□ 1630

FOSSIL FUELS TO RENEWABLES

The SPEAKER pro tempore. Under the Speaker's announced policy of January 18, 2007, the gentleman from Maryland (Mr. BARTLETT) is recognized for 60 minutes.

Mr. BARTLETT of Maryland. Mr. Speaker, in just a few days now will be the third anniversary of the time I came to this floor to talk about this subject. I believe this may be the 39th time that I have come to the floor, and what an auspicious time to come, because when I got up this morning and turned on the television, I could hardly believe it, oil was $105 a barrel.

There are three groups in this country that are interested in transitioning from fossil fuels to renewables. They have very different agendas, they have very different concerns, but they have common cause in wanting to transition from fossil fuels to renewables. One of these groups is the group that is concerned about the national security of our country. This first chart speaks to that.

There were 30 people about 3 years ago leading Americans: Boydan Gray, McFarland, Jim Woolsey, and 27 others, retired Four-star admirals and generals, who really understand the problems we face, who wrote a letter to the President saying, Mr. President, the fact that we have only 2 percent of the world's oil reserves and we use 25 percent of the world oil, and we import almost two-thirds of what we use is a totally unacceptable national security exposure. We really have to do something about that.

A couple of other statistics on this chart are interesting to note. With our 2 percent of the world oil reserves, we are pumping 8 percent of the world's oil. We are pumping our wells four times faster than the average of the rest of the world. What that means of course is if there is the end of oil, our wells will go dry before the others because we are pumping them faster.

The last statistic here is truly a bit less than 5 percent. We are one person out of 22 in the world, and we use one-fourth of the world's energy, and this fact is not lost on the rest of the world. They recognize this.

The next chart is a statement by our Secretary of State Condoleezza Rice. She had in mind the statistics that you just saw, and she had some other things in mind that we will come to in a few moments. When she said we do have to do something about the energy problem, I can tell you that nothing has really taken me aback more as Secretary of State than the way the politics of energy is, I will use the word, warping diplomacy around the world. We have simply got to do something about the warping now of diplomatic effort by the all-out rush for energy supply. So our Secretary of State recognizes the national security implications of the world's oil energy supply.

One of the things she had in mind was this next chart. This is a really interesting one. This shows what the world would look like if the size of the country was relative to the amount of oil that it had in reserve. Boy, this is a warped map of the world, isn't it? There is China and India over there, so small you can hardly find them because they have very little oil.

Saudi Arabia is huge. It just dominates the landscape. Saudi Arabia has 22 percent, more than one-fifth of the world's reserves of oil. And notice little Kuwait through there, a tiny little province way down in there in the southeastern corner of Iraq, and Saddam Hussein thought that would look good as a province of Iraq, which was a problem about 12 years, 16 years ago, I guess. But look at the size of their reserves. Iraq and Iran, the United Arab Emirates, just dots on the map, and look at how much oil they have. Then across northern Africa, Nigeria, Libya, Algeria, Egypt, and so forth.

Look in our hemisphere. Venezuela of course dwarfs everything else. Venezuela has more oil than all the rest of our hemisphere put together. Russia, big, but not huge compared to these other reserves. Little Kazakhstan, you see it's fairly large there.

So some really striking things about this map. One is the size of the reserves in India and China. About almost one-fourth of the world's population lives in India, about one-third, really, live in India and China, and they have no more oil than we have. Notice that our two biggest suppliers of oil are Canada and Mexico, and they have less oil than we. Now, there aren't very many people in Canada to use the oil, so they can export it to us. Although there are a lot of people in Mexico, most of them are too poor to use the oil, so they can export it to us. But look how Venezuela is dominating this hemisphere.

Another thing that Condoleezza Rice had in mind when she made that statement about how oil is warping the world's diplomacy was the distribution of the reserves of oil. On the right over there, we have the top 10 oil and gas companies on the basis of oil reserve holdings in 2004. Notice that 98 percent of those are governments, nationally owned oil reserves. LUKOIL in Russia, big, and they have 2 percent, and they are kind of quasi-government, really.

