United States of America

Congressional Record

PROCEEDINGS AND DEBATES OF THE 107th CONGRESS, SECOND SESSION

Vol. 148 WASHINGTON, TUESDAY, MARCH 5, 2002 *No. 22*

Senate

The Senate met at 10 a.m. and was called to order by the Honorable JOHN EDWARDS, a Senator from the State of North Carolina.

PRAYER

The Chaplain, Dr. Lloyd John Ogilvie, offered the following prayer:

Dear God, we praise You for Your love that embraces us and gives us security, Your joy that uplifts us and gives us resiliency, Your peace that floods our hearts and gives us serenity, Your Spirit that fills us and gives us strength and endurance.

Be with us, Lord, so we can maximize the hours of this week. Help us to think clearly without confusion, to speak honestly without rancor, to debate without division, and to decide courageously without contention. May our rhetoric honor You and deal with issues and not personalities. Grant the Senators Your grace to work this week as patriots who love You and count it a high privilege to serve as leaders of our beloved Nation. Amen.

PLEDGE OF ALLEGIANCE

The Honorable JOHN EDWARDS led the Pledge of Allegiance, as follows:

I pledge allegiance to the Flag of the United States of America, and to the Republic for which it stands, one nation under God, indivisible, with liberty and justice for all.

APPOINTMENT OF ACTING PRESIDENT PRO TEMPORE

The PRESIDING OFFICER. The clerk will please read a communication to the Senate from the President pro tempore (Mr. BYRD).

The assistant legislative clerk read the following letter:

U.S. SENATE,
PRESIDENT PRO TEMPORE,
Washington, DC, March 5, 2002.

To the Senate:

Under the provisions of rule I, paragraph 3, of the Standing Rules of the Senate, I hereby appoint the Honorable JOHN EDWARDS, a Senator from the State of North Carolina, to perform the duties of the Chair.

ROBERT C. BYRD,
President pro tempore.

Mr. EDWARDS thereupon assumed the chair as Acting President pro tempore.

RECOGNITION OF THE ACTING MAJORITY LEADER

The ACTING PRESIDENT pro tempore. The Senator from Nevada is recognized.

SCHEDULE

Mr. REID. Mr. President, this morning the Senate is going to resume consideration of the energy reform bill. The Senate will recess from 12:30 to 2:15 p.m. for the weekly party conferences.

I suggest the absence of a quorum.

The ACTING PRESIDENT pro tempore. The clerk will call the roll.

The assistant legislative clerk proceeded to call the roll.

Mr. REID. Mr. President, I ask unanimous consent the order for the quorum call be rescinded.

The ACTING PRESIDENT pro tempore. Without objection, it is so ordered.

RESERVATION OF LEADER TIME

The ACTING PRESIDENT pro tempore. Under the previous order, the leadership time is reserved.

NATIONAL LABORATORIES PARTNERSHIP IMPROVEMENT ACT OF 2001

The ACTING PRESIDENT pro tempore. Under the previous order, the Senate will now resume consideration of S. 517, which the clerk will report.

The assistant legislative clerk read as follows:

A bill (S. 517) to authorize funding the Department of Energy to enhance its mission areas through technology transfer and partnerships for fiscal years 2002 through 2006, and for other purposes.

Pending:

Daschle/Bingaman amendment No. 2917, as modified, in the nature of a substitute.

The ACTING PRESIDENT pro tempore. The Senator from Nevada.

Mr. REID. Mr. President, I ask unanimous consent that when the energy bill is laid down this morning—which it has been—there be a period for debate only until 12:30 p.m. today, the time we recess for the party conferences; further, I ask unanimous consent that at 2:15 today the pending amendment be further modified by Senator DASCHLE or his designee with the changes that are at the desk, and that no further modifications be in order to the substitute. Finally, I ask unanimous consent that following that modification the amendment be printed.

The PRESIDING OFFICER (Mr. CARPER). Is there objection?

Without objection, it is so ordered.

The Senator from New Mexico.

Mr. BINGAMAN. Mr. President, I am pleased that the Senate is today finally proceeding to consider the Energy Policy Act of 2002. The fact that we are at this point in our deliberations is the result of a tremendous amount of work involving several committees in the Senate.

I think the committee with the largest stake in the development of this legislation is, of course, the Committee of Energy and Natural Resources, which I am privileged to chair and of which Senator MURKOWSKI is the ranking member at this point.

We have held over 50 hearings in the 106th and 107th Congresses that are related to today's bill. I express appreciation to Senator MURKOWSKI, the ranking member, who chaired many of these hearings.

I believe we have a good understanding of the issues that are forming this debate and that are at stake in this debate. Many of the elements in

this energy bill are not going to shake out along party lines but because of genuine differences of opinion that particular Senators have.

I anticipate we will see all sorts of combinations of sponsorship on amendments on both a party and on a regional basis, before we are done.

Let me speak for a few minutes about the rationale for this energy bill. It is important to recall why we have invested so much time on the topic of energy in preparing this legislation. Why is it important for the Senate at this stage in the year 2002 to consider and pass comprehensive legislation?

I believe there are two basic answers to that question: First, energy is central to our present and our future economic prosperity. Because of its importance, improving and strengthening our national energy system can provide significant economic benefits for each American. Similarly, the vulnerabilities in our national energy system can present major threats to our national economic health. We need to anticipate those threats and deal with them, as we try to in this legislation.

A second basic reason we are considering energy legislation is there have been significant changes in energy markets since the last time Congress considered comprehensive energy legislation. The last major energy bill passed in Congress was the Energy Policy Act of 1992, 10 years ago. Since that time, as a nation we have moved further away from the command-and-control regulation of energy toward a system that relies more on market forces to set the price of energy. In the process of making that move, energy markets have become more competitive and dynamic but not without some significant bumps along the way.

Let me recount a few of those bumps of which we are all aware. First, consumers are now more vulnerable to the vagaries of the energy markets and to volatile prices for energy that cause repercussions throughout our economy. We saw that phenomenon at work in California last winter over a year ago and last spring. Also, the structures to regulate these emerging market forces, particularly with respect to trading in natural gas and electricity, are not fully developed. I think we all saw that with the collapse of Enron.

