SIMULATION REPORT AND SUMMARY OF FINDINGS · On June 23, 2005, a group of nine former White House cabinet and senior national security officials convened to participate in a simulated working group of a White House cabinet. Their task: to advise an American president as the nation grapples with an oil crisis over a seven-month period. As they enter the room, they are unaware of the circumstances or nature of the oil crisis.

OIL SHOCKWAVE

OIL CRISIS EXECUTIVE SIMULATION


OIL SHOCKWAVE
NATIONAL POLICY REC
PROJECTED GASOLINE $5.74
COST AT THE PUMP [MID-SIZE SUV] $131.56
Terrorist attack on the Port of Valdez reduces global supply. (approximately 900,000 b/d)
Terrorist attack on Haradh Facility reduces global supp (approximately 200,000 b/d)
Unrest in Nigeria reduces production. (approximately 600,000 b/d)
SECRETARY OF INTERIOR
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
OIL SHOCKWAVE
OIL CRISIS EXECUTIVE SIMULATION
Securing America's Future Energy

“The real lesson here [is that] it only requires a relatively small amount of oil to be taken out of the system to have huge economic and security implications.”

ROBERT M. GATES,

OIL SHOCKWAVE NATIONAL SECURITY ADVISOR

TABLE OF CONTENTS

WHAT IS OIL SHOCKWAVE?

On June 23, 2005, a group of high-ranking former officials gathered in Washington, DC to explore the potential security and economic consequences of an oil supply crisis. This event—Oil ShockWave—was a sophisticated scenario exercise developed by Securing America's Future Energy (SAFE) and the National Commission on Energy Policy (NCEP) to examine the implications of a global oil shortfall and to explore possible responses to, and protections against, such a crisis.

The events that comprised Oil ShockWave, while fictional, were carefully designed to reflect real-world conditions and events. As moderator of the exercise, I was charged with maintaining the focus and relevance of the discussions to help ensure that current policy makers would find our work both informative and applicable. While not seeking to reach unanimous conclusions, most of the key findings and recommendations were embraced by a majority of participants.

Even among individuals who have spent years contending with security and energy issues, it was surprising to learn the extent to which seemingly small disruptions in world oil supplies could inflict serious economic damage and alter the global security environment. This report documents the methods, events, and findings of Oil ShockWave. Although the exercise produced a number of conclusions that merit careful consideration, two observations are particularly noteworthy:

First, the economic and national security risks of our dependence on oil—and especially on foreign oil—have reached unprecedented levels. The threat is real and urgent, requiring immediate and sustained attention at the highest levels of government.

Second, if we wait until a crisis occurs to act, the nation will have access to few, if any, effective short-term remedies. To protect ourselves, we must transcend the narrow interests that have historically stood in the way of a coherent oil security strategy and implement policies that will meaningfully address both the supply and demand aspects of our current oil dilemma.

I hope that those who read this report will join the effort to reduce America's oil vulnerability. As Oil ShockWave demonstrates, it is an urgent task worthy of the nation's best efforts.

Robert M. Gates
President, Texas A&M University and former Director of Central Intelligence
Oil ShockWave Cabinet Position: National Security Advisor

KEY FINDINGS

→ Oil is a fungible global commodity. A change in supply or demand anywhere will affect prices everywhere.

→ Given today's precarious balance between oil supply and demand, taking even a small amount of oil off the market could cause prices to rise dramatically. In Oil ShockWave, a roughly 4 percent global shortfall in daily supply results in a 177 percent increase in the price of oil (from $58 to $161 per barrel).

→ Oil price shocks of this magnitude could do significant damage to the U.S. economy. In Oil ShockWave, the economy goes into recession and there are millions of fewer jobs as a result of sustained higher oil prices.

→ U.S. foreign and military policy is influenced and often constrained by our oil dependence. Military options offer little recourse in the event of a supply crisis. Oil ShockWave participants repeatedly found that military intervention was not only unfeasible given existing U.S. commitments, but unlikely to be effective in responding to the scenarios they confronted, even when requested by a host government.

→ The U.S. is vulnerable to attacks on key energy infrastructure both at home and abroad. Because this energy infrastructure is simply too vast to protect, we must reduce demand, develop petroleum alternatives, and promote fuel diversity.

→ Political unrest and the associated risky investment conditions in key oil producing countries may pose a greater threat to the long-term stability of world oil markets than terrorism.

→ America's Strategic Petroleum Reserve (SPR) offers some protection against a major supply disruption, but that protection is limited in both scope and duration. Emergency reserves cannot sustain the U.S. through a prolonged crisis. In addition, Oil ShockWave revealed that it is extremely difficult to reach consensus on when it is appropriate to use the SPR.

→ Global oil markets are currently dependent on Saudi Arabia's ability to serve as supplier of last resort to offset demand increases or supply shortfalls elsewhere. Given existing terrorist threats and political tensions in Saudi Arabia, this situation creates significant and potentially damaging global vulnerabilities.

→ Once oil supply disruptions occur, short-term options for protecting the U.S. economy—like tapping the SPR and implementing emergency demand measures—are limited. In addition, these options are generally not sustainable for more than a few months to a year.

→ Longer term, a number of supply-side and demand-side policy options are available that would significantly improve U.S. oil security. Because their benefits will take a decade or more to mature, such policies must be enacted as soon as possible.

→ The challenge is to act now to develop long-term policies and to create more effective options for managing the medium-term impacts—years 2 through 10—of a major oil crisis.

WHERE WE STAND TODAY

→ The U.S. is the world's largest consumer of oil. It accounts for 25 percent of global daily consumption[1], but holds less than 3 percent of the world's proved oil reserves. The Middle East, by contrast, holds between 57 and 65 percent of the world's proved oil reserves.[2]

→ Oil production in the U.S. has been in gradual decline since 1970 and this decline is projected to continue. At the same time, oil imports have increased steadily and now account for 58 percent of total U.S. consumption.[3] This trend is also expected to continue.[4]

→ U.S. and world demand for oil are expected to increase substantially over the next 10 to 20 years. Demand in the U.S. is expected to grow by 40 percent—from 20 million barrels per day [MBD] to 28 MBD—between 2002 and 2025. World demand is projected to increase even more substantially, by more than 50 percent—from 78 MBD to 120 MBD—over the same period.[5]

→ The world will increasingly rely on OPEC nations, particularly Saudi Arabia, to supply the oil needed to meet future demand. The federal Energy Information Administration (EIA) projects Middle East OPEC production to increase from 21 MBD in 2003 to 38 MBD by 2025 (an 81 percent increase).[6]

→ Demand growth is likely to be especially strong in developing countries, notably China and India. This growth is already having an effect on world oil markets, where the price per barrel has more than doubled between 2003 and 2005.