But notice over here on the left. Now, this is the top 10 oil and gas companies on the basis of production. The graph on the right shows how much oil they have, and the graph on the left shows how much oil they are producing. The big boys up here, ExxonMobil and Royal Dutch Shell and BP and so forth, they weren't even big enough to show up over here on the right. They are not numbered among the top ten. So they don't own much oil but they are pumping a lot of oil that somebody else owns. So they are pumping 22 percent of the oil. But notice still that 78 percent of the oil is pumped by these national companies that own it there. Condoleezza Rice I'm sure had this in mind when she made that statement.

She also had this next chart in mind. This is an interesting one. This looks at holdings around the world. World energy picture of January of 2005. You will notice the symbols there for China. China is buying oil all over the world. Why would they do that? Because in today's world, it really doesn't make any difference who owns the oil. We own very little of the oil. We have 2 percent of the world's reserves, but we are using 25 percent of the world oil, and we do that because we come with our dollars. Let's hope it continues to be dollars rather than euros. We come with our dollars and we buy the oil.

So why are the Chinese buying up the oil when it doesn't make any difference in today's world economy who owns the oil? The person, the company, the country that comes with the dollars buys the oil. Well, at the same time that they are buying up all this oil, and I am sure Condoleezza Rice had this in mind, they were also very aggressively building a blue water navy. You see, you would need a blue water navy. We have the only one in the world now. You would need a blue water navy to protect the supply routes if you wanted to take the position that the oil was yours and you couldn't share it.

They have 1 billion 300 million people, and I can imagine that one day they may, with pressure from their people, tell the world, gee, I am sorry, but this oil is ours and we can't share it. They have 900 million people in what they call rural areas that, with the miracle of instant communication and television, have observed the benefits of the industrialized world, and they are clamoring for some of those benefits. I think that the Chinese recognize that they must do something to meet those demands or they might see their empire unraveling the way the Soviet empire unraveled.

So this is one group of people that have a concern about moving away from fossil fuels to alternatives, renewables. We have very few fossil fuels and so we have a big incentive to move away and develop renewables, and these are those who are concerned about national security interests.

There is a second group, and I don't have any charts for this group, but you have seen so much of this that you don't need me to have charts. This is a very large group of people who believe that our excessive use of fossil fuels, which is some releasing of carbon dioxide that has been sequestered through the ages when the sun shown on ancient subtropical seas and algae and small animals and plants and so forth grew there. Then at the end of the season they drop to the bottom and silt came in, and then more the next season. And then finally the tectonic plates opened up and they went down to a proper point where, with pressure and temperature and time, this organic material was converted into what we know today as oil and gas.

Coal is a little different. As a boy, I knew very well where coal came from because we lived in coal mining country. As a matter of fact, we had a coal mine on our farm, and the coal would come out of the mine, dust up to big chunks of coal. And we'd have to break some of those chunks to put it in our furnace. I remember taking that sledgehammer where it leaned against the wall and breaking a lump of coal and there it opened up and there was a big fern leaf. I remember as a kid the feelings I had. I wonder how long ago that fern grew. So I knew where coal came from plants. It came from plants that died. We can see the beginning of coal in the bogs of England, by the way.

But what we are doing in burning these fossil fuels is releasing the carbon dioxide that was sequestered in these plants over very long time periods. You see, what happens in photosynthesis is carbon dioxide is taken out of the air and oxygen is released into the air. If you now bury that plant, you now have sequestered the carbon dioxide. When you take it out and burn it, you are releasing the carbon dioxide.

In the last 100 years or so, we have doubled the concentration of carbon dioxide in our atmosphere. Now this is what we call a greenhouse gas. You see the effects, the greenhouse effects when you go out to your car in the parking lot in the summer and you open the door and that blast of heat hits you. What has happened is that the rays of the sun have come in over a broad spectrum of ways and they have heated up the interior of your car and that re-radiates in the infrared, and the glass of your car is relatively impervious to infrared, so it keeps that heat in there. The same thing happens in our world. The sun shines down and warms up things down here and they radiate back.