Gasoline supplies nationwide have become increasingly subject to local crises and price spikes due to the proliferation of inflexible local fuel specifications and tight capacity for refining and for pipelines.

And, finally, the events of September 11 have caused many of us to reflect on the inherent vulnerabilities of the energy transmission system we have in the country. The time may be right for rethinking how we site energy infrastructure and the balance between central and distributed generation of power in our electricity system.

Congress does need to respond to these changes and to these challenges and to these opportunities. If we do so in a balanced and comprehensive and forward-looking way, we can develop an energy policy that will lead to new economic prosperity for the country and, hopefully, for the world. But we will not get there simply by perpetuating the energy policy approaches of the past. We need new ideas and new approaches as well as greater investment in order to move to the future that we all want. That is what this bill tries to do.

The bill has three overarching goals. I have a chart that sets these out. Let me briefly go through each of them.

The first goal is to ensure a diversity of fuels and technologies for adequate and affordable supplies of energy. By this we are talking about renewable sorts of energy, as well as the more traditional sources we have depended upon. Natural gas, coal, oil, hydropower, nuclear power—all of those issues are dealt with in this legislation, and we have provisions intended to encourage adequate supply from this entire diversity of sources.

A second major goal of the legislation is to improve the efficiency and productivity of our energy use, including the reliability of our electric transmission system, the efficiency of energy use in industry, in vehicles, appliances, and buildings. We will have a great deal of discussion during the debate about the various provisions in the bill intended to encourage more efficient use of energy. We all recognize that we waste a tremendous amount of energy, and new technology can help us to use energy much more efficiently.

The third major overarching goal is to be sure that whatever we do in the energy area is done with an eye toward protecting the environment, toward not worsening the problem of climate change. I believe we have achieved that goal. Again, we will get into a serious discussion of the details as we get into the bill.

We can achieve these goals if we both accelerate the development and introduction of new technology—and we try to do that through this legislation—and if we create flexible market conditions that empower energy consumers so they can make the right choices, the choices that benefit them but also that benefit society more generally.

This combination of technology and policy innovation in pursuit of a diverse and robust national energy system can be seen in the provisions of the bill related to this first major goal—the adequate and affordable supply of energy. Let me talk about that goal and what we have in the bill related to it.

The first part of energy supply I will discuss is renewable energy. We have put a great emphasis on renewable energy in this legislation. The Senate bill contains numerous provisions to enhance the contribution of renewable forms of energy to our future energy mix. Under what I see as pretty much a business-as-usual approach, which is reflected in the House-passed bill, H.R. 4, the contribution of our energy mix from renewables would not markedly grow over the next 20 years. The result would be an energy system, particularly for the production of electricity, that would go from being 68 percent based on coal and natural gas today, in the year 2002, to being about 80 percent, based on those two fuels, by the year 2020.

That overdependence on those two fuels would leave our country extremely vulnerable to shortfalls in the delivery of either of these commodities and leave consumers exposed to the severe risk of price spikes. We need a more diverse way in which to produce electricity, not a less diverse way.

Such an overdependence does not make sense in light of the commitments to renewable energy that we are seeing in other countries, particularly in Europe. I have a chart that makes that point. This chart is ''Commitment to Renewable Generation.'' It is the percentage of increase in nonhydro renewable generation from 1990 to 1995. That was the first half of the last decade.

It shows that Spain, Germany, Denmark, the Netherlands, and France have all dramatically increased their percentage of power generated from renewable sources; the United States is barely on the chart. Even France, which is often held up as a model for its commitment to nuclear power, has outpaced the United States in development of renewable sources for electricity.

The United States needs to lead the world in renewable technologies. We have abundant domestic renewable resources. The world market for the technologies we have developed is capable of growing immensely. Renewable technology leadership would help U.S. firms achieve a strong position in winning these markets and creating new jobs domestically.

If the United States is to lead the world in renewable energy technologies, though, we need to do a better job of getting those technologies into our own economy and into our own markets.

This bill we are beginning to debate today boosts our future use of renewables in five major ways: First, the bill contains market incentives that will triple the amount of electricity produced from renewable energy over the next 20 years. This chart tries to make that point very effectively. The orange band at the bottom represents the Energy Information Agency's projection of nonhydro renewables, assuming we do not pass the legislation. We can see that from the year 2000 to the year 2020, the percentage we are generating from nonhydro renewables would not change at all, absent legislation such as we are considering today.

The green wedge represents the contribution we believe would be made if this Senate energy bill becomes law, as we hope very much it will. You can see

that we would be essentially tripling, or more than tripling the percentage of the electricity generated from renewable sources.

Let me talk about the specific incentives. One incentive in the bill is what we call the renewable portfolio standard. It creates a market for new renewable sources of energy, whether they are from wind, solar, biomass, or incremental hydroelectric generation in existing dams. This is something which many States have already done. We believe it is a good policy and one we should move to as well. One State that has moved ahead very dramatically is Texas. We commend the Senate to be aware of what has happened in Texas during the time, in fact, when our current President was Governor of that State. We believe the rest of the country should follow suit.

A second market incentive is a Federal purchase requirement for renewables. It grows to 7.5 percent for all Federal electricity purchases by the year 2010. We believe the Federal Government should lead in this area. This is an opportunity for it to do so.

The third provision is the renewable energy production incentive. There is an existing program in place to help rural electric co-ops and municipal utilities to generate renewable energy. In this bill we propose to reauthorize that and extend it to include Indian lands which contain prime renewable resources.

The next provision is that when the Senate considers the energy tax incentive amendment from the Finance Committee—and we believe Senator BAUCUS and Senator GRASSLEY will be offering that amendment at some stage during the debate—we will have an important opportunity to boost the future production of renewable energy. Existing renewable tax incentives expire January 1 of this year. This package of tax provisions that has come from the Finance Committee will reinstate the highest priority incentives for 5 years. It will expand the coverage of the production tax credit to include open-loop biomass and geothermal energy.