→ While most analysts believe there is no reason to conclude that world oil production has already peaked, the current production system is under considerable strain and has virtually no spare capacity to quickly increase output in the event of a supply disruption.

→ The U.S. economy is in a better position to weather oil price shocks than in the past because it is less "oil intensive." The U.S. uses half as much oil to produce the same amount of GDP as it did in the 1970s. The rate of decline in oil use relative to the economy, however, has slowed in recent years as vehicle fuel efficiency has stagnated.[7]

→ Despite past progress, oil still plays a significant role in the U.S. and world economy. The transport sector alone relies on oil for 97 percent of its energy needs and accounts for 68 percent of overall U.S. oil demand.[8] Because the transport sector remains nearly wholly dependent on oil, consumers cannot quickly reduce consumption in response to higher prices.

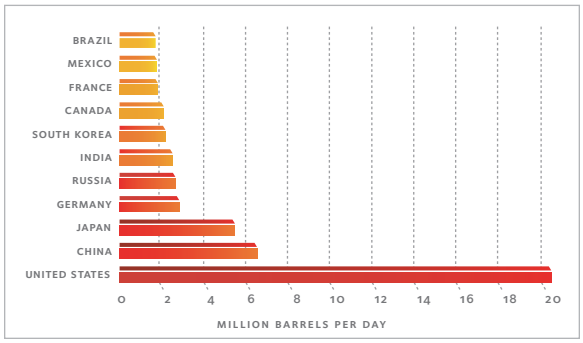
THE BOTTOM LINE High concentrations of oil in unstable and undemocratic regions, rapidly growing global demand, low spare production capacity, and a significant likelihood of future supply disruptions due to terrorism, political unrest, or other factors, all but guarantee continued price volatility and pose a growing threat to the U.S. and world economy and to our national security. Addressing this vulnerability constitutes one of the preeminent energy, economic, and national security challenges of our time. We must act now.

THE MYTH OF "FOREIGN OIL"

Oil is a fungible global commodity that essentially has a single world benchmark price. Therefore, a supply disruption anywhere in the world affects oil consumers everywhere in the world. U.S. exposure to world price shocks is a function of the amount of oil we consume and is not significantly affected by the ratio of "domestic" to "imported" product. The emphasis placed on foreign oil is greatly exaggerated and provides little meaningful insight.

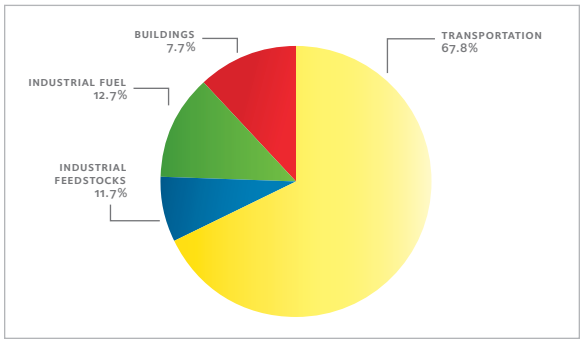
GLOBAL CONSUMPTION

TOP WORLD OIL CONSUMERS · 2004[1]



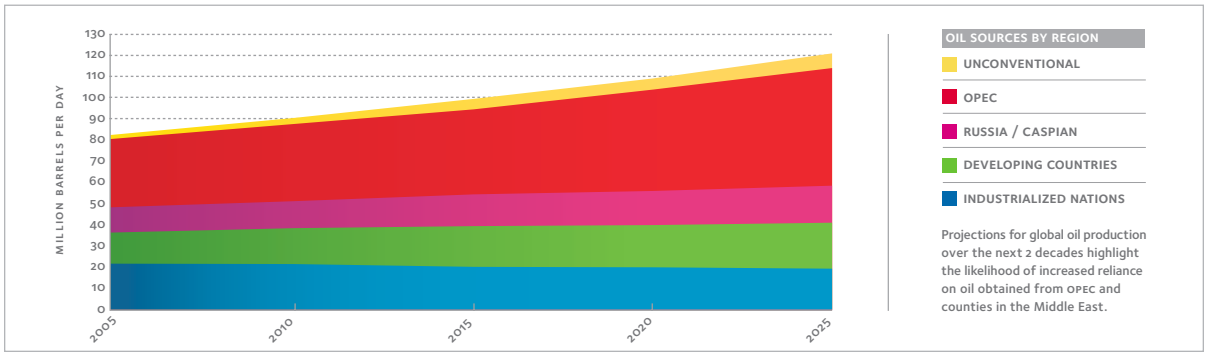
OIL USAGE IN THE U.S.

END-USE OF OIL IN THE UNITED STATES · 2000[8]



WORLD OIL PRODUCTION FORECAST

PROJECTING PRODUCERS OF WORLD OIL FROM 2005-2025[9]



1 BP p.l.c., *BP Statistical Review of World Energy June 2005*, Full Report Page 9; International Energy Agency, *Oil Market Report* (11 May 2005), page 43 (Table 2).
2 Department of Energy, Energy Information Administration, *International Energy Annual 2003,* Table 8.1 *World Crude Oil and Natural Gas Reserves, January 1, 2004,* (Washington, DC: Energy Information Administration, 2005) available only online at http://www.eia.doe.gov/emeu/iea/res.html
3 Department of Energy, Energy Information Administration, *Petroleum Quick Stats* (2004), available only online at http://www.eia.doe.gov/neic/quickfacts/quickoil.html
4 Department of Energy, Energy Information Administration, *Annual Energy Outlook 2005 with Projections to 2025,* DOE/EIA-0383 (Washington, DC: Energy Information Administration, 2005), page 7.
5 Ibid., page 167 Table A20.
6 Ibid., page 166 Table A20.
7 The National Commission on Energy Policy, *Ending the Energy Stalemate, A Bipartisan Strategy to Meet America's Energy Challenges* (December 2004), page 3, Figure 1-2.
8 Department of Transportation, Bureau of Transportation Statistics, *Transportation Statistics Annual Report 2004,* Chapter 2 Section 15; Department of Energy, Energy Information Administration, *Annual Energy Review 2003* (Washington, DC: Energy Information Administration); Lovins, Amory, et al. *Winning the Oil Endgame: Innovation for Profits, Jobs, and Security* (Snowmass, CO: Rocky Mountain Institute, 2004), p. 36.
9 Department of Energy, Energy Information Administration, *Annual Energy Outlook 2005 with Projections to 2025,* DOE/EIA-0383, "Appendix A: Reference Case Forecast, Annual 2002-2025," pages 76 and 78, available only online at http://www.eia.doe.gov/oiaf/aeo/pdf/aeo_base.pdf

ON JUNE 23, 2005 IN WASHINGTON DC, a group of nine former White House cabinet and senior national security officials convened to participate in a simulated working group of a White House cabinet. Their task: to advise an American president as the nation grapples with an oil crisis over a seven-month period. As they enter the room, they are unaware of the circumstances or nature of the oil crisis.

