for SEQ purposes in 1987 and adjusted for the demand increase since that date;
- iii) Maximum "theoretical" accessible company stocks were calculated under the condition that a decision to release government stocks had not been reached. This was based on 1 July 1990 company stock levels and represents the volume of stocks available above MOR and ensuring mandatory stockholding requirements be met. MOR is relevant only in the case of industry stocks. Public stocks are available to the full for use in emergencies, subject only to holding the legal minimum of emergency reserves; and
- iv) Additional accessible government stocks were calculated to indicate volume of government held public stocks which could be drawn above this level of company stockdraw, again if mandatory requirements have not been reduced.

62. It is estimated that a volume of 62 million metric tons (466 million barrels) of company stocks could be accessible for the IEA countries as a whole. This is the calculated total volume of total oil available while maintaining minimum operating requirements (MOR) or mandatory stockholding requirements, whichever is higher. There would be an additional 95.2 million metric tons (690 million barrels) of Government controlled public stocks available if this full volume of company stocks were drawn and mandatory stockholding requirements not reduced. While this is the theoretical maximum level of "accessible" stocks, its composition may not necessarily correspond well to demand by region and product at a particular time.

Table 9
ESTIMATED ACCESSIBLE STOCKS¹
IEA Total
(as of 1st July 1990)

Total Stocks					Accessible Stocks		
Company Stocks	Government Stocks	Total Stocks	Mandatory Obligations	MOR	Company Stocks	Government Stocks	Total
<i>million metric tons</i>							
297.8	139.1	436.8	251.1	199.1	62.3	95.2	147.5
<i>million barrels</i>							
2 263	1 030	3 293	1 845	1 377	466	690	1 156

Note: Data in this table are not additive since underlying country data are estimates on the basis of individual MOR and mandatory obligations.

¹See paragraph 61 for how Accessible Stocks are calculated.

Maximum Stockdraw Rates

63. From these calculated accessible stocks, a maximum commercial stockdraw rate was determined for each IEA region. The following stockdraw rate is calculated assuming the "accessible" company stocks would be completely drawn to MOR or mandatory requirements.

Table 10

THEORETICAL MAXIMUM COMPANY(1) STOCKDRAW
(mbd)

1 August 1990 - 1 January 1991

	<u>Crude/NGL</u>	<u>Feedstocks and Refined Products</u>	<u>Total Oil</u>
N. America	0.5	0.4	0.9
Pacific	0.7	0.4	1.0
Europe	<u>0.7</u>	<u>0.3</u>	<u>1.0</u>
Total IEA	1.9	1.1	2.9

(1) Assuming mandatory requirements not reduced and MOR met.

64. While industries stocks could theoretically be drawn down at the 3 mbd rate suggested by the Table, it must be emphasised that this would exhaust all stocks down to 90 day mandatory requirements and MOR. With the many exception being the U.S., the mandatory requirement flaw would be hit well before MOR. In most other countries, therefore, MOR would not be a constraint unless mandatory obligations were lowered.

D. Surge Production

65. The salient feature of surge production IEA countries is inflexibility. Little increase in output is available and the small margin increase activated at the outset of a crisis does not increase as the shortfall grows.

66. The total capacity for surge production is limited: for all three cases and the three periods, it is roughly equivalent to 200,000 b/d.

67. Reflecting this inflexibility, surge production takes a progressively smaller share of the total response in a worsening shortfall cases: from a 15.3 per cent share in case of a shortfall of only 4 per cent of the BPFC II (base period final consumption), it falls to a share of only 6.6 per cent in the case of a 10 per cent shortfall.

E. Fuel Switching

70. The fuel switching response is roughly constant over time, evidencing the effectiveness of this kind of measure in the immediate future; a certain capacity of fuel switching is of a "stand-by" nature and can be switched on immediately. High oil prices would provide an incentive for switching and underpinning government guidance or instructions.

72. The above-mentioned effect would aggravate problems resulting from replacement of Kuwaiti and Iraqi crude or with Venezuelan, Mexican and (to a certain extent) Iranian crudes oil of lower API gravity and higher sulphur. This could increase pressure on refinery conversion capacity and high severity operations. These two factors (increased fuel oil availability and displacement toward the heavier side of the world average barrel of crude) would cause strains in the downstream refinery operations. Nevertheless, the oil industry should be able to face, increasingly in a worsening shortfall scenario, this heavier load, because there is a trade-off between refinery capacity and severity of conversion operations. A plant can convert a bigger proportion of heavy products into lighter ones at the price of some drop in overall output.

74. The maximum total fuel switching response being shown in the table is approximately 43 000 toe/d or, roughly, 300 000 b/d. Information received from administrations suggests a fuel switching contribution of up to 400 000 b/d could be expected in the medium term, in case of a long lasting crisis.

F. Summary of Possible Responses

75. The country responses above can now be summarised in terms of total response to the range of disruption considered. The basic data are presented in Table 11. This shows for the months of September, October and November the ranges of response to the lower and upper supply loss assumptions. Against these are set Secretariat estimates of technical maxima for a period of some months based on data prepared for CERM II and other SEQ work on emergency response. The following conclusions emerge:

- i) Use of IEA surge capacity quickly builds up to its capacity (approximately 200 000 b/d) and may even diminish somewhat over time because, for example, maintenance can be postponed for some weeks or months but not indefinitely;
- ii) Similarly the switch from oil to other fuels in electricity generation results in a once-for-all effect which is significant (roughly 300 000 b/d) but cannot be increased quickly. Fuel switching could increase the availability of heavy products already in abundant supply, depending on the availability of upgrading capacity at refineries;
- iii) Use of industry stocks is emphasised in some country data in September, phasing out gradually in the ensuing months as public stockdraw is stepped up. In both cases, the maximum rate of drawdown appears modest in relation to the Secretariat's estimates of maximum drawdown rates sustainable for some months; and
- iv) Demand restraint is assumed by countries to make a relatively small contribution to meeting total shortfall over the range considered for the three month period. A longer period of shortfall would probably result in greater emphasis on demand restraint in some countries. The level of savings suggested, even at the top end of the range, is much below the response potential of countries estimated in the context of CERM Test II and other SEQ exercises.

76. Overall, allowing a wide margin for caveats and estimates based on sometimes fragile assumptions, the response required even in the 3.5 mbd case, appears entirely manageable.

Table 11

**SUMMARY OF POSSIBLE RESPONSES TO HYPOTHETICAL OIL SUPPLY LOSSES
IN THE RANGE OF 1.5/3.5 MBD TO THE OECD AREA¹**

	September	October	November	Secretariat estimate of maximum attainable without economic/technical disruption
Additional IEA crude oil production	0.2 - 0.4	0.2 - 0.4	0.2 - 0.3	0.4
Fuel switching	0.3 - 0.4	0.3 - 0.4	0.3 - 0.4	0.4
Stockdraw				
<i>i) Industry²</i>	0.3 - 0.8	0.3 - 0.7	0.2 - 0.6	2.2
<i>ii) Public</i>	0.0 - 1.1	0.0 - 1.2	0.1 - 1.2	5.0
Demand Restraint	0.7 - 0.8	0.7 - 1.0	0.7 - 1.0	3.0
TOTAL	1.5 - 3.5	1.5 - 3.5	1.5 - 3.5	11.0

includes responses by Finland, France and Iceland proportionate to those estimated for the IEA countries.

subject to government control or guidance.