These greenhouse gases act very much in the atmosphere like the glass in your car or the glass in the greenhouse. It reflects the infrared back in, so it keeps us warmer. There are a growing number of people who believe that this increase in carbon dioxide, increasing the greenhouse gases are producing climate change in our world and producing a global warming. Of course, enough global warming could melt, it would take a very long time, couple of hundred years, probably, but could melt the polar ice caps. That would raise the level of the oceans about 200 feet. If you look around the world at the number of people who live in less than 200 feet above sea level, it's a big, big part of the world's population.

So these people who are concerned about global warming and climate change, and by the way, I would note that very small differences in temperature make huge changes in climate. During the last ice age about 10,000 years ago, our Earth was about 5 degrees Centigrade cooler than it is now. That is about 9 degrees Fahrenheit. That is not a whole lot. That is about like going from here to Minnesota. But that 9 degrees Fahrenheit difference in temperature caused the ice age.

So when you're looking at a temperature change and saying I go from one room in my house to another and there's a bigger change than that and the sky isn't falling, how come that is a big deal? Just remember that relatively small temperature changes can make huge climate changes.

Now, the solution to the problem that the climate change-global warming people see is exactly the same solution to the problem that the national security-concerned people see, and that is we have got to move away from fossil fuels. We have got to move to renewables where we are recycling the carbon dioxide. You see, if you burn something that grew this summer, if you burn it this fall, like burning wood from a tree that may have been growing for 30, 40 years, and taking CO_2 out of the air and storing it in the tree, then when you burn the tree, you put the CO_2 back in the air, but that is the same CO_2 the tree had taken out, so it's a balance and the CO_2 doesn't go up.

So what the climate change global-warming people want to do is to reduce our dependence on fossil fuels and the concomitant release of carbon dioxide and instead substitute these renewables which simply recycle the carbon dioxide.

□ 1645

Now, if you are going nuclear, by the way, it is even better. After you have paid a carbon cost for building the nuclear power plant, then there is no carbon dioxide produced for the duration of that nuclear power plant.

The third group that have common cause, and before I talk about this group, I want to note that I think that the best interests of mankind, the best interests of our country, the best interest of Republicans and Democrats, will be served if we don't criticize each others' premise. There are those who believe that the global warming thing is just silly. There are others who believe that the foreign countries that own all this oil are going to play nice and give us the oil, so why worry about the national security interests.

But rather than criticizing the premise of these others, why don't we just lock arms, because what we want to solve the problems, and in just a moment I am going to talk about the third problem, which I think is really the big one, is to reduce our dependence on fossil fuels and increase our reliance on alternatives.

The next chart, and I have got to go back 52 years to talk about the origin of this chart, because this all began 52 years ago. As a matter of fact, that anniversary will be the day after tomorrow. The 8th day of March in 1956, a speech was given in San Antonio, Texas, that I believe within a few years will be recognized as the most important speech given in all of the last century. That speech was given here in 1956, so we are right here on the chart now.

The United States is king of oil. We are producing more oil, using more oil, exporting more oil I think than any other country in the world, and an oil geologist by the name of M. King Hubbert in this very famous speech in San Antonio, Texas, told a group of oil people that in 14 years, roughly 14 years, it turned out to be 14, you will peak in oil production, and no matter what you do after that, you will not be able to produce more oil.

Now, remember, the United States then is king of oil. Oil wells everywhere, Oklahoma, Texas. A little interesting sidelight here, why were there so many? That is because, as I understand it, of the law of capture. If the oil came out of your well, you owned the oil, even though much of it might have been sucked out of the ground of the person that owned the land next to you. It was called the law of capture, I think. So if you wanted to get some of those revenues, you had to drill your own well. I understand that wells were drilled in graveyards and through the foyers of churches. If you look at some of those pictures, it looked like a forest of oil rigs out there, and I think the reason was this law of capture. But, right on schedule, in 1970 we peaked in oil production. This is a chart of that peak. We reached a peak here in 1970.

