

**Testimony of Mr. T. Boone Pickens before the Senate Homeland Security and
Governmental Affairs Committee**

*Hearing to examine the challenges and solutions to developing energy security from domestic
resources.*

Tuesday, July 22, 2008
10:00 AM
106 Dirksen Senate Office Building

Chairman Lieberman, Senator Collins, and members of the Committee, thank you for holding this hearing today. Our country is in a crisis caused by imported oil, and any serious solution to help us escape from this trap will require action by the Congress to promote private investment in our electric transmission system.

We must develop and promote every available domestic energy resource to solve this crisis, and the lynchpin to addressing our escalating dependence on foreign oil is a willingness and determination to invest in and streamline development of our domestic sources of energy and our electric transmission system. Private enterprise will invest money, and will develop domestic resources and build new transmission infrastructure cheaply and efficiently, if Congress adopts clear, predictable policies.

And Senators, ladies and gentlemen, simply stated, our main energy problem begins and ends with imported oil. Seventy percent of the oil we use is imported. With current oil prices, we are getting close to exporting \$700 billion a year overseas because of our addiction to imported oil. That's nearly four times the cost of the Iraqi war. We purchase it from a few friends and a lot of enemies. We are paying for the war against ourselves and we have got to stop it, some way, somehow.

And the price of oil will go up further. Over the next 10 years, you're looking at exporting \$10 trillion out of this country. It will be the greatest transfer of wealth from one country to other parts of the world in the history of mankind. It is a clear and growing threat to our national security, and our national economy. It has to be stopped. We are on the verge of losing our Super Power status. It's time to quit the blame game, and look for solutions and leadership to solve the problem.

For decades, every presidential candidate has talked about making us energy independent. That hasn't happened, of course, and the hole we've dug for ourselves just keeps getting deeper. In 1945 we were exporting oil to our allies. In 1970 we were importing about 30 percent of our oil. By the 1980s it was 37 percent. In 1991 during the Gulf War, it was 42 percent. Now it's about 70 percent.

The world produces 85 million barrels of oil a day, or more than 30 billion barrels of oil a year. We haven't replaced that amount of consumption on an annualized basis since 1985. World oil production, I believe, has peaked, and the world's current oil fields are declining at the rate of 8

percent a year. The simple truth is we're never going above 85 million barrels per day of oil production.

The U.S. consumes 25 percent of the world's oil, with only 4 percent of the world's population. And what's going to happen when you're dealing with a supply plateau at 85 million barrels and increasing demand as the Chinese, Indians, and rest of the underdeveloped countries around the world continue to use more and more oil?

I have a plan to fix this problem. I've stress tested it with government and business leaders across the U.S. in recent months. No one has found any major flaws in it. That said, if there's a better plan out there, it's time to hear it. The time for action is now.

Worldwide 70 percent of the 85 million barrels a day is used for transportation. To replace foreign oil, we need a major energy source that works for transportation. The domestic energy resources we have are oil, coal, natural gas, wind, solar, bio-fuels, hydroelectric and nuclear.

Natural gas and bio-fuels are the only fuels on the list that work to replace foreign oil for transportation. It's my belief that bio-fuels, while helpful, will not be the total solution.

So we have domestic natural gas as the only near term replacement for foreign oil. Natural gas is clean, abundant, affordable and, again, domestic. We have approximately 80 years supply of natural gas available to us from sources in North America. Domestic natural gas reserves are twice that of petroleum. And new discoveries of natural gas and ongoing development of renewable biogas are continually adding to existing reserves., In fact, 98% of the natural gas consumed in the United States is produced in the US and Canada.

Natural gas is the second largest energy resource in the country. When you look at the pie chart of power generation in the United States, you have 50 percent coal, 22 percent natural gas, 20 percent nuclear and 8 percent hydro and renewables.

Let me first say that we need all the sources of electricity that we can lay our hands on. The Energy Information Administration forecasts that electricity consumption will increase by at least 40 percent by 2030, just to keep pace with the energy needs of a growing population and a growing economy. While I am betting that wind will be a big part of this growth, there is no doubt that coal, nuclear, natural gas and other forms of renewable energy will be needed to slake our nation's growing thirst for energy. My plan will not disadvantage existing fuels, nor displace employees or companies that make their living in the provision of those fuels.