In addition to these incentives for renewable production of electricity, the bill greatly expands the contribution of renewable fuels such as ethanol and biodiesel. Those fuels, of course, are used primarily to power vehicles of transportation.

By the year 2005, 75 percent of the Federal Government's vehicles that can burn alternative fuels will be required to do so. That will create more market certainty for renewable fuels and for their associated infrastructure.

By 2012, 5 million gallons per year of renewable fuels will be blended into gasoline, thereby decreasing our import dependence on foreign oil.

The bill helps renewables contribute more to the energy mix also by removing existing regulatory barriers that affect renewable energy. For example, wind and solar power can be effectively tapped by small distributed generation systems. But current practices and rules in the marketplace often discriminate against distributed generation.

This bill deals with the problem by requiring electric utilities to offer customers net metering in which a customer can offset his or her electric bill by the amount of electricity that is generated and that he or she is able to sell to the local utility. This provision will facilitate the use of a wide variety of distributed generation technologies by electric customers, including renewable technologies such as solar and wind power.

This bill also requires fair transmission rules for intermittent generation. By that, I am referring to wind and solar generation in particular. Those types of generations should not be unfairly penalized because of the natural variability of these resources from day to day or hour to hour.

Finally, the bill mandates easier interconnection for distributed energy production into the interstate transmission grid. It requires States to examine ways to facilitate interconnection of distributed energy in local electric distribution systems.

A fourth way in which the bill promotes the use of renewables is by disseminating information about and facilitating access to areas with high resource potential. Particularly here, I am talking about public lands. There are many places in the Nation—particularly in the West and in the State that I represent in the Senate—where we have significant untapped renewable energy potential. The bill creates a pilot program in the Department of Interior and in the Forest Service for development of wind and solar energy projects on Federal land. The bill authorizes the study of renewable energy development potential on Indian tribal lands. The bill requires an annual publication of the assessment of available renewable resources by the Department of Energy.

A fifth and final area in which the bill helps make renewable energy a bigger part of the supply picture in the future is through enhanced research and development programs. Under this bill, these R&D programs at the Department of Energy will grow from an authorized level of $500 million in fiscal year 2003 to $733 million in fiscal 2006. Renewable energy R&D was cited by the distinguished Presidential task force in 1997 as being significantly underfunded relative to its long-term promise and the benefits that we can achieve for our economy if we did better by funding this research and development. Our bill expands the research and development activity, consistent with the recommendations of that task force.

These are all measures that I have described, which we believe will increase the contribution of renewables to our energy supply picture. They are balanced in our bill with a very strong commitment to the other more traditional energy supply sources. Let me briefly describe those.

Natural gas is one that is very much on our minds and very much a fuel of the future as well. I want to briefly describe what the bill will do to support continued development in this area. In the area of natural gas, our Nation is at a crossroads. We need to make some major decisions about our energy security. U.S. natural gas demand is expected to increase from 23 trillion cubic feet per year, which is what it is now, to 35 trillion cubic feet per year by 2020. Much of that demand will be driven by the use of natural gas for electricity generation.

This chart makes the case very strongly. The green line, of course, represents production; the red line represents consumption. We can see very clearly that consumption is outstripping production by a significant amount—even in the year 2000, which is where that line is. By the year 2020, the problem becomes much worse. As a result, we are at risk of becoming, as a Nation, dependent upon imported natural gas that is brought to us by tanker. Countries on which we would rely for such gas are, as we all know, prone to political instability. They are—as far as we can tell at this point—in the early stages of forming an OPEC-like organization for natural gas exporters. There is a cover story in the June 2001 issue of the OPEC Bulletin with a headline entitled ''Iran Hosts Inaugural Meeting of Gas-Exporting Countries Forum.'' I don't think any of us wants to put our Nation into a position of having to deal with a natural gas cartel, in addition to the cartel that controls the price of oil now.

This bill will take several steps to try to come up with a different policy for natural gas in order to avoid that possibility. It increases funding for research to develop domestic natural gas deposits in deep water areas of the Gulf of Mexico and in harder to tap geologic formations on shore. It provides research funds to explore the potential of methane hydrates trapped on the ocean floor. The bill authorizes more funds to facilitate the permitting and leasing of Federal lands for natural gas production in places where it is environmentally acceptable. It addresses a number of developing problems in natural gas provision—conflicts over coal methane, hydraulic fracturing—and tries to bring those conflicts to resolution before we encounter a real crisis.

But even after all these steps—and I believe each one is useful and important—that will not be enough to close the gap that we indicated earlier. The most significant thing the bill tries to do for future natural gas supply is to provide financial incentives to build a pipeline to bring from Alaska the vast reserves of natural gas that have been discovered and developed in the Prudhoe Bay region. I know my colleague from Alaska, Senator MURKOWSKI, has championed this for some time. This is a high priority for his

State. It is a high priority for this Nation, in my view. The existing reserves are estimated to be over 30 trillion cubic feet of gas. It is estimated that the total natural gas resource in the North Slope is enormous—on the order of 100 trillion cubic feet.

The natural gas pipeline from Alaska to the lower 48 would provide daily at least 4 billion to 6 billion cubic feet of natural gas before the end of the decade.

Once a pipeline is constructed, it would provide gas to American consumers for at least 30 years and would be a stabilizing force on natural gas prices. We all saw the volatility in natural gas prices in the year or 18 months where at one point they were up around $8 per MCF, and now it is down around $2 per MCF. Building this pipeline, we believe, will stabilize the price, and that will benefit consumers tremendously.

This project makes a great deal of sense for our Nation, but it is not happening because of this uncertainty about the investment risk of building such a major pipeline, making such an enormous investment. By any measure, the pipeline would be one of the largest construction projects ever undertaken. Construction would take approximately 8 years, from start to finish. It would require $15 billion to $20 billion. The pipeline project would create a massive number of jobs in Alaska, Canada, and in the lower 48. It would require the construction of the largest gas treatment plants in the world, and the laying of about 3,600 miles of pipe. It would require an enormous amount of steel to be produced. The number of jobs that would be created also is extremely significant—350,000 to 400,000 jobs, at a time when the steel industry is suffering harm from global overcapacity of steel production and foreign dumping. A project that would require over 500 million tons of steel means real jobs for workers in communities and States that produce steel.

