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Good morning, Chairman Bingaman and members of the Committee. I would like to thank you for giving me this opportunity to speak to you regarding one of the great challenges facing our country today: providing secure, sustainable and affordable energy to power the American economy.

As you know, I come before you today as a member of the Energy Security Leadership Council (Council), a non-partisan group of business executives and retired senior military officers who are concerned about the perilous state of the American energy system and our nation's excessive reliance on petroleum. The Council is led by Frederick W. Smith, Chairman, President and CEO of FedEx, and General P.X. Kelley (Ret.), the 28th Commandant of the United States Marine Corps.

The Council's members bring together decades of collective economic and national security experience, with a profound first-hand understanding of the importance of oil and energy and the challenges facing our country.

Our military members have commanded U.S. armed forces as they patrol the waterways and shipping lanes so crucial to the global oil trade. They have been on the front lines of the battle against violent extremists, who are often funded by dangerous regimes awash in oil and natural gas revenue. And they have spent countless hours strategizing with American allies on the best approaches to safeguarding the thousands of miles of global energy infrastructure that is dangerously vulnerable to sabotage and political manipulation.

The Council's business members manage multinational companies that have shaped the modern global marketplace. If the world is in fact increasingly interconnected, it is because innovation, technology and accessible transportation have made it so. The Council's companies ship goods and services around the world, linking together consumers and small businesses on every continent. They manage networks of data, financial and investing platforms, and they make it possible for Americans to travel easily across the country on a moment's notice.

It is because of their experience and their knowledge of the dangers posed by our energy security vulnerabilities that the members of the Energy Security Leadership Council have dedicated themselves to this issue.

In December 2006, the Council released a report entitled *Recommendations to the Nation on Reducing U.S. Oil Dependence*. The report laid out a comprehensive blueprint for energy security, including: demand reduction through reformed and increased fuel-economy standards; expanded production of alternatives; and increased domestic production of oil and natural gas. The Council collaborated with Senators Byron Dorgan (D-ND) and Larry Craig (R-ID) to design legislation incorporating the principal elements of the *Recommendations*. This resulted in the "Security and Fuel Efficiency Energy Act of 2007 (SAFE Energy Act)."

In December 2007, Congress passed and President Bush signed into law an energy bill that honored the *Recommendations* by (1) dramatically reforming and strengthening fuel-economy standards and (2)

mandating a Renewable Fuel Standard that will displace significant quantities of gasoline using advanced biofuels such as cellulosic ethanol.

That was a significant accomplishment, but was only a first step. There is much more to do. The reality is this: our nation's dependence on oil—much of it imported and the majority used in our transportation sector—still represents a grave threat to our economic and national security. Now that we are, as a nation, pointed in the correct direction, it is time to help facilitate the transformation to the next generation of transportation technology that is as inevitable as it is necessary.

All of the Council's members are acutely aware of the magnitude of the American energy challenge. We have seen first-hand how American oil dependence undermines U.S. foreign policy when our diplomats deal with oil exporters like Russia, Iran and Venezuela. We understand that America can never succeed in the war on terror as long as we fund both sides of the conflict.

Speaking to you today as one of the Council's business leaders, however, I must tell you that the threats posed to the U.S. economy by our dangerous dependence on oil are equally as dire as those posed to our national security. If we continue down the current path, economic weakness and decay at home will continue to threaten American power and influence abroad.

Recent events provide a useful benchmark for gauging both the vulnerability of our transportation system and the consequences of an actual energy crisis. Between January 2003 and July 2008, benchmark crude oil prices increased nearly five-fold, from about $30 per barrel to almost $150 per barrel. The run-up in prices was made worse by significant short-term price volatility. Between May 2 and July 3, 2008, oil prices spiked by $30 per barrel—an increase of 25 percent.

Indeed, while we are all aware of the sharp financial burden on U.S. households that face resets in their adjustable rate mortgages—a legitimate and significant concern—the increases in energy costs have been on the same, or even a greater, order of magnitude.

A typical subprime borrower with a poor credit history who bought a $200,000 house in 2006 with a 2 year/28 year ARM with a 4 percent teaser interest rate for the first two years would have seen monthly mortgage payments increase from about $950 a month before the reset to about $1,330 after the reset—an increase of about $4,500 a year. Meanwhile, the median household in America saw its household energy costs increase by roughly $1,600 a year during the same two-year period. But this type of increase in energy costs affected *all* U.S. households—not just the one household in 20 that held a subprime mortgage.

