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**Collection/Record Group:** Clinton Presidential Records  
**Subgroup/Office of Origin:** WH Task Force on Climate Change  
**Series/Staff Member:** Roger Ballentine; Paul Bledsoe; Julie Anderson  
**Subseries:**

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**OA/ID Number:** 41301  
**FolderID:**

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**Folder Title:**  
Energy Speech

<b>Stack:</b>	<b>Row:</b>	<b>Section:</b>	<b>Shelf:</b>	<b>Position:</b>
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John Super first cut, A couple suggestions about structure. P.

Draft; 5/25/00; 6 pm; Gibson

## Energy Policy Speech

June 1, 2000

(3268 words – goal: 2400)

Thank you for that kind introduction.

As you know, as White House Chief of Staff I don't often venture before the public to give a speech – let alone put myself directly into the line of fire of the national press corps.

I asked the President if he had any tips for how I should handle myself before such an august gathering.

He said, "John just give them something light, not too complicated, not too intellectual.

"Don't worry, I've heard you speak before, I know you can do it."

Unfortunately for you, my topic here today is *not* light and it *is* complicated.

I'm here to talk about our national energy policy.

Energy is the very lifeblood of America's economic performance over the past decade.

As we all know, that performance has been nothing short of amazing:

- The United States is now enjoying the longest economic expansion in its history – 109 months and counting;
- Since 1993, the economy has produced over 21 million new jobs and unemployment is nearly the lowest its been in three decades;
- Real wages have gone up five consecutive years and counting – the longest such increase since the 1960s;
- And we've gone from an era of record deficits to record surpluses that are now being used to help pay off the national debt.

Perhaps even more remarkable is the fact that we have enjoyed the fruits of this booming

I move this section later - to the attack segment.

economy, even as we have also taken serious steps to improve the environment.

A lot of people don't think you can grow the economy, improve air and water quality, and position the economy to tackle challenges like global warming all at the same time.

But look at the record:

The economy has grown 35% since 1990.

But air pollution is down -- sulfur dioxide emissions, for example, are down by around 20%.

Thanks to cleaner air, there will be 23,000 fewer premature deaths by the year 2010, almost 70,000 fewer hospitalizations for respiratory and cardiovascular illness, and over 4 million fewer lost work days.

And carbon dioxide emissions -- the leading greenhouse gas -- are up by only \_\_%, and they've been relatively flat the past \_\_ years.

In fact, the energy intensity of the economy -- the amount of energy used per unit of economic output -- has declined by 40%.

The data are starting to prove that what the President has been saying is right: we really do live in a fundamentally new era where the Big Idea of the industrial revolution -- that you had to pollute more to grow more -- just isn't true if you make wise policy choices.

Central to both these sets of accomplishments -- record economic growth and real environmental progress -- are sound energy policies.

Steady, reliable, affordable energy has literally fueled the economic boom.

And sound, smart energy *policies* have allowed us to keep both the boom and the

(rough notes)  
later  
2 to 3 out

environmental progress going at the same time.

The challenge for America now is to ensure that we continue to have access to energy that is affordable, reliable, and safe –

Safe for our environment and safe for the health of our citizens.

*No easier beginning* → There are essentially two visions before the American people about how we can meet this challenge.

First, there is the balanced, forward-looking approach.

This approach seeks to diversify our energy supply;

*portfolio*

Both to protect us against the vagaries of international oil diplomacy;

And to get us ahead of the curve in developing cleaner, next-generation energy technologies that we know will play a big role in the 21<sup>st</sup> century.

The balanced, forward-looking approach seeks to infuse our energy sector with both efficiency and competition;

*Good* ( It takes into account values such as clean air, clean water, public health and preserving America's natural beauty when we make our energy choices.

And it seeks to cushion America against emergencies in the energy market.

This is the approach the Clinton-Gore Administration has been pursuing these past seven years.

Second, there is the short-sighted, backward approach.

This approach looks only at the supply side of the energy equation.

And on the supply side it looks almost exclusively on resource exploitation.

Its main – if not only focus – is drilling more holes in the ground and the ocean bottom.

This approach says, “Never mind whether or not more drilling is most efficient way to meet our needs;

“Never mind how ecologically sensitive the area is that we want to drill in;

“Never mind the effects on public health, air quality, water quality, or the greenhouse gas emissions most scientists believe are causing global warming.”

It says, “Never mind investing in advanced, more efficient, cleaner technologies;

“Never mind the enormous economic opportunities for consumers and businesses that can come from energy efficiency.”

And it says, “Never mind preparing our country in case of emergencies in energy markets.”

This is approach favored by Republicans in Congress.

I am here to tell you today that the President is not going to yield to the Congressional Republican vision of America’s energy future.

I am here to tell you that he believes passionately that building a broad, balanced, forward –looking energy future – one that focuses on both supply and demand and one that integrates our concerns about the environment and public health – is absolutely critical to America’s future.

*He* His is willing to fight for it.

*^* And for the remainder of this Congressional session he *will* fight for it.

Let's look at the particulars of this Administration's energy policy and compare it directly with the policies, actions – and *inaction* – of the Republicans in Congress.

First, the Administration's policies.

It is very common for us to speak of a monolithic "energy sector" but what we are really talking about is two separate, but related markets.

First, there is the market for power or electricity.

This is what we use when we turn on the lights, air conditioners, and furnaces in our homes.

Then there is the market for transportation fuels – what we use when we turn off the lights and get in our cars.

In each of these markets, the Administration has in place a package of investments, tax incentives, and regulatory measures that focus on both sides of the market equation –

Both on expanding our supply base;

And curbing demand through cost-effective energy efficiency measures that save money for consumers and businesses.

The Administration's policies ~~have real~~ <sup>have produced real</sup> accomplishments ~~to show~~

Accomplishments for our economy, <sup>for</sup> our energy security and reliability, and accomplishments for our environment and public health.

~~But~~ And much more progress is possible – if Congress would act on proposals we have on the table.

Consider the power sector.

On the supply side, this Administration understands that we need to invest in traditional fuels for our power plants – such as environmentally-sound uses of coal, natural gas, nuclear and hydro resources.

That is why, for example, we are investing in advanced technologies for burning coal and natural gas cleaner with less pollution and less greenhouse gas emissions.

Already advanced pollution control technologies developed by the Department of Energy – DOE – in partnership with industry have been widely deployed in coal-fired power plants across the nation.

The result? Over the past decade coal use is up 17 percent, but emissions of SO<sub>2</sub> and NO<sub>x</sub> have declined significantly, as has the cost of electricity.

*budget #s ?*

With full funding of the President's budget request, we know we can do more.

But this Administration also understands ~~the need for a balanced, dual-track approach~~ – that it is simply common sense ~~for us to also~~ invest in 21<sup>st</sup> century technologies for renewable energy sources, such as wind, solar, and geothermal energy.

Over the past 20 years, <sup>*because of*</sup> Federal R&D has slashed the price of photovoltaic energy systems by more than a 1/3 and wind by almost 90%.

If we keep going, we can make these technologies truly competitive in a wide range of geographic areas – diversifying our power supply base, increasing America's energy security, and helping the global environment.

That is why between FY 1994 and FY 2000 the Clinton Administration requested ~~a total of~~ nearly \$2 billion in increases for solar and other forms of renewable energy and energy

conservation.

Just  
Congress appropriated increases totaling one tenth of that.

↑  
For FY 2001, the President has proposed more than \$410 million for renewables. energy

He's also proposed a package of tax and regulatory incentives to spur the growth of solar power, wind power, distributed generation, and electricity produced from biomass and methane from landfills.

refused  
To date, Congress has failed to act on this package.

perhaps even more unfortunate has been Congress' failure to act on comprehensive legislation to restructure the nation's electricity industry.

A more competitive electricity industry will provide real benefits to consumers and lay the foundation for sustained economic growth.

The Administration's proposed bill lower electricity prices, providing American families some \$20 billion in annual savings.

It will strengthen the reliability of the nation's electrical grid – reducing the likelihood of summer brownouts and blackouts.

It will also build in market incentives for energy efficiency, reward plants that wring as much energy as possible out each unit of fuel, and give consumers the power to vote with their wallets for green power.

Overall, it will cut greenhouse gas emissions by 40 to 60 million tons annually by 2010.

On the demand side, the Clinton Administration recognizes that spurring greater energy

ADD  
Context

efficiency is just plain common sense.

In fact, for American families and businesses it is even more simple – its about dollars and cents.

*what will this mean in savings*

We are investing in R&D to make homes 50 percent more energy efficient within a decade.

To accelerate the deployment of these technologies, the President has proposed tax credits for energy efficient homes and appliances, such as electric heat pump water heaters, natural gas heat pumps, and fuel cells.

We are trying to expand efforts to help low-income households weatherize their homes.

We are accelerating efforts to set new federal efficiency standards for appliances.

And we are working in partnership with industry to see that over 3,400 high efficiency consumer products – from computers to refrigerators – carry the Energy Star label.

These are real, concrete measures that translate into real savings for families, businesses and the economy as a whole.

*great!*

Every low-income weatherized home means \$200 a year in energy bill savings. New efficiency standards for water heaters, air conditioners, fluorescent lamp ballasts, and clothes washers will reduce electricity use in 2020 by an amount equal to 17 large power plants; they will save enough natural gas to heat 72 million homes, and save consumers \$50 billion on their energy bills.

If all the nation's households used the most efficient refrigerators, it would eliminate the need for about 10 large power plants.

*[Handwritten scribble]*

If everyone used Energy Star products throughout their homes, the United States would save

.....

about \$100 billion in energy bills over the next 15 years.

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These savings are too big to ignore, and in the Administration's energy policies, we don't.

But you have heard precious little from the other side of the aisle about the importance of energy efficiency.

You see the same pattern in the transportation sector.

This Administration has employed a broad array of tools, recognizing the importance of both traditional and non-traditional, cleaner fuels;

And focusing on both the demand and supply sides of the equation.

We have an aggressive R&D program that has led to major technological advances, helping domestic oil producers find more oil, at greater depths, both on and off-shore.

The President supports an aggressive set of proposals to give domestic producers more favorable tax treatment for exploration and development costs and rental payments.

This Administration has reengineered and streamlined the Department of the Interior's royalty system;

And supported responsible drilling on federal lands and in federal waters – from the Gulf of Mexico to the North Slope of Alaska

And although our overall oil imports have increased over time, our sources have diversified.

So, in fact, we actually import less from OPEC nations today than we did 20 years ago.

Over this same time period, OPEC's world market share has dropped from 49 percent down to 41 percent.

And over the past several years, Secretary of Energy Richardson's adroit energy diplomacy has helped keep worldwide production up, and dampened pressures for further price increases.

Meanwhile, this Administration's energy policies are also investing in the transportation and fuel technologies of tomorrow.

DOE's Ultra-Clean Fuels Initiative is mobilizing industry and our national laboratories to develop and demonstrate technologies for making clean fuels compatible with today's fueling infrastructure.

The President has also proposed tax incentives and \$289 million in the FY 2001 budget to help us develop new, cleaner bio-fuels for our cars, using agricultural and forestry waste products.

Meeting the President's goal of tripling our use of bioenergy and biofuels by 2010 will save an amount of oil equal to that used by 70 million cars – that translates into 1,700 oil supertankers.

And on the demand side, the President has proposed tax incentives of up to \$4,000 for drivers who buy qualified electric, fuel cell, and hybrid vehicles.

And the Partnership for A New Generation of Vehicles is working with Detroit to deliver attractive, affordable cars that get up to three times the fuel efficiency of today's cars.

We're now working at extending these technologies to both light and heavy trucks.

If all our cars and light trucks got just twice the fuel economy they do today, we would reduce our oil consumption by 3.8 million barrels of oil a day.

That represents about 40 percent of our daily oil imports.

And consumers would save more than \$350 annually in fuel costs -- ~~\$450 if you drive an~~

~~SUV.~~

These investments in advanced technologies – both in power and the transportation sectors – are not pie-in-the-sky boodogles.

They are the keys to our energy and economic future.

But don't take it from me – take it from [Sir John Brown]/[Jack Ford]/[other] who said:

[looking for best quote].

[comment from Janet – can/should we say anything on mass transit?]

But the fact remains that our Nation imports a sizeable portion of the oil we consume.

To mitigate against the risks that arise from this – and to guard against both cold and hot weather energy emergencies – the President supports:

Reauthorization of the Strategic Petroleum Reserve – which expired at the end of March;

The creation of regional home heating oil reserve for homes in the Northeast and New England;

And full funding of the Low Income Home Energy Assistance program.

The Administration's energy policies have accomplished much.

But much remains to be done.

We have proposals up on the Hill right now that will help keep us on the path of affordable, reliable energy supply;

And keep us on the road to a cleaner energy future.

The ball is in Congress' court.

And right now, all we hear is the sound of a big whiff, as Congress seemingly abrogates its responsibilities through delay and inaction.