OIL SHOCKWAVE CABINET MEMBERS

Working Group Participants Overview

Carol Browner
Principal of the Albright Group and former Administrator, Environmental Protection Agency
Cabinet Position: Secretary of the Interior

Robert M. Gates
President, Texas A&M University and former Director of Central Intelligence
Cabinet Position: National Security Advisor

Richard N. Haass
President of the Council on Foreign Relations and former Director of Policy Planning at the Department of State
Cabinet Position: Secretary of State

General P.X. Kelley USMC (Ret.)
Former Commandant of the Marine Corps and a member of the Joint Chiefs of Staff
Cabinet Position: Chairman, Joint Chiefs of Staff

EXPERTS & BRIEFERS In addition to the invaluable contributions of our Oil ShockWave cabinet members, experts in the fields of national security, world oil production and distribution, and macroeconomics were consulted to develop the scenarios used in the simulation and to verify their authenticity and plausibility, both with respect to the likely response of global oil markets to the events and in terms of resulting impacts on oil prices and the economy. SAFE and NCEP extend special thanks to the following individuals for briefing the Oil ShockWave cabinet:

Left to right: Carol Browner, Robert M. Gates, Richard N. Haass, General P.X. Kelley (Ret.), Franklin D. Kramer, Don Nickles, Gene Sperling, Linda Stuntz, R. James Woolsey

Franklin D. Kramer
Independent Consultant on Defense and National Security Issues and former Assistant Secretary of Defense for International Security Affairs
Cabinet Position: Secretary of Defense

Don Nickles
Principal Partner, The Nickles Group and former United States Senator for the State of Oklahoma
Cabinet Position: Secretary of Treasury

Gene Sperling
Senior Fellow for Economic Studies and Director of the Center for Universal Education, Council on Foreign Relations and former National Economic Advisor and Director of the National Economic Council
Cabinet Position: National Economic Advisor

Linda Stuntz
Founding Partner, Stuntz, Davis & Staffier and former Deputy Secretary of Energy
Cabinet Position: Secretary of Energy

R. James Woolsey
Vice President, Booz Allen Hamilton and former Director of Central Intelligence
Cabinet Position: Secretary of Homeland Security

RAND BEERS, former Special Assistant to the President and Senior Director for Combating Terrorism

DAVID E. FROWD, former Head of Strategy and Planning in Shell's Upstream Headquarters in the Hague and former Head of the Energy Team in Shell's Global Business Environment Department

COLONEL RANDALL J. LARSON USAF (RET.), Founding Director, The Institute for Homeland Security

RONALD E. MINSK, former Special Assistant to the President for Economic Policy at the National Economic Council regarding Energy Policy and Issues

JOSEPH J. ROMM, former Acting Assistant Secretary at the Department of Energy

Political unrest in Nigeria, combined with unseasonably cold weather across the Northern Hemisphere, contributes to an immediate global oil supply shortfall. Though the shortfall represents only a small percentage of global demand, prices rise to over $80 per barrel. In real terms, prices exceed those reached in 1980, during the last severe world oil crisis.



SEGMENT 1: GEOPOLITICAL INSTABILITY

December 14, 2005

DECEMBER 14, 2005 · News networks report growing unrest in Nigeria, the 5th largest supplier of oil to the U.S. Escalating violence in northern Nigeria and the resulting diversion of Nigerian troops away from the oil-producing Niger Delta has prompted foreign oil companies to announce that they will be leaving the country immediately. Given Nigeria's deep religious and ethnic divisions, the intelligence community expects a protracted period of instability.

The immediate impact of current events in Nigeria is a loss of roughly 800,000 barrels per day of oil production. Meanwhile, unseasonably cold weather across much of the Northern Hemisphere is boosting world oil demand by 800,000 barrels per day. Given an extremely tight global supply situation in which projected demand had already been outpacing projected supply, industry analysts are now forecasting a global oil shortfall of over 2 million barrels per day. Crude oil prices, which have been fluctuating between $53 and $58 per barrel in recent months, are expected to rise to more than $80 per barrel. In inflation-adjusted terms, this is higher than even the price level experienced during the severe oil crisis of 1980.

Amid growing concern about the economic fallout of a prolonged oil crisis, the President requests input on three possible responses: requesting that Saudi Arabia increase production, releasing oil supplies from the Strategic Petroleum Reserve (SPR), and intervening militarily in Nigeria. Ensuing discussion quickly reveals that each of these options has serious limitations.

Saudi Arabia is attaching a series of unacceptable diplomatic conditions to any commitment on its part to

THE BOTTOM LINE In such a tight global oil market, even seemingly minor events can cause the price of oil to rise to levels that are both politically and economically significant. U.S. exposure to such price shocks has nothing to do with how much oil we import. Our foreign and military policy is influenced by, and often constrained by, our oil dependence. Deciding when to draw on the Strategic Petroleum Reserve is an imperfect art with many unknowns.

TRACKING KEY PRICES (PROJECTED)

DATE	CRUDE	GASOLINE	COST AT THE PUMP
DEC 14, 2005 (SEGMENT START)	$58 PER BARREL	$2.21 PER GALLON	$50.68 (MID-SIZE SUV)
DEC 14, 2005 (SEGMENT END)	$82 PER BARREL	$3.31 PER GALLON	$75.91 (MID-SIZE SUV)

increase production. There is concern that acceding to these conditions—which include an end to U.S. pressure for democratic reforms in the Saudi Kingdom—would set a dangerous precedent.

Though it is difficult to obtain reliable information about Saudi Arabian oil reserves and production, experts estimate that the Kingdom's readily accessible spare production capacity is limited and may be as low as 500,000 barrels per day. This figure stands in sharp contrast to approximately 4 million barrels per day of spare capacity that Saudi Arabia possessed on the eve of the first Gulf War.

"The President," says National Security Advisor Bob Gates, "is just not going to do it…he's not going to accept any political conditions like this."

Cabinet members quickly move to consider releasing oil from the Strategic Petroleum Reserve, which holds nearly 700 million barrels of federally-owned crude oil. Secretary of Energy Linda Stuntz points out that the government released oil from the Strategic Reserve in 1991, at the start of the Gulf War, which proved to be helpful in restoring the confidence of world oil markets during the geopolitical uncertainty. But Gene Sperling, the President's National Economic Advisor, wonders if high prices by themselves constitute the kind of emergency for which the SPR was intended.