All of these developments stemming from higher oil prices caused a noticeable slowing of economic growth. The U.S. economy lost more than 700,000 jobs between December 2007 and the beginning of September 2008, and the unemployment rate increased from 4.5 percent to 6.1 percent—all before the financial crisis truly hit later in September. In fact, as early as last August, many economists believed the U.S. economy was already on the verge of recession, largely driven by sharply rising and volatile oil prices. This put banks and Wall Street firms in a weakened financial state, with sharply eroded profit positions, even before the credit situation reached its crisis point.

What is so striking about this series of events is its near inevitability—it was an entirely predictable disaster. Just as they warned of the impending collapse of mortgage institutions like Fannie Mae and Freddie Mac, experts also warned that global oil demand was rising unchecked while easy access to

cost-effective oil supply was plateauing or falling. This basic dynamic eroded the practical buffer between world oil production capacity and daily oil consumption, leaving the oil market prone to damaging volatility.

Despite these well-known dangers, the American economy continued to operate at risk, with almost no substitutes for petroleum products and very few alternatives to driving. Today, 97 percent of our transportation energy needs are met by petroleum, and the transportation sector accounts for 70 percent of U.S. oil consumption.

Our mistakes have been costly. Sharply higher oil prices had a devastating effect on household, business, and public sector budgets, and effectively functioned as a tax on the economy. One recent estimate by researchers at the Oak Ridge National Laboratory placed the combined cost of foregone economic growth and economic dislocation at nearly $300 billion in 2008. Rising fuel prices also significantly weakened U.S. automakers, whose relatively inefficient but high-margin large vehicles were virtually unsellable for a period of several months.

Finally, the U.S. exported hundreds of billions of dollars to pay for imported oil. Based on initial estimates, the U.S. trade deficit in petroleum products probably reached an all-time high of $350 billion in 2008—exceeding the combined cost of the wars in Iraq and Afghanistan for that year. This massive financial burden accelerated the deterioration of the American balance of payments and contributed to a weaker U.S. dollar.

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Today, oil prices are near the bottom of a record slide. One hundred and fifty dollar oil and U.S. gasoline prices over $4.00 per gallon led to demand destruction, which was reinforced by the financial and economic crises and the resulting recession in which we today find ourselves. What is absolutely crucial to remember, however, and what history has taught us time and again, is that these economic conditions are temporary. As the economy recovers, and drivers return to the roads, our dependence will once again put us at the mercy of rising oil and gas prices—particularly if the existing vehicle fleet is fundamentally the same as it is today.

Despite some initial signs that consumer behavior had changed over the summer, the Council is convinced that with prices back at a more palatable level, this country will return to its profligate use of oil. Indeed, early evidence supports my assertion: new vehicle sales once again shifted in favor of SUVs in December of 2008—for the first time since February of 2008. On New Year's Day, the *Financial Times* reported that U.S. sales of hybrid vehicles were down 53 percent in November compared to one year ago, and the decline is expected to steepen over the coming months.

To be blunt, we can no longer be slaves to the boom and bust cycle of oil prices. Mr. Chairman, members of the Committee: what is required here is a dramatic transformation, and what that transformation requires is leadership from Washington. The dynamism, ingenuity, and entrepreneurial spirit of the American economy can take us wherever we want to go, but government has to set the priorities.

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In September, the Council released a comprehensive new plan that presents a long-term vision for the dramatic transformation that our energy system requires. *A National Strategy for Energy Security* offers a pathway toward a transportation system that is no longer dependent on oil; an electrical grid that is flexible, clean and robust; and an American research and development apparatus that sets the standard for the rest of the world. The Council's plan will reduce the oil intensity of the U.S. economy by 50 percent by 2030 and 80 percent by 2050. It will provide American manufacturing jobs, reduce the U.S. trade deficit, enhance the resiliency of the overall economy, and reinforce our foreign policy priorities.

The *National Strategy* establishes as a goal the electrification of the short-haul transportation system in the United States and provides a multifaceted set of proposals to help achieve that long-term goal. America's cars and SUVs consumed approximately 8 million barrels of oil per day in 2008—about 40 percent of the U.S. total. Aggressively transitioning this segment of the vehicle fleet to electrification has the potential to dramatically reduce U.S. oil consumption and fundamentally alter our energy profile. But it will require our national political leaders to embrace electrification not as a discrete and narrow initiative, but rather as a *dominant policy theme* to address our dependence on oil. And it will require a comprehensive, well-integrated approach.