Under Republican leadership, Congress has:

Failed to enact the President's proposed tax incentives to support domestic oil production and promote renewable energy;

Failed to fully-fund efforts to invest in 21<sup>st</sup> century clean energy technologies;

Failed to move on electricity restructuring legislation;

Failed to enact tax incentives for more efficient homes and cars;

Failed to extend authorization of the Strategic Petroleum Reserve;

Failed to create a regional home heating oil reserve;

Failed to replenish the Low Income Home Energy Assistance Program Emergency Fund.

And they have loaded up a host of spending bills with anti-environmental, anti-common sense riders that throw a wrench into formulation of forward-thinking energy policy.

Every one is talking about the new Disney movie, "Dinosaur."

But if you want to see a really scary fossil, you ought to take a look at the Republican energy policy now stalking the halls of Congress.

The Republican energy policies focus only on the supply side energy equation and only a narrow part of the supply side – extraction of fossil fuels.

Their answer for every energy question is the same: more holes in ground.

More drilling in Arctic National Wildlife Refuge;

More drilling on Federal lands;

More drilling offshore.

They simply do not seem to understand the nature of the challenges we face.

*perfect*

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The issue is not, for example, whether we are running out of oil – we are not.

But we didn't move out of the stone age because we ran out of stones.

We did it because we found better ways.

We must have more than a stone age energy policy.

We need a balanced policy that makes the best use of traditional energy sources while promoting the energy sources and practices of the future.

The President's energy policies are focused on what we need for the 21<sup>st</sup> Century.

The Republican plans seem aimed at building a bridge to the 19<sup>th</sup> Century.

Our plan relies on a broad-based and balanced to maximize America's opportunities for affordable energy;

Their plan puts all our eggs in one basket – resource exploitation – and ignores other critical steps we need to take.

Our plan puts money in Americans' pockets from more competition and more energy

efficiency.

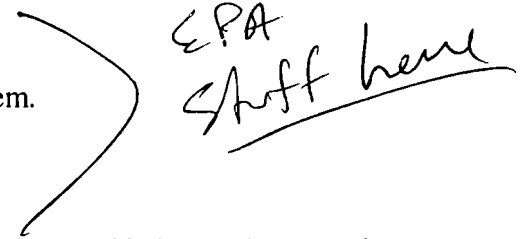
Their plan ignores these opportunities.

Our plan protects our most precious wilderness areas;

Their plan would declare open season on them;

Our plan keeps us on the path to cleaner air and water, and puts us in position to tackle long-term threats like climate change.

Their plan ignores these problems or doesn't believe in them.

A handwritten note in black ink that says "EPA stuff here" with a horizontal line underneath the words "stuff here". A large, hand-drawn arrow points from the right side of the note towards the text "Their plan ignores these problems or doesn't believe in them." in the block above.

Let us look at some specific challenges and specific issues that are likely to arise over the course of the next few months.

First, CAFÉ standards.

Once again, the Congress has prohibited the Administration from even *thinking* about requiring greater fuel economy for our cars.

Where is the sense in this at a time when we are facing supply bottlenecks and higher prices at the pump?

Increasing the average fuel economy for cars and light duty vehicles by just 3 miles per gallon would save almost a million barrels of oil a day.

For those of you keeping score at home, that is equal to rate of output we could expect to get from ANWR by 2015 if we opened it for production tomorrow.

[Conclusion to CAFÉ section???

Next topic, riders.

This Administration has long stated its opposition to legislating broader public policy through

the appropriations process.

This year's crop of anti-environmental riders is particularly troublesome, however.

And right now they are littering numerous bills, including . . .

One of my personal favorites is something called the Knollenberg Amendment which seeks to prevent the Administration from spending any money on the Kyoto Protocol on global climate change.

And Mr. Knollenberg has made clear that what he means by this is – no more negotiation on the treaty to make it more cost-effective and make it more inclusive of developing countries.

Now it is true: some people believe that climate change is not a serious problem meriting serious action.

Some want to tie the Administration's hands so it cannot negotiate the best treaty it can, knowing this could make ultimate ratification more difficult.

The Administration cannot – and will not – “implement” a treaty without Congress' approval.

But Congress should not sabotage the negotiation process or undermine legitimate efforts to curb greenhouse gases.

And by seeking to prohibit us from working on treaty's flexible, cost-cutting mechanisms, Mr. Knollenberg has shown the Republicans' true colors on this issue:

That they are not only behind the American public;

They are only behind the scientific community;

They are, in fact, behind corporate America who urged us to include these measures in the treaty in the first place.

[Again, conclusion to section needed]

[Budget in general]

[Reliability]

[CONCLUSION – not yet written]

Call on Congress to  
pass legislation

**U.S. VULNERABILITY TO OIL-PRICE SHOCKS  
AND SUPPLY CONSTRICTIONS...  
AND HOW TO REDUCE IT**

TESTIMONY OF  
JOHN P. HOLDREN  
FOR THE  
COMMITTEE ON GOVERNMENTAL AFFAIRS  
UNITES STATES SENATE

**OVERSIGHT HEARINGS ON RECENT OIL-PRICE INCREASES**

MARCH 24, 2000

(written testimony revised March 30, 2000)

MR. CHAIRMAN, MEMBERS, LADIES AND GENTLEMEN: I am John P. Holdren, a professor at Harvard in both the Kennedy School of Government and the Department of Earth and Planetary Sciences. Since 1996 I have directed the Kennedy School's Program on Science, Technology, and Public Policy, and for 23 years before that I co-led the interdisciplinary graduate program in Energy and Resources at the University of California, Berkeley. Also germane to today's topic, I am a member of President Clinton's Committee of Advisors on Science and Technology (PCAST) and served as chairman of the 1997 PCAST study of "Federal Energy Research and Development for the Challenges of the 21st Century" and the 1999 PCAST study of "Powerful Partnerships: The Federal Role in International Cooperation on Energy Research, Development, Demonstration, and Deployment". A more complete biographical sketch is appended to this statement. The opinions I will offer here are my own and not necessarily those of any of the organizations with which I am associated. I very much appreciate the opportunity to testify this morning on this timely and important subject.

\* \* \* \* \*

The recent run-up of world oil prices and its reverberations in U.S. markets for gasoline and fuel oil underline a degree of U.S. dependence on imported oil — with associated vulnerability to externally induced oil-price shocks and supply constrictions — that has been growing since 1985. In that year, the United States was importing just under 30% of the oil it used, down from the previous all-time peak of 49% reached in 1977. By 1990, our dependence on imports for our oil was back up to 46% — the result of slowly growing national oil consumption and slowly declining domestic production — and by 1998 our oil-import dependence had reached 55%.

The economic impact of U.S. oil-import dependence is not as great as it was in the late 1970s and early 1980s, however, because the share of oil in our total energy mix has fallen since then, because the total amount of energy needed to make a dollar of GDP has also fallen, and

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There are many minor variations in the way such percentages are computed and reported. These figures and most others in this testimony are from the U.S. Energy Information Administration's *Annual Energy Review 1998*, published in July 1999, augmented by the February 2000 edition of the EIA's *Monthly Energy Report*.

because the real price of oil, even after the recent run-up, remains far below what it was then. Oil (domestic plus imported) constituted 46% of U.S. energy supply in 1979 but only 39% in 1999. The amount of energy needed to make an inflation-corrected dollar of GDP in the United States fell by 30% between 1979 and 1999, and the amount of oil per dollar of GDP fell by 40%. The cost of U.S. net oil imports in 1979 was \$112 billion (expressed in 1999 dollars) or 2.1 percent of GDP, whereas the corresponding figure in 1999 was \$60 billion, amounting to 0.7 percent of GDP.

That the impact of oil-import expenditures on the total U.S. economy is not as great as it once was should not console us much in the current situation, for several reasons. First, as recent events make plain, the impact can still be great in the specific sectors of the economy that remain heavily dependent on oil, most notably the transport sector nationwide and home heating in the Northeast. Second, U.S. dependence on oil imports as a fraction of national energy supply is more than high enough, at around 21 percent, to make the possibility of externally imposed supply constrictions a matter of great concern; indeed, it is seen as imposing requirements on our capacity to defend our access to foreign oil by the use of military force if need be, and hence is a source of military budget requirements as well as a potential source of actual conflict. Third, our 1999 foreign-oil expenditure of 0.7% of GDP is by no means an upper limit: if oil prices stayed near the \$34 per barrel figure they reached in early 2000 and U.S. oil imports nonetheless did not decline, U.S. oil-import costs would reach about 1.3% of GDP. Under "business as usual", moreover, U.S. oil imports are projected to continue to rise, and the price per barrel could go up further still.

It must also be a matter of concern for the future that the fractions of U.S. oil imports (and everybody else's) coming from the OPEC cartel and, within it, from the politically volatile Persian Gulf are more likely to increase with time than to decrease. Currently, the United States gets half of its oil imports from OPEC and half of that amount — a quarter overall — from the Persian Gulf. Worldwide, OPEC accounts for 43% of world crude oil production and 62% of the oil traded internationally, but holds 78% of the world's proved oil reserves. The Persian Gulf alone has almost 30% of world production, 43% of exports, and 65% of proved reserves. That OPEC and the Persian Gulf hold larger shares of reserves than of current production and exports means that their shares of production and exports are likely to increase over time. The prospect of increasing dependence on these unpredictable partners for oil imports — and not just by the United States but also by our friends and some of our potential adversaries — is not reassuring in either economic or national-security terms.

The costs and dangers of the overdependence of the United States and others on imported oil are clearly considerable, and they are likely to grow unless successful evasive action is taken. What have we been doing in this direction and what has it accomplished? What more could and should we be doing now and in the future, and what leverage against the problem might these additional measures yield?

The problem of reducing oil imports below what they would otherwise be can be addressed by (1) decreasing oil consumption below what it would otherwise be, (2) increasing domestic oil production above what it would otherwise be, or (of course) a combination of these. Leaving aside the option of reducing economic activity below what it would otherwise be (which would be seen as part of the problem rather than part of the solution), the possibilities for decreasing oil consumption consist of (1.a) increasing the efficiencies with which oil is converted

to end-use forms and used to produce economic goods and services and (1.b) substituting other energy forms for oil. The possibilities for increasing domestic oil production consist of (2.a) finding and developing new oil fields and (2.b) increasing the quantities of oil recovered from existing fields. In all cases, these outcomes can be pursued through a combination of (i) incentives, investments, and other measures that affect the choices made within the available array of technological options and (ii) incentives, investments, and other measures that lead to improvement of the available array of technological options through research, development, and demonstration.

All of these approaches have been employed in varying degrees over the past two decades, and all of them have a role to play in the decades ahead. All of them can and should be strengthened with further policy initiatives. But analysis of recent history and of the prospects for the future indicates that much larger gains are to be expected from reducing consumption through efficiency increases and substitution than from increasing domestic production.

Consider first the history of efficiency increases and substitution. In the period from 1955 to 1972 (the year before the first Arab-OPEC oil-price shock), the energy intensity of the U.S. economy stayed essentially constant, at about 20 quadrillion Btu per trillion 1992 dollars of GDP. But between 1972 and 1979 (the year of the second and larger oil-price shock), the energy intensity of the economy fell at an average rate of nearly 1.7% per year. Total U.S. energy use in 1979 was 10 quadrillion Btu lower than it would have been if energy intensity had remained at the 1972 value. If oil's share of U.S. energy supply had stayed constant at the 1972 figure of 45.3%, then oil's share of the 10 quadrillion Btu savings attributable in 1979 to post-1972 efficiency improvements would be 4.53 quadrillion Btu, equivalent to 2.1 million barrels per day of crude petroleum.

The share of U.S. energy supplied by oil had fluctuated between 43 and 44 percent from 1955 to 1970, but it rose from the 1970 value of 43.5% to 45.3% in 1972 and 46.0% in 1973. If the 1970-73 rate of increase were taken to be the pre-oil-shock "business as usual" trend (in contrast to the constancy of oil's share in the 15 years from 1955 to 1970), then the oil dependence of the U.S. economy under business as usual would have reached 51.4% by 1979, compared to the actual 1979 value of 45.8%. One may question, however, whether oil's share could have continued to grow at the 1970-73 rate even in the absence of oil price shocks, and I am going to assume for the purposes of these very rough estimates that its share would have leveled off at 50%. (The actual peak, reached in 1977, was 47.5%.) If 50% is taken as the 1985 "business as usual" value, the savings in 1979 attributable to efficiency increases and substitution for oil combined would amount to 4.0 million barrels per day of crude.

From 1979 to 1985 (just before oil prices went into sharp decline), the energy intensity of the U.S. economy fell at an average rate of almost 3.2% per year (reaching 14.4 quadrillion Btu per trillion 1992 dollars in 1985), and oil's share of total U.S. energy supply also fell steadily (reaching 40.3% in 1985). If it is assumed that "business as usual" (no oil price shocks at all) would have resulted in energy intensity continuing to remain at its 1972 value through 1985, and if it is further assumed that oil's share of total energy would have remained at the 50% figure assumed above for 1979, then the oil savings in 1985 attributable to energy efficiency improvements and substitution for oil combined in the period 1972-1985 would be 10 million barrels per day.

