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**Draft Remarks  
Avoiding Blackout: The Case for Nuclear Energy  
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I'd like to take some time to talk with you about why nuclear energy is enjoying a comeback, some principles that should guide us from a policy perspective in assuring that nuclear has an opportunity to be successful, and finally, I will leave with some recommendations.

Utah, like many states nationwide, faces an energy problem. Demand is rising by 2 percent a year, even as the desire to reduce CO<sup>2</sup> emissions grows. Nationally, this equates to a 40% increase in electricity demand over the next 25 years. Efforts to find solutions are complicated by burdensome regulation, legal restrictions and activist interventionism.

Governments everywhere are developing a two-pronged approach in response to the dilemma. First is to mandate conservation (read: rationing). The other is to cap carbon-dioxide emissions.

These are the peanut butter and jelly of modern energy policy. In reality, it will be virtually impossible to affordably build new major power plants once CO<sup>2</sup> is capped. So to prevent rolling blackouts and public outrage, governments are forcing energy rationing through conservation mandates.

This is Utah's formula. In 2006 Gov. Huntsman, following legislation introduced by Rep. Fred Hunsaker, called for a 20 percent efficiency improvement in state agency buildings by 2015. Then, last May, Huntsman joined five other states in the Western Regional Climate Action Initiative to combat global warming by reducing greenhouse gases. The Initiative plans to have a cap-and-trade system designed by August 2008.

Because of its heavy reliance on fossil fuels, Utah will especially hard hit by these regulations. Over one-half of Utah's coal production is for state electricity generation, and 98 percent of Utah's energy comes from fossil fuels. Other Climate Initiative states enjoy a more diversified energy portfolio that includes access to nuclear and hydro sources. As a result, the Climate Initiative will disproportionately affect Utahans. The same would hold true for national CO<sup>2</sup> restraints.

Bringing nuclear to Utah can help. It is emissions-free, affordable, proven and safe. It already provides the United States with 20 percent of its electricity but none to Utah. That could soon change. According to a recent poll, 57 percent of Utahans favor nuclear energy, and they may soon receive their wish.

## **Affordability**

The price of electricity produced by nuclear power plants is both stable and affordable. Although the price of uranium has increased in recent years the monthly cost of producing electricity from uranium-based fuel remains slightly less than coal and substantially less than natural gas or oil. Electricity produced by nuclear energy is minimally sensitive to uranium price swings, because uranium accounts for only 5 to 13 percent of operating costs for nuclear power plants.

## **Environmental Considerations**

Environmental controls present perhaps the greatest regulatory hurdle facing future energy supplies. Ironically, the push for restrictions on CO<sub>2</sub> presents an opportunity for nuclear power.

Carbon dioxide emissions are the latest anxiety driving environmental activists. Their sophisticated public relations campaign has convinced much of the world that CO<sub>2</sub> and other naturally occurring gases, such as methane, cause global warming and must therefore be drastically reduced. The result is a plethora of federal and international legislation under consideration to restrict their release. States are also responding to CO<sub>2</sub> fears. In addition to numerous multi-state regional commitments, California has enacted CO<sub>2</sub> caps; seven other states are working on similar mandates. Twenty other states are pursuing voluntary restrictions. The likelihood is that some sort of CO<sub>2</sub> caps will be put in place.

To avoid drastic consequences for the economy and for Americans' lifestyles, an affordable energy source must be leveraged that can meet their CO<sub>2</sub> objectives. Because nuclear energy emits no atmospheric pollutants, it is the best way to meet these objectives.

## **Foreign Dependence**

Decreasing American dependence on foreign energy has been at the heart of the energy debate in recent years. However, dependence on foreign sources of energy, per se, is not the problem. The problem is that the United States has created economic and strategic vulnerabilities by exposing itself to over-dependence on unstable foreign energy sources. Expanding nuclear power in the United States can help reduce this vulnerability.

Although America's current energy dependence is largely a function of the petroleum-based transportation sector, trends indicate that the larger energy sector is following suit. Most new power plants brought online in recent years have been gas-fired. While the United States is not currently dependent on natural gas imports, greater mobility of natural gas in liquid form (LNG) makes importing this resource in much higher quantities increasingly likely. Indeed, America's imports of LNG have increased approximately five-fold over the past decade. This trend will likely accelerate, as most power plants now being planned will be gas-fired as well.