Deteriorating U.S. energy security is largely due to the nearly complete absence of transportation fuel diversity. Not only are ever-greater amounts of oil required to fuel the U.S. transportation system, which is almost entirely dependent on oil, but the world oil market increasingly relies on supplies from hostile and/or unstable foreign producers. Electrification of transportation would allow cars and light trucks to run on energy produced by a diverse set of sources—nuclear, natural gas, coal, wind, solar, geothermal and hydroelectric. The supply of each of these fuels is secure, and the price of each is less volatile than oil. In the process, electrification would shatter the status of oil as the sole fuel of the U.S. ground transportation fleet. In short, electrification is the best path to the fuel diversity that is indispensable to addressing the economic and national security risks created by oil dependence.

Of course, the transportation sector encompasses a broad range of components that extends beyond short-haul travel. Air transport, long-haul freight shipping, and heavy-duty trucks are not likely to be candidates for electrification. The Council, therefore, supports an aggressive program to develop and deploy third generation biofuels—identical on a molecular level to oil-based fuels—that can be used in air transport and heavy-duty trucks. These advanced biofuels can be transported using existing infrastructure and will substantially increase the flexibility of the broader transportation sector.

Central to the success of such an approach will be the manner in which we, as a nation, manage the consequences of oil dependence while we transition to electrification. The upgrades in infrastructure and technology that are required are on the order of trillion dollar investments. Our ability to finance this commitment will be directly related to our economic well-being and national security. Therefore, what the Council has put forward is not simply a laundry list of energy policy items. It is, instead, a strategy for mitigating oil dependence through practical measures in the short- and medium-term while we simultaneously invest in a post-oil transportation system for the long term. The more near-term steps include increasing domestic production of oil and gas, rationalizing the biofuels program, and aggressively improving fuel-economy standards for conventional vehicles.

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Achieving the Council's goal of developing an electrified ground transportation system will place an added burden on the electric power infrastructure. With time-of-use pricing, we believe some demand

for charging vehicles can be shifted to overnight hours, when the grid has surplus capacity. Still, electrifying a hundred million vehicles over 25 years will require the U.S. to make much-needed upgrades to the U.S. electric power systems at the generation, transmission and distribution levels. In fact, the Council would not recommend electrifying transportation if we are unwilling to make the necessary changes and improvements to these systems to enhance their robustness and reliability so that we do not make the mistake of exchanging one security threat for another.

The weakest link in our nation's electric power system is the transmission grid. The grid is currently insufficiently robust to support the unconstrained movement of power from generators to consumers, particularly location-constrained power (including renewables), and insufficiently reliable for an economy with a growing need for highly reliable power. Overburdened transmission lines increase the probability of service failures and prevent efficient redistribution of power from surplus to deficit regions. Recent studies of the transmission system have concluded that congestion on the transmission grid is costing consumers billions of dollars each year by preventing them from accessing low cost power.

Moreover, rather than constituting a national network, the transmission grid is in effect a patchwork that is not subject to the jurisdiction of any common regulator—indeed, some areas are wholly unregulated at the federal or state level. This balkanized structure makes it difficult to site and finance transmission lines.

The Council's *National Strategy* suggests that national leaders must treat grid expansion as a national security imperative. Grid expansion is necessary to ensure the reliability of the grid in an environment of ever-growing demand for power, including that needed for short-haul transportation. Grid expansion also will be necessary to fully exploit the opportunities presented by wind and solar energy, production of which is most promising in sparsely populated areas distant from significant electrical loads, and nuclear power and coal with carbon sequestration, which are also location constrained, though to a lesser extent. A recent report from the Department of Energy on wind energy, for instance, included estimates that identified the need for about 20,000 miles of transmission lines at a cost of about $60 billion to take full advantage of the available wind resource.

In order to develop a truly national grid, the federal government needs to play a more prominent role in the development of the nation's transmission grid. The Council believes that Congress should grant the Federal Energy Regulatory Commission the same primary siting authority for high voltage electric transmission lines under the Federal Power Act that it already possesses for interstate natural gas pipelines under the Natural Gas Act. Congress could establish that authority for all transmission lines otherwise subject to FERC's jurisdiction under the Federal Power Act or limit it to lines that exceed a specified voltage. In the alternative, Congress could expand FERC's existing backstop siting authority to all transmission lines and not just those in National Interest Electric Transmission Corridors.