From 1985 to 1999 (a period of generally declining real oil prices), the energy intensity of the U.S. economy dropped further to 12.2 quadrillion Btu per trillion 1992 dollars, and oil's share of U.S. energy supply fell a bit further, too, to 39.1%. Compared to what oil use in 1999 would have been at the 1972 energy intensity and a 50% oil share, savings in 1999 amounted to the equivalent of almost 19 million barrels of crude per day — meaning that under “business as usual”, U.S. oil consumption in 1999 could have been twice as large as it actually was.

The effects of price and policy on domestic oil production over the same time period are more difficult to estimate. U.S. domestic production of crude petroleum plus natural gas plant liquids (together characterized as “total petroleum”) peaked in 1970 at 11.3 million barrels per day and by 1973 had declined to 11.0 million barrels per day. Notwithstanding the price signals and other incentives to increase domestic production after the first oil-price shock in 1973, domestic production continued to decline through 1976, when it averaged 9.8 million barrels per day. With the help of the ramp-up of production from Alaska's Prudhoe Bay field, it then increased to a secondary peak of 10.6 million barrels per day in 1985, falling more or less steadily thereafter to 8.1 million barrels per day in 1999. (Alaskan production peaked at 2.0 million barrels per day in 1987 and 1988 and has since declined to 1.0 million barrels per day).

Aside from this Alaskan contribution, without which our domestic production today would be 7 million rather than 8 million barrels per day, it is hard to estimate in any simple way the amount by which price- and policy-induced bolstering of domestic production made the decline in domestic production slower than it otherwise would have been. Advances in seismic exploration, horizontal drilling, and secondary recovery are generally mentioned, but it would take a closer student of these matters than I have been to offer a quantitative estimate of how many barrels per day these advances are currently adding to U.S. production. If they were as much as doubling the current U.S. rate of crude oil production from what it would otherwise be (6 million barrels per day instead of 3 million), their contribution would still be only a sixth as big as my rough estimate of the gains from 1972 to 1999 from improvements in energy efficiency and substitution for oil in the overall energy mix.

What have been the changes in the U.S. energy-supply mix? The increase in coal consumption from 1972 to 1998 was 9.5 quadrillion Btu per year, equivalent to 4.5 million barrels per day of oil; coal's share of U.S. energy supply increased in this period from 16.6% of the total to 22.9%. U.S. natural gas consumption fell from an all-time high of 22.7 quadrillion Btu per year in 1972 to 16.7 quadrillion Btu per year in 1986, then rose again to 21.8 quadrillion Btu per year in 1998; its share of total U.S. energy supply was 31.2% in 1972, only 23.2% in 1998. U.S. nuclear -energy use rose from 0.6 quadrillion Btu per year in 1972 to 7.2 quadrillion Btu per year in 1998, a difference equivalent to 3.1 million barrels per day of oil; the nuclear share of U.S. energy supply went from 0.8 percent in 1973 to almost 8 percent in 1998. U.S. use of renewable energy sources, finally, grew from 4.5 quadrillion Btu per year in 1973 (two thirds of it hydropower, nearly all of the rest biomass) to 7.1 quadrillion Btu per year (51% hydro, 43% biomass, 4% geothermal, 1% solar, 0.5% wind), the growth over this interval being equivalent to

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Oil use for electricity generation, which is the main application where nuclear energy currently substitutes directly for oil, was only 1.5 million barrels per day in 1973 and by 1998 had fallen to 0.6 million barrels per day. The implications of this for the future leverage of nuclear-energy expansion against oil-dependence are discussed below.

1.2 million barrels of oil per day in 1998; the renewable share in the U.S. energy mix was 6.1% at the beginning of this period and 7.5% at the end.

What can be said, then, about the potential for reducing U.S. oil-import dependence in the future?

First, by far the biggest immediate and short-term leverage — as well as a very sizable share of the leverage in the longer term — lies in increasing the efficiencies of oil use (which helps directly) and of energy use overall (which frees up non-oil sources of supply that can then, in principal, substitute for oil). Notwithstanding the impressive efficiency gains between 1972 and today, the technical potential for further improvements remains very large. Rates of reduction in energy intensity were low from 1985 through 1995 (averaging only 0.6% per year), presumably because energy prices declined and the countervailing effects of non-price policies and other factors promoting efficiency improvements were insufficient in this period to offset this. But from 1995 to 1999, the energy intensity of U.S. economy fell at an average of 2.3% per year (many think because of the increasing role of the low-energy-intensity information economy in driving U.S. economic growth). If this higher rate of decline in energy intensity were maintained after 1999 and if the real rate of growth of the U.S. economy after 1999 averaged 3% per year, total energy use in 2010 would be 21 quadrillion Btu lower in 2010 than if energy intensity declined at only 0.6% per year. If oil's share of total energy use remained at 39%, this difference would be worth 3.9 million barrels per day of crude in 2010. The corresponding differences between these high- and low-efficiency futures in 2030 would be 82 quadrillion Btu in total annual energy use and 15 million barrels per day of crude in avoided oil use.

The technical potential for efficiency improvements is nowhere more apparent than in the oil sector itself, where over 12 million barrels per day of petroleum products were being used in 1998 for transportation, 8 million barrels per day of that in the form of gasoline (used mostly in cars, light truck, and motorcycles) and 2 million barrels per day of it diesel fuel (used mostly in heavy trucks and buses). Average automotive fuel economy in the United States has been essentially constant since 1991, at about 21 miles per gallon, the previous trend of improvement having been capped by the combination of low gasoline prices, the absence in recent years of increases in the Corporate Average Fuel Economy (CAFE) standards, and the growing proportion, in the personal-vehicle mix, of sport utility vehicles and pick-up trucks for which the current CAFE standards are lower than for ordinary cars.

But perfectly comfortable and affordable hybrid cars already on the market get 60 to 70 miles per gallon; and fuel-cell powered cars that, with the help of the government-industry Partnership for a New Generation of Vehicles, could be on the market before 2010 should be able to get 80 to 100 miles per gallon, ultimately perhaps more. The arithmetic is simple: doubling the average fuel economy in a fleet of gasoline-burning vehicles the size of today's would save 4 million barrels of oil per day, more in the larger fleet that is likely to exist tomorrow. In the 1997 PCAST study I led on US energy research and development strategy, we estimated that PNGV research culminating in commercial production of advanced vehicles in 2010 could be saving 4 million barrels per day in the United States by 2030. Research to improve the fuel efficiency of light and heavy trucks, also assumed to culminate in commercialization in 2010, was estimated to be able to save another 2 million barrels per day by 2030. (Of course, none of this will happen if the R&D is not done, or if incentives to commercialize the resulting innovations are absent; more about that below.)

On the supply side, the potential to abate the slide in domestic oil production seems quite limited by comparison. Under the “reference” scenario of the Energy Information Administration’s *Annual Energy Outlook 2000*, which assumes a degree of continuing technological innovation in domestic oil production, domestic oil production declines by 0.6 million barrels per day between 1998 and 2005 and then remains flat at around 7.3 million barrels per day from 2005 until 2020. An alternative scenario in which the world oil price in 2020 reaches \$28 per barrel (in 1998 dollars, compared to \$22 per barrel in these constant dollars in the reference scenario) yields domestic production in 2020 only 0.8 million barrels per day higher than in the reference scenario, barely more than the 1998 level. (In the EIA scenarios, oil imports in 2020 in the reference case are 17.2 million barrels per day, and in the higher-oil-price case they are 15.4 million barrels per day.) The 1997 PCAST energy R&D study projected that application of the additional R&D it recommended on exploiting marginal domestic petroleum resources would yield only about an extra million barrels per day in 2010, which would not increase further out through 2030.

Some are suggesting that important leverage on the domestic-oil-production side of the problem could be gained by opening the coastal shelf of the Arctic National Wildlife Refuge (ANWR) to oil development (from which, it appears, no contribution was assumed in any of the EIA scenarios). The numbers do not suggest that this is a high-leverage proposition, however. It is not certain that oil would be found in the ANWR. Estimates of how much might be recoverable, if it is found there, have ranged from 3 billion barrels (by the Congressional Office of Technology Assessment in 1989), to 3.6 billion barrels (by the Department of Interior in 1991), to 4-12 billion barrels (by the USGS in 1998). This means, in round numbers (and assuming oil would be found there in one of the indicated quantities), that ANWR could provide between 6 months and 2 years’ current US oil supply, or 1 to 4 years’ current imports, or 4 to 16 years’ current imports from the Persian Gulf.

To anticipate an actual oil-production trajectory, one may note that, at the upper end of the range of estimates, the ANWR would be comparable to the Prudhoe Bay field; if that were so, a production trajectory similar to Prudhoe Bay’s would presumably ensue — a couple of decades of production at 1.5-2 million barrels per day and a few decades thereafter at around 1 million barrels per day. The question that policy makers must answer is whether the *possibility* of a contribution of this magnitude justifies the modest but certain environmental damage of exploration — and the certainty of larger environmental damage from production and transport if oil is found. Given that a comparable contribution to oil-import reduction could be obtained by pushing only modestly harder for efficiency increases, and given that doing the job with efficiency instead would have large ancillary environmental benefits (such as reductions in emissions of air pollutants and greenhouse gases) rather than major environmental costs, my own view is that the right answer on ANWR is “no”.

The supply-side options with the largest short-term and medium-term potential to directly displace oil in the U.S. energy mix are natural gas and biofuels. Natural gas could displace oil in a number of industrial applications, in home heating, and in motor vehicles (where engines have been modified to run on compressed natural gas, or on methanol made from natural gas, or where fuel cells running on hydrogen made from natural gas have replaced combustion engines). The 1997 PCAST energy R&D study discussed these possibilities but did not offer specific estimates of potential contributions over time.

The EIA Annual Energy Outlook 2000 scenarios for 2020 include contributions of natural gas as motor-vehicle fuel up to some 200,000 barrels per day. The potential is clearly larger, however. The source of the natural gas for these oil-displacing transport-fuel options could be displacement of gas from electricity generation by other non-oil options (about which more below) or extra domestic natural-gas production resulting from increased rates of technical innovation in gas exploration and recovery. (The difference in domestic natural-gas production in 2020 between the "high technological change" and "low technological change" EIA scenarios is 4 quadrillion Btu per year, the equivalent of almost 2 million barrels of crude oil per day.)

As for liquid fuels from biomass, the 1997 PCAST study estimated that an aggressive program to produce ethanol from cellulosic biomass could be displacing 2.5 million barrels per day of oil by 2030 and over 3 million barrels per day in 2035. The PCAST report also identified other biofuels options for this time period without attempting to estimate their potential quantitatively. This indicates that the 2.5-3 million barrel per day range by 2030-35 is not an upper limit. The EIA scenarios, by contrast, only show about 125,000 barrels per day of motor-fuel displacement by ethanol in 2020, but that study did not give much attention to possibilities for rapidly expanding non-electric renewable-energy technologies. I believe the PCAST assessment gives a more meaningful indicator of the direct oil-displacement potential of biomass fuels.

The Administration's initiative on "Promoting Bio-based Products and Technologies", announced last August, posed a target of tripling use of energy and products from biomass in the United States by 2010. (This would include the use of biomass for electricity generation and cogeneration, about which more below, as well as production of high-value chemicals.) Inasmuch as biomass energy use in this country in 1998 was about 3 quadrillion Btu per year, the stated goal implies an addition of 6 quadrillion Btu per year by 2010, equivalent in energy content to almost 3 million barrels per day of crude oil.

Production of liquid hydrocarbon fuels from coal is technically feasible using a variety of relatively well developed approaches, but it is not economically competitive with oil at recent or current oil prices, nor is it currently competitive with production of liquid fuels from natural gas. In addition, production of liquid fuels from coal using existing technology results in carbon dioxide emissions to the atmosphere about twice as large, per barrel, as for petroleum, which would be a major drawback in light of the desirability of minimizing climate-change risks. As oil and natural gas become more expensive over time, advanced coal-to-liquids technologies that can capture and sequester carbon dioxide rather than releasing it to the atmosphere may eventually become attractive. The 1997 PCAST study concluded that "indirect" liquefaction of coal (which entails gasifying it first and then making liquid fuels from the gas) is far more promising in its combination of economic and environmental characteristics than "direct" liquefaction; we recommended phasing out DOE's research on direct liquefaction and shifting the funds into the gasification-based "Vision 21" program for advanced coal technology and into R&D on carbon sequestration and other forms of emissions reduction.

There is some potential for reducing U.S. oil consumption by replacing oil-fired electricity generation with other fuels, but it is quite limited. In 1998, oil generated only 3.6% of U.S. electricity, and doing so accounted for only about 3% of U.S. oil consumption (about 600,000 barrels per day). Most of the potential that this represents is captured in the EIA reference scenario, where a 3-fold drop between 1998 and 2020 in oil use for electricity generation reduces oil use by 400,000 barrels per day. Much of the rest of the leverage of the electricity sector

against oil consumption is indirect, through the potential of alternative electricity options to displace natural gas from electricity generation, which as noted above could in turn displace oil in the industrial, residential, and transport sectors. Electricity can also displace oil through the electrification of some of the end-uses that oil serves, such as replacing residential oil-fired heaters with electric heat pumps and shifting commuters out of their cars and into electricity-powered public transit systems. The latter has so far proven very difficult to achieve on a large scale, however, and the former represents only a modest market nationally: home heating with oil uses only about 1.1 quadrillion Btu per year, corresponding to an average of some 500,000 barrels per day if pro-rated over the year.