Since natural gas prices vary, as I indicated before, from $2 to $8 and sometimes $10 per million cubic feet, it is hard for the free market to take this challenge on by itself. At the same time, we want to rely on the private sector to the greatest extent possible. There are two major groups of potential investors in such a pipeline, and the provisions of the bill are aimed at giving them both a shot at proposing a successful project. The provisions include an expedited process for the permits, rights of way, and certificates needed for the U.S. segment of the pipeline.

Time is money in any construction project, and in a construction project of this magnitude, uncertainty and delay will kill the project. The Government has an obligation on behalf of U.S. consumers to see that it exercises its role in a responsible way and in an expeditious way.

The Alaska Natural Gas Transportation Act of 1976 provided a framework for construction and operation of a gas pipeline along a designated route. Our legislation preserves this option. It also provides an alternative expedited procedure in the event the parties decide to pursue a different route.

Because of the enormous benefits this long-term supply of energy will have on the economy and the significant uncertainties in natural gas prices, I believe the Government has an interest in reducing the financial risks associated with the project. Accordingly, the bill does authorize in its present form loan guarantees for the project, as long as appropriate filings are made within 6 months after the bill becomes law.

I understand there are a number of refinements and modifications that may be sought by my distinguished ranking member on the Energy Committee as we move forward. He is also vitally interested in the project. For example, we are working together to come up with a tax provision that could reduce the financial uncertainty of the economics of the project going forward. Both of us are committed to encouraging Alaska North Slope producers, the interested pipeline companies, the State of Alaska, and other interested parties to begin serious negotiations on a final outline of a commercial agreement.

I believe it is important for the Senate to be proactive on this project, not simply to sit back and cross our fingers and hope that someday it occurs. If we do not act while there is a substantial private sector interest in building this pipeline, we will lose an important opportunity to bolster our energy security in natural gas. As a consequence, we might be hearing speeches 10, 20 years from now about our dependence upon foreign sources of natural gas that sound a lot like the speeches we will be hearing today and in the next few days about our dependence on foreign sources of oil.

Let me say a few words about oil. That is a central part of our energy mix. Clearly, we want to increase domestic production of oil and maintain domestic production of oil. The volume of rhetoric about drilling in the Arctic National Wildlife Refuge—both from the proponents and the opponents—would lead one to think that is the only place in the country where we can look for additional oil. In my view, that is far from true.

There are 32 million acres of the Outer Continental Shelf off the coast of Texas, Louisiana, and Mississippi that have already been leased by the Government to oil companies for exploration and production. This chart shows that. As shown on this map, the yellow part of this chart indicates those areas that have been leased and not yet developed. The red dots indicate actual producing wells.

In addition to production in the Gulf of Mexico, there are outstanding prospects for increased production from National Petroleum Reserve-Alaska, which lies to the west of the Prudhoe Bay region. Under the Clinton administration, leasing was expanded in this area. Industry has made some major finds. There is no law that needs to be passed to have additional parts of this area leased. As I understand it, the Secretary of the Interior is proceeding to prepare some of that area for leasing.

If the problem is not finding areas to lease under current law, why is there not more domestic production going on in the areas that have already been leased for exploration and production? In my view, an important reason might be the difference between our Federal and State royalty and tax policies relative to those in other countries with oil and gas resources.

Oil exploration and production is a worldwide business. Areas such as the ones on the map and in Alaska compete with other producing regions around the world. U.S. companies are making major commitments of capital derived from their earnings in the United States to develop energy resources elsewhere in the world. For example, ExxonMobil is investing $20 billion to develop natural gas in Saudi Arabia. Other U.S. companies are actively looking for oil in the Caspian region.

A key initiative in the bill to support increased domestic production is to have a top-to-bottom review of Federal and State royalty and tax policies on domestic oil and gas production, and then to have a comparison of that with similar provisions encountered by companies in other countries.

Our current U.S. policies were put in place when the United States had abundant and easily accessible reserves. We have fewer such reserves now. While technology for finding oil has continued to improve, we should consider whether our tax and our fiscal policies should change to policies that enhance the economics for exploration of oil and gas in more challenging geologic formations.

Our fiscal policies should also be changed to take into account the boom-and-bust nature of the industry and to provide incentives to maintain domestic production when prices are low. They might also include disincentives for buying and sitting on leases without developing them in a timely way. That is what we have seen off the coast in the gulf.

All of that I have described is a tall order. I do not believe Congress has the background it needs to revise these laws in a sensible way right now. We need to have a distinguished external group investigate these issues and make reports back. Setting this process in motion might prove to be useful to boost domestic production in the long run.

A second proposal to boost domestic production in the near future is to provide adequate funding for the Federal programs that actually issue new leases and permits for oil and gas production. For all the rhetoric we have

heard from the administration about the need to increase domestic production, the budget request we received for fiscal year 2002 did not ask for enough money to do this job properly.

The result of inadequate funding for land management agencies is delay and frustration on the part of oil and gas producers. This bill provides increased budget levels for these functions. The Federal Government can then take the necessary steps to make oil and gas leasing faster and more predictable where it is already permitted and where it is able to be achieved in an environmentally acceptable way.

The bill also contains increased R&D funding to support oil and gas production by smaller companies and independent producers. These are the entities that account for the majority of onshore U.S. production of oil. They do not have the resources to do their own exploration and production research and development. Improving their ability to use new technology to find and produce oil and gas is a good policy for increased domestic production.

Here, too, there is room for improvement on the part of the administration. The most recent budget request we have seen from them has slashed funding in the Department of Energy for these very programs. My ranking member and I oppose these cuts. It is important for the Senate to take a position in favor of increased authorization for these programs, not cutting funding for these programs, and this bill will do that.