Congress also must establish or designate an entity to undertake the responsibility of transmission grid planning on a nationwide basis, at least for the highest voltage lines that constitute the backbone of the transmission system. Current planning is done nearly exclusively on a regional basis and fails to adequately meet the nation's needs. Congress should then dictate that the cost of the new high voltage lines identified in the national planning process be allocated across the entire interconnects in which they were built. The advantages of those lines in terms of reduced congestion, enhanced access to lower cost power, enhanced reliability, and improved access to low-carbon power benefit all consumers of electricity, and they should all share in the cost.

The Council also recognizes the need to upgrade the distribution system, the lower voltage lines that deliver power to customers and the systems with which customers interact, which is where most of the technology necessary to establish a "smart grid" will be installed. Congress should require that all electric meters installed after 2014 are smart meters, capable of communications with utilities and consumers, and capable of metering for time of day or real time pricing. Congress also needs to provide support for the development of a network of publicly accessible recharging stations so that consumers using PHEVs and EVs will be able to recharge them away from home to extend their range and avoid using gasoline. The Council believes that ensuring that utilities may recover their investments in smart grid technology and providing slightly higher returns on equity for such investments will provide ample incentive for private investors to invest in smart grid technology while placing minimal additional burden on consumers.

The deployment of smart grid technology will enable the implementation of time of day pricing for electric power, one of the most important goals for managing our electric power system in the coming decades. Power costs more to generate during periods of peak demand, but most consumers pay the same price around the clock, undermining demand management programs that could shift some of that demand to lower peak times. Time of day pricing would promote more efficient use of our power systems, decrease the need for new generating capacity, lower emissions, and enhance reliability. While this is an area currently within state authority, the Council suggests that Congress require states to implement time-of-day pricing for all sales of electricity to customers that consumed more than a specified number of kilowatt hours of electricity per month (which should be established to exclude residences that consume low and moderate levels of power). In the alternative, Congress could at least require states to implement time of day pricing for all sales of electricity to charge vehicles.

In addition to policies to promote the development of the transmission and distribution systems, the Council also recognizes the need for more generating capacity to operate in a carbon-constrained regulatory environment. Accordingly, the *National Strategy* proposes increased spending and regulatory support for wind and solar power. The Council strongly supports the continued development of renewable sources of electric power generation. These fuel sources can help meet our growing electricity demand by producing clean and secure power with few if any safety concerns. Moreover, since they possess a risk profile that is very different from fossil-fuel or nuclear generation, renewables can contribute to the diversification of our power sector.

However, even the most optimistic projections for the growth of renewables will not support our demand for power. With coal providing half of our power and nuclear providing another 20 percent, we believe that we can not abandon these sources of power, which are both reliable and abundant.

Deployment of the next generation of nuclear power plants is currently underway, with over 20 license applications pending at the Nuclear Regulatory Commission. These plants, however, may not be built without the government loan guarantees created in EPACT 2005. The Council's *National Strategy*, therefore, recommends increasing the loan guarantee for nuclear power to account for the growing price of reactors since passage of the law and extending the deadline for the program to ensure that utilities can take advantage of it as Congress originally intended.

The Council also proposes to increase the loan guarantees available under the same program for demonstrating a fully functional integrated gasification combined cycle (IGCC) coal plant with carbon capture and storage. The International Energy Agency (IEA) recently reported that, globally, at least 20

carbon capture and storage demonstration projects are urgently needed by 2020. The United Nations Intergovernmental Panel on Climate Change (IPCC) has reported that carbon capture and storage can eventually satisfy between 15 and 55 percent of the world's carbon mitigation needs while reducing total mitigation costs by 30 percent. The Council believes America must take the lead on accelerating deployment of this critical technology, which cannot happen without government loan guarantees.

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To achieve any of our energy goals, U.S. investment in energy research, development, demonstration and commercialization/deployment must be significantly enhanced.

Today, the United States ranks 22nd among developed nations in the fraction of GDP that is devoted to non-defense research. As the governmental share of U.S. R&D spending has declined from two-thirds to one-third of the total, industry has taken up the slack—yet by spending development, not research, dollars. The failure to focus on the research side of the R&D equation has had predictable consequences. Only four American companies made the 'top 10' list for patents issued in 2005. Not coincidentally, the U.S. trade balance in high technology manufactured goods went from positive $40 billion in 1990 to negative $50 billion in 2001.