Total U.S. electricity generation in 1998 was 3620 billion kilowatt-hours, of which 1872 billion kWh came from coal, 674 billion kWh from nuclear energy, 532 billion kWh from natural gas, 129 billion kWh from oil, 324 billion kWh from hydropower, 55 billion kWh from biomass, 14 billion kWh from geothermal, 3.5 billion kWh from wind, and 0.9 billion kWh from solar energy. In the EIA's reference scenario for 2020, coal-fired electricity generation increases to about 2300 billion kWh, gas-fired generation increases to nearly 1300 billion kWh, nuclear energy declines to about 425 billion kWh (because of retirements of some of the existing nuclear power plants in the absence of replacement by new ones), and renewable-based electricity generation in aggregate stays roughly constant.

From an environmental standpoint and quite possibly also from an economic one, the most attractive candidates to displace some of the growth of gas-fired generation envisioned in the EIA scenario (and thereby make gas available to displace oil in other sectors) are the non-hydro renewables. A very conservative estimate of their potential for doing so out to 2020 is provided by the EIA "high renewables" scenario, which in 2020 obtains 112 billion kWh from biomass, 62 billion kWh from wind, 40 billion kWh from geothermal, and 2.7 billion kWh from solar. The additional non-hydro renewable generation in this scenario, compared to the 1998 figure, totals 140 billion kWh — equivalent to about 700,000 barrels per day of oil.

This EIA estimate of renewable-electric potential is conservative because the EIA study did not consider the possibility of world oil-price increases above 28 1998 dollars per barrel or the possibility of major policy changes that would have the effect of sharply increasing the incentives for expanding the use of non-fossil-fuel options. The 1997 PCAST study made some estimates of what might be achievable from renewable-electric options under prices or policies that encouraged these options very strongly, and the resulting figures were far higher than those in the EIA scenario: they included as much as 1100 billion kWh by 2025 from wind systems with storage technologies, similar quantities by 2035 from photovoltaic and solar-thermal-electric systems with storage, 800 TWh by 2035 from biopower, and 1500 TWh by 2050 from hot-dry-rock geothermal. These are described as possibilities, not predictions, but the figures are indicative of very large potential: 1000 billion kWh per year is the equivalent of about 5 million barrels of oil per day.

Because there are no new nuclear power plants on order in the United States — and not likely to be as long as gas-fired electricity generation remains much cheaper than nuclear generation — the range of nuclear contributions in 2020 in the EIA scenarios depends only on the rate of nuclear-plant retirements versus license extensions for additional years of operation. The difference between the EIA's "high nuclear" and "low nuclear" variations in these respects amounts to 200 billion kWh in 2020, equivalent to 1 million barrels of oil per day. The 1997

PCAST study recommended a modest increase in Federal nuclear-energy R&D in order to clarify safety issues associated with license extension, and it recommended a somewhat larger and longer-term Nuclear Energy Research Initiative focused on clarifying the prospects for improvements in the cost, safety, waste-management, and proliferation-resistance characteristics that will determine whether deploying a new generation of nuclear reactors in the United States in the longer term becomes a real option. PCAST also recommended an increase in the funding for R&D on fusion energy, which although it remains far from commercialization today could conceivably make a large contribution to electricity generation in the second half of the 21st century.

The overall technical potential to reduce U.S. oil dependence through the use of a wide range of currently available and still to be fully developed alternative technologies is clearly very large. The key to the use of the currently available options is incentives, about which more below. The keys to achieving the potential of the emerging options are, first, research, development, and demonstration; and, second, incentives to help bring about the commercialization and widespread deployment of the innovations that result from research, development, and demonstration.

Concerning energy research and development, the 1997 PCAST study argued that such R&D is valuable for a range of reasons. Not only can innovation in energy technology help reduce costly and dangerous overdependence on foreign oil, PCAST said, but it can reduce consumer costs for energy supplies and services below what they would otherwise be, increase the productivity of U.S. manufacturing, improve U.S. competitiveness in the multi-hundred-billion-dollar-per-year world market for energy technologies, improve air and water quality, improve the safety and proliferation resistance of nuclear energy operations around the world, help position this country and the world to cost-effectively reduce greenhouse-gas emissions to whatever degree our societies ultimately deem necessary, and enhance the prospects for environmentally sustainable and politically stabilizing economic development in many of the world's potential trouble spots.

Many of these benefits fall under the heading of "public goods", meaning that the private sector is not likely to invest as much to attain them as the public's interest warrants. That is one of the principle reasons why, even though the private sector does and will continue to do a great deal of valuable energy R&D, there remains a powerful rationale for government support for and participation in such R&D, as well. I should perhaps emphasize at this point that there was strong industry representation on the PCAST energy R&D panel -- and balance across the fossil-fuel, nuclear, renewables, and end-use-efficiency sectors. I also want to emphasize that many of the recommendations involved the expansion of public-private partnerships in energy research, development, and demonstration, helping to ensure an appropriate combination of market relevance and public benefits in the results.

Notwithstanding the indicated benefits of strong government participation in energy research, development, and demonstration, the PCAST panel found that Federal funding for applied energy-technology R&D had declined drastically in the preceding two decades. Just prior to the first oil-price shock in 1973, this spending had totaled about \$1.3 billion per year (converted to constant 1997 dollars), more than 80 percent of it for nuclear fission and fusion and most of the rest in fossil-fuel technologies. Between 1974 and 1978, the total shot up to over 6 billion 1997 dollars, in pursuit of "Project Independence" — independence, that is, from foreign oil. This large expansion in Federal energy R&D was accompanied by a great diversification, with

large increments for renewables and efficiency in addition to expansion of the nuclear and fossil-fuel efforts. But after 1978, these expenditures went into a long decline, interrupted briefly and modestly in 1987-92 by an expansion of public-private partnerships in clean-coal R&D; by FY1997, Federal investments in applied energy-technology R&D were back to the 1973 level — \$1.3 billion per year in constant 1997 dollars. (The diversity of the FY1997 program was much greater than that of FY1973, however, being quite evenly split among nuclear energy, fossil fuels, renewables, and efficiency; within the nuclear part, fission had almost disappeared, with fusion dominant. As a fraction of real GDP of course, the 1997 energy technology R&D funding was only about half that of 1973.)

Although some of the post-1978 reductions represented cancellations of oversized development projects that deserved this fate, the PCAST panel concluded that the Federal energy-technology R&D programs that remained in 1997 were “not commensurate in scope and scale with the energy challenges and opportunities that the twenty-first century will present”, taking into account “the contributions to energy R&D that can reasonably be expected to be made by the private sector under market conditions similar to today’s”. Accordingly, the panel recommended modifications to DOE’s applied energy-technology (fossil, nuclear, renewable, efficiency) R&D programs that would increase funding in these categories from their FY1997 and FY1998 level of \$1.3 billion per year to \$1.8 billion in FY 1999 and \$2.4 billion in FY 2003. The principal recommended increases were (in descending order) in efficiency, renewable, and nuclear (fusion and fission) technologies; recommended initiatives in the fossil category were largely offset by recommended phase-outs. The proposed R&D portfolio addressed the full range of economic, environmental, and national-security challenges related to energy, in their shorter-term and longer-term dimensions. Also recommended were a number of improvements in DOE’s management of its R&D efforts. Notwithstanding the diversity of the panel and the complexity of the issue, all of these recommendations were unanimous; there were no dissenting views.

The administration embodied a considerable fraction of this advice in its FY1999 budget request (which contained a total increment about two-thirds of what PCAST recommended for that year) and the Congress appropriated a considerable fraction of that (about 60 percent of the increment requested by the administration). The net result was an increment about 40 percent as large as PCAST recommended for FY1999. The overall PCAST recommendations for FY1999 through FY2003 and their fate in administration requests and Congressional appropriations so far are summarized in the following table. As is apparent there, the requests and the appropriations are growing, but not nearly as rapidly as PCAST recommended. What has been achieved is much better than nothing; but it is not enough.

Table 1. Federal Energy Technology R&D: Congressional Appropriations, Administration Requests, PCAST Recommendations (as-spent dollars)

	effic	renew	foss	nucl fiss	nucl fusr	total
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FY98 appropriation	430	272	356	7	217	1282
FY99 appropriation	503	336	384	30	222	1475
Admin request	594	372	383	44	228	1621
PCAST reccmdtn	615	475	379	66	250	1785
FY00 appropriation	546	315	395	40	253	1549
Admin request	655	398	340	41	222	1656

PCAST reccmdtn	690	585	406	86	270	2037			
FY01 Admin request	630	410	385	52	247	1724			
PCAST reccmdtn		770		620		433	101	290	2214
FY02 PCAST reccmdtn		820		636		437	116	320	2329
FY03 PCAST reccmdtn		880		652		433	119	328	2412

As a follow-up to a recommendation in the 1997 study that more attention should be devoted to the opportunities for strengthening international cooperation on energy innovation, PCAST conducted in 1998-99, at the President's request, an additional study (which I also chaired) focused on the rationales for and ingredients of an appropriate Federal role in supporting such cooperation. The resulting 1999 report, "Powerful Partnerships", noted that many characteristics of the global energy situation that affect U.S. interests will not be adequately addressed if responses are confined to the United States, or to the industrialized nations as a group. The oil-import problem is one compelling example of this, insofar as the pressures on the world oil market — and the disruptive potential residing in the concentration of the world's oil resources in the Persian Gulf — depend on the extent to which many other countries besides the United States are relying on imported oil. The solution therefore depends on the pace at which oil-import-displacing energy options are deployed in other countries, not just in the United States.

The panel found that the world oil problem is far from the only reason for international cooperation on energy-technology innovation, however. This case was summarized in the letter of transmittal as follows:

*How the global energy system evolves in the decades ahead will determine the extent of world dependence on imported oil and the potential for conflict over access to it; the performance of nuclear energy systems on whose safety and proliferation resistance the whole world depends; the pace of global climate change induced by greenhouse-gas emissions from fossil-fuel combustion; and the prospects for environmentally sustainable economic development that will build markets for U.S. products and reduce the role of economic deprivation as a cause of conflict. U.S. participation in international energy-technology cooperation, in forms and degrees beyond what can or will be undertaken by the private sector alone, is also likely to be crucial in gaining and maintaining access for U.S. firms to many of the fastest-growing segments of the multi-hundred-billion-dollar-per-year global energy-technology market.*

The panel found further (this from the Executive Summary) that

*existing Federal activities in support of international cooperation on energy innovation — carried out by DOE, USAID, and a variety of other agencies and spending altogether about \$250 million per year — are generally well focused and effective. But they are not commensurate in scope and scale with the challenges and opportunities that the international energy arena presents, and they suffer from the lack of an over-arching strategic vision and corresponding coordination to link the activities within and across the agencies into a coherent whole. A particularly conspicuous gap in the government's energy-cooperation activities exists in the demonstration and cost-buy-down stages of the innovation process (between R&D, where DOE's efforts are mainly focused, and deployment, where the activities of the trade-promotion and development agencies are mainly focused). The dearth of activities in this category is substantially slowing the pace at which advanced energy technologies reach commercial viability.*

It recommended

*substantially strengthening these Federal efforts -- expanding their coverage, increasing their funding, improving the processes for their evaluation, and providing for them an over-arching strategic vision and a mechanism for coordinating its implementation. We propose specific initiatives for strengthening the foundations of energy-technology innovation and international cooperation relating to it (including capacity building, energy-sector reform, and mechanisms for demonstration, cost-buy-down, and financing of advanced technologies); for increased cooperation on research, development, demonstration, and deployment (RD<sup>3</sup>) of technologies governing the efficiency of energy use in buildings, energy-intensive industries, and small vehicles and buses, as well as of cogeneration of heat and power; and for increased cooperation on RD<sup>3</sup> of fossil-fuels-decarbonization and carbon-sequestration technologies, biomass-energy and other renewable-energy technologies, and nuclear fission and fusion. Most importantly -- for without this none of the other initiatives we propose are likely to achieve their potential -- we recommend creation of a new Interagency Working Group on Strategic Energy Cooperation, under the auspices of the National Science and Technology Council, to provide a strategic vision of and coordination for the government's efforts in international cooperation on energy-technology innovation. The government's contribution to this expansion of international energy cooperation activities would be provided by a new Strategic Energy Cooperation Fund amounting to \$250 million for FY2001 and increasing to \$500 million in FY2005, the proposed allocation of which to the relevant agencies in the President's budget request would be determined with the help of the Interagency Working Group.*

In a decision memorandum last September responding to the report, President Clinton directed that the indicated interagency working group be formed and that the relevant agencies consider the PCAST panel's funding recommendations in preparing their FY2001 budget requests. All this was done. The budget request ultimately submitted by the administration to the Congress contains \$100 million in FY2001 for initiatives arising from the new PCAST recommendations. I very much hope the Congress will treat these initiatives favorably, because I believe that they — along with the national energy R&D initiatives recommended in the 1997 PCAST study — represent indispensable ingredients of the technology component of an appropriate strategy for addressing the oil-import challenge as well as many other ingredients of the energy/economy/environment problem.