Other cabinet members also raise reservations about drawing on the SPR. Chairman of the Joint Chiefs of Staff General P.X. Kelley worries that doing so could compromise our ability to support military operations in the future. National Security Advisor Gates also questions the wisdom of unilateral action by the United States given that other countries will be equally hurt by higher prices. After all, tapping the SPR could have only a marginal impact on global oil prices—the resulting benefits would be dispersed to consumers worldwide, but the costs would be borne entirely by U.S. taxpayers. Clearly, any drawdown would need to be coordinated with similar actions by other nations.

Finally, there is the possibility that tapping the SPR would confirm traders' fears of a serious crisis and might cause prices to rise rather than fall. Ultimately, cabinet members recommend that the Department of Energy ready a contingency plan for using the SPR, but that it hold off on actually releasing any oil for now. While there is broad agreement that the SPR could prove helpful in responding to an acute crisis, there is also a consensus that it offers, at best, only short-term relief.

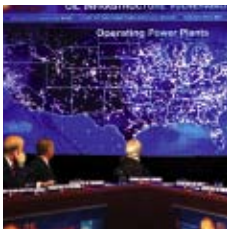
"We tend to have these conversations when something happens…but we never come back to the real conversation…which is what are some long-term commitments we can make, some changes in policies…that will really put us on a different track."

CAROL BROWNER, OIL SHOCKWAVE
SECRETARY OF THE INTERIOR

Military intervention in Nigeria quickly emerges as the least palatable option of all. U.S. troops are already stretched by other commitments in Afghanistan and Iraq. Nigeria is large, distant, difficult to access, and offers little institutional or infrastructure support for staging any kind of security action. There appears to be little that the U.S. can do in the short run to bring an end to the crisis in Nigeria. ■

WHAT IS THE SPR? The Strategic Petroleum Reserve (SPR) consists of 4 sites in underground salt caverns along the Gulf Coast that hold emergency supplies of federally-owned crude oil—currently about 700 million barrels. This is adequate to offset 59 days of oil imports. It can be drawn down at a rate of 4.4 million barrels per day for 90 days, after which the rate would decline. The U.S. has little experience actually using the SPR: No more than 1 million barrels per day have ever been drawn down.

Three terrorist attacks expose the vulnerability of key energy infrastructure and raise concerns about the long-term stability of Saudi Arabia. Fearing political unrest and further attacks, jittery oil markets respond to the additional 1.15 million barrel per day shortfall that results by sending prices sharply higher. Cabinet members consider options for responding to this latest global supply crisis.



SEGMENT 2: OIL INFRASTRUCTURE VULNERABILITY

January 19–22, 2006

JANUARY 19, 2006 · The segment opens with breaking news about massive explosions at a natural gas processing plant in Haradh, Saudi Arabia. Until the Haradh facility can be reopened, approximately 250,000 barrels per day of Saudi crude oil that had previously been available for export will be diverted for domestic purposes. It is particularly disturbing that the attack appears to be an "inside job." Deputy Director of National Intelligence Rand Beers tells the cabinet that it is not known how extensively Al Qaeda has penetrated the Saudi military, security services, and oil industry.

Within moments, a second terrorist incident is reported in Saudi Arabia, this time at Ras Tanura, the world's largest oil port. A supertanker hijacked off the coast of Bahrain with the intention of ramming it into another tanker at a loading jetty has been intercepted by Saudi security forces as it sought to enter the port. For now, it seems Saudi forces have successfully thwarted this attack, as well as a possible ground attack at the same facility. Al Jazeera is reporting that an Al Qaeda affiliate has claimed responsibility for the incidents at both Haradh and Ras Tanura.

In the aftermath of these attacks, cabinet members are asked to evaluate possible options for assisting Saudi Arabia. Discussion soon reveals that our ability to help restore order in Saudi Arabia is substantially constrained by downside risks of further destabilizing the Saudi regime, inflaming anti-American sentiment in the Muslim world, and inviting further attacks.

Secretary of Energy Linda Stuntz notes that if the situation in Saudi Arabia continues to deteriorate we would need to consider more serious action to reduce the role of oil in our economy on the demand side while also enhanc-

THE BOTTOM LINE Our key energy infrastructure—overseas and at home—is vulnerable to attack. Too vast to protect, we must seek other ways to reduce our vulnerability. China plays a major role in world oil markets and its demand for oil is sure to grow substantially—likely increasing global competition for oil in ways that may often prove contrary to U.S. interests. The economic consequences of a dramatic spike in world oil prices could be severe. While short-term options for reducing oil demand do exist, they are not pleasant and would be difficult to sustain.

TRACKING KEY PRICES (PROJECTED)

DATE	CRUDE	GASOLINE	COST AT THE PUMP
JAN 19, 2006 (SEGMENT START)	$85 PER BARREL	$3.58 PER GALLON	$82.10 (MID-SIZE SUV)
JAN 22, 2006 (SEGMENT END)	$123 PER BARREL	$4.74 PER GALLON	$108.63 (MID-SIZE SUV)

ing domestic and other non-OPEC production. Similarly, National Economic Advisor Gene Sperling warns that he is "tremendously concerned about what could happen to prices and speculation" if markets lose confidence that Saudi Arabia is capable of stepping in when there is a temporary global supply shortage.

As cabinet members are discussing responses to the terrorist attacks in Saudi Arabia, the Secretary of Homeland Security receives word of an attack on the oil port of Valdez in Alaska. A hijacked tanker has been used to ram a second tanker. Additional fires have been ignited in the port's storage tanks, which appear to have been targeted by a second group of terrorists. The events at Valdez result in the loss of roughly another 900,000 barrels of oil per day. The Secretary of Homeland Security reports that Al Qaeda is also suspected in the attack at Valdez.

Cabinet members quickly turn to grappling with the issue of protecting critical U.S. energy infrastructure against a possible second wave of attacks. A brief review by the Secretary of Homeland Security highlights the sheer scale and complexity of the U.S. energy system, which includes a veritable spider web of oil and gas pipelines, numerous large ports, refineries, and nuclear power plants, and a far-flung, highly interconnected electricity grid. Given the practical impossibility of protecting all potentially vulnerable points in this system, Secretaries Woolsey and Stuntz recommend that especially critical components, such as high-voltage electricity transformers and petroleum refineries, receive priority.

> "They're losing the market psychology that Saudi Arabia is capable of stepping in when there's a temporary shortage. Take that confidence out of the market [and] I am tremendously concerned at what could happen to prices and speculation."
> GENE SPERLING, OIL SHOCKWAVE
> NATIONAL ECONOMIC ADVISOR

Beyond triggering an immediate reduction in world oil supplies, the day's events raise more deeply disturbing concerns about the sophistication and reach of terrorist networks and about the vulnerability of key nodes in the nation's and the world's energy systems

JANUARY 22, 2006 · Three days later, the fear of new attacks has eased but the economic implications of recent events in Alaska and Saudi Arabia are just beginning to sink in. Oil prices have now risen dramatically, stock markets around the world are taking a beating, and the dollar has plunged in overseas trading. Financial experts are warning that if oil prices continue at this level, the rapid worsening of America's trade balance could destabilize the dollar as foreign governments become increasingly reluctant to underwrite our mounting debt to the rest of the world.