Within the energy sector, the picture is even bleaker. Shortly after the energy crisis of 1973, U.S. energy R&D soared from $2 billion annually to more than $14 billion, with public-sector investment peaking at just under $8 billion and private-sector investment topping out at nearly $6 billion. By 2004, private-sector energy R&D funding was below $2 billion and government funding had dropped to roughly $3 billion. DOE's current applied research and development budget is about $3.1 billion, less than one half its level in the late 1970s.

This trend must be reversed. Given the importance of energy to our collective quality of life, the Council recommends that the U.S. research, development, demonstration and commercialization/deployment investments be at least on par with public health-related research. For public funding alone that would entail a ten-fold increase, as the 2008 enacted program level for the National Institutes of Health was $29.4 billion.

But we not only must spend more, we must establish new institutions to help guide the spending to increase the effectiveness of our investment. Rather than channel the increased spending through the existing offices at the Department of Energy, with their attendant shortcomings, the Council supports the establishment of a new institution either inside or outside of DOE. This institution should be funded, at least in part, by an independent budget stream that avoids the annual earmarks and appropriations battles in Congress and interference by the Office of Management and Budget. Moreover, all funding should be distributed entirely on the basis of merit, while still maintaining the appropriate level of Congressional oversight. One division of the institution should be established to offer significant R&D grants-based support for early-stage research following a peer-review process that examines all grant requests on an ongoing basis. Another division of the institution should also provide financial assistance in a manner similar to a bank to support the deployment of new technologies, whether in the form of loan guarantees or other means that it deems appropriate. Without such institutional reforms, the Council remains skeptical that the United States can achieve the R&D progress necessary to transform our energy system.

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As Congress debates support for American automakers, it is worthwhile to speak briefly to the effects this plan—and the status quo—would have on them.

If the long-term trends suggest the increasing possibility of more severe and frequent oil price spikes, then the U.S. automobile sector cannot survive against foreign competitors positioned to offer consumers highly fuel efficient vehicles. Without change in the composition of products offered by the Detroit Three, each period of higher prices will be accompanied by an industry crisis and new demands for government intervention. At the same time, the United States has every interest in a competitive domestic automobile manufacturing sector, which cannot be easily or quickly replaced by foreign transplants in the event of the collapse of any significant portion of the domestic industry.

For the American companies to survive and make the transition to producing more fuel efficient vehicles, the public will have no choice but to provide meaningful assistance. Therefore, the *National Strategy* proposes an $8,000 tax credit for the first two million highly efficient vehicles sold in the United States. A similar measure was included in legislation passed by Congress in late 2008. The *National Strategy* also calls for direct assistance to the automakers to assist in their retooling to produce the transformative cars of the future. The Council recognizes that Congress provided some assistance last fall, but believes that additional assistance may be necessary in the future. This would not be limited to the Detroit Three, but to any automaker that produces cars in the United States.

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The electrification of short-haul transport and the deployment of advanced biofuels will require a decades-long initiative characterized by a concentrated, sustained effort to improve national infrastructure and deploy advanced technologies in a market-friendly way. If properly executed, this process can produce a new U.S. transportation system that is fundamentally disconnected from oil dependence.

In the meantime, however, the United States can take more immediate, temporary steps to safeguard our economy and improve our national security. For this reason the *National Strategy* also includes crucial interim policies—including increased domestic supply of oil and natural gas, increasing the blend wall for conventional ethanol, and the implementation of fuel economy standards—to help us reach our long-term goal while keeping our nation strong and secure in the interim years.

While it is often noted that the United States holds just three percent of the world's proved oil reserves, this figure is highly misleading. In fact, the U.S. possesses substantial reserves of oil that have yet to be exploited. Current undiscovered technically recoverable reserves are at least 100 billion barrels, according to numerous U.S. government reports. Just as the U.S. possesses vastly greater natural gas reserves than conveyed by proved reserves data, we have access to a large quantity of oil resources that currently sit undeveloped.