Another crucial ingredient of such a strategy is the array of price and non-price incentives and other policies that will shape the pace at which the best available technologies for reducing oil imports get deployed (as well as affecting the pace of private-sector research to improve such technologies)...but that is a matter for another day. I thank you for the opportunity to put these views before the Committee.

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**JOHN P. HOLDREN** is the Teresa and John Heinz Professor of Environmental Policy and Director of the Program on Science, Technology, and Public Policy in the John F. Kennedy School of Government, as well as Professor of Environmental Science and Public Policy in the Department of Earth and Planetary Sciences, at Harvard University. Trained in aeronautics/astronautics and theoretical plasma physics at MIT and Stanford, he co-founded in 1973 and co-led until 1996 years the campus-wide interdisciplinary graduate degree program in Energy and Resources at the University of California, Berkeley. A member of both the National Academy of Sciences and the National Academy of Engineering, he is the author of some 300 articles and reports on energy technology and policy, global environmental change, and international security, as well as co-author or co-editor of 15 books on these subjects. He is Chair of the Committee on

International Security and Arms Control of the National Academy of Sciences, Chair of the National Research Council's Committee on US-India Cooperation on Energy, and a member of President Clinton's Committee of Advisors on Science and Technology (PCAST). In connection with PCAST, he has chaired studies for the White House on protection of nuclear-bomb-materials, the U.S. fusion-energy R&D program, energy R&D strategy for the challenges of the 21st century, and international cooperation on energy-technology innovation.

## PRESIDENT CLINTON AND VICE PRESIDENT GORE'S ENERGY POLICY

June xx, 2000

President Clinton and Vice President Gore believe that ensuring access to affordable, and environmentally responsible energy is central to maintaining our unparalleled economic growth and prosperity, and to protecting the health of both our environment and our citizens, and that high levels of oil imports undermine our energy security. Unlike Congressional Republicans, however, they recognize the importance of a balanced approach.

The Republican's response to increasing dependence on imported oil is to promote ever-increasing levels of drilling for oil in the pristine wilderness of Alaska, on other Federal lands, and off-shore. In sharp contrast, the President and Vice President support a comprehensive approach to enhancing our energy security including responsible oil and gas development, combined with support for alternative and renewable sources of energy, efforts to increase the energy efficiency of the economy, and efforts to improve the efficiency and reliability of the Nation's energy infrastructure. For instance, they support policies such as the Administration's Bioenergy Initiative, which would reduce oil consumption by \_\_\_\_\_, greater than the volume of oil available in the Arctic National Wildlife Refuge at peak production, and comprehensive electricity restructuring, which would promote the development of clean efficient power plants while reducing consumer costs by over \$20 billion annually.

### Key Components of Clinton/Gore Energy Policy:

- I. Developing and Promoting Traditional, Renewable and Alternative Sources of Energy
- II. Spurring Greater Energy Efficiency and Reducing Consumer Costs
- III. Enhancing Infrastructure Reliability and Increasing Efficiency Through Comprehensive Electricity Restructuring
- IV. Furthering Our Ability to Respond to Energy Supply Emergencies

**I. Developing and Promoting Traditional, Renewable and Alternative Sources of Energy:** To meet our need for energy from traditional sources, the Administration actively supports a balanced package of investments, tax incentives, regulatory and administrative actions to promote the exploration and development, where appropriate, of traditional energy sources, while striving to protect the sensitive environments that are an important part of our natural heritage. The President and Vice President have proposed and supported:

- Investments and tax incentives to support the domestic energy industry;
- Investments and tax incentives to spur the development of renewable and alternative sources of energy;
- Investments to develop clean coal technologies and to extend the life of nuclear power plants;
- An Ultra-Clean Fuels Initiative to develop cleaner fuels that can be produced by existing refineries;
- Responsible Drilling on Federal Lands and in Federal Waters;
- Improvements in the system to collect royalties from oil and gas production on Federal land and in Federal water, thereby lowering costs incurred by the industry;
- Investing over \$400 million (FY 2001 budget) to support development of domestic sources of renewable energy, including wind, photovoltaics and geothermal energy;
- Investing over \$289 million (FY 2001 budget) in a bioenergy initiative that will help us develop new fuels for our cars that will reduce U.S. oil consumption; and,
- Tax credits to promote wind, solar and biomass energy.

**II. Spurring Greater Energy Efficiency and Reducing Consumer Costs:** Increased energy efficiency has significantly enhanced our energy security by reducing our demand for imported oil. For example, in 1974, we consumed 15 barrels of oil for each \$10,000 of GDP; today we only consume 8 barrels of oil per unit of GDP. To take full advantage of these opportunities, the President and Vice President have proposed policies to promote energy security by accelerating the research, development, and deployment of alternative and more efficient energy technologies:

- Investments to develop technologies to make homes and buildings more energy efficient;
- Weatherizing low income homes, reducing homeowners' energy costs and the demand for oil;

- Making America's Vehicles More Efficient. The Partnership for a New Generation of Vehicles is on track to deliver attractive, affordable cars that get up to three times the fuel efficiency of today's cars. (Increasing the average fuel economy for cars and light duty vehicles by just three miles per gallon would save almost a million barrels of oil per day, the equivalent to the amount of oil we could expect to produce by 2015 if we opened ANWR for production tomorrow.);
- Creation of a new Clean Air Partnership Fund to help States and localities become more energy efficient;
- Tax Credits For Electric, Fuel Cell, and Qualified Hybrid Vehicles; — \$ savings
- Tax Credits for Efficient Homes and Buildings. — Increasing the efficient use of power;
- Reducing energy demand in Federal buildings, cutting energy costs by 35 percent costs by 2010 compared to a 1985 baseline; and,
- Energy Star® product and building partnerships, to provide consumers with information to purchase more efficient products and work in more efficient buildings.

### III. Increasing Infrastructure Efficiency and Reliability Through Comprehensive Electricity

**Restructuring:** Enactment of the Administration's proposed legislation will lower electricity prices, clean the environment, encourage innovation and new services, and increase the reliability of our nation's power supply grid. It will also enhance energy security by enabling us to operate our economy on less fuel. The President and Vice President's proposed legislation, which Congress had failed to act on for over two years would:

- Provide \$20 billion in annual savings to America's families, saving typical family of four \$232 per year;
- Strengthen Reliable Service by requiring all participants in electric transactions on the grid to comply with mandatory reliability standards developed by a reliability organization; and,
- Improve the environment, through both market mechanisms and policies that promote investments in energy efficiency, renewable energy, distributed power and combined heat and power technologies.

**IV. Furthering Our Ability to Respond to Energy Supply Emergencies:** Notwithstanding our best efforts to promote a diverse and secure supply of energy, the fact remains that we import a sizeable portion of the oil we consume. In order to mitigate that risk, and to address emergencies created by unusually cold or warm weather, the Administration supports:

- continued authorization of the Strategic Petroleum Reserve;
- The creation of a Northeast/New England Home Heating Oil Reserve; and,
- Full funding of emergency fund in the Low Income Home Energy Assistance Program (LIHEAP).

**Republican Complaisance on Energy Policy:** Under Republican leadership, Congress has failed to responsibly address critical elements of the Administration's comprehensive agenda. In fact, Congress has abrogated its responsibility to prepare the Nation for energy emergencies, to support modernizing and enhancing the reliability of the electrical grid, to promote a balanced energy policy by ignoring opportunities to reduce demand through increased efficiency, and to move towards alternative fuels that enhance energy security while protecting the environment. Instead, Congress has:

- Failed to extend authorization of the Strategic Petroleum Reserve;
- Failed to create a home heating oil reserve;
- Failed to replenishing the Low Income Home Energy Assistance Program Emergency Fund;
- Failed to enact comprehensive electricity restructuring;
- Failed to enact tax incentives to support domestic oil industry and to promote renewable energy;
- Failed to enact tax increases to support development of efficient cars;
- Prohibited the Administration from even examining an increase of auto fuel efficiency standards.

**Republican Priorities:** Instead of promoting a balanced approach, Republican leaders in energy policy have focused their enthusiasm on efforts to support:

- More drilling for oil in the Arctic National Wildlife Refuge, the greatest pristine wildlife reserve in the Nation;
- More drilling on Federal lands; and,
- More drilling off-shore.

## Energy Policy Speech Outline

**I. Introduction.** U.S. now enjoying the longest economic expansion in its history. Fueling – literally – this booming economy has been a steady, reliable supply of affordable energy. Challenge for America now is to ensure that we continue to have access to energy that is affordable, reliable, and safe -- both for our environment and the health of our citizens. There are essentially two visions about how we can meet this challenge.

- **First, there is the balanced, forward-looking approach.** This approach seeks to:
  - Diversify our energy supply;
  - Infuse our energy sector with both efficiency and competition;
  - Protect our environment and the health of our citizens;
  - Protect our citizens against emergencies in the energy market.
  - This is the approach Administration has been pursuing these past seven years.
- **Second, there is the short-sighted, backward approach.** This approach:
  - Looks solely at the supply side of the equation;
  - Main - if not only focus - is drilling more holes in the ground & the ocean bottom;
  - It says never mind whether or not this is most efficient way to meet our energy needs, or how ecologically sensitive the area;
  - Never mind the lost opportunities in efficiency for consumers and businesses;
  - And never mind preparing America for emergencies;
  - This is approach favored by Republicans in Congress.

Here to tell you that the President and Vice President are not going to accede to Republican vision. They believe passionately that building a sound energy future – one that integrates economic and environmental concerns – is absolutely critical to America’s future. And they are willing to fight for it.

**II. The Administration’s Comprehensive, Forward-Looking Energy Policy.** The Administration has in place a package of investments, tax incentives, and regulatory measures to expand our supply base; slow the growth of demand; and protect the environment. We have accomplished much – and have proposals on the table that will allow us to accomplish still more. .

### **A. Power Sector**

#### Supply Side

- Investments to develop clean coal technologies, expand life of nuclear plants, environmentally sound hydro resources.
- Investments & tax incentives to spur development of wind, solar & geothermal
- Restructuring legislation to promote competition, efficiency, reliability. Would provide \$20 billion in savings to American families while helping the environment.

#### Demand Side

- Investments in R&D to make homes and buildings more energy efficient
- Weatherizing low-income homes, reducing homeowners costs and reducing demand
- Tax credits for energy efficient homes
- Reducing Federal energy use

- Raising Federal appliance standards
- Promoting Energy Star products and buildings
- Proposed Clean Air Partnership to help communities become more energy efficient

## **B. Transportation Sector**

### Supply Side

- Energy diplomacy to expand supply base
- Investments and tax incentives to support the domestic oil industry
- Responsible drilling on Federal Lands and in Federal Waters
- Improvements in royalty collection system for oil and natural gas (lowering costs)
- \$289 million in proposed investment in bioenergy initiative that will help us develop new, cleaner fuels for our cars
- Tax incentives for bioenergy production
- Ultra-Clean Fuels Initiative aimed at producing cleaner fuels in existing refineries

### Demand Side

- Investments for making vehicles more fuel efficient (PNGV & 21<sup>st</sup> Century Trucks)
- Tax incentives for electric, fuel cell, and hybrid vehicles

**C. Preparing for Emergencies.** Despite our best efforts, fact remains that we import a sizeable portion of the oil we consume. To mitigate risks that arise from this, Administration supports:

- Continued authorization of Strategic Petroleum Reserve
- Creation of Northeast/New England Home Heating Oil Reserve
- Full funding of emergency fund in the Low Income Home Energy Asst. Program

**D. Integration of Environmental Concerns.** Because the Administration's energy policy takes a balanced approach – looking at supply and demand; looking at cutting edge technologies – we have been able to integrate environmental concerns into our energy policy. Many of the initiatives I've discussed have obvious environmental benefits, but also look at big picture:

- Since 1990, economy has grown 35%
- But emission of pollutants, like SO<sub>x</sub> and NO<sub>x</sub>, are down.
- Even carbon emissions – leading ghg – has grown by considerably less (\_\_\_%) than the economy.

Data starting to prove the President right. We live in a fundamentally new era where the Big Idea of the industrial revolution – that you had to pollute more to grow more – just isn't true any more if you make wise policy choices.

**III. The Energy “Policy” of the Republican Congress.** Administration's energy policies have accomplished much. But much also remains to be done. We have real proposals on host of critical energy issues that are before the Congress right now – and the ball is in their court.