Let me say a few words about coal. Another very important contributor to our current energy supply picture is coal. This chart makes the case very dramatically. We can see this is a chart that depicts where the electricity generation comes from by fuel. We can see that the top line is coal. So 59 percent of the electricity generated today in this country is produced from coal.

We have a tremendous coal resource. We have been called by some the Saudi Arabia of coal by some. But coal in our energy future needs to be clean, and it needs to be emission free. Coal-based generation produces more greenhouse gas emissions per Btu of energy output than does natural-gas-fired generation.

Other pollutants from coal-fired plants have been a source of regional tensions between the States where coal-fired plants are based and States downwind from those particular States.

Coal is too important a resource for us to write off. Technology holds promise for dramatically lowering, even reducing to zero, the emissions from coal-based plants.

This bill takes a very forward-looking approach to the issue. It authorizes $200 million per year for research and development and demonstration programs, based on coal gasification, on carbon sequestration, and related ultraclean technologies for burning coal. This proposal was a result of a strong bipartisan push in the Energy Committee by Senator BAYH and Senator THOMAS, who was present a few minutes ago and I am sure will want to speak on this issue.

There is one more example of the crucial role research and development is going to have to play in shaping the energy future we want. Let me say a few words about nuclear power because clearly research and development is also the key to the future of nuclear power in the country.

Nuclear reactors emit no greenhouse gases. So on that basis one would think they were an option we should be looking to for the future. But nuclear plants have other characteristics that are not as attractive. They have very high upfront capital costs compared to other generating options. That puts them at a disadvantage in the marketplace.

The nuclear waste problem is still not solved. Nuclear safety is a continuing concern for the public. Our cadre of nuclear scientists and engineers is growing older and is dwindling in size, and we are not seeing a large supply of students being trained to help us deal with nuclear issues in the future. This bill takes on these problems by focusing on research and development on new nuclear plant designs that might address these problems and on a program to strengthen university departments of nuclear science and technology.

The bill also contains a partial reauthorization of the basic nuclear liability statute, the Price-Anderson Act. The part that is in the bill deals with the liability of the Department of Energy nuclear contractors, including our national laboratories that are a significant source of our national nuclear expertise. The other main part of the Price-Anderson Act dealing with the commercial nuclear power industry is likely to feature prominently in the debate we have on this bill, and I believe we should go ahead with full authorization of that bill and will support efforts to do that.

Hydropower is another source of energy supply that this bill tries to address in electricity generation. Many hydropower facilities are reaching the age at which their original licenses under the Federal Power Act are about to expire. The process of relicensing these facilities needs to be protective of the environment, predictable for licensees, and efficient in the way it is administered.

We have been working for months with various Senators to try to come up with compromise, consensus language that would accomplish all of these objectives. I hope we can do so, and I hope we can include legislation in the final version of this bill by the time it passes the Senate. We have legislative language in the bill right now, but there are still concerns about it, and I am aware of those concerns.

Indian energy, a final way this bill focuses on increasing the supply of domestic energy, is through a series of provisions facilitating the development of energy resources on Indian lands. We have a significant share of our untapped domestic energy resources located on Indian lands. I will not go into great detail about those provisions but simply say it is very much in our national interest that we facilitate development of those resources. It can be a benefit to the Indian tribes that have those lands. It can also be a great benefit to our Nation.

Our second big goal in the bill, on that list of three goals I mentioned, is increased efficiency in the use of energy. So far, I have described ways in which the bill achieves the goal of increasing supplies of energy, but let me talk a little bit about this efficiency issue.

As I have mentioned consistently through this past year, we cannot have a sound energy policy based only on production or based only on conservation; we need a combination of the two. The energy policy needs to make a major push toward increased efficiency.

The first major way in which we can use energy supplies more effectively and efficiently is by having an electricity transmission system that is ready for the challenges of the 21st century. Electricity is essential to our way of life. It is how we light our offices. It is how we light our homes.

Our electric system largely operates on a design that is nearly a century old. The vulnerabilities of the current system by which we regulate electricity were illustrated by the electricity problems faced by California and the West last year and the year before. Those problems which occurred on the west coast should be a wake-up call to the fact that we need to deal with these electricity markets in a more proactive way.

In addition to these problems, there are important opportunities during the next few years. Literally billions of dollars of investment will be planned and committed to electricity generation and transmission. Those investments will have 30- to 50-year lifespans, so it is important we get it right. Market institutions need to be developed that ensure reliable and affordable supplies of electricity, and policies need to be adopted that favor future investments in new technologies and give consumers real choices over the energy they use. I believe the provisions contained in this bill do that.

First, the bill sorts out the roles and responsibilities between the Federal Energy Regulatory Commission and the States. We give FERC clearer direction as to what its role is in ensuring the adequacy and reliability of a transmission system. FERC is given, in fact, responsibility for making mandatory adherence to rules to promote the reliability of this interstate transmission system in this legislation. The bill also gives FERC tools to make sure competitive markets work well to provide customers with affordable electricity by strengthening its authority

over mergers, clarifying its authority over market-based rates, and increasing the transparency in energy market information.

One of the lessons we all learned as we watched the collapse of Enron was that we need more transparency. We need more openness in these markets so we can see on a real-time basis what is being bought and what is being sold and at what price.

Finally, the bill begins to address the tough issue of siting new electric transmission lines. This is obviously a contentious and controversial issue. I believe the Federal Government can play a role, through FERC, in assisting in decisionmaking at the regional level, and we try to put in place a framework for the Federal Government to assist States in more effective regional coordination on all of these energy issues, including transmission siting.

On energy efficiency, this modernized electricity system is a major way to move ahead and position the country for the future. A second is to increase the efficiency of the various uses of energy across the board in vehicles, in industry, in appliances, in buildings. I will talk a minute for each of those.