If we take the natural gas we would be using for electrical generation to meet new demand and replacement of existing plants and move it to transportation, we can replace 38 percent of our foreign oil imports. And that, sports fans, is a real number.

Using natural gas for transportation is not a new idea. While there are only 150,000 vehicles running on natural gas in the U.S., there are nearly 8 million automobiles worldwide and that number is growing rapidly. There are numerous manufacturers of natural gas vehicles for the

world market, including Ford, Honda and General Motors. We're getting beat by the French in nuclear power, and by the world in natural gas vehicles. We should be leaders, not laggards.

I know that we can do this because we've done it before. President Eisenhower led us to build an extraordinary interstate highway system. President Kennedy took us to the moon. And President Reagan led us to win the cold war.

President Reagan led the United States to defeat communism without firing a single shot or sacrificing a single American life by exploiting the economic weakness of the communist system, and overwhelming them with military spending. Today, the Russian gas monopoly, Gazprom, is proposing to build natural gas fueling stations all over Europe, while we continue to import foreign oil. We should ask ourselves "Are we going in the direction of greater economic security in our energy policy?"

If you could lower your foreign oil imports by 38 percent, you are reducing the amount of money you're exporting by 38 percent. Reduce \$700 billion in foreign oil purchases by 38 percent and you'll see an annual savings of nearly \$300 billion every year. \$300 billion more would be staying inside our country instead of going to other countries overseas.

Nothing can reduce your imports better than this and you work with energy supplies right here.

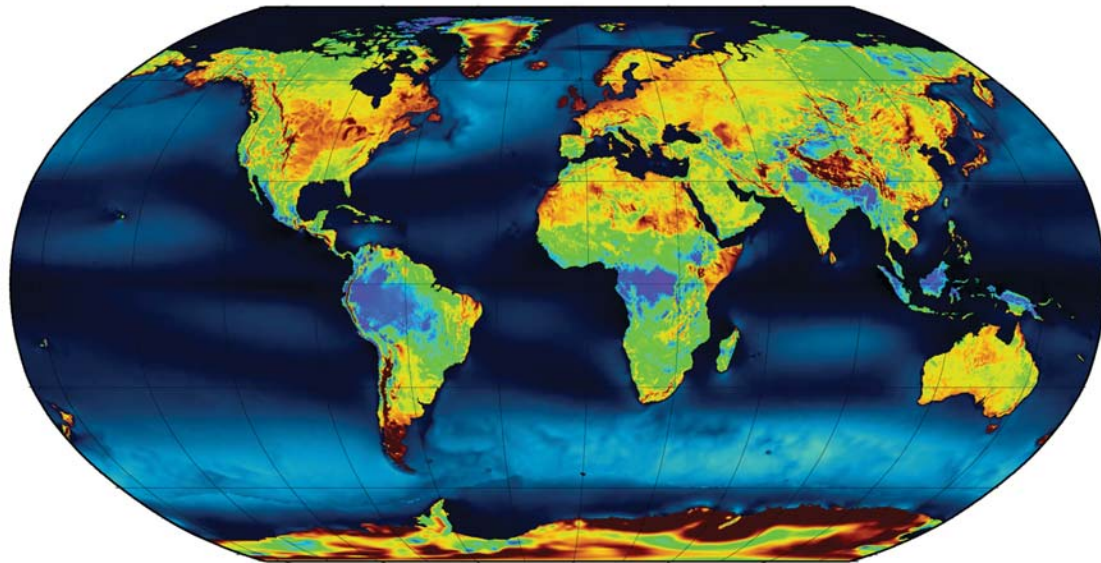
But if we use all of that natural gas for transportation, how do we replace it in the nation's electrical supply?

The Sweetwater, Texas, wind complex is the model. If you take the total Sweetwater complex it will soon be producing 2,000 megawatts. The Shell Oil Company and Energy Future Holdings are getting ready to do another project just north of Sweetwater, and that's 3,000 megawatts. My company, Mesa Power, just put under contract with GE the largest single turbine order that has ever been given. The first phase of the Mesa Pampa Wind Project will be capable of generating 1,000 megawatts of electricity, enough for 300,000 average U.S. homes. When we complete the entire project, it will have the capacity to generate some 4000 megawatts and will have cost close to \$10 billion.