While this should not deter the United States from developing foreign sources of liquid natural gas and the domestic infrastructure to support those imports, Americans should be alert to the potential problems that these additional imports could cause. Natural gas comes from many of the same regions where oil is found, and public opposition to placing LNG terminals near population centers has made infrastructure development difficult. The potential result of greater reliance on natural gas will be an expansion of America's economic and strategic vulnerabilities.

## **THE UNIQUE NATURE OF NUCLEAR POWER**

The United States once dominated the nuclear industry. But as the Cold War ended and the nation reacted to the 1979 Three Mile Island incident, the nuclear business all but collapsed. Companies were forced to downsize, transform their business strategies and—in many cases—leave the nuclear industry either by adapting to new markets or by shutting down. Through all of this, a handful of companies survived and today make up America's nuclear industrial base. They manage the Nation's nuclear weapons and lab complex, supply heavy nuclear components to the U.S. government, and operate and maintain the U.S. fleet of power reactors.

Having dominated the global rise of nuclear energy in the 1960's and 1970's, American companies are preparing to rebuild a nuclear industry capable of supporting, not only rising domestic energy needs, but those of the world. A major caveat, however, of a successful reemergence of the American nuclear industry is fully recognizing what lies ahead and the many obstacles that remain.

Making success so difficult is that the nuclear world is different from most other industries and these unique characteristics must be recognized and deftly managed. Some of these differences include:

**Extremely regulation heavy.** The industry is perhaps the most regulated in the country—perhaps the world. This regulation, whether at home or abroad, in many cases, defines the market. Countries, including the U.S., use regulation not only to oversee the nuclear industry but also to constrain and control it. If not applied carefully, the regulatory environment can become a significant obstacle to overcome.

**Sensitivity to public perception.** The nuclear industry is extremely sensitive to public perception. And because the industry is so regulation heavy, a change in public perception can translate into a change in our elected representatives, who have significant control over the U.S. nuclear industry. Internationally, the same dynamic exists.

**Success depends on government policy.** Only the private sector can MAKE the nuclear industry, but the public sector can certainly break it. Very few industries are as dependent on good government policy as is nuclear. Whether it is regulation, non proliferation, prohibitions, or trade policy, uninformed decisions by elected officials can have a devastating effect on business.

**Industry consists of mix of free and closed markets and public and private companies.** This mix of public and private results in the ability of different sectors and companies to take advantage of opportunities as they arrive in different ways. For example, if freed to compete, the American private sector could eventually lead the global nuclear industry as it did in the 1970s, while the state owned/supported foreign industry may be better positioned to take advantage of the current environment.

**Integrated civil, commercial, and military sectors.** The different sectors (civil, commercial, and military) of the nuclear industry are integrated. That is to say that an event in one can have a serious effect on the rest. For example, a radiation release in a nuclear lab could have a detrimental affect on the commercial plant business. This is unique. An experimental plane crash, for example, does not threaten the broader airplane industry. Likewise, the entire nuclear industry benefits from individual successes. This integration has other ramifications as well. From a technological stand-point, technology in one sector can be applied to other sectors. Therefore, the United States should strive to lead all sectors of the nuclear industry to assure an advantage in the military sector.

## **TRANSITIONING FROM DECLINE TO GROWTH**

It is amazing to me when I think about how far nuclear energy has come in recent years. Literally, just a few years ago few could have imagined that here, in 2008, we would be standing at the threshold of a nuclear renaissance in the United States.

And it is this rapid turn of events that I believe causes most of the problems that nuclear energy faces today.

When I think about it, there are four areas where nuclear energy must transition from old to new.

### **Public Education**

The first is moving beyond three decades of anti-nuclear propoganda. The reality is that the anti-nuclear movement has been allowed to define the nuclear debate in this country for a long-time without any opposition. The general feeling was that nuclear energy's time had come and passed and energy used to defend against the anti nuclear crowd's lies would be energy that could be better used on something else. And for a long-time that was the case.