An official at the Department of Treasury estimates that recent oil price increases will cost the median U.S. household an additional $2,860 per year at the pump. Meanwhile, energy-intensive industries, including the airlines, trucking companies, automakers, farmers, and aluminum and steel producers, are feeling the negative impact of higher oil prices most severely. These higher prices act like a tax, except that the extra revenues go overseas instead of being recycled in the domestic economy. The result: slower or negative GDP growth, lost jobs and higher unemployment, and a major collapse of con-

THE INSIDER'S TAKE "It's hard to overstate the importance of Saudi oil in the global economy...if this situation deteriorates, we [will] need to take serious action...we're going to have to do things or accelerate our efforts to reduce the role of oil in our economy, both on the demand side and we're going to have to take a look at enhancing our own supply and non-OPEC supply."—LINDA STUNTZ, OIL SHOCKWAVE SECRETARY OF ENERGY

"So we should start from the proposition that we're at war and what do we need to do in order to fight that war effectively...."

R. JAMES WOOLSEY, OIL SHOCKWAVE SECRETARY OF HOMELAND SECURITY

sumer confidence. As National Economic Advisor Sperling puts it: "we are in uncharted territory."

To address the global economic fallout from this latest crisis, the Governing Council of the International Energy Agency (IEA) has quietly requested that the U.S. consider (1) releasing 2 million barrels of oil per day from the Strategic Petroleum Reserve, (2) taking immediate action to reduce domestic demand, and (3) pressuring China, which is not a member of the IEA, to also undertake demand reductions.

As the cabinet discusses the first of these requests, many of the doubts raised previously in Segment 1 about tapping the SPR re-emerge. Furthermore, several cabinet members object to the fact that the U.S. is being asked to release an amount of oil that is more than double its share of the current world oil supply shortfall. There is also concern, from a military and national security perspective, that it might be unwise to draw down the SPR at such an uncertain time. A consensus for releasing some oil from the SPR begins to emerge, but cabinet members also state their intent to push back on the IEA's request that the U.S. release a disproportionate share of the global oil shortfall.

Turning to the subject of domestic demand reductions, cabinet members are briefed on an array of options. They range from voluntary measures, like promoting discretionary trip reductions, carpooling, proper tire inflation and better vehicle maintenance, corporate adoption of flex time and telecommuting, and use of mass transit, to possible mandatory measures, like lowering speed limits, instituting no-drive days, assessing fees on single-occupant vehicles, and changing the work week.

The efficacy of many of these voluntary options is uncertain, however, while several of the mandatory ones—besides being deeply unpopular—would be difficult to enforce. Whether any of these measures would have a meaningful impact on U.S. demand is difficult to gauge; certainly none of them provides a long-term solution since most could not be practically sustained for more than several months to a year. Furthermore, the President lacks authority to enact most mandatory demand reduction measures, even in a crisis. Secretary of Treasury Don Nickles makes a strong case against government intervention and against giving the President broader authority to impose mandatory measures.

Cabinet discussion of the IEA's third request—that we take the lead in asking the Chinese to reduce their fuel consumption—highlights the significant strains being placed on world oil markets by rapidly growing demand in other countries. Overall, China still uses less than one-third as much oil as the United States, but at over 6 million barrels per day China is already the world's second-largest consumer. More importantly, demand growth in China was a staggering 10 percent in 2003 and 16 percent in 2004. At present, China is heavily dependent on oil from the Middle East and has been aggressively seeking to expand its oil interests elsewhere, including in rogue states and in states with poor human rights records like Iran and Sudan.

Cabinet members agree that there are strategic and economic reasons to be concerned about China's growing thirst for oil. Those concerns are underscored by word from Secretary of State Haass that China is making several demands in return for undertaking any voluntary conservation efforts on its part. Similar to the unacceptable conditions put forward by the Saudis in Segment 1, this new development highlights again how U.S. diplomatic and military policy is always at risk of being distorted by our nation's dependence on oil. ■

THE INSIDER'S TAKE "This is an attack on the U.S. economy. The President of the United States needs to respond to strengthen that economy and the world needs to see the United States, the greatest economic power, taking strong action now to prevent a dramatic fall in global confidence and demand that could lead to a recession...and it will be harder to stop later."—GENE SPERLING, OIL SHOCKWAVE NATIONAL ECONOMIC ADVISOR

ECONOMIC EFFECTS OF PROJECTED OIL PRICE OF $120 PER BARREL

In Segment 2, the price of oil rose to roughly $120 per barrel, ultimately resulting in a recession following two quarters of declining GDP and a decline in 2006 GDP compared to 2005 GDP, the loss of over 2 million jobs in 2007 relative to baseline forecasts, an historically significant decline in the S&P 500, and a dramatic increase of the current accounts deficit.[1]

GAS & HEATING OIL PRICES AFFECT HOUSEHOLD FINANCES

OIL PRICES ARE FORECAST TO RISE TO $123 PER BARREL IN MID-JANUARY, 2006

- Gasoline prices are forecast to rise to $4.74 per gallon; heating oil prices to $4.60 per gallon.
- The average household will spend $5,214 on gasoline in 2006, an increase of $2,860 above the baseline $2,354 figure for 2005 assuming the same level of consumption (based on EIA forecast price of $2.14 per gallon in 2005).[2]
- The average household that uses heating oil will spend $3,450 on heating oil, an increase of $2,017 per household above the baseline figure of $1,433 for 2005, assuming the same level of consumption[3] (based on EIA forecast price of $1.91 per gallon in 2005).[4]
- Median U.S. household income is $43,318 for all households; $53,991 for family households.[5]
- Prices of other forms of energy, including natural gas and electricity, are also likely to rise.

ELEVATED GAS & OIL PRICES CHOKE ECONOMIC GROWTH

GDP FALLS AS A RESULT OF SEVERAL FACTORS, INCLUDING:

- Consumers spend more on gasoline and cut other spending. A portion of domestic spending migrates out of the U.S. economy to foreign oil producers, exacerbating the loss. Uncertainty lowers consumer confidence, contributing to the reduction in consumer spending.
- Certain energy intense capital is idled or its utilization rate falls.
- Automobile purchases decline sharply due to uncertainty of oil prices.
- Air travel falls as airfares rise due to higher fuel prices. Leisure travel suffers particularly, further adversely affecting the travel and hospitality industry.
- Tightened monetary policy is a possibility, depending on the degree to which the Federal Reserve Board is concerned about inflation.