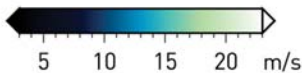
15km Global Wind Map at 80m

Mean Wind Speed for a single year
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developed by



Wind speed over water

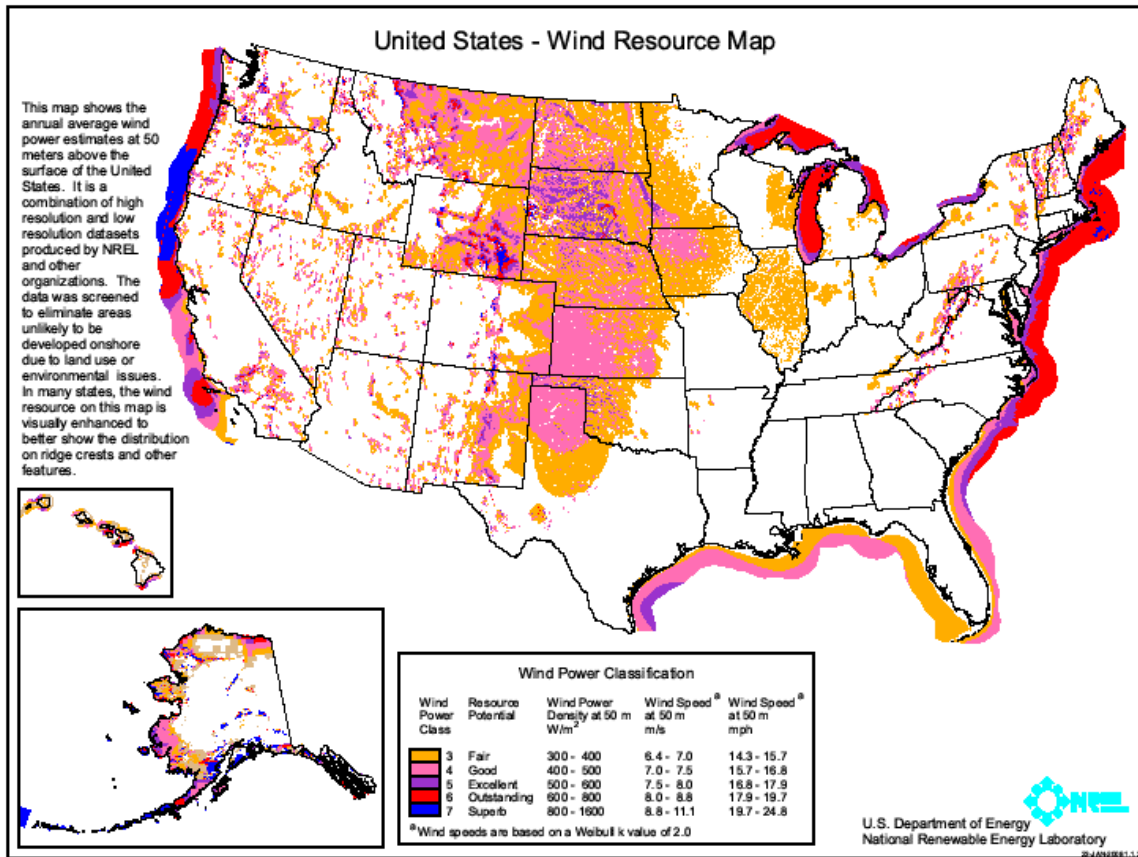


Wind speed over land

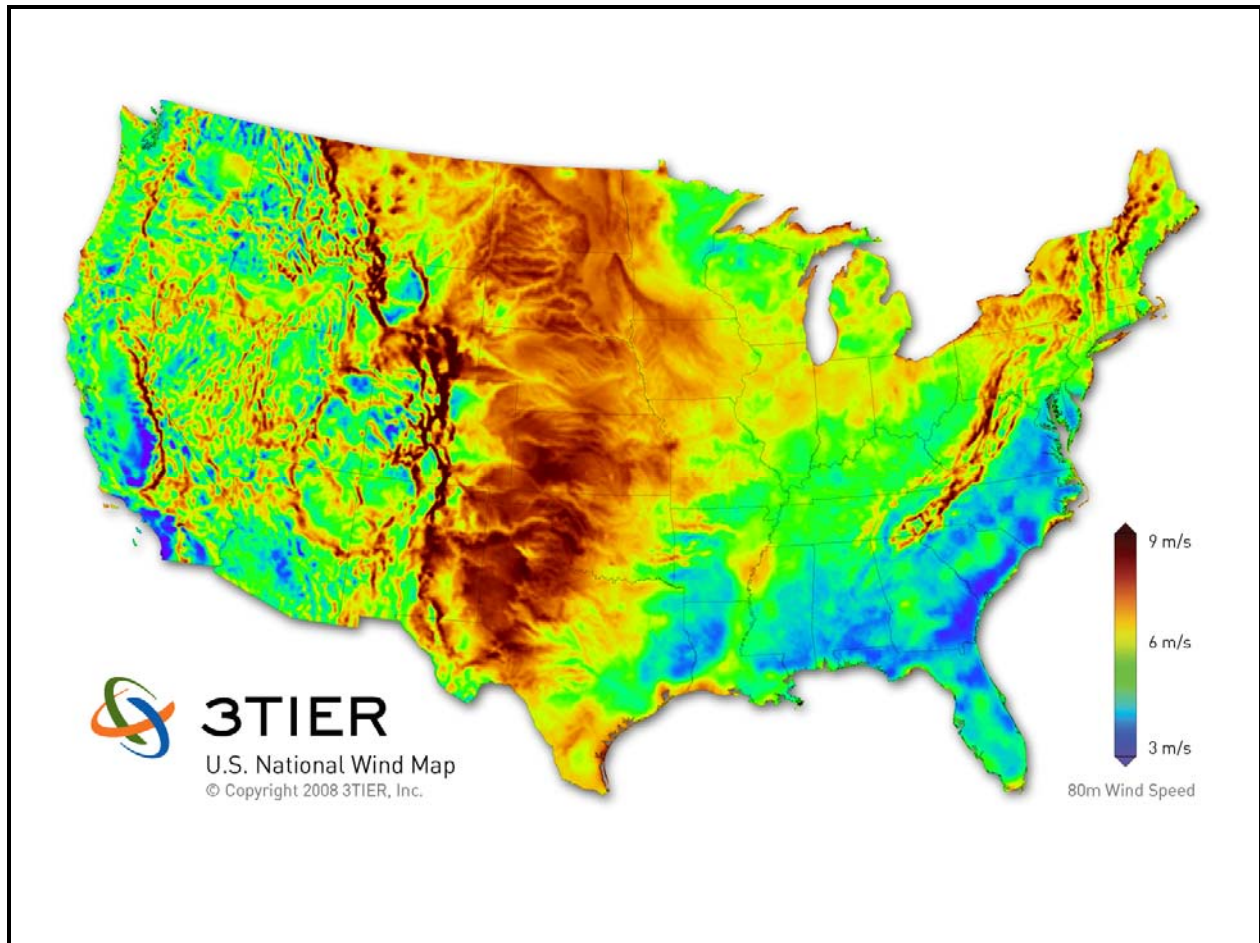


As you can see from the map above, we have some of the best wind resources in the world. It's time we got serious about using it.

The US wind corridor runs from Sweetwater to Pampa and Goodland, to Kansas, and Hastings, Nebraska and right up the line to Canada. The Department of Energy in April of this year showed that we could develop 20 percent of our electricity generation from wind using wind resources in the heartland of the United States.



The map below shows the same wind corridor with slightly better resolution.



Now, if you take wind power and use it to replace natural gas for electricity generation, you can release the natural gas to transportation. One million cubic feet (MCF) of natural gas equals 8 gallons of gasoline. At \$4 dollars a gallon for gasoline, that means an MCF of natural gas is worth \$32 dollars. *And natural gas is selling today around \$12 dollars an MCF.*

We don't buy all of our oil from our enemies. We do have some friends – Canada and a few others. But most of the money that the world pays for oil goes into the hands of countries that are not our reliable allies. And some of that money is used right back against us in the war on terror. And so, we are funding the people who are trying to wreak havoc on this country.