The bill contains provisions that directly bear on fuel efficiency of vehicles. We will have a great deal of debate on that. One mandates higher fuel efficiency in the vehicles that are purchased by Federal agencies for civilian use. We also provide a framework for the Department of Energy to assist States in expanding voluntary incentive programs. The major initiative in this area is an increase in the corporate average fuel efficiency, or economy, standards. The House-passed bill had a very weak provision on this subject. We attempt to do better.

The chart we have shows the problem we have with oil being imported into this country. The top line is total oil demand. Something in the range of 52 to 54 percent of our oil today is imported. Our total demand for oil is represented by that top line, and it is continuing to rise as we go from the year 2000 to the year 2020.

All projections are it will rise. The reason it is rising, looking at the next line down: The transportation demand line is also rising. Unless we can do something to flatten out that transportation demand line by using gasoline more efficiently, we will not do anything very significant to reduce our dependence on foreign oil.

We try to do that in this bill. As I indicated, there will be a great deal of debate about whether or not we are doing what we should do there. I believe strongly that we should strengthen or increase corporate average fuel economy standards. We are trying to do that.

This chart also reflects our projection as to what would be achieved by opening the Arctic National Wildlife Refuge to drilling. The small red line on the bottom of the chart shows that there would be increased production. The green line on the bottom is domestic oil production. It would go up if there were an opening of ANWR to drilling and development, but in our view it does not constitute a substantial solution to the problems we face.

These issues, both the CAFE standards and the ANWR issue, are issues about which we will have a great deal of debate.

We also have provisions in the bill to improve the energy efficiency of Federal buildings and schools and public housing. We have provisions to reduce energy use in manufacturing and other industries, provisions to increase efficiency for numerous consumer and commercial products, and we reauthorize the important Federal grant programs that help low-income families pay their energy bills and reduce their energy costs. That is something which I think all Senators will support.

We could go into great detail about each of these, but in the interest of time I will not do so at this point. Let me just point out that there will be an opportunity to debate these issues as we get into the amendments. The Senate bill addresses each of these areas. We have tried to work hard with Senators who have an interest in them to come up with consensus proposals.

Let me also talk about energy efficiency research and development. The research and development emphasis that is in this bill applies to increased supply because much of our ability to increase supply depends upon increased research and development activity, but also the increased research and development applies to improved efficiency in our use of energy. We have a major push for that in the bill. We propose a funding increase—from $810 million in fiscal year 2003 to over $1 billion in 2006—that will support efficiency progress across the spectrum. I believe this is one of those areas where we have a tremendous amount that can be accomplished. I believe very strongly the provisions in this bill will move us in that direction.

One particularly exciting R&D activity being funded as part of this bill is a program called the Next Generation Lighting Initiative. In contrast to a grant program with the same name in the House bill, the Senate bill establishes a Government-industry partnership to develop the technology for semiconductor-based lighting that would be ultraefficient. The model for this partnership is the SEMATECH consortium, established several years ago, which boosted our national competitiveness in semiconductor manufacturing in the 1980s and 1990s.

Current lighting technology wastes an enormous amount of energy going into the bulb in the form of heat. That is one reason it feels so hot under kleig lights. Light-emitting diodes, which have been developed in recent years, create light with very little energy loss. The only problem is that we do not know how to commercially manufacture, at low cost, reliable light-emitting diodes producing white light. There are a lot of good ideas for how to do that. This Next Generation Lighting Initiative will try to develop long-lasting, cost-competitive white lights from diodes by the year 2011, and develop those in a way they can be manufactured at a low cost. We are continuing to use the light bulb that Thomas Edison developed. After 100 years, I think it is time we move to a new generation of technology. This provision in our bill tries to help us do that.

All the major elements of the U.S. lighting industry are supporting this effort in the Senate energy bill. The rationale for their interest and for a Government-industry partnership is clear: Lighting represents 20 percent to 30 percent of all U.S. electricity use. The best current systems are about 25 percent efficient. That is, for every kilowatt of power going in, you get about 25 percent of it back in light. We need to change that. The technology is here to do that. We need to find a way to manufacture it in a low-cost way.

These energy efficiency assistance programs are the Low Income Home Energy Assistance Program, the LIHEAP program, with which we are all familiar here in the Senate, and also the Weatherization Assistance Program. We propose to authorize those at a higher level and to make those more useful programs for all parts of the country. As I said before, those are provisions which should get the support of all Senators. I certainly hope that is the case.

The third and final goal of the bill is reducing the adverse effects of energy on the environment. Energy production and use are associated with a host of consequences for the environment. We need to strike the right balance among energy and the environment and the economy in order to deal with the long-standing concern we have in the Senate and in our society in this regard. This bill addresses these issues in a number of ways.

There are provisions in the bill dealing with the legacy of past problems posed by energy production and use for the environment. These include programs to clean up orphaned and abandoned oil and gas wells and programs to develop research to remediate groundwater supplies damaged by past energy activities. Another way in which the bill addresses the connection is by developing and adopting new energy technologies with better environmental performance.

Probably the most important future problem on which we need to focus as part of this bill is the problem of increased concentrations of greenhouse gases in the atmosphere and the impact they are believed to be having on the climate. We have various provisions in this bill that ensure we integrate climate change strategy with our energy policy. We will have a chance later in the debate to go into those in great detail. Some of those provisions

are drawn from a bipartisan climate change bill sponsored by Senator BYRD and Senator STEVENS. That had the unanimous support of the Committee on Governmental Affairs when it was reported out of that committee.

We need a strategic plan for climate change that can get buy-in from both the Congress and the administration. Just before our Presidents Day recess, President Bush announced a new climate change policy framework based on reducing the greenhouse gas emission intensity of the U.S. economy. Emission intensity is defined as the output of greenhouse gases divided by the gross domestic product. The President announced that his plan would decrease emission intensity by 18 percent by the year 2012. That sounds impressive until you look at this chart we have here entitled ''Greenhouse Gas Emission Intensity; recent trends as compared to the Bush proposal.''

The black line which leads up to about halfway through the chart, up to 2002, shows how greenhouse gas emission intensity has been declining in the 1990s. Greenhouse gas intensity has been declining because the part of the economy that is growing fastest is the service sector, which does not produce greenhouse gases in any significant amount.