Now, M. King Hubbert had included only the Lower 48 in his prediction. He had not included Alaska, where we found a lot of oil. He had not included the Gulf of Mexico, where we found a meaningful amount of oil. But you notice that the slide down the other side of Hubbert's Peak just had a little blip from the oil that we found in Alaska and the Gulf of Mexico.

So, right on schedule M. King Hubbert and his prediction of a phenomenon which we call today peak oil, said that we would reach that maximum in the United States in 1970. Now, this same forecaster, with the enormous credibility of having been right on target for the United States, said that the world would be peaking about now.

The next chart is an interesting one, and if you had only one graph, one chart you could look at to talk about this, it would be this one, because this has so much information on it. The little bars here show the discoveries of oil. You notice that we started discovering it way back there, some of it in the Depression really, and then after the end of the Depression just before the war, and then huge discoveries in the fifties, the sixties and seventies. But ever since then, down, down, down, down. Kind of a ragged down, because every once in awhile you hit a pretty big field, and here is the spike here. But on average every year since the seventies and eighties it has been down, down, down.

The solid black line here represents the oil that we have produced, which is

also the oil we have used, because there is no big store of oil anywhere. We use it as we produce it. And a really interesting curve.

Notice the shape of this curve here. If nothing happened to change that curve, it would have gone off the top of the graph by this time. Well, something did happen to change the shape of that curve. You notice that changed in the seventies, and these were the oil price spike hikes engendered by the Arab oil embargo, and it caused a worldwide recession. Here is the worldwide recession, and, boy, we woke up, we and much of the rest of the world, and we found ways to do things more efficiently. Now we are recovering from that and the economy is great for most of the world, there is a little tremor now, but it has been a great economy. But you notice the slope of this curve after that is very much less than the slope of this curve.

There is an interesting statistic during the Carter years, up to the Carter years, as a matter of fact, that every decade we use as much oil as had been used in all of the world in all of previous history. Wow. What that means is, of course, when you have used half the oil, you have only one decade left. Well, we have really slowed down now. You can see the slope of this curve is very much less.

Now, when will the world reach its maximum oil production? See, what we have been doing since about 1980, we have found less and less oil, but we have used more and more oil, so this area here, the area above the oil that we found has been filled in by the oil that we found way back.

Now, we have got a lot these reserves left, and the makers of this chart say that this is the average of what we will find in the future. It won't be smooth, it will be up and down, but that is probably about the quantity that we will find. But we are using more. And they are suggesting that we will be peaking about now, as you can see, and that this area here will have to be filled in by reserves that we found back here, because we aren't finding any meaningful amount of oil now. So those who made this chart believe that oil in the world should be peaking about now.

The next chart shows the estimates of a number of authorities. Some of them have enormous uncertainty in when they think peak oil might occur. Here is one that says it could occur anytime between now and 2120, between 2020 and 2120. Here is one that says, gee, it could be anytime. But a great number of them believe it could be as early as about now. Here we are at about this point. A great many of them believe it could be now or shortly after this. So there is general consensus through most of the authorities in the world that peaking could be now.

The next chart kind of puts all of this in perspective, and this is an interesting chart. Let's just refer to the upper part of it. The lower part of it is a blowup of the upper part separating out gas from oil.

Hyman Rickover, who gave a great speech the 14th day of May, 1957, so this will be the 51st anniversary of his speech, noted that we were in an age of oil. I will have some quotes from his speech in a few moments. That we were in an age of oil. And he said in 8,000 years of recorded history we were, when he gave his speech, about 100 years into the age of oil.