### **A. Under Republican leadership, Congress has failed act responsibly:**

- Failed to extend authorization of Strategic Petroleum Reserve
- Failed to create a home heating oil reserve;
- Failed to replenish Low Income Home Energy Assistance Program Emergency Fund;
- Failed to enact comprehensive electricity restructuring
- Failed to enact tax incentives to support domestic oil industry and promote renewables;

- Failed to enact tax incentives to support development of more efficient cars.
- Loaded up spending bills with anti-environmental, anti-common sense riders that throw a wrench into formulation of forward-thinking energy policy.

**B. Republican Priorities.** Every one is talking about the new Disney movie, Dinosaur. But if you want to see a really scary fossil, you ought to take a look at the Republican energy policy now stalking the halls of Congress. Republicans focus only on the supply side and only a narrow part of the supply side – the fossil side.

- More drilling in Arctic National Wildlife Refuge
- More drilling on Federal lands
- More drilling offshore
- President's energy policy is aimed at 21<sup>st</sup> century. Republicans is aimed at building a bridge to the 19<sup>th</sup> century.
- The issue is not whether we are running out of oil – we're not. But we didn't move out of the stone age because we ran out of stones. We did it because we found better ways. We must have more than a stone age energy policy. We need a balanced policy that makes the best use of traditional energy sources while promoting the energy sources and practices of the future.

**C. Choices Are Clear**

- Our plan maximizes America's opportunities to continue receiving affordable energy; their plan puts all our eggs in one basket and ignores other critical steps we need to take.
- Our plan improves the energy efficiency of our economy; their plan ignores these opportunities.
- Our plan puts us in a position to continue making progress on near-term environmental threats such as protecting wilderness and cleaning up our air and long-term threats like climate change; their plan ignores these threats or doesn't believe they are real.

[need more here]

**IV. Where This Leaves Us.** Thanks to the delay, inaction, and obstructionism of the Congress, America has been left unprepared or only half-prepared for many of the energy challenges of both today and tomorrow. Specifically:

- Reliability
- Riders
- CAFÉ
- Knollenberg/Emerson
- Budget

[need to flesh these out – need language on reliability from Ron/DOE]

**V. Conclusion.**

## **PRESIDENT CLINTON'S ENERGY POLICY**

June xx, 2000

Among the most important challenges America faces is ensuring that we have access to secure, affordable, and environmentally responsible energy. The "first principle" of the Administration's energy policy has been a reliance on free markets as the best means of informing supply and demand, and getting the most for the American consumer. Our commitment to this principle has been central to maintaining unparalleled economic growth and prosperity, and to protecting the health of both our environment and our citizens. Over the past decade, energy demand, while increasing, has been out-paced by the dramatic economic growth achieved by the Clinton/Gore Administration. We have met this growing demand through a combination of measures designed to both increase energy supplies and improve the energy efficiency of our homes, autos and industry. This proven track record demonstrates that through wise policy choices and informed, targeted investment of public dollars, we can sustain strong economic growth fueled by relatively affordable energy, while at the same time protecting the environment and public health.

The Clinton/Gore Administration has published two statements of its national energy policy in recent years: Sustainable Energy Strategy (July 1995) and The Comprehensive National Energy Strategy (April 1998). Both documents provide a guide to energy policies proposed and implemented by the Administration, and seek to ensure that energy policy is well integrated into the Nation's economic and national security policies. The Department of Energy is currently in the process of updating the CNES and should be releasing this update shortly.

### **Key Components of the Clinton Energy Strategy**

- **Developing and Promoting Traditional, Renewable and Alternative Sources of Energy**
- **Spurring Greater Energy Efficiency and Reducing the Consumer Costs**
- **Increasing Infrastructure Efficiency and Reliability Through Comprehensive Electricity Restructuring**
- **Furthering Our Ability to Respond to Energy Supply Emergencies**

The Clinton/Gore Administration's comprehensive energy policy seeks to harness the power of the marketplace to promote the development of reliable, affordable, and cleaner energy necessary to maintain our economic growth. At the same time, the Administration has developed policies and initiatives that recognize the importance of balancing our efforts to increase the supply of energy with a concerted effort to increase the energy efficiency of the economy, thereby enhancing our energy security by reducing our reliance on imported energy and insulating our economy from short-term market fluctuations in energy prices.

Recognizing that over forty percent of the nation's energy bill is spent on electricity, the Clinton/Gore Administration's comprehensive electricity restructuring proposal will break new ground in extending the role of competition into the electricity sector. By injecting more competition, restructuring will reward more efficient, more reliable, cleaner uses of electricity throughout our economy. Finally, the Administration supports the establishment and maintenance of programs to respond to temporary energy supply shortages (e.g., Strategic Petroleum Reserve, home heating oil reserve, Low Income Home Energy Assistance Program Emergency fund).

## Developing and Promoting Traditional, Renewable and Alternative Sources of Energy

The Administration believes that America must both continue to develop traditional sources of energy, even while we actively support the development of renewable and alternative sources of energy that will enhance our energy security and protect our environment. The Administration has promoted and implemented a package of investments, incentives, and regulatory and administrative policies in support of this dual-track approach to energy supply.

### I. Traditional Sources of Energy

The Administration recognizes the critical role that traditional sources of energy play in our energy portfolio. Currently, over \_\_\_\_\_ percent of our current energy comes from traditional sources of energy, and it is expected that we will continue to rely on these sources for years to come. To meet our need for energy from traditional sources, the Administration actively supports a balanced package of investments, tax incentives, regulatory and administrative actions to promote the exploration and development, where appropriate, of traditional energy sources, while striving to protect the sensitive environments that are an important part of our natural heritage.

**A. Investments to Support the Development of Traditional Energy Sources:** The U.S. energy industry faces higher exploration and development costs for traditional fossil fuels relative to other countries. To address this, the Administration has invested in a portfolio of technologies designed to lower these costs, and to produce hard-to-find oil in more mature fields. In large part because of the joint research and development efforts of government and industry, the domestic petroleum business has transformed itself over the past three decades into a high-technology industry.

- **Oil Reservoir Class Program:** A single project in DOE's \$118 million reservoir Class Program has already added 4.5 million barrels of new reserves on the 40-acre property, and the technology has already been transferred to other field areas.
- **3-D Seismic Advances:** DOE has developed advances in fracture imaging and advanced drilling technologies in cooperation with the Gas Research Institute. These advances led to record breaking natural gas production in a horizontal well in the Greater Green River Basin in southwestern Wyoming.
- **Coiled Tubing Horizontal Drilling Systems:** Models developed by DOE led to increased coiled-tubing drilling efficiency and reliability. These systems have a 50 percent smaller footprint and reduce drilling costs by almost 40 percent.
- **Four-Dimensional Seismic:** This improved exploration approach integrates multiple 3-D seismic surveys, and has been commercially applied to 61 Gulf of Mexico fields after it was developed by the program in 1994.
- **Nuclear Plant Life Extension Program:** Nuclear plants currently generate 20 percent of the nation's electricity. The Administration proposed spending \$5 million in the FY 2001 budget for the Nuclear Plant Optimization program to promote extended operation of existing nuclear power plants through research and development on advanced technologies to improve plant availability, reliability and productivity. The Administration proposed in funding for this program in FY 1998 and FY 1999, which Congress rejected; Congress finally funded the program in FY 2000.
- **Cleaner Coal and Natural Gas:** The FY 2001 budget requests \$232 million to support DOE's aggressive research and development effort to develop next-generation technologies for the combustion of coal and natural gas. This work will lead to ultra-high efficiency plants with significantly lower emissions.

**B. Tax Incentives to Preserve the Productive Capacity of the Domestic Oil Industry:** The oil and gas industry is the beneficiary of numerous tax policies designed to promote the development of domestic oil and gas. For instance, percentage depletion and special percentage depletion for marginal wells allow producers to exclude from income up to fifteen percent of gross income from a producing property. Favorable tax treatment is also available for intangible drilling expenses and development costs, enhanced oil recovery expenses, and the cost of tertiary injectants, among other tax policies. In order to provide additional assistance to support new domestic exploration and production, and to lower the business costs of producers when oil prices are low, the President supports additional targeted tax incentives for the industry.

- Supporting Responsible New Domestic Exploration and Production: Major technological advances in oil exploration, such as three- and four-dimensional seismic drilling, are helping us to find more oil, at greater depths, on and off-shore. At the same time, these technologies have reduced the environmental footprint left by exploration and production to 1/10th the size it was 25 years ago. We need to encourage the use of these advanced technologies at the same time we support exploration for oil and gas.
  - ✓ Expensing of Geological and Geophysical (“G&G”) Costs: The President supports allowing industry to expense all geological and geophysical (exploration and development) costs. Current law states that they may only be deducted if exploration activity was unsuccessful. The change will encourage discovery of new reserves and, according to DOE, will add 25,000 barrels of oil a day to domestic production.
  - ✓ Allowing Expensing of Delay Rental Payments: The President supports allowing producers to expense all “delay rental payments” -- an amount paid by a lessee to the lessor of a petroleum resource when the lessee does not begin producing commercial quantities of oil or natural gas as soon as was agreed to. This more favorable treatment -- which was in effect prior to 1993 -- will lower the cost for producers doing business on Federal lands.

**C. Regulatory and Administrative Actions to Support Development of Traditional Sources of Energy:** To complement these investments and proposed tax incentives, the Administration also supports an array of administrative, regulatory and legislative actions to support the development of traditional energy sources.

- Alaska North Slope (ANS) Exports: In 1993, the Administration pledged to undertake the first serious examination of lifting the 20-year ban against ANS crude oil exports. An Energy Department-led study showed that removing the restriction would boost energy production and encourage economic growth without raising retail petroleum product prices. President Clinton signed legislation ending the prohibition on ANS exports in 1995. The Administration’s action has created jobs for Americans and slowed the decline in domestic oil production by approximately 100,000 barrels per day.
- Selling Elk Hills: The 1998 sale of the Elk Hills Naval Petroleum Reserve underscored the Administration’s commitment to getting the government out of the oil business. Elk Hills produced oil for naval warships in WWI, but subsequently produced strictly to generate government revenue. The government’s competition with the private sector ended with the sale of the Reserve in 1998.
- Royalty Fairness: The “Federal Royalty Simplification and Fairness Act of 1996” reformed the royalty program for oil and gas production from on- and off shore federal lands. It required the government to pay interest on overpayments, established a statute of limitations for royalty obligations, and removed the two-year limit on refund applications from industry for Outer Continental Shelf (OCS) royalty overpayments. It also simplified record-keeping and reporting requirements, and expanded the royalty-

related activities that may be delegated to states.

- Royalty Reengineering: Since 1997, the Department of the Interior has been working with major mineral companies and state and tribal governments to reengineer its royalty system for **[minerals, including coal? Or also oil and gas???**]. Some of the expected improvements include: annual cost savings and efficiencies for both industry and the government; improved timeliness and accuracy of payments; streamlined regulatory reporting with substantial savings to industry; revenue increases of \$15 million annually; reduction in the business cycle from 6 to 3 years; and modern, efficient, and cost-effective information systems.
- Royalty-in-Kind: The Department of the Interior is aggressively pursuing a policy of collecting oil and gas royalties in kind, as opposed to cash, under those circumstances where it makes good business sense in the management of the public's royalty assets. This reduces companies' administrative burdens and provide greater certainty on the fulfillment of royalty obligations, while maintaining or enhancing government revenues. The Administration is also using RIK oil to help fill the Strategic Petroleum Reserve.
- Supporting Access to Gulf of Mexico Deepwater: The Deep Water Royalty Relief Act (DWRRA), passed in 1995, provided strong incentives for industry to increase exploration and development in the deepwater area of the Gulf of Mexico. In particular, the Act's mandatory suspension of royalties for leases issued between 1995 and 2000 in deep water provided a dramatic increase in leasing and industry plans for exploring and developing this area. The Administration is exercising its authority under the Act to extend such incentives beyond 2000 so that industry can continue to responsibly develop the deep water Outer Continental Shelf (???) -- an area that is now has now one of the world's leading oil and natural gas areas and a major contributor to our domestic oil and gas supplies.
- Ultra-Clean Fuels Initiative: DOE recently launched the Ultra-Clean Fuels Initiative, to address the need for cleaner fuels within the context of the current refining infrastructure. This initiative will mobilize industry and DOE's national laboratories to develop and demonstrate technology for making large volumes of clean fuels which enjoy high levels of compatibility with the existing infrastructures and could provide environmental benefits due to their suitability for use in advanced, high-efficiency vehicles.
- Supporting Responsible Drilling on Federal Lands and in Federal Waters: The Department of the Interior administers the leasing program for both onshore and offshore Federal lands. While domestic production of oil overall has gone down since 1989 largely due to the price of oil on the world market, production on Federal and Indian lands has increased and, as of 1998, accounted for 34 percent of domestic production, up from 16.3 percent in 1989.
  - ✓ Off-Shore Oil and Gas Development: Since 1994, oil production in the Gulf of Mexico has increased more than 50%. Deepwater leases currently account for about half of oil production and over half of the proven reserves in the Gulf. Currently, approximately one out of every ten barrels of oil produced in the United States comes from a deepwater field in the Gulf. The Administration has supported the environmentally responsible leasing and development of promising areas of the outer continental shelf. In fact, the number of tracts and acres leased under the Clinton-Gore Administration exceeds that which occurred under previous administrations. (More than the Reagan Administration and nearly 250 percent as many tracts as the Bush Administration.) Moreover, by improving the leasing process, the Administration leased the tracts in fewer sales than previous Administrations.
  - ✓ On-Shore Oil and Gas Development: The Bureau of Land Management (BLM) has

taken a number of actions to encourage production on Federal onshore leases. Since 1993, BLM has:

- Issued over 28,000 leases and approved over 15,000 permits to drill;
- Completed an integrated activity plan/environmental impact statement for the northeast portion of the National Petroleum Reserve - Alaska. In 1999, the BLM held a lease sale offering 425 tracts on 3.9 million acres; the first such sale for the reserve since 1984. Oil companies paid more than \$104 million in bids for the high potential oil and gas area.
- Implemented legislation changing competitive lease term from 5 years to 10 years, allowing lessees greater flexibility in exploration without endangering the lease.
- Concentrated its efforts on areas of greatest potential. Accordingly, BLM expects to process more than 1000 applications for permits to drill in the Powder River Basin this year.
- Refocused its planning efforts to meet industry's exploration and production demands. Reassessing and revamping its planning documents will provide greater certainty of access while reducing economic risks and potential for litigation. The revised BLM Planning Efforts will include rewriting its planning guidance to prescribe how stipulations will be determined and refocusing its efforts on ensuring quality, certainty and timeliness.