The red line, which is on this chart—you can see it very clearly there—shows what the President claims his proposal would do.

The green line, which is harder to see because it is covered up by the red line, shows what would happen if current trends were simply to continue. The point is, it is hard to see the green line on the chart because it is almost completely covered up by the red line. Simply put, the President's proposal would not change the trend in greenhouse gas intensity over what would likely happen at any rate based on current trends. It is perhaps a good thing. The President has indicated an interest in climate change policy—a policy that does not improve over what would likely happen anyway, and is certainly not an adequate strategic plan in my view. We will have an opportunity to debate that issue as part of this bill as well.

I will not go into detail about the various provisions in the Byrd-Stevens proposal except to say that I believe they set up a good framework for addressing this issue in future years.

Strengthening our Nation's energy infrastructure security is another key issue as a result of the terrorist attacks we have suffered.

This is something that I am sure is of great concern to all Senators. We have various provisions in the bill that attempt to do that. One set of relevant provisions has already been described—giving FERC authority to promulgate rules to ensure the reliability of States' electric grids.

Another set of provisions in the bill focuses on the Nation's Strategic Petroleum Reserve. This is a major insurance policy against cutoffs of oil from the Middle East.

We have a provision to provide for permanent authorization of that and fulfilling of the Strategic Petroleum Reserve.

Let me say a few final words about R&D, technology transfer, and education as crosscutting themes in this bill.

I have described the many provisions of this bill in terms of the three overarching themes of increasing energy supply, increasing the efficiency and productivity of energy use, and coordinating energy policy with other societal goals. Throughout these discussions, I have described R&D programs that play a major role in achieving these goals. An aggressive and forward-looking R&D program on energy is the pervasive cross-cutting theme of this bill. I believe there is a broad consensus in the Senate that new science and new technology are at the core of any solution to our national energy challenges. Yet, despite the importance of energy R&D, our recent commitment to it leaves a lot to be desired. Federal energy technology R&D today is equivalent, in constant dollars, to what it was in 1966. Yet, our economy is 3 times larger today than it was in 1966. When you look at trends in Federal expenditures for R&D over the last 10 years, some startling facts stand out.

First, while Federal R&D expenditures for health science at the NIH—the blue line—and basic science at the National Science Foundation—the black line—have grown during the 1990s, R&D support for energy—the red line—has stagnated or even fallen, in real timers. Today, in real terms, we are still below where we were in 1990 in terms of support for energy science and technology. For fiscal year 2002 and fiscal year 2003, the Bush administration has proposed nothing to reverse these trends. Both budget requests proposed cuts in R&D for energy.

It is hard to see how you build a 21st century energy system on stagnant, 1960's-level-of-effort R&D budgets. This bill builds these budgets in a rational way to levels that, by 2006, will give us a robust energy R&D effort to support the goals of this bill.

As we proceed with this debate, there will be areas in which we reach bipartisan agreement and areas in which we will differ substantially. In the latter areas, we will have to make a choice between alternatives.

With respect to the areas of bipartisan agreement, I am pleased with the support that we have received from the administration for our position that electricity is an integral part of any energy bill. They have worked hard on assisting with electricity as a part of this energy bill. We may differ on a number of the details, but the President and the Department of Energy have made clear their interest in working on a bipartisan basis to get electricity provisions that increase renewable sources of electricity, protect consumers, and promote a reliable and effective transmission grid.

The Administration has also supported our initiative to promote the construction of the Arctic Natural Gas Pipeline.

There are also some important differences between where we are starting in this bill and the administration's positions. Perhaps the most reported-upon difference is on drilling in the Arctic Refuge. We will probably not get to that debate immediately, but when we do, the differences will be apparent.

We support a stronger standard for central air conditioning units, recognizing that their energy use on hot summer days are a key contributor to the threat of brownouts and blackouts. In my view, the administration's position to roll back the standards it found when it took office was a mistake, based on incorrect and outdated data on costs. In hearings in the Energy Committee, this point was explored in detail.

We are advocating a much stronger position on CAFE standards in this bill than the administration is willing to step up to. We believe that there is no conflict between safety, employment, and higher fuel efficiency in cars. They myths that higher standards will lead to less safe cars, or that we will lose domestic employment if we make our cars and trucks more fuel efficient are just that—myths. The National Academy of Sciences pretty much exploded them in the report that Congress commissioned it to write on the subject.

Finally, now that we have seen the President's proposal on climate change, we must recognize some real differences between our approach and the President's plan, which is simply business as usual.

I hope there are some concrete steps we can take to actually reduce the amount of carbon we are putting into the atmosphere. It is not enough to just reduce it relative to our GNP. We need to reduce it in absolute terms at some stage in the foreseeable future.

I hope we can have a very good debate. I hope we can come together—both Democrat and Republican Members of the Senate, as well as the administration—and have a thoughtful analysis of our current energy challenges and demonstrate a willingness to take some bold policy steps to address those challenges. The country needs no less. Our national security, our future economic prosperity, and the jobs of millions of Americans are at stake as we try to shape an energy policy for these next several decades.

I look forward to the debate. I know my colleague from Alaska, the ranking member on the committee, is here to give his opening statement.

I yield the floor.

The PRESIDING OFFICER. The Senator from Alaska is recognized.

Mr. MURKOWSKI. Mr. President, under the order, we are likely to go out at 12:30 for the luncheon recess.

The PRESIDING OFFICER. The Senator is correct.

Mr. MURKOWSKI. Senator BINGAMAN has used how much time?

The PRESIDING OFFICER. Approximately 55 minutes.

Mr. MURKOWSKI. So I would have perhaps 30 minutes left. I propose that I be allowed to proceed when we come back. I have probably a little less than 55 minutes. I am somewhat reluctant to start and be interrupted. I would propose to the leader that we might use the remaining time for Senators who want to speak in morning business, and I be allowed to introduce my opening statement at 2 o'clock when we come back. We will probably have statements and take amendments as they come up.