The good news is we can use alternatives to address this problem. I am 100 percent for all alternatives. We cannot limit ourselves to any single solution, whether it is nuclear power, drilling for more domestic oil and gas, or renewable energy. It is clear that renewable energy sources are an essential national security strategy. But in order for renewables to replace a meaningful amount of our imported oil, we need a national electricity transmission system stretching both east and west to carry this electricity, be it generated from wind, solar, biomass or other alternatives.

I have always believed that an idea has to be simple to be worth investing in. That is why I am building the world's largest wind farm. There is good wind in the area where I live in Roberts

County in the Texas Panhandle, and I have the ability to transmit the electricity to markets in Texas that will pay for it. Good wind and transmission are the keys to my project.

I think that most of the people in the wind generation business will tell you those two elements are key to every wind project. That is because, as can be seen from the wind resource maps above, the large, flat, open areas with adequate wind are located a long way from where electricity is needed on the east and west coasts. Since we can't do much about where nature has put the wind, we have to do something about transmission to move the electricity to market.

Unfortunately, the large, flat, open areas with adequate wind do not already have transmission service because there has been no reason to provide transmission service to those areas, so we are looking at a need for green field transmission projects. The Department of Energy map below has identified the scale of transmission projects that will be required to move electricity generated from our wind resource heartland to the load centers that need it.