BLM has developed policies that sought to provide economic relief to onshore operators who have suffered during prolonged periods of low oil prices. BLM has:

- Provided royalty rate reductions for operators producing heavy crude to offset high costs of production.
- Provided royalty rate reductions for operators of stripper oil properties (leases producing less than 15 barrels per day) to provide an economic incentive to keep these properties in production. In 1998, a team representing BLM, MMS and DOE completed a study and recommended continuation of the program.
- Agreed with the Forest Service to use one bond to cover liabilities for operations on Forest Service lands, eliminating the requirement that operators buy separate bonding for BLM and the Forest Service.

Moreover, BLM had undertaken these initiatives while taking the necessary steps to protect sensitive areas and resources from inappropriate activities, resulting in a policy that has balanced the nation's need for energy with a clean environment.

- Research and Development to Develop Clean Fossil Fuel Power Plants
  - Environmental Compliance At Existing Coal-fired Power Plants: DOE has conducted research, in partnership with the private sector, to develop advanced technologies for the control of regional pollutants, like SO<sub>2</sub> and NO<sub>x</sub>. These advanced technologies have been more reliable, more effective, and less than one-half the cost of earlier technologies for reducing such emissions. These technologies are now widely deployed and are projected to save consumers several billions of dollars per year by 2010. Coal use by power plants has increased 17 percent over the past 10 years, but emission rates of SO<sub>2</sub> and NO<sub>x</sub> have declined significantly, as has the cost of electricity. Fifty-six percent of all electricity in the United States is currently is generated from coal.
  - Developments in Natural Gas Power Generation: The DOE advanced turbine program has resulted in much lower emission, much higher efficiency gas power plants, which cost 10 percent less than previous technologies. Ninety percent of the projected additions in U.S. generating capacity over the next 20 percent is projected to come from these advanced turbines.

- Future Powerplant Technology: DOE's R&D goal for 2015 is near-zero emission power plants from coal and natural gas, at prices lower than today's power plants. In addition to resolving issues of regional pollution, these advanced electric power systems will include technology to sequester CO<sub>2</sub>, a greenhouse gas. The advanced technologies developed under the "Vision 21" program will include modular systems which can accommodate multiple fuels, and produce not only electricity, but also transportation fuels, chemicals, and hydrogen, depending on the local market. Key to meeting the program's super-high efficiency targets will be development of advanced, low cost fuel cells.

## II. Alternative and Renewable Sources of Energy

While we currently rely on traditional sources of energy for the majority of our energy needs, the President and the Vice President recognize that the full development of renewable and alternative fuels must supplement traditional fuels and is essential to addressing long-term environmental concerns and to enhance our energy security. Thus, they have actively developed and promoted a package of investments, tax incentives and regulatory policies aimed at spurring the development and use of our use of renewable and alternative sources of energy.

**A. Investments Renewable and Alternative Sources of Energy:** Between FY 1994 and FY 2000, the Clinton Administration requested a total of nearly \$2 billion in increases for solar and renewable energy accounts, and for energy conservation, but Congress only appropriated increases totaling one tenth of that. Our budgets would have provided more than \$8 billion for renewables and energy conservation over those seven years.

- Investments to Promote Clean Renewable Energy: The President's FY 2001 budget proposes \$410 million for DOE efforts to develop domestic sources of renewable energy, including wind, photovoltaics and geothermal energy. Research and development to date has dropped the price of photovoltaic (PV) energy systems from about \$1 per kWh in the early 1980s, to 20 cents to 30 cents today, economically competitive in many remote locations. Wind electricity prices have fallen from about 40 cents/kWh in 1979 to 4-6 cents today.
- The President's Bioenergy Initiative. In 1999, the President announced a new \$289 million bioenergy initiative that will help us develop new fuels for our cars that will reduce U.S. oil consumption, create new income opportunities in rural America, and meet environmental challenges, such as climate change. The Initiative goal is a threefold increase in the use of bioenergy by 2010 -- which would save an amount of energy equal to 1,700 oil supertankers, the amount of oil consumed by 70 million cars in a year.  
**[John, can you make sure these numbers, which Janet supplied, are for 2010.]**  
**[NEED TO CHECK W/OMB ON HOW MUCH, IF ANY, OF THIS IS DOUBLE COUNTED WITH THE \$410 MILLION ABOVE].**

**B. Tax Credits to Promote Renewable and Alternative Sources of Energy:** [COULD USE STRONGER INTRODUCTORY TEXT HERE] To promote the development of a broad portfolio of energy sources, the President has proposed:

- Tax Credits For Solar Energy Systems. A 15 percent tax credit will encourage the purchase by consumers and businesses of solar energy systems. The maximum credit would be \$2,000 for rooftop photovoltaic systems and \$1,000 for solar water heating systems.
- Tax Credits For Wind Power. Current law encourages the production of electricity from wind through a tax credit of 1.5 cents per kilowatt hour (adjusted for inflation after

1992). The current tax credit covers facilities placed in service before January 1, 2002. The President proposes a 2.5-year extension of this tax credit.

- Tax Credits For Electricity Produced From Biomass. Biomass refers to trees, crops and agricultural wastes used to produce power, fuels or chemicals. This package of credits would:
  - ✓ Extend Tax Credits For Closed Loop Biomass: Extend current “closed-loop” biomass credit of 1.5 cents per kilowatt hour for 2.5 years.
  - ✓ Provide Tax Credits For Open Loop Biomass: Expand the availability of the biomass credit of 1.5 cents per kilowatt hour to include “open-loop” biomass (certain forest-related resources and agricultural and other sources) for facilities placed in service from 2001-2005, and provides a 1.0 cent credit for electricity produced from 2001-2003 from facilities placed in service prior to January 1, 2001.
  - ✓ Provide Tax Credits For Cofiring Biomass: Add a 0.5 cent per kilowatt hour tax credit for electricity produced by cofiring biomass in coal plants from 2001-2005.
- Tax Credits For Methane from Landfills: Adds a 1.5 cent per kilowatt hour credit for electricity produced from landfills not subject to EPA’s 1996 New Source Performance Standards/Emissions Guidelines (NSPS/EG) and 1.0 cent per kilowatt hour for landfills subject to NSPS/EG. Qualified facilities would be facilities placed in service after December 31, 2000 and before January 1, 2006.

### **C. Regulatory and Administrative Policies to Support Alternative and Renewable Energy: [ONCE AGAIN, MORE INTORDUCTORY TEXT]**

- Clean Air Credits for Renewables and Efficiency. States currently spend in excess of \$150 billion per year on pollution controls. **[WHO ACTUALLY SPENDS THIS MUCH \$. COMPANIES???, CERTAINLY NOT THE STATES.]** By encouraging states to use efficiency and renewable energy strategies, emissions of multiple ambient pollutants can be avoided at much less cost than traditional “end-of-pipe” control strategies.
- International Clean Energy Program. The Administration’s International Clean Energy Program seeks to overcome market constraints to the global use of U.S. renewable and clean energy technologies, providing early market opportunities for emerging energy resources. **[YOU COULD ALSO PUT THIS UNDER INVESTMENTS -- \$100 MILLION]**
- Distributed Generation. The Distributed Energy Resources Task Force has as its goal meeting 20 percent of new capacity additions (30 gigawatts) with distributed energy resources. **[RICH GLICK, CAN YOU BEEF UP THIS POINT, WHERE IS THIS TASK FORCE, WHO IS IN IT, WHAT ABOUT DIST GEN DEPRECIATION IN THE ELEC BILL]**
- Renewable Portfolio Standard: The Administration’s Comprehensive Electricity Competition legislation proposes to establish a market-based credit trading system that establishes a goal that 7.5 percent of all electricity generated by 2010 comes from non-hydroelectric renewable resources (e.g., biomass, solar, wind and geothermal).

### **Spurring Greater Energy Efficiency**

Energy security cannot be realized simply by producing an ever-increasing amount of energy. It also requires an ongoing commitment to use available resources as effectively as possible. Accordingly,

the President and Vice President have proposed policies that will further promote energy security by accelerating the research, development, and deployment of alternative and more efficient energy technologies.

- I. Investments to Increase the Efficiency of the Economy: [Need some intro text here]**
- Making Homes and Buildings More Efficient:** The Administration is committed to supporting development of technologies to make offices, homes, and appliances 50 percent more energy efficient within a decade and has proposed \$275 million in the budget to help do so. People understand what that means for their heating oil, electricity and natural gas bills. Overall, meeting this goal would save consumers \$11 billion a year in energy costs. **[DOE EERE does not recognize these numbers, Could someone, OMB/Melanie look into them.]**
- A. Making Homes and Buildings More Efficient:** The Administration is committed to supporting development of technologies to make offices, homes, and appliances 50 percent more energy efficient within a decade and has proposed \$275 million in the budget to help do so. People understand what that means for their heating oil, electricity and natural gas bills. Overall, meeting this goal would save consumers \$11 billion a year in energy costs. **[DOE EERE does not recognize these numbers, Could someone, OMB/Melanie look into them.]**
- B. Weatherizing Low Income Homes:** The President has proposed expanding DOE's Weatherization Assistance Program, which helps low-income households make their homes more energy efficient. These are the Americans that most need to reduce monthly energy costs, but lack the resources to do so. This program, with additional funds from the Low Income Heating Energy Assistance Program and state allocations, has already weatherized almost 5 million low-income homes. Each weatherized home reduces energy demand and saves homeowners \$200 per year in energy costs. With funding from DOE and the States, the Administration plans to add more than 150,000 homes to the list in the next year, saving more than an additional 800,000 barrels of oil per year. DOE's budget seeks \$154 million for this important program for next year and an additional \$19 million for the current year in the FY 2000 supplemental appropriation.
- C. Making America's Vehicles More Efficient:** More than 65 percent of our oil consumption is for transportation, making vehicle fuel efficiency a ripe target for reducing the consumption side of the net import equation.
- Increasing the average fuel economy for cars and light duty vehicles by just three miles per gallon would save almost a million barrels of oil per day
  - That represents the equivalent to the amount of oil we could expect to produce by 2015 if we opened ANWR for production tomorrow. **[This number is not clear. Can Interior OMB and CEQ look at it and refine, verify. Further, is 2015 a peak or post-peak year for ANWR production? How would production start tomorrow?]**
  - Investing in fuels and more fuel-efficient vehicles could substantially reduce our reliance on imported oil at the same time it contributes to a cleaner, healthier environment.
- Without trivializing the importance of increased oil production, it is clear that even a small commitment to greater vehicle efficiency can help reduce our reliance on imported oil without compromising pristine environmental ecosystems. The Administration's *Partnership for a New Generation of Vehicles* is on track to deliver attractive, affordable cars that get up to three times the fuel efficiency of today's cars.
- If all cars and light trucks had twice the fuel economy as they do today, we would reduce our oil consumption by 3.8 million barrels per day. That represents about 40 percent of the oil we import.
  - A typical consumer would save more than \$350 a year in fuel costs and SUV owners would save more than \$450 a year (with gas selling at an average of \$1.30 per gallon).
  - By 2010, DOE research with the vehicle companies, if successful, could lead to the development and commercialize of fuel efficiency and alternative-fuel technologies that reduce oil consumption by nearly 700,000 barrels per day. By 2020, these technologies will reduce oil consumption by nearly 1.5 million barrels per day.

**D. Helping States and Localities Become More Efficient.** The President's budget proposes \$85 million for the creation of a new Clean Air Partnership Fund. The Fund will provide grants to states, localities, and tribes to support efforts that achieve reductions in both greenhouse gas emissions and ground-level air pollutants. In many instances, these efforts will include aggressive programs and policies to reduce energy consumption and increase efficiency. First proposed as part of last year's FY 2000 budget, the Fund will be administered by the Environmental Protection Agency under existing authority.