This is a chart that looks not back through 8,000 years. But if we went back that far, the amount of energy used by mankind would be down here so near zero you could hardly see the difference. We go here about 400 years and the industrial revolution began with wood. And then we found coal, and, boy, it jumped up. And then we found gas and oil, and, wow, the quality of the energy, the extractability, how easy it was to get, how easy it was to use. And look what happened to energy use. It just spiked. Here we see that same discontinuity in the seventies, the worldwide recession, the oil price spike hikes.

Now, let's look at the next curve here, because this shows exactly the same curve. What we have done here is to expand the abscissa, that is this bottom, and compressed the ordinate, so now it is a low, smooth curve. If you pull this in and push that up, you can make the sharp curve that we saw over there. We had only gone this far over there. Now we really dip down the other side.

But I want to focus here on the yellow area of this chart. If we in fact are peaking in oil production, and if the world follows the pattern that we have been following in the United States, then the production of oil will look, it has looked up until now about like this, and in the future it will slide down the other side of Hubbert's Peak.

Today in the United States we produce half the oil that we produced in 1970, in spite of finding a lot of oil in Alaska and a fair amount of oil in the Gulf of Mexico, and in spite of drilling more oil wells than all of the rest of the world put together. So we are about at this point, I believe, and the demand is about 2 percent.

Now, 2 percent doesn't seem like much, does it? As a matter of fact, our stock market doesn't like 2 percent growth. It thinks that is anemic and it is likely not to do well. But 2 percent growth doubles in 35 years, and here we are talking about long time periods. It doubles in 35 years, it is four times bigger in 70 years, it is eight times bigger in 105 years, and it is 16 times bigger in 140 years.

This phenomenon of exponential growth caused Albert Einstein to respond to a question, gee, Dr. Einstein, what will be the next big energy force in the world? And he said the most powerful force in the world is the power of compound interest. The next, of course, after nuclear energy.

So, with this 2 percent growth, and I would submit that it is going to be hard to hold growth to 2 percent, because we have India and China coming on board. I was in Beijing about a year or so ago and they had banned bicycles in parts of Beijing because they were getting in the way of cars. With the demand of oil in India and China, I think it will be hard to hold it to 2 percent growth. But this is 2 percent growth, and it doubles in 35 years. So this period is 35 years.

Many people looking at the problem we face with peak oil say, gee, let's fill the peak. I think it is manifestly impossible to fill the peak, and I don't think we need to fill the peak. I would be happy if we were reasonably sure that we could just fill the area below this peak so we would have a plateau out here. I am not sure that the world will be able to do that. Neither am I sure that we have to do that to live well, actually.

The next quote is a quote from this really great speech given by Hyman Rickover. If M. King Hubbert's speech was the most important speech of the last century, and I think that it may have been, then I think maybe the most insightful speech of the last century was that speech given 51 years ago the 14th day of this May.

I came to this floor on the 50th anniversary of that, and Hyman Rickover's widow sat in the gallery there when I read largely from the really, really insightful prophetic speech that he gave.

These are some of the quotes. ''I suggest that this is a good time to think soberly about our responsibilities to our descendants.'' I do a lot of that. I have 10 kids, I have 16 grandkids, and I have two great grandkids, so I think a lot about my descendants. ''Those who will ring out the fossil fuel age.''

Wow. I was thinking of this statement when I led a CODEL to China the last holiday, not this Christmas and New Year's, but the one before that, and we went there to talk about, the nine of us, went to talk to the Chinese about energy. And it was really interesting.

They began their discussion of energy by talking about post-oil. Wow. As Hyman Rickover said, there will be a post-oil, because if there is a fossil fuel age, the age of oil, then there will be some time after the age of oil. We in this country think in terms of the next quarterly report and how am I going to get myself elected the next time, and it is really interesting that people in that part of the world tend to think more in terms of generations and centuries. But the Chinese recognize that there will be an age of oil.

''Those who will ring out the fossil fuel age, we might give a break to these youngsters by cutting fuel and metal consumption so as to provide a safer margin for the necessary adjustments which eventually must be made in a world without fossil fuels. There will one day be a world without fossil fuels.''