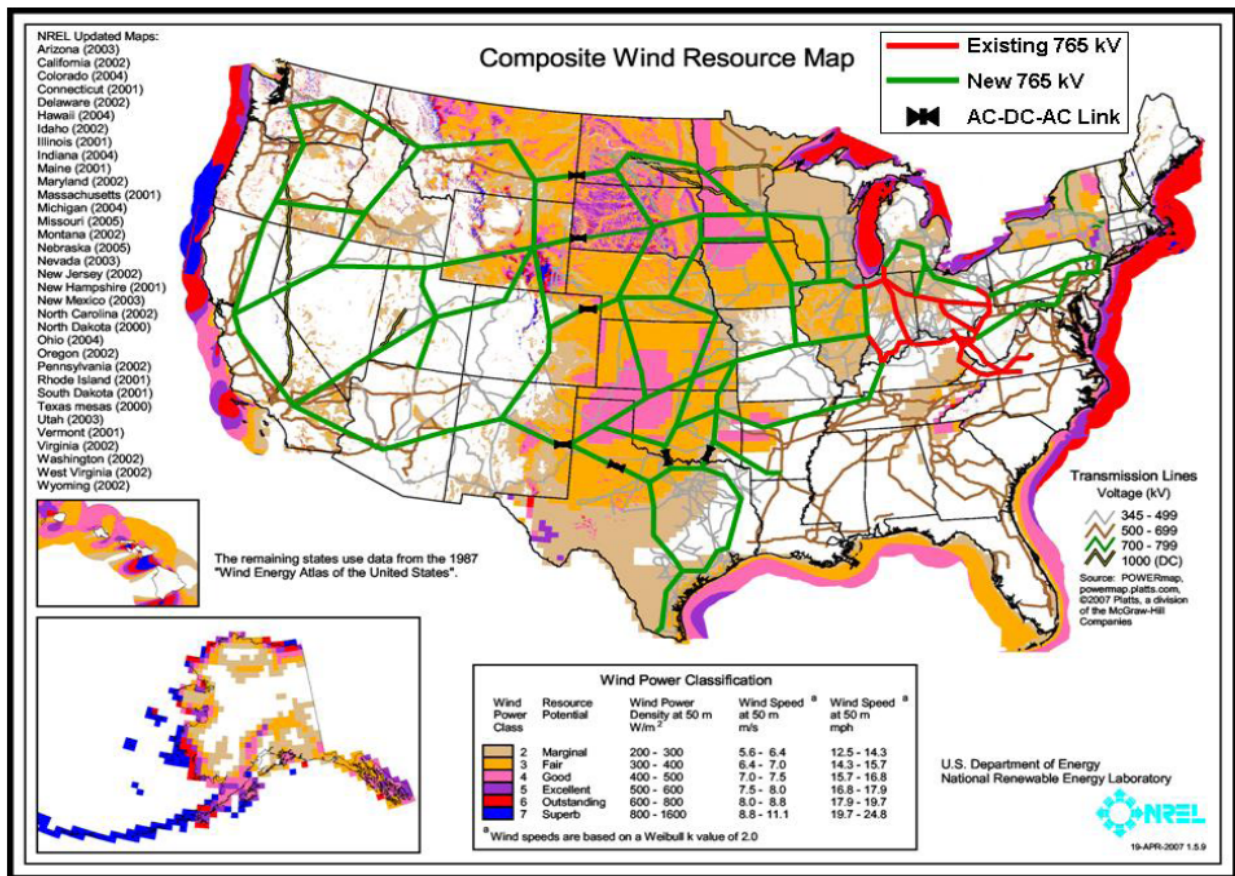


Exhibit 1: Conceptual 765 kV backbone system for wind resource integration (edited by AEP).

Greenfield transmission projects all face the same obstacles--siting, use of federal lands, permitting, equitable allocation and recovery of costs, equitable allocation of capacity, and availability of financing.

As the Western Governors Association has said, “[W]hile there are many incentives that can stimulate renewable energy growth, perhaps the most critical obstacle renewable energy faces is the availability of transmission. In many cases high quality renewable resources are in remote areas where transmission does not exist, and we all know building new transmission can be both a costly and lengthy, if not controversial, process.”

Senator Reid’s bill, S. 2076, which would provide for the identification of National Renewable Energy Zones, will definitely help move the process forward, but I would like to explain to this Committee what I see as the issues through the eyes of a wind project developer who has had to deal with each of these issues.

There is a sequencing problem that is circular—transmission won’t be built unless there is generation capacity to be carried, and generation won’t be built unless there is transmission. Furthermore, long distance transmission is only economic if it is built to high capacity, which means that there must be a large amount of generation capacity in one place.

I happened to be lucky with my project, because I was already planning a water project that required a pipeline running in the same direction that I needed transmission for my wind project. The water project pipeline right of way eliminated the siting and permitting issues, but I still have to face the financing, and cost recovery issues.

As you may know, Texas has taken a leadership role in encouraging the development of wind generation. The Texas Legislature has adopted a renewable portfolio standard, which has encouraged development of wind projects in Texas, and has directed the Texas Public Utility Commission to identify competitive renewable energy zones (CREZ)—areas that are well suited to development of renewable energy production, and to adopt policies that will make transmission available to those zones.

However, the Texas CREZ process began in 2005, and is expected to be completed in 2013. I am eighty years old, and I don’t have time to wait for the process to be completed, and neither does this country. I am building my own transmission line, which will ultimately travel 250 miles in Texas from the top of the Panhandle to near the Dallas/Fort Worth area, and I will have to pay for this transmission line myself. Not very many wind developers are in a position to do this.

I expect to sell my power in the Texas ERCOT market where prices are set by competition among power generators. As a result, I will not be able to simply increase the price of my power to cover transmission; instead, my profits will be reduced by my transmission line costs. This is a penalty that I am willing to pay in order to get my electricity to market first, but it is not a burden that most developers can bear. It requires scale and financial capacity. That is how I came to build the world’s largest wind farm. It is the only way to pay for the transmission capacity as a private line, and it is only feasible within Texas. If you want to do it on a national scale, where the transmission line distances will be much longer, and utility regulations are different, Congress must act.

As I said earlier, I believe that the United States has the opportunity to build renewable electricity capacity to serve a substantial part of our needs for energy. By doing so, we will

increase our energy security, improve our environment, revitalize the heartland of the United States, reduce the demand for natural gas to be used as fuel for generation, reduce the production of greenhouse gases, and reduce the demand for water to be used in thermal generation.

In order to secure these benefits, the issues that I identified above must be addressed. Let me take a moment to explain each of them.