In some cases, the constraints on U.S. oil and gas development are economic and technical. In the Deepwater Gulf of Mexico, for example, projects take years to develop and rely on a global infrastructure chain that was overburdened during the run-up in oil prices that began in 2003. In other cases, however, the government has constrained the oil and gas industry's access to reserves on Federal lands. In particular, the ability of the industry to access high-potential areas of the Federal Outer Continental Shelf (OCS) has been restricted by long-standing congressional moratoria and presidential

withdrawals. Proponents of these restrictions have historically justified them on environmental grounds, but the most accurate and up-to-date data suggest that this position is no longer accurate.

According to the Minerals Management Service (MMS), the offshore oil and gas industry produced 10.2 billion barrels of oil between 1985 and 2007 with a spill rate of just .001 percent. In recent years, as standards and technology have improved, the rate of incidents has steadily declined. A recent report by the Congressional Research Service found that the annual number of oil spills in U.S. coastal waters declined by 50 percent from 1995 to 2004. In fact, nearly two-thirds of the oil that enters the North American coastal waters each year comes from natural seeps, with only 5 percent coming from oil extraction and transportation.

During the turbulent 2005 Atlantic hurricane season, when Hurricanes Katrina and Rita tore through the Gulf of Mexico, approximately 75 percent of the 4,000 federal OCS oil and gas facilities in the Gulf of Mexico were subjected to 175 mile-per-hour winds and other hurricane conditions. Despite serious damage to 168 platforms, 55 rigs, and more than 560 pipeline segments, the U.S. Coast Guard and MMS reported no major oil spills. Total OCS petroleum spillage from the two storms has been estimated at 14,676 barrels—about the size of a single Olympic swimming pool.

Now that Congress has allowed the OCS moratoria to expire, the Council believes that it is time to put a rational offshore energy development program in place that leverages advances in technology to produce the most cost-effective oil supplies while safeguarding the environment. Techniques such as extended reach drilling (ERD) can access reserves within 10 miles of the shoreline while essentially eliminating surface disruptions offshore. In other cases, allowing a temporary surface presence can enable energy producers to construct sea-floor wellheads that tie-in to infrastructure farther afield or onshore, thereby protecting the sanctity of coastal vistas.

Today, the federal government collects significant royalties from the extraction of oil and gas resources in federal waters. In 2008, the Minerals Revenue Management Service reported $8.3 billion in offshore royalty receipts plus an additional $9.7 billion in lease rents and bonuses associated with bids. While estimates vary widely depending on assumptions, expanding access to the OCS areas currently off-limits should significantly increase government revenue from royalties. One recent study, which assumed full access to all OCS waters by 2012, estimated cumulative increased royalties at $41 billion through 2025. Another study, carried out by ICF International, estimated lifecycle government revenue of over $300 billion for opening the full OCS.

The Council clearly sees the value of royalty requirements for all offshore leasing activity and supports a structure that factors the current price of oil into the MMS process for determining royalty requirements. Moreover, rather than depositing the federal share of OCS royalty payments in the general fund of the Treasury, these revenues should be dedicated to energy research, development, and deployment. Transportation electrification should be a priority, with funds available for both consumer incentives and manufacturer assistance.

To be clear, the long-term goal of any U.S. energy policy should be to replace oil with low and zero carbon domestic energy sources. In the medium-term, however, U.S. oil demand will continue at least at current levels for many years until plug-in electric vehicles and electric vehicles constitute a significant portion of the domestic light-duty vehicle fleet. In other words, even if one is very bullish about electric vehicles and the ability of the U.S. to generate low carbon electricity to power them, the U.S. will still need adequate oil supplies for many years to come. Opening up the OCS for environmentally

responsible development can help supply that oil, while at the same time, providing American jobs and helping to improve our balance of payments. In the event that the OCS is not opened, this new oil will likely come from four main sources: Brazil, the Middle East, West Africa, and the Canadian Oil Sands, in order of increasing environmental and climate damage.

The bulk of the oil that the OCS would likely be displacing would come from the Canadian Oil Sands. Because the oil sands rely on heat and energy-intensive processes, a significant amount of carbon is emitted during the extraction phase. Even though the carbon emitted when the oil is burned in a car is the same for OCS and oil sands, the carbon emitted in the course of producing the oil is much higher for the non-traditional source.

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Just as we can produce more oil in the near-term, we can also consume less. The time required for the U.S. vehicle fleet to ramp up to widespread electrification will be measured in decades. In the meantime, light-duty vehicles powered by conventional internal combustion engines must be as efficient as technologically and economically feasible. The Energy Independence and Security Act of 2007 (EISA) contained much-needed provisions that increased car and truck fuel-economy standards for the first time in 30 years and reformed the CAFE system to make it more market friendly. By 2020, the new fuel-economy standards could reduce U.S. oil consumption by nearly 700,000 barrels per day.