I think that has to be obvious. If you look at the world, the whole thing is

not oil, and, even if it was, it wouldn't last for oil. But it is certainly not. So there will be one day be a world without oil, and Hyman Rickover was suggesting 51 years ago was a good time to start thinking about how we make that transition.

The next chart shows a reality that I don't know how many have thought about. This is a chart which shows on the abscissa the amount of energy you use, and on the right over here it shows how happy you are with your station in life.

□ 1700

Now, we use more energy than anybody else, and so there we are, the furthest one over here to the right, but we are not the happiest Nation in the world. There are 24 countries, everybody above this line, feels better, not just as good, better, about their quality of life than we feel about our quality of life, and some of them use only about half as much oil as we use. And when I look at the future and the huge challenges that we have from the future, I note that we have a lot of opportunity to live more efficiently and to live, not just as happily, but to live more happily, because there are 24 countries that use less oil than we, some only half the oil that we use, who feel better about their quality of life than we feel about ours.

Now, this third group that has common cause with the first two, the first two being those who are concerned about our national security, we get far too much of our oil from over there and, as the President appropriately said, from people who don't even like us. The second group is concerned about global warming and releasing all of this sequestered CO_2 from these fossil fuels and dumping it into the atmosphere and producing these greenhouse gases that reflect back the infrared radiation to the Earth and warm up the Earth.

By the way, I lived in Siberia. You might have a hard time convincing me that a warmer Earth would be all that bad. And I would note that, if they played nice over there, these guys who have all the oil, that may not be a problem, so the national security thing may not be a problem.

I would submit that the Earth has been very much warmer in the past. That is the only way we could have had subtropical seas in the north slope and the North Sea and ANWR and so forth. A warmer Earth will be very different, better for some people, worse for others, and I don't think it is a risk worth taking. But many will argue that, gee, the sky may not fall if the Earth gets warmer.

But I will tell you that this third group of people, the people who are concerned about peak oil, there is no way that we are going to get through that without a very bumpy ride unless we aggressively pursue this challenge.

Now, I am excited about this. My wife tells me that I really shouldn't be talking about this because people in ancient Greece killed the messenger that brought bad news, and I need to get myself reelected and I shouldn't be talking about this. I tell her, this is a good news story. The good news is that if we start today to meet this challenge, the ride will be less bumpy than if we start tomorrow.

But the really good news part of this is that there is no exhilaration like the exhilaration of meeting and overcoming a big challenge. And, boy, this is a big challenge.

Many of the problems we have with our unemployed and our kids and so forth in this country are because time weighs heavily on their hands, and they end up doing sometimes hurtful things to themselves and society. I lived through World War II, the last war, by the way, in which everybody was involved. It was the last war in which our country was at war. Now, our military has been at war since then and our military families have been at war since then. But, boy, World War II, our country was at war. Everybody knew we were at war. Not a single automobile was made for public consumption in 1943, 1944, and 1945. You had to have a ration coupon to buy gas. If you convinced them you were a good churchgoer, they would give you enough to go to church; otherwise, you stayed home or walked to church. You had to get a coupon to get sugar to do your canning with. There was a real scarcity of automobile tires. We saved our household grease and took it to a central repository. We had daylight savings time, that comes this weekend, and we had daylight savings time because then we had an extra hour to spend in our victory gardens. And there was no law from Congress that said you had to have a victory garden, but, boy, everybody who could, talk to your grandparents, they probably dug up their backyard and they put a garden there. I saw pictures of vacant lots in New York City where they took all the rubble and piled it up in rows and planted gardens between them. Everybody was involved in that war.

And I will tell you, if we are going to get through this, this is a huge challenge, it will require the best of us. But we are the most creative, innovative society in the world. And, with leadership, which is I think fairly conspicuously absent today, I think that we can rally to this cause.

What we need to get through this is the total commitment we had in World War II. We need to have the technology focus of when we put a man on the Moon and we need to have the urgency of the Manhattan Project.