**II. Tax Incentives to Increase the Energy Efficiency of the Economy:** In order to enhance our energy security and insulate the economy from the effects of future energy price increases, the United States needs comprehensive and balanced package of tax incentives. This comprehensive approach must include incentives to continue expanding renewable energy and increasing the energy efficiency of our economy. [WRAP UP THIS INTRO TEXT]

**A. Tax Credits For Electric, Fuel Cell, and Qualified Hybrid Vehicles:** Cars and light trucks (including minivans, sport utilities, and pickups) currently account for about 40 percent of the Nation's oil consumption. Tax credits for electric, fuel cell, and hybrid vehicles will help to move advanced technologies that use less or no oil from the laboratory to the highway. President Clinton has called on Congress to:

- Extend the current tax credit for electric vehicles and fuel cell vehicles. Under current law, a 10 percent credit, up to \$4,000, is provided for the cost of qualified electric vehicles and fuel cell vehicles. The credit begins to phase down in 2002 and phases out in 2005. The President's proposal would extend the tax credit at its \$4,000 maximum level through 2006.
- Pass tax credits for hybrid vehicles. The President proposes a \$500 to \$3,000 credit, depending on the vehicle's design performance, for all qualifying hybrid vehicles, including cars, minivans, sport utility vehicles, and pickup trucks.

**B. Tax Credits for Efficient Homes and Buildings.** Increasing the efficient use of power will reduce our reliance on fossil fuels. To encourage energy efficiency, the President has called on Congress to pass tax incentives that will promote the use of energy efficient practices and technologies in our homes and buildings.

- Tax credit for new energy efficient homes. To encourage the purchase of new energy efficient homes, the President proposes a tax credit of between \$1,000 and \$2,000 for new energy efficient homes.
- Tax credit for energy efficient equipment in new and existing homes or buildings. To encourage the purchase of electric heat pump water heaters, natural gas heat pumps, and fuel cells, the President proposes a tax credit equal to 20 percent of the cost of the investment, subject to a cap, for equipment purchased between 2001 and 2004.

**III. Other Initiatives to Promote Efficiency:** In addition to supporting budget investments and tax incentives to spur efficiency and the development of alternative and renewable fuels, the Clinton/Gore Administration has also taken administrative step and entered into public/private partnerships to enhance energy efficiency throughout the economy.

**A. Greening the Government through Efficient Energy Management:** On June 3, 1999, President Clinton signed Executive Order 13123 promoting Government-wide energy efficiency and renewable energy. The new Executive Order strengthens the Government's efforts to pursue energy and cost savings, and raises the energy savings goal to a 35 percent reduction in energy consumption per square foot in nonexempt Federal buildings by the year

2010 compared to a 1985 baseline.

- The federal government has reduced energy use in its buildings by 20 percent since 1985. This achievement, which saved taxpayers over \$2 billion in energy bills in fiscal year 1999 alone, is one year ahead of the schedule.

**B. Energy Star® Partnerships:** The Energy Star partnership programs remove market barriers to the purchase of energy efficient products, services, and technologies in residential, commercial and industrial buildings.

- **Energy Star Products:** The Energy Star Product Program allows manufacturers of selected energy efficient products to promote their products with the Energy Star label. This allows consumers to easily identify products that help save them both energy and money.
  - ✓ More than 3,400 models of Energy Star products (made by more than 1,000 manufacturers), ranging from computers to refrigerators to central air-conditioning units, currently are available to consumers.
  - ✓ If everyone -- consumers, businesses and government -- all used Energy Star products, the United States would save about \$100 billion in energy bills over the next 15 years.
  - ✓ It currently takes, for example, six power plants just to provide enough electricity to power all U.S. televisions and VCRs when they are turned off. Using Energy Star televisions and VCRs would cut that amount in half.
- **Energy Star Buildings Partnership:** The Energy Star Buildings Partnership encourages individual building owners, developers, and managers to install energy efficient lighting and undertake a five-state strategy to capitalize on system interactions that maximize energy savings at minimum cost.
  - ✓ Buildings representing more than 13 percent of U.S. commercial square footage have signed up for the program. Among them are the Empire State Building, World Trade Center and Chicago's Sears Tower.

**C. Energy Efficiency Standards for Equipment and Appliances:** To save energy and reduce consumer utility bills, the U.S. government develops test procedures and national minimum energy efficiency standards for equipment and appliances, such as heating and cooling equipment, water heaters, lighting, refrigerators, clothes washers and dryers, and cooking equipment. Through 1997, residential appliance standards had saved consumers a cumulative \$13.3 billion. By 2010, the currently enacted standards will have saved consumers almost \$50 billion.

- In the upcoming year, the Administration expects to publish standards for clothes washers, water heaters, fluorescent lamp ballasts, and central air conditioners. In 2020, the implementation of these four new standards will reduce electricity use by an amount equal to 17 large power plants and have provided cumulative savings to U.S. consumers of more than \$50 billion (1999 dollars).

### **Increasing Infrastructure Efficiency of Through Comprehensive Electricity Restructuring**

The Clinton/Gore Comprehensive Electricity Competition Plan embodies the overall agenda of the Administration to expand the economy and improve the environment. A more competitive electricity industry will provide significant benefits to individual consumers and will help lay the

foundation for sustained economic growth. Enactment of the Administration's proposed legislation will lower electricity prices, clean the environment, encourage innovation and new services, increase the reliability of our nation's power supply grid, and provide support to rural communities and Indian tribes. The President and Vice President's proposed legislation:

- **Provides \$20 Billion in Annual Savings to America's Families:** The Administration estimates that retail competition will save consumers at least \$20 billion a year. When factoring in both lower electric bills and the reduced cost of goods and services, the typical family of four could save \$232 per year.
- **Strengthens Reliable Service:** The President's proposal will establish a framework that requires all participants in electric transactions on the grid to comply with mandatory reliability standards developed by a reliability organization operating under the oversight of the Federal Energy Regulatory Commission (FERC). Reliability will be further strengthened by our proposals to give FERC the authority to require utility participation in independent regional transmission organizations and to facilitate state formation of regional organizations for transmission planning.
- **Improves the Environment:** Restructuring will also produce significant environmental benefits through both market mechanisms and policies that promote investments in energy efficiency, renewable energy, distributed power and combined heat and power technologies. The President's proposal will:
  - ✓ reduce greenhouse gas emissions by 40 to 60 million metric tons annually by 2010;
  - ✓ unleash competitive forces that will create a more efficient, leaner and cleaner industry, because a generator that wrings as much energy as it can from every unit of fuel will be rewarded by the market;
  - ✓ provide opportunities for consumers to vote with their wallets for green power and facilitates the marketing of energy efficiency services along with electricity;
  - ✓ promote renewable energy through the introduction of a renewable portfolio standard and public benefits funding;
  - ✓ remove market barriers to the use of combined heat and power technologies, complementing the effects of competition itself in advancing technologies that reduce energy waste.
- **Makes Available New Products and Services:** Restructuring will also spark innovation in the American economy, creating new industries, jobs, products and services just as telecommunications reform spawned cellular phones and other new technologies. For instance, restructuring will allow competing energy service companies to provide a variety of energy management services and technologies in addition to the traditional gas and electric service offered by utilities today.

### **Furthering Our Ability to Respond to Energy Supply Emergencies**

Notwithstanding our best efforts to promote a diverse and secure supply of energy, the fact remains that we import a sizeable portion of the oil we consume. Although we obtain oil from a diverse group of suppliers around the world, we recognize that the oil market is a world market, and that a temporarily disruption of oil, even from countries from whom we obtain no oil, may disrupt traditional

supply patterns. As a result, the United States is potentially at risk from disruptions in any part of the world.

In order to mitigate that risk, and to address emergencies created by unusually cold or warm weather, the Administration supports the continued maintenance of the Strategic Petroleum Reserve, a creation of a Northeast/New England Home Heating Oil Reserve, and full funding of emergency fund in the Low Income Home Energy Assistance Program.

- **Maintaining the Strategic Petroleum Reserve:** The Strategic Petroleum Reserve (SPR) is the nation's first line of defense against an interruption in oil supplies. This emergency supply of crude oil can be supplied quickly and efficiently to the nation's refineries if commercial supplies of crude oil are shut off. With approximately 570 million barrels in storage, the Reserve is a national "insurance policy," the largest strategic stockpile of crude oil in the world. Given the interdependence of world oil markets, the U.S. and its allies are at risk of economic instability and strategic vulnerability from any disruptions in the global supply. A strategic oil reserve is the best way to protect the nation from this risk and its very existence serves as a visible deterrent to any potential threat. Over a seven year period ending in 2000, the Administration spent \$328 million to completely modernize and streamline all of the surface facilities of the Reserve, assuring its readiness for another 25 years. The President has called on Congress to immediately extend Titles I and II of the Energy Policy and Conservation Act.
  - ✓ Current Authorization of the Strategic Petroleum Reserve and to participate in the International Energy Program with other oil consuming nations expired on March 31<sup>st</sup>.
  - ✓ Title I authorizes the SPR and provides the President with the ability to use the Reserve in an emergency. Title II authorizes our participation in the International Energy Program so that the United States acts in concert with our allies in responding to an international emergency to protect the growth of the United States.
- **Establishing A Regional Home Heating Oil Reserve:** The President remains concerned about the effect that future shortages of home heating oil may have on consumers of home heating oil, particularly in the Northeast and New England. In order to reduce the likelihood that future shortages will harm consumers, the President has called on Congress to authorize the creation of a home heating oil reserve with an appropriate trigger in the Northeast to combat future product shortages. In the event of home heating oil shortages, heating oil can be sold from the reserve in order to increase the supply on the market.
- **Low-Income Home Energy Assistance Program:** The Low-Income Home Energy Assistance Program (LIHEAP) helps families by paying heating and cooling costs, preventing energy cutoff in crisis situations. LIHEAP also helps them pay to weatherize and insulate their homes in order to lower their energy costs. Through LIHEAP, Congress sets aside emergency funds to help States meet urgent home heating or cooling needs in response to unusually cold or hot weather. The President determines when an emergency warrants the release of these funds. In FY 2000, the President used all \$300 million in the emergency fund to respond to energy-related damage caused by Hurricane Floyd and to high home heating oil prices in the Northeast and New England.

## Energy Policy Speech Outline

- I. Introduction.** “The United States is now enjoying the longest economic expansion in its history – 109 months and counting. Since 1993, this economy has produced over 21 million new jobs. Unemployment is nearly the lowest its been in three decades and has remained below 5 percent for 33 months in a row. Real wages have gone up five consecutive years and counting – the longest consecutive increase since the 1960s. And we have gone from an era of record deficits to record surpluses that are now being used to help pay off the national debt.

Fueling – literally – this booming economy has been a steady, reliable supply of affordable energy. One of the great challenges of this and next Administration will be to ensure that the Nation continues to have access to energy that is not only affordable, but which is also safe – safe both for our environment and the health of our children and all our citizens.

This Administration has an energy policy that will do this. It is comprehensive, sensible, and forward- looking. It maximize our chances of continuing our prosperity. It will enhance America’s energy security. It will protect America’s environment and the public health. It has four pillars:

- Developing energy supplies – all supplies, traditional, as well as renewable and alternative sources;
- Spurring greater energy efficiency;
- Injecting more competition into our electricity sector through restructuring;
- Furthering our ability to respond to emergencies.

In contrast to this balanced approach, Congressional Republicans favor an approach that is backward-looking and short-sighted. Their answer for all our Nation’s concerns about energy seems to be “break out the drill bits so we can start tearing up our wilderness areas and exploiting our off-shore resources.” They plans ignore energy efficiency, ignore the environmental challenges that are part and parcel of energy policy – including clean air and global warming – and ignore the threat of emergencies.

I am here to tell you that the President and Vice President are not going to let this happen without a very big fight. They believe passionately that building a sound energy future – one that integrates economic and environmental concerns – is absolutely critical to America’s future. And they are willing to fight for it.

Let’s look at each of the elements of the Administration’s comprehensive energy policy and see how it stacks up against the Republican alternatives.

[From here, go through the four substantive areas]

~~II. More Supply~~

~~III. More Efficiency~~

~~IV. More Competition~~

V. Demand Side Case

VI.

**V. More Preparedness**

**VI. Compare/Contrast to Republican Plans**

Among other things:

- Hit hard on environment/public health (cite EPA stats on economic cost of air pollution; contrast quotes from oil company CEOs on energy future w/Republicans)
- Hit hard on climate/Knollenberg

**VII. Conclusion**

- Our plan maximizes America's opportunities to continue receiving affordable energy.
- Their plan puts all our eggs in one basket; ignores other critical steps we need to take.
- Our plan improves the energy efficiency of our economy.
- Their plan ignores these opportunities.
- Our plan puts us in a position to continue making progress on near-term environmental threats such as protecting wilderness and cleaning up our air and long-term threats like climate change.
- Their plan ignores these threats or doesn't believe they are real.