As we move forward, it will be critical for the Secretary of Transportation and the National Highway Traffic Safety Administration (NHTSA) to implement fuel-economy rules that give consideration to the seriousness of the national security threat facing the United States. By increasing standards for light-duty vehicles at a rate of 4 percent per year beyond 2020, U.S. oil consumption would be reduced by nearly 3.5 million barrels per day in 2030.

EISA also mandated the issuance of fuel-economy standards for medium- and heavy-duty trucks for the first time in U.S. history. This structural reform is of great importance for reducing fuel demand in the transportation sector. However, the legislation did not set specific standards for these vehicles, as it did for cars and light trucks. Instead, the bill left NHTSA with statutory authority for setting the medium- and heavy-duty fuel-economy standard as part of its rule-making process. The Council continues to recommend that NHTSA pursue an aggressive and expeditious rule-making process with regard to medium- and heavy-duty trucks as part of implementing EISA and, where possible, consolidate and streamline statutorily-required processes to result in maximum oil savings at the earliest possible date.

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I can speak for every business and military leader on the Energy Security Leadership Council when I say that the Council is unanimously, unambiguously committed to this cause. The proposal we have put forward represents a commitment to transforming our transportation systems. It will be controversial. We have no illusions about that. But we would not be members of this Council if we had shied away from big ideas in the past. We can do this. We can end our transportation system's reliance on petroleum. We can ensure the robustness of the nation's electric power sector by promoting a diverse range of technologies. We can expand the research, development, and deployment of critical new technologies.

If we as a nation fail to meet this challenge, the American economy will remain vulnerable to debilitating shocks driven by geopolitical events outside of our control. Our national security will be imperiled by a weakened foreign policy that is forced to tread lightly when dealing with those who wish us harm.

We cannot continue to react to events as they happen, risking our economy every time an insurgent attacks a pipeline or a hurricane threatens the Gulf. Continued delay carries unacceptable risks. We believe that we are at a unique moment, where the recent run-up and collapse of the price of oil, and its consequences for consumers, the automakers and the economy, has left Americans thirsty for bold and transformative policies to address our addiction to oil. We must take advantage of this moment in time and act together while this priority remains prominent in our collective consciousness.

Our challenges are great, but so are our opportunities. It is time for America to act.

Appendix A: Outline of the Energy Security Leadership Council's *A National Strategy for Energy Security: Recommendations to the Nation on Reducing U.S. Oil Dependence*

I. Diversify energy supplies for the transportation sector

A. Electrification of the transportation sector
   1. Establish development of advanced battery technology as a top research priority and spend at least $500 million per year toward their development.
   2. Replace existing vehicle tax credits with new tax credits of up to $8,000 per vehicle for the first two million domestically produced highly efficient vehicles.
   3. Federal government should help create a market and exercise leadership by purchasing highly efficient vehicles.
   4. Establish production tax incentives to aid in the retooling of U.S. vehicles manufacturing facilities and to create and maintain a domestic capacity to manufacture advanced batteries.
   5. To encourage business participation, extend and modify federal subsidies for hybrid medium-duty vehicles (Classes 3–6) and heavy-duty vehicles (Classes 7-8) to 2012 and remove the cap on the number of eligible vehicles.
   6. Grants to municipalities and tax credits to commercial real estate developers to encourage the installation of public recharging stations.

B. Enhancing the nation's electrical system
   a. Increasing Nuclear Power Generation and Addressing Waste Storage
      1. Continue licensing process for Yucca Mountain while initiating a program of interim storage as an alternative to Yucca Mountain.
      2. Extend the deadline and increase the funding levels for loan guarantees for new nuclear generation.

   b. Deploying Advanced Coal Technology
      1. Significantly increase investment in advanced coal R&D including development of carbon capture and storage technology and policy framework.
      2. Increase funding for loan guarantees for advanced coal generation.

   c. Promoting Renewable Energy
      1. Reform and extend the Production Tax Credit (PTC) and the Investment Tax Credit (ITC) through December 31, 2013, while providing certain guidance for the transition to a fundamentally improved, next-generation incentives program.

   d. Development of a Robust Transmission Grid to Move Power to Where It is Needed
      1. Extend backup federal eminent domain for transmission lines to help expand the use of renewable power and to enhance reliability by moving power from surplus to deficit regions.
      2. Require the Federal Energy Regulatory Commission (FERC) to approve enhanced rates of return on investments to modernize electrical grid system.

   e. Transforming Consumer Demand for Electricity
      1. Direct states to implement time of day pricing for electricity, and grant FERC backstop authority to implement time-of-day pricing if states will not.