By the way, that technology focus would do other really nice things for us. I talk to a lot of businesses that cannot find enough technically trained people. Our young people today just aren't turned on to training in science, math, and engineering. Many of them are becoming lawyers and political scientists. I think we have quite enough of both of those, thank you.

I remember during the less than a decade, our President challenged us to do it in a decade and we did it in less than a decade, putting a man on the Moon. And I remember how turned on, it captured the imagination of the American people and inspired our young people to go into careers of math, science, and engineering. I remember a cartoon of a little redheaded, freckle-faced buck-toothed young fellow who said, ''Six months ago, I couldn't even spell 'engineer' and now I are one.''

Everybody wanted to be involved in this. And we need to have the technology focus that we had then, and what that will do is inspire more of our bright young people. We have really bright young people, and they need to be going into pursuits that will really be productive like science, math, and engineering. If we inspire them to go into those positions, we might once again become a manufacturing exporting Nation.

By the way, the technologies that we will need to develop to exploit these renewables, I think we could become the center for that in the world and, once again, could become a major exporting Nation.

Again, I say, we are the most creative, innovative society in the world. Somehow, somehow, the genius of our Founding Fathers and the Constitution they gave us, which really, really respects the rights of the individual, created a milieu, a climate in which creativity and entrepreneurship would flourish, and it is still flourishing. Just look at our small businesses, that they are responsible for bringing us out of recession. So I am really enthusiastic about this.

Everybody needs to be committed. We need to have the technology focus of putting a man on the Moon. And this is urgent. Just in the last few days, I have three things in front of me here where others are recognizing that this is urgent. There is a 2-day summit with our National Academy of Sciences, and they are looking at America's energy future. It is about time. They are going to be looking at America's energy future.

We have a huge challenge. We use one-fourth of the world's oil, we have 2 percent of the world's oil, and the President very correctly said that we are hooked on oil. And, like the cocaine addict who is hooked on his drug, he has just got to have another fix, and so now there is a clamor to go out and drill for that oil up in ANWR and drill for that oil offshore.

I haven't voted for those. I have 10 kids, 16 grandkids, and two great grandkids. We are leaving them a horrendous debt, not with my votes, but a horrendous debt. And I just ask, wouldn't it be nice if we could leave them a little energy?

I was asked to vote to drill in ANWR, and my question was: If you could drill and pump ANWR tomorrow, what will you do the day after tomorrow? And for

my kids and grandkids and great-grandkids, there is going to be a day after tomorrow.

Now, I will vote to drill in ANWR and offshore when a commitment is made that all of the energy that we get from those fields will be invested in alternatives. You see, today we have a situation where we have run out of time and there is no surplus energy. If there was surplus energy, oil wouldn't be $105 a barrel this morning.

When I say we have run out of time, I am really very critical of what we, the world, has done in the last 28 years. I say 28 years because that takes us back to 1980. And, by 1980, it was absolutely certain that M. King Hubbard was right about the United States. We peaked in 1970. By 1980, we are sliding down the other side of what is called Hubbard's Peak. So we knew he was right about the United States. Now, I believe it was in 1979, just a year before, that he predicted the world would be peaking about now.

And I ask you, if M. King Hubbard was so right about the United States, shouldn't there have been some concern that maybe, just maybe, he might be right about the world? And wouldn't it have been appropriate to look at that possibility and put some programs in place that would address that potential eventuality?

You know, it is very difficult to look back on what we have done without using a couple of not very complimentary analogies. When we first found that incredible wealth under the ground, and, boy, that was incredible wealth. One barrel of oil, and we use about 22 million barrels a day in our country, by the way. One barrel of oil has the work output of 12 people working all year, 25,000 man hours of work.