But now that nuclear energy is coming back, we need to work twice as hard to educate the public who has been lied to for 30 years about the truth of nuclear energy. We need to tell the public that no one was killed or even hurt at Three Mile Island. That nuclear energy is emissions free. That nuclear powerplants can not explode like a nuclear bomb. That you get more radiation flying from Washington to Salt Lake than you do living next to a nuclear power plant. That France gets 80% of its electricity from nuclear power and

that while the rest of the world is gearing up to build new nuclear power plants, we do not have the industrial capacity to build even one in this country. The list goes on.

## **Governing Regimes**

Next is the problem posed by governing regulatory regimes. The U.S. has made some progress in modernizing the onerous regulations to which businesses must adhere to build and operate a plant. In the past, a utility had to get two separate permits to construct and operate a plant. This created numerous opportunities for massive interventions and inefficiencies.

The new, yet untested, system allows a utility go apply for a combined and operations license at one time. Indeed, over 20 companies are in some stage of applying for a license to build over 30 new reactors. Bear in mind, however, that none have actually committed to building a new plant. They are just laying the groundwork in case they decide to do so. The area where the U.S. needs substantial reform is with managing spent nuclear fuel.

The current system is rooted in the Nuclear Waste Policy Act of 1982. This Act created a system for managing spent fuel that made all the sense in the world, on paper, nearly three-decades ago. It made the federal government responsible for disposing nuclear fuel and created a fee system through which nuclear energy users would fund the government's activities. Well the system never worked, well except for the government collecting those fees. They've been very successful at that, collecting nearly \$30 billion, when you include interest. But they have not taken one atom of spent fuel. Not one. And because they were legally obliged to begin doing so by 1998, they—and by “they” I mean us, the taxpayer—has been amassing liability. We've already paid out nearly a hundred million dollars with hundreds more under appeal. By 2020, this liability will balloon to \$20 billion.

If that weren't enough, the nation has already produced about 58,000 tons of spent nuclear fuel. And guess what, that is about what would fit in Yucca Mountain's statutory limit. Now notice that I said “statutory”. This comes back to the obsolescence of the Nuclear Waste Policy Act. That Act limits Yucca to 70,000 tons of waste, which includes defense waste. The actual limit of Yucca is about twice that and probably even more than that. Even if the limits were lifted on Yucca, it still would be only large enough to hold the waste produced over the lifetime of America's current fleet—there would be no room for any spent fuel from any new reactors. These are all big problems, but nothing that can't be solved. But to solve them, we need to move beyond old regulatory regimes.

## **Role of Government**

This is a tough one because the government has always been intertwined with the nuclear industry and it continues to be today. But I believe that this needs to change. I believe that most of the problems that nuclear power has had is a function of its dependence on

government. And certainly, if there is a chance for a sustainable nuclear renaissance, the industry must be freed to evolve on its own.

But as it stands, government deals with waste, it provides subsidies, it provides research and development, it regulates, it distorts energy markets, and so on and so on. The past role of government had a lot to do with national security. It had to do with the nuclear navy and nuclear weapons primarily. The nation's national security apparatus realized that the best way to assure that its needs were met was to engage the private sector. So it created, more or less, a commercial nuclear industry.

This began as direct subsidies in the beginning of the nuclear age and evolved into indirect subsidies and close collaboration. The result was an industry that was dependent on sympathetic public policy and disconnected from market forces. When public policy shifted toward a more anti-nuclear stance, the industry was too inflexible to survive the volatile energy markets of the 1970's.

That was what it was. I am not arguing the rightness or wrongness of those original nuclear policies. The nation needed what it needed and it did what it had to do to win the Cold War.

In the end, the market won. It always does. If the objective was to have a robust, sustainable commercial nuclear industry, then the policies and decisions made in the 1960's and 1970's were obviously not successful.

Industry transformed to reflect the new market realities. It consolidating around operations and maintenance of existing plants, decommissioning, and national security functions.

And that is how it was until a few years ago when the promise of nuclear power began to attract a new legion of followers. This time it wasn't Cold Warriors, but environmentalists, energy security advocates, and people looking for affordable energy.

And so here we are today trying to bring about a nuclear renaissance. The question before us is, what do we do different this time around that will allow the industry to grow and sustain itself over time. How do we assure that it not be susceptible to short-term political volatility?