2. Require utilities to install smart meters for all new installations after a specified date.

C. Reforming the biofuels program
   a. Shift focus of biofuels deployment by concentrating on R&D and commercialization efforts on next-generation biofuels, fostering competition among fuels derived from differing feedstocks.

   b. Require increasing production of Flexible Fuel Vehicles (FFVs).

   c. Accelerate Department of Energy and Environmental Protection Agency testing and performance validation of unmodified gasoline engines running on intermediate-levels, first- and second generation biofuels blends.

   d. Replace the 45-cents-per-gallon ethanol tax credit with a 'smart subsidy'.

   e. Eliminate tariffs on imported ethanol over a period of three years.

II. Increasing energy access: expanding domestic supply

A. Target federal policy and resources to encourage the expanded use of carbon dioxide for enhanced oil recovery.

B. Support federal investment in technologies that can limit the adverse environmental impacts of oil shale and coal-to-liquids (CTL) production to ensure long-term viability before undertaking public investment in production.

C. Increase access to U.S. oil and natural gas reserves on the Outer Continental Shelf (OCS) with sharply increased and expanded environmental protections.

D. Increase access to U.S. resources in the Arctic and Alaska.

E. Federal support for construction of a natural gas pipeline from Alaska to the continental United States.

F. Expand federal R&D initiatives studying the opportunities to exploit methane hydrates, including the initiation of small-scale production tests.

III. Accelerating the development and deployment of new energy-related technology

A. Annual public investment in energy R&D should be increased by roughly an order of magnitude to approximately $30 billion.

B. Reform the existing institutions and processes governing federal R&D spending.

C. Develop a more effective federal R&D investment strategy.

D. Establish new institutions to provide funding for early-stage R&D and for later-stage deployment and commercialization.

E. Invest in the next-generation workforce for the energy industry.

IV. Reducing demand for oil: improving efficiency

A. Aggressively implement fuel-economy standards established in the Energy Independence and Security Act of 2007 (EISA).

B. Increase allowable weight to 97,000 lbs. gross vehicle weight for tractor-trailer trucks that have a supplementary sixth axle installed but which replicate current stopping distances and do not fundamentally alter current truck architecture. In addition, government should study further the safety impacts of significantly longer and heavier tractor-trailers used in conjunction with slower speed limits.

C. Require the Federal Aviation Administration (FAA) to implement and fund improvements to commercial air-traffic routing in order to increase safety and decrease fuel consumption.

V. Managing risks and global issues

A. Direct the Department of Energy to develop workable guidelines for the use of the Strategic Petroleum Reserve and evaluate its proper size based on those criteria.

B. Work with foreign governments to eliminate fuel subsidies.

C. Promote a robust China-U.S. partnership on carbon capture and storage that focuses on private-sector collaboration and sharing of best practices.

D. Establish a National Energy Council at the White House to coordinate the development of the nation's energy policy and to advise the president with regard to energy policy.

E. The National Intelligence Council should complete a comprehensive National Intelligence Estimate on energy security that assesses the most vulnerable aspects of the infrastructure critical to delivering global energy supplies and the future stability of major energy suppliers.

F. Working with the Department of State, the Department of Justice should bolster programs designed to train national police and security forces to defend and secure energy infrastructure in key countries.

G. As called for in its recent Maritime Strategy, the U.S. Navy should leverage the maritime forces of other countries to provide protection against terrorists and pirates for oil tankers in vulnerable regions.

H. The Department of Defense should engage NATO and other allies in focused negotiations with the intention of creating an architecture that improves the security of key strategic terrain.

I. The intelligence community should bolster collection and analysis capabilities on potential strategic conflicts that could disrupt key energy supplies. The State Department should improve its capacity to intervene diplomatically in conflicts that impact U.S. energy security.

J. The intelligence community should expand the collection of intelligence on national oil companies and their energy reserves in order to allow policymakers to make better decisions about future alliances and the nation's strategic posture on energy suppliers.