Mr. REID. Mr. President, if I could respond to my friend from Alaska, what the Senator from Alaska proposes is that we go into a period of morning business until 12:30, and at 2:15, when we return, the Senator from Alaska be recognized for up to 1 hour; at 3:15, the Senator from South Dakota, the majority leader, or his designee would offer a modification. The Senator has suggested that he proceed at 2:15.

For the convenience of everyone, I propose that the majority leader, or his designee, at 2:15 lay down the modification, which would take a matter of a few minutes at the most, and then the Senator from Alaska would have 1 hour to present his opening statement.

Mr. MURKOWSKI. If I may respond, I certainly have no objection to the procedure of the majority leader laying down his modification. I don't want to be bound by a time agreement. We didn't discuss a time agreement on opening statements. It is not my intention to speak at length, but I would not like to be limited necessarily.

Mr. REID. I think that is entirely appropriate. I would like to hear the Senator speak longer than an hour.

Mr. MURKOWSKI. I am sure the Senator would.

ORDER OF PROCEDURE

Mr. REID. Mr. President, I ask unanimous consent that the period from now until 12:30 be deemed as morning business; at 2:15 Senator DASCHLE, or his designee, be recognized to offer the modification; and, the Senator from Alaska, the ranking member on the committee, be recognized to give his opening statement.

The PRESIDING OFFICER. Is there objection? Without objection, it is so ordered.

Mr. REID. Mr. President, I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The assistant legislative clerk proceeded to call the roll.

Mr. CARPER. Mr. President, I ask unanimous consent the order for the quorum call be rescinded.

The PRESIDING OFFICER (Mr. BINGAMAN). Without objection, it is so ordered.

ENERGY POLICY

Mr. CARPER. Mr. President, I simply begin by thanking you, first, for your statement in the Chamber today, but also, more importantly, for the leadership that you, Senator MURKOWSKI, and others have demonstrated to bring us to this point today. I cannot speak for the rest of my colleagues, but I am delighted we are in this Chamber and have begun the debate. It has been long delayed, but it is a most important debate on whether or not we are going to have an energy policy for this country of ours.

At the end of the Vietnam war, as a young naval flight officer, I moved from California to Delaware to enroll in the University of Delaware Business School. One of my earliest memories of coming to Delaware is sitting in line, waiting to buy gas for my car. We were in the middle of an oil embargo, and at that time you could only buy gas every other day. We did not have an energy policy in the mid 1970s. We do not have one today.

Twenty-eight years ago, some 30 percent of the oil we used in our country was imported. We had a trade balance that was pretty much even. There was not much of a deficit. Greenhouses at the time were something in which we grew plants. We did not worry about greenhouse gases and whether or not we would have a hole in the ozone layer of our atmosphere. That was 28 years ago. Today, almost 60 percent of the oil we consume comes from other places around the globe. A lot of it we buy from people who don't like us very much and, I am convinced, use some of the money we send them to try, in some cases, to hurt us or our interests.

Our trade deficit has ballooned to $300 billion, and not all of it but a good chunk of it is attributable to the oil we import. Today, when people talk about greenhouses, we still grow plants in them, but we also worry about greenhouse gases and what is going on with the hole in the ozone layer, what is going on with a rising global temperature, and what is going to happen to our sea level in this world over the next 100 years if we do nothing about it.

The question we are going to be answering in the next couple weeks is, What kind of energy policy should we have in this Nation?

Like most of my colleagues, I would argue that the answer to that question has two parts. One part says we create more energy. And while we work to do that, in a variety of ways, the second part says we need to conserve more energy.

Let me talk a little bit about both of those issues: First, the creation of more energy and, second, the conservation of energy.

I live in a State where, I am told, we actually grow more soybeans in Sussex County, DE, than any other county in the country. We also have more chickens in Sussex County than any other county in the country, including those in Arkansas. We can look to those soybeans for a source of energy. Frankly, we can look to those chickens as a source of energy, as well, as we go along.

We raise soybeans in Delaware to feed chickens. We feed them the hull of the soybean. The oil that comes out of the soybean we do all kinds of things with in this country. We create soy foods, soy milk. We also can create something called soy diesel fuel: 20 percent soy, the rest is diesel. We can burn it in our diesel-consuming machines, and it works just fine. It is energy efficient. It works well in the machines, and the emissions are no worse, for the most part, than any regular diesel fuel. In some cases, they are actually better.

We have too much soybean in this country; we have a glut of that commodity. It is a good alternative to use the soybeans that are in excess on our farms to help lessen our reliance on foreign oil.

We have figured out how we can burn animal waste to derive the Btu value, including chicken litter, in ways that are environmentally friendly.

In my State, we have the biggest independent producer of solar energy panels in the country. We are proud of the work they do at AstroPower. And it is not just at AstroPower; there are places all over this country that are relying more and more on solar energy in developing evermore efficient ways to create that solar energy.

Windmill farms are becoming more common in this country. Hopefully, as we continue to perfect that technology, they will become even more efficient.

Others have spoken, and will in the weeks ahead, about geothermal energy, how we can take hot air in the summer and run it 300 feet underground to cool it off, and then use it to cool our homes in the summer; and we can take cold air in the winter, run it 300 feet underground to warm it up, and then use it to warm our homes and businesses in the winter.

Those are just some of the ideas of renewable energy that we can use, that we can rely on, that we are more relying on, and need to do more so in the future.

We also have, as Senator BINGAMAN said earlier, a lot of coal in this country. I think he said we are the ''Saudi Arabia of coal.'' I am privileged to represent the State of Delaware in the Senate. I was born in West Virginia. I know full well they have a lot of coal there and other places around our Nation. We ought to find ways to burn that coal without doing more harm to our environment. We can do that. Clean coal technology is very promising. We need to continue those efforts.

There has been some discussion already today about natural gas. We are starting to rely more on natural gas from other places around the world. We have a lot of it in our country. But consumption is going right through the roof because we have such good environmental consequences compared to other fossil fuels we use. There are