Private investors have a key role to play in reestablishing America's nuclear industry. The industry is no longer owned or supported by the government, although the Energy Policy Act of 2005 does provide some incentives to utilities. In general, private investors provide the capital and take the risks necessary to develop the nuclear industry. The government's role should be to ensure safety and allow the industry--just like any other--to compete and flourish in open markets.

The heavy regulatory burden imposed on the nuclear industry creates enduring uncertainties about the future of nuclear power in the United States. While a strong public

commitment does provide some near-term certainty, it still is accompanied by regulatory and investment uncertainty. This does little for the long-term planning inherent in nuclear energy, which results in higher risk assessments for America's energy companies.

Investors are right to be wary. Anti-nuclear activists have already exploited the authority of public institutions to strangle the industry. Now these same public institutions must be trusted to craft good public policy that reestablishes the confidence necessary to invite investment back into America's nuclear industry. To be successful, the new policies must create an industry that does not depend on the government. They must mitigate the risks of overregulation but allow for adequate oversight while preventing activists from hijacking the regulatory process.

### **International protectionism**

The foreign nuclear market is very diverse. It consists of full weapons countries with mature nuclear industries, such as France and Russia as well as of countries like India and China preparing to establish themselves as nuclear leaders. Then there are nations who do not have weapons programs but remain at the cutting edge of nuclear technology, such as Japan, Israel, and South Africa. There are a host of other nations that have nuclear power reactors and other less extensive nuclear applications. Finally, there are those “rogue” nations, such as Iran and North Korea, who work outside of accepted international norms.

The nuclear market place is often understood to be a truly global market. This is not exactly true. The U.S. market is certainly international, with companies from around the world—many state owned and subsidized—competing and doing business in the United States. This “globalization”, however, stops at the borders.

The international participation in the rest of the world is often tightly controlled by state authorities. While much of the international nuclear industry has access to the U.S. market, U.S. companies have limited access to the global nuclear market. This is becoming a significant issue as major manufacturing centers like China, India, Russia, and parts of Europe are developing plans to expand their nuclear fleets.

Gaining access to these markets will be crucial to the long-term health of America's domestic nuclear industrial base. Additionally, serving these markets commercially will assure that the United States has the cutting edge nuclear technologies to provide the nuclear non proliferation services that are emerging. A combination of tariff and non tariff barriers, arduous bureaucracy, protectionism, and liability concerns effectively bar American companies from most international markets.

Countries often justify their protectionism by arguing that such policies are necessary to advance national security or to protect sovereignty. Goods and services fall into a number of general categories for the purposes of international trade. Some of these categories of items are traditionally traded more freely than others. Two categories that are often not traded freely are those that a nation deems critical to the preservation of its

sovereignty and those that are critical to national security. Energy goods and services often fall under the former and nuclear technologies under the latter.

So it should be no surprise that global nuclear energy markets are extremely difficult to access. But this approach must change. Yes, nuclear technologies must be controlled but for a nuclear renaissance to be successful, it must be rooted in the free market and competition and free-trade must be the cornerstone of that regime.

## **RECOMMENDATIONS**

So with all of that, the question becomes, what do we do? From my perspective, there are a handful of policy changes that must be undertaken.

- **Remove all policy and legal barriers to recycling nuclear fuel**
- **Commit to opening Yucca Mountain ASAP**
  - **Accompanied by more positive talk on what nuclear can bring to Nevada.**
- **Removing all arbitrary restrictions on Yucca capacity**
- **Provide long-term bipartisan political stability**
- **Commit America's national laboratory infrastructure to supporting basic R&D**
- **Must assure that nuclear is not excluded the CO2 reduction conversation**
- **Support international aspect of Global Nuclear Energy Partnership plan to manage global growth of nuclear power**
- **Assure that subsidies do not exceed what is called for in EPACT 2005**
- **Limit loan guarantees**
- **Acknowledge that current spent fuel management strategy is obsolete and broken and commit to developing a comprehensive, market-based alternative.**
- **Commit to keeping U.S. market open and fighting to open foreign commercial nuclear markets.**
  - **Russian uranium**