Siting Authority. As a land owner myself, I understand concerns that landowners have about having their property taken for public use. Quite properly, our Constitution provides protection for landowners from arbitrary takings. However, for more than 150 years, we have recognized that private companies transporting the common necessities of life, food, water, fuel and electricity, to cities and towns are serving the public interest because life in the cities would not be possible without those necessities. As a result, private companies, such as Mesa Power, have been permitted to use the power of eminent domain, subject to oversight by public authorities and the courts, to obtain rights of way for transportation corridors.

This system worked well for many years, but the large distances between the best sites for renewable power and the places where that power is needed have presented new challenges. The state public authorities that oversee the use of eminent domain by private companies are required to consider the benefits of the project to the citizens of their states. They often have indicated that they do not have the authority to consider the benefits to citizens of the United States who are not residents of their states in deciding whether a particular transmission line should be permitted to be located through the power of eminent domain.

No project sponsor likes to use eminent domain powers. It is slow, cumbersome, expensive and unpredictable. Negotiated easements that result in a landowner willingly permitting the use of the land are very desirable. However, a transmission line with a gap in it, no matter how small, is useless. Any single landowner along a transmission route can prevent the entire project from being constructed, no matter how important the transmission project, unless the transmission provider has the power of eminent domain.

Where state utility commissions are limited by state law to considering benefits to citizens of their state, eminent domain power may not be available to transmission developers wishing to cross the state without providing transmission service to local generators or local electricity users. This problem was recognized in the Energy Policy Act of 2005 (EPAct 2005), but the provisions of that act, which added Section 216 of the Federal Power Act, need to be extended. Section 216 currently requires that the Secretary of the Department of Energy conduct a study and issue a report designating corridors as National Interest Electric Transmission Corridors every three years. After the designation, a transmission service provider can seek siting approval from a state commission, and if the approval is not received within one year, the provider can then seek siting approval from the Federal Energy Regulatory Commission (FERC). This introduces a potential delay of over four years before the FERC transmission approval process can even begin. In addition, there is not agreement that the language of Section 216 authorizes a finding by the Secretary of Energy that transmission is “constrained” if there is a proposed project, but no available transmission at all. Congress needs to address these issues by amending Section 216 to direct the Secretary to make designations of National Interest Electric Transmission Corridors, outside the three year cycle provided by Section 216, upon request from

a transmission service provider who can show that a renewable project developer has requested service and a load serving entity is willing to contract to purchase power from the renewable project developer. Congress also needs to provide the FERC exclusive jurisdiction to site new transmission for a renewable energy project in the specific case where a developer has contracted to build, and a load has contracted to buy the energy from, a new renewable energy resource.

Federal Lands. Most long transmission lines in the west will cross federal lands. Again, while EPAct 2005 recognized the issue, and provided a process to address the issue, the process for approval should be streamlined. Either designation of a national interest electric transmission corridor by the Secretary of Energy or specific siting approval by the FERC should be sufficient to grant approval by the United States for use of any federal lands crossed by the proposed transmission line. (EPAct 2005 excluded lands included within the National Park System, the National Wildlife Refuge System, the National Wild and Scenic Rivers System, the National Trails System, the National Wilderness Preservation System, or a National Monument from its scope, and those exclusions should be continued.). Any affected federal agency could appear in the FERC proceeding to present any concerns regarding the use of federal lands included in the proposed route for the transmission line.

Federal Permitting. Every transmission line involves multiple approvals from the United States and its agencies and departments. While it is possible with enough time and patience to gather the necessary permits, it introduces unnecessary delays into the process. Again, EPAct 2005 addressed the issue, but the process can be further streamlined. While EPAct 2005 did authorize the DOE to take the lead in coordinating federal permitting, and required other agencies and departments to enter into a memorandum of understanding with DOE regarding permitting projects, I believe that DOE should be authorized to issue the required permits directly after the transmission service provider meets the requirements for those permits in the judgment of DOE.

Equitable Cost Allocation and Recovery. As I said earlier, a transmission line with a gap in it is worthless. Put another way, there is no useful way to build a transmission line in phases. It either is or it isn't. As a result, the costs are all incurred at once before it is available for use. Generation, on the other hand, can be built over time, and may have to be built as wind turbines become available. That means that the first wind turbines on a transmission line may not be able to bear the entire cost of the transmission line until more of the transmission line capacity is in use.