Prepared by Ronald E. Minsk, former Special Assistant to the President for Economic Policy at the National Economic Council. The complete analysis is available upon request.

1 During the third segment of the simulation, the price of oil rose to $161 per barrel in June, 2006. The potential economic effects of a price spike of this magnitude were not estimated because they were so far outside the range of experience that there was no basis on which to make estimates. Every economist that SAFE/NCEP consulted, however, agreed that such a price rise would result in an extremely severe recession or worse, with significant disruptions throughout the economy.

2 *Short Term Energy Outlook*, Department of Energy, June 2005, at Table a4, available at http://www.eia.doe.gov/emeu/steo/pub/tabspdf.html

3 http://tonto.eia.doe.gov/ftproot/other/Residential_Heating.pdf

4 *Short Term Energy Outlook*, Department of Energy, June 2005, at Table a4, available at http://www.eia.doe.gov/emeu/steo/pub/tabspdf.html

5 U.S. Department of Commerce, *Income, Poverty, and Health Insurance Coverage in the United States: 2003,* at p. 4, Table 1 available at http://www.census.gov/prod/2004pubs/p60-226.pdf

Terrorist attacks prompt the evacuation of foreign nationals working in Saudi Arabia. The mere prospect that Saudi Arabia might not be able to play the role of producer of last resort sends panic through world oil markets. Prices quickly skyrocket, exceeding $150 per barrel. Cabinet members must now consider long-term options for reducing U.S. oil dependence.



SEGMENT 3: NATIONAL POLICY RECOMMENDATIONS

June 23, 2006

JUNE 23, 2006 · Five months have passed without further terrorist incidents. In just the last 48 hours, however, a new campaign of terror has erupted against American, British, Japanese, and other foreign nationals in Saudi Arabia. The latest reports indicate that 120 Americans have been killed and another 100 wounded; altogether, the Saudis are confirming that more than 200 foreign nationals have been killed and 250 have been wounded in the two-day terror campaign.

The President has ordered the immediate evacuation of U.S. and allied nations' civilian personnel. The evacuation is proceeding smoothly, but grave concerns remain about the prospects for worsening instability and violence in Saudi Arabia. While there has been no immediate loss of supply, oil markets react strongly. An expert energy consultant to the Global News Network warns that the loss of international oil expertise and the unstable environment "is almost certain to severely limit Saudi Arabia's ability to respond to future increases in oil demand."

Prices quickly return to the levels last seen in January and show every indication of climbing to around $150 per barrel and perhaps even higher. Secretary of Treasury Don Nickles and National Economic Advisor Gene Sperling warn that no economic models can adequately predict the potential economic consequences of $150 per barrel oil.

That Saudi Arabia, which has always been the one country that could maintain substantial spare production capacity, might no longer function as the world's producer of last resort wreaks havoc on world oil markets. Without Saudi Arabia to act as a kind of "Central Bank of Oil" to cover supply shortfalls anywhere else in the world on short notice, prices are certain to become even more volatile.

THE BOTTOM LINE The stability of the oil-based global economy is dependent on Saudi Arabia's ability to meet future demand growth and to hold spare capacity. The United States has a few short-term options and several promising long-term options. The long-term options typically require a multi-year lead time. Reducing our vulnerability to unpredictable events and the resulting consequences requires that we begin implementing sufficient long-term measures now.

TRACKING KEY PRICES (PROJECTED)

DATE	CRUDE	GASOLINE	COST AT THE PUMP
JUN 23, 2006 (SEGMENT START)	$125 PER BARREL	$4.79 PER GALLON	$109.84 (MID-SIZE SUV)
JUN 23, 2006 (SEGMENT END)	$161 PER BARREL	$5.74 PER GALLON	$131.56 (MID-SIZE SUV)

The President has called for a retreat at Camp David to decide long-term strategic issues. National Security Advisor Gates convenes the Cabinet for an initial discussion to hear their thoughts and opinions before the retreat.

"We're not talking about some type of Manhattan project, to invent something big and new and start with new principles. We're talking about encouraging things that are either here or...very, very nearly here."
R. JAMES WOOLSEY, OIL SHOCKWAVE SECRETARY OF HOMELAND SECURITY

On the supply side, expert briefings reveal that substantial additional reserves of conventional oil exist but these are concentrated in OPEC countries. The United States holds only 3 percent of proved global oil reserves. Most of this oil is technically recoverable, but much of it is legally off-limits to development. Reserves of unconventional oil, such as tar sands in Canada, heavy oil deposits in Venezuela, and oil shale in the U.S., could theoretically allow for expanded oil production in the Western Hemisphere, but available technologies for exploiting these resources can cause significant damage to the environment.

The cabinet discusses potential demand reduction and alternative fuel options such as vehicle fuel economy improvements and promoting gasoline and diesel alternatives. Cabinet members agree that stagnant vehicle fuel economy standards and advances in technology have created room for efficiency improvements, but debate the political feasibility of enacting higher efficiency standards and the need for government intervention at a time of high oil prices.

Of the leading alternative fuel candidates, some—such as cellulosic ethanol, synthetic diesel, and plug-in hybrid-electric technology—could probably be successfully commercialized in the near-term, especially in an environment of extremely high oil prices. Others, such as hydrogen fuel cells, remain decades away from being introduced on a mass scale. Nevertheless, given the slow turnover of the vehicle fleet and the need for new infrastructure to substantially expand fuel production, it will take several years at best for even the most promising technologies to have a substantial impact on overall U.S. oil consumption.

An informal survey of priority recommendations from each cabinet member reveals a diversity of opinions about the most promising options, but everyone agrees that a comprehensive approach, encompassing several technology options, is necessary.