In Texas, we have concluded that transmission service to renewable energy production areas is socially desirable, and our legislature has directed our public utility commission to develop a plan, the CREZ plan that I mentioned earlier, to pay for extending transmission lines to serve areas where renewable resources are available to generate electricity. The cost of those lines will be paid by the ratepayers throughout ERCOT, because all of them benefit. In Texas, we have a very large market for electricity, the ERCOT market, so that several billion dollars of costs can be spread across the entire market without creating a problem for electric rates. In much of the rest of the country that is not true. It is a particular problem where many interconnected systems would benefit from new long distance transmission to serve renewable generation projects, but one utility or group of rate payers is expected to bear the entire cost.

Once again, Congress addressed the issue in EPAct 2005, but the FERC needs to be directed to spread the costs more widely, across multiple states if necessary, to reflect the benefits that are gained from the transmission project in terms of congestion relief, and other benefits. I propose that the FERC should be directed to allocate the costs of a new transmission line constructed under a special renewable resource NIETC designation that the FERC has sited to all load that benefits from the access to the energy transmitted over the line.

These investments will eventually find their way into utility bills that customers pay and, as Governor Freudenthal of Wyoming has said, we should be square with utility consumers about the cost of these transmission investments. There are, however, costs associated with inaction. Those costs are real and in the long term could prove to be much higher than the costs of the transmission investments I have discussed today

Equitable Allocation of Capacity. If I put several billion dollars at risk, which I expect to do with my project, it does not strike me as fair that someone else can show up after everything is built, and all of the risks have been taken, and ask for and receive the right to use the transmission line that I paid for and force me to curtail transmission of my own electricity to permit them to use the transmission line. If you are going to encourage people to take entrepreneurial risk, you cannot expect them to do so if they can receive the same benefits by sitting back and waiting for someone else to take all the risk. Open access is fine for transmission lines that have already been in service for many years and their costs recovered, but there must be a process that encourages renewable generation developers to put up risk capital in return for preferred access rights to transmission capacity.

Financial Incentives. I think that I may be unique both in being willing to take the risks that I am taking in developing my wind project, and in having the capital to do so. Most of the other wind developers, even the other developers who are willing to develop on utility scale, are not willing to take the sorts of risks that I am facing. I would not be willing to do it if I was not a believer that Congress will do the right thing in the end. Wind and other renewable energy projects need production tax credits. For projects like the one that I am building, we need predictable policies regarding the credits for the long period that it takes to get everything put together. My project, even with the favorable regulatory climate for wind in Texas, will take seven or eight years to complete. If we decide to build more generation capacity to supply other parts of the country, it may even take longer from start to finish. We need to know, when we start, what economic incentives will be in place when we get to the finish line. Otherwise, developers have to use very conservative assumptions about project economics, and many projects just won't get built. We also need targeted incentives for transmission lines, such as the loan guarantee program for rural renewable transmission lines that was proposed by the Senate in its version of the Farm Bill. Long distance transmission projects for renewable energy should qualify for an investment tax credit as well. When climate change legislation is considered again, if a cap and trade program is the mechanism, renewable energy projects should receive an allocation of credits based upon production. Those credits can be sold to help underwrite the cost of transmission lines to serve remote projects.

If we do these things, our country will benefit. We will see reduced demand for imported oil, cleaner air, a reduction in the price of natural gas, savings in demand for water to cool thermal

generation, revitalization of the rural heartland in the central United States, and natural gas used for higher, better purposes than electricity generation.

We can fix these problems over time if we move a meaningful amount of our power needs to alternatives. There are no enemies, no competitors, nothing in domestic alternatives.

I have a mission ladies and gentlemen. That mission is to try to explain what I've just explained here. And no matter how many times I explain it nobody argues with me about it. Which is interesting because I wish somebody would jump up and say you're wrong and let me show you where you're wrong. And nobody does that. Everybody says, well, that sounds like a good idea.

So, I don't know whether it's a good idea or whether they don't understand.

Again, thank you Mr. Chairman for holding this hearing today. If we don't solve the energy problems we are facing, the hole we are in will continue to grow and swallow more and more of our scarce resources and will overwhelm us as a nation.

I am happy to answer any questions you may have.