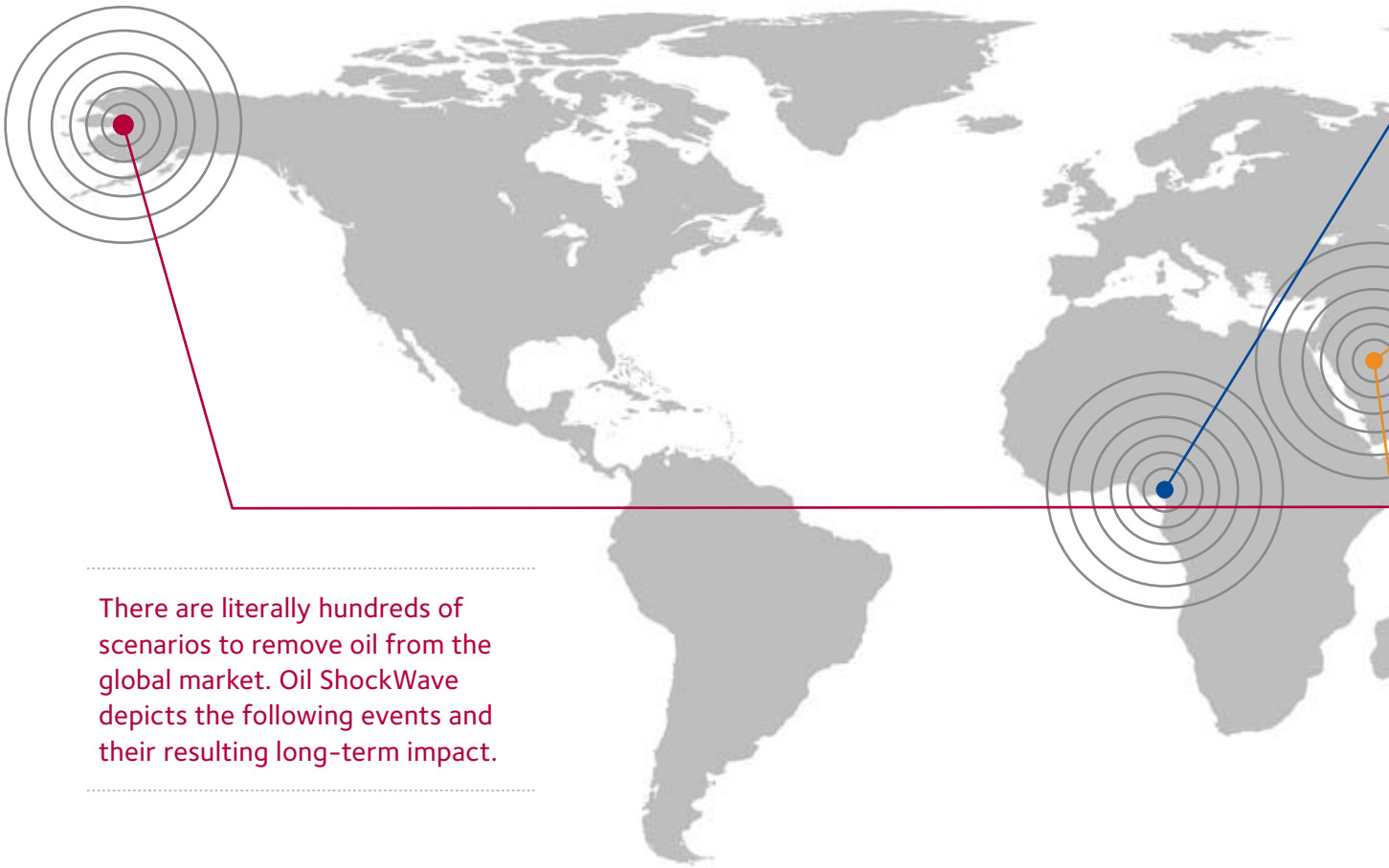
National Security Advisor Gates sums up by saying that the one message the group unanimously has to present to the President "is that it is absolutely imperative that the United States have a long-term energy policy in order to diminish this dependence on foreign oil which has such huge economic and security consequences for us."

As Segment 3 draws to a close, Cabinet members receive word that China has deployed a large naval fleet around the disputed Spratly Islands, which are rumored to hold billions of barrels of oil and substantial reserves of natural gas. At the same time it appears that Iran may have agreed to increase oil exports to China in exchange for China's veto on a proposed U.N. Security Council resolution condemning its nuclear program. Administration officials, meanwhile, are privately expressing concern that a further tightening of the oil supply could exacerbate what has already been an increasingly troubling outlook for the U.S. economy. ■

THE INSIDER'S TAKE "Energy policy reform ought to be far more of a priority than it's been for the American political system and it's got to be portrayed not as an energy issue ultimately but as a matter of economic security and national security...and [a president] has to sell it to the American people on those terms...connect the dots between our standard of living and what we're talking about here."—RICHARD N. HAASS, OIL SHOCKWAVE SECRETARY OF STATE

OIL SHOCKWAVE
OIL CRISIS EXECUTIVE SIMULATION

MAP OF EVENTS
12.14.2005–6.23.2006

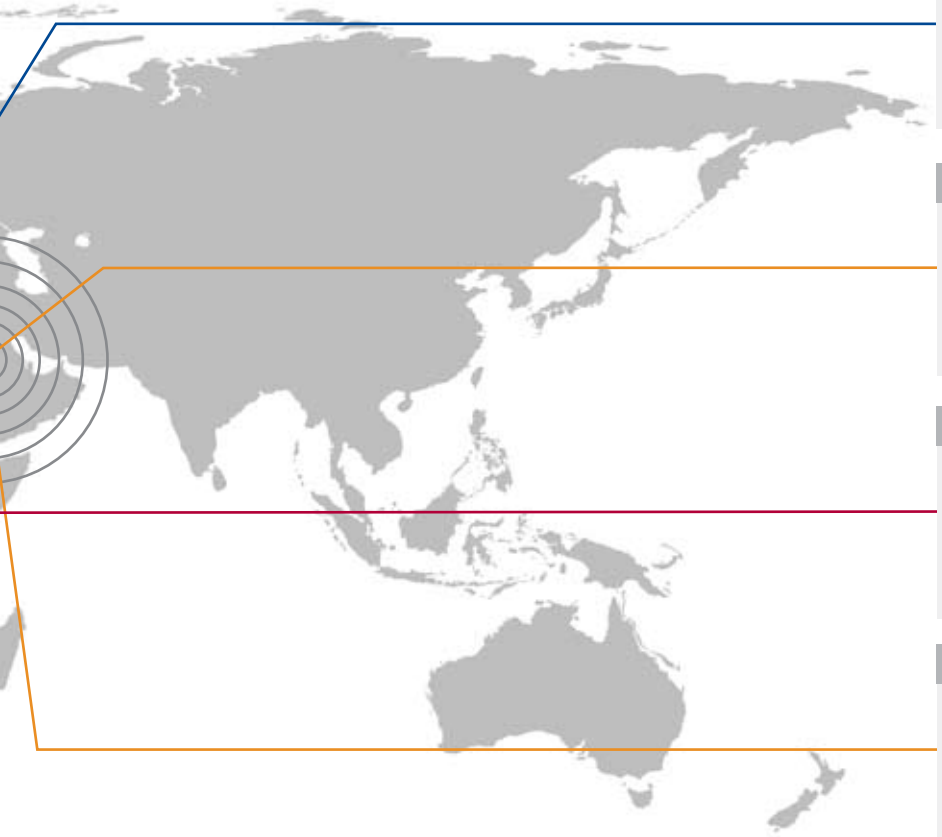


There are literally hundreds of scenarios to remove oil from the global market. Oil ShockWave depicts the following events and their resulting long-term impact.

CAUSE AND EFFECT In Segments 1 and 2, political instability, terrorism and weather conditions combine to create a gap between global oil supply and demand (in Segment 3, the potential for increased production capacity in Saudi Arabia is lost, though no additional oil is removed from the market). Given today's precarious balance between supply and demand, taking even a small amount of oil off the market could cause prices to rise dramatically bringing about significant damage to the U.S. and global economy.

CHARTING OIL SHOCKWAVE'S IMPACT

A change in supply or demand anywhere will affect prices everywhere. Oil ShockWave presented participants with a series of realistic and credible geopolitical and natural events over several months. Even as isolated events, each of the three Oil ShockWave scenarios would still have a significant impact on the global oil market.



DECEMBER 14TH, 2005

Political unrest in Nigeria, the 8th largest supplier of oil to global markets, reduces production capacity.

Total global supply loss: ≃800,000 barrels per day (b/d)

JANUARY 19TH, 2006

Terrorist attack on the Haradh Natural Gas Facility reduces global supply from key market in conjunction with failed attack on Ras Tanura, the world's largest oil port.

Total global supply loss: ≃250,000 b/d

JANUARY 19TH, 2006

Terrorists target oil tankers and oil storage tanks in a coordinated attack on the port of Valdez in Alaska, resulting in reduced global supply.

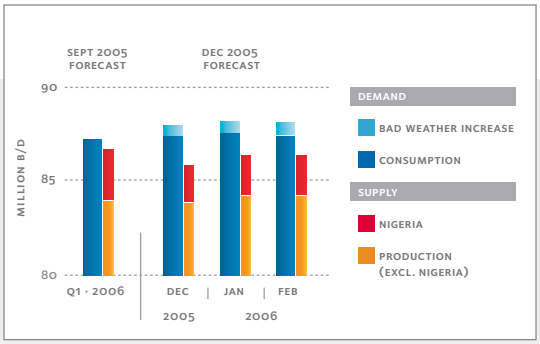
Total global supply loss: ≃900,000 b/d

JUNE 23RD, 2006

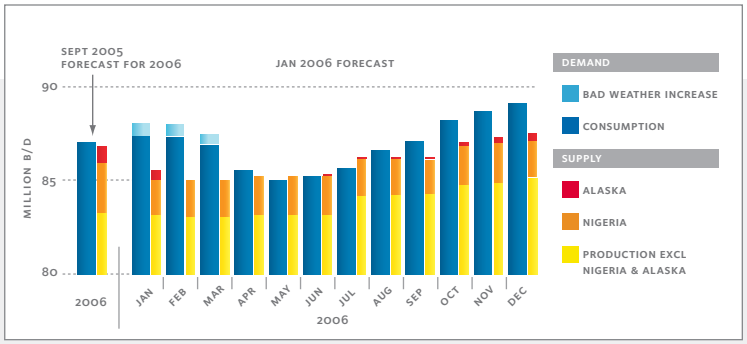
Violence in Saudi Arabia causes evacuation of foreign nationals with oil expertise, ending country's ability to increase production.

Saudi Arabia can no longer be the producer of last resort

SEGMENT 1 PROJECTED IMPACT



SEGMENT 2 PROJECTED IMPACT



These charts illustrate the projected impact the events in Segment 1 and 2 have on global oil supply and demand.

NEXT STEPS

America must begin now to take steps that will reduce our oil dependence and the serious economic and national security risks that come with it. It will be critical to:

EDUCATE · Political leaders, policy makers, members of the business community, and the public must be better informed about America's oil dependence and about the challenges it poses for the future. Findings from Oil ShockWave will be disseminated broadly through private and public briefings, public hearings, and meetings with key stakeholders, including Governors, state legislators, members of Congress, and federal government officials. In addition, Oil ShockWave participants and sponsoring organizations will reach out to universities and leading think tanks and will distribute the simulation materials and accompanying analysis to other institutions and groups.

ENGAGE · To share the experience of Oil ShockWave with a broader audience, re-enactments of the simulation exercise—perhaps in partnership with universities, think tanks, corporations, or other prominent, regional-level organizations—will be held in the coming months. This will allow additional policy makers to engage with the issues raised in Oil ShockWave, help disseminate key findings more widely, and generate new ideas and responses to the situations presented in the simulation scenarios.

EXPLORE · Oil ShockWave demonstrated that there are no easy answers for reducing America's oil dependence. In fact, a comprehensive response to the challenges identified in Oil ShockWave will require short, medium, and long-term policies aimed at diversifying and securing oil supplies, reducing oil consumption, and developing better energy alternatives. To fully explore these alternatives, identify policy priorities, and better understand the risks inherent in the current situation, as well as our options for reducing those risks, further research and analysis are needed. This effort will build on the considerable knowledge base that was generated in developing Oil ShockWave.

ADVOCATE · Those who agree with Oil ShockWave participants and sponsors that reducing the liabilities associated with America's current oil dependence constitutes one of the great policy challenges of our time will need to advocate actively and effectively for a change in the status quo. Change is unlikely to occur without the dedicated efforts of individuals, organizations, and key stakeholders.


NATIONAL POLICY RECOMMENDATIONS
COST AT THE PUMP [MID-SIZE SUV] $131.56
CRUDE [WTI] $161
PROJECTED GASOLINE
errorist attack on the Port of Valdez
educes global supply.
pproximately 900,000 b/d)
Violence in Saudi Arabia stops
increases in production capacity.
Terrorist attack on Haradh Natural Gas
Facility reduces global supply.
(approximately 200,000 b/d)
Unrest in Nigeria reduces production.
(approximately 600,000 b/d)
NAL SECURITY ADVISOR
SECRETARY OF HO
NATIONAL ECONOMIC ADVISOR
OIL
SHOCKWAVE
OIL
SHOCKWAVE
OIL CRISIS EXECUTIVE SIMULATION

ABOUT THE RESEARCH · Consultations were held with oil traders and investment researchers to develop and/or verify the impact of simulation events on the price of crude oil. Special thanks to Neil McMahon Ph.D, a prominent Oil Analyst at Sanford C. Bernstein & Co., LLC, and his team for providing independent, in-depth analysis. Sanford Bernstein has subsequently issued a 27-page report that is available upon request.

National Commission on Energy Policy

Securing America's Future Energy

The National Commission on Energy Policy (EnergyCommission.org) is a bipartisan group of 16 of the nation's leading energy experts, whose goal is to develop a long-term energy strategy that enhances our national security, strengthens our economy, and protects the global environment and public health.

Securing America's Future Energy, or SAFE (SecureEnergy.org), is a not-for-profit, non-partisan organization committed to actively reducing America's dependence on oil with a strategy addressing business and technology, politics and advocacy, and public education and media.

Design by Matthew Schwartz Design Studio