When I first saw that number, I thought that can't be true; 12 people working all year, one barrel of oil has that much energy in it? And then I thought about that one gallon of gasoline, still cheaper than water in the grocery store if you are buying it in little bottles, how far that takes my Prius. Our Prius now is 47 miles per gallon averaging over the last maybe 20,000 miles. Now, I could pull my Prius 47 miles. That is almost all the way from here to my home in Frederick. That would take me a long while. I would have to get come-alongs and hook to the guardrail and so forth to pull the car. I could do it. And so I finally said, gee, that is probably right. Every barrel of oil has the energy equivalent of 25,000 man hours of work, 12 people working all year for you.

As a matter of fact, I saw a statistic recently that was really interesting. If there was no gas, oil, or coal, no nuclear, no sun, no hydro, if the only power available was the power of human activity to enjoy the quality of life that each of us enjoys, there would have to be 300 people out there working. That is the amount of energy from fossil fuels that each one of us consumes. We live as well as if there were 300 people out there working to support our quality of life. No wonder Hyman Rickover referred to this as a golden age.

The next chart kind of shows where we are and where we are going. All three of these groups want to move away from fossil fuels to alternatives, of course for very different reasons and, again, I stop criticizing each other's premise, because what we want to do to solve the problem as we see it is exactly the same thing: Move away from fossil fuels to renewables. How are we going to do that?

Now, there are some finite resources that are really quite unconventional, and we are exploiting some of them now. From the tar sands in Canada, we are getting about 1 million barrels of oil a day. That is with heroic efforts. They are using local gas which is stranded, which means that it is far away from any population and, therefore, it is cheap and so you can use it for something like this. They have a huge tailings pond which is full of all sorts of noxious chemicals. And the vein, if you are thinking of it as the vein, is on top and it will soon have to duck under an overlay so they have to exploit it in situ, and they don't know how to do that yet. They have a shovel, which lifts 100 tons at a time. They dump it in a truck, which hauls 400 tons. They haul it to a cooker, which cooks it until it loosens up its stiff oil and it flows, and they add some chemicals to it to keep it flowing when it cools down. They are getting about 1 million barrels a day, and that is 1 million out of 88 million that the world is producing. So a bit more than 1 percent, but it is not sustainable and they know it is not. They are going to need more oil, they are going to run out of water by and by.

But if they could continue this exploitation, there is more potential oil in the tar sands of Canada than there is in all of the huge oil reserves that we showed on that map of the world that we showed earlier. So there is a huge potential there.

□ 1715

But remember, in any one of these things, you need to look at energy-profit ratio, how much energy you need to put in to get out a unit of energy. And if you are putting in more energy than you get out, obviously you are not going to do that, and you are going to move on to some other source.

The oil shales in our western United States, they have reserves at least as large and maybe some larger, some believe, up in the trillions of barrels of oil.

By the way, and we will come to the number later, but the world had about we believe 2 trillion barrels of recoverable oil. We have recovered about 1 trillion of those barrels. Most authorities believe there is another trillion to be recovered. Some believe we can find more and get more out of the present reservoirs.

But in spite of the brightest people in the world, the most aggressive economy in the world, we have not been able to reverse our slide down the other side of Hubbert's Peak. So when you are listening to people speaking about a rosy future with abundant oil, remember that the United States with all of our superiority has not been able to reverse our slide down the other side of Hubbert's Peak.

There are a number of organizations looking at exploiting that. It is called ''the rocks that burn'' by the Indians. When you heat it up, it becomes oil. It is not exactly oil in the form that it is found. Can we develop that, how quickly, how much will we get from it, we will certainly get something from it by and by, but remember this energy-profit ratio.

Coal. We have a lot of coal. Not as much as we thought we had. The National Academy of Sciences took a new look at that, and they said that the conventional wisdom that there was 250 years out there at current use rates, and be very careful when someone mentions current use rates when making projections for the future because, with growth, that time duration really shrinks.

The National Academy of Sciences now says we have something like 100 years of coal at current use rates. I have a chart that shows what that really means in terms of energy that is available to us.

Then we have nuclear. We have three different potential sources of nuclear energy. The one that the world is using for producing energy is fusion, light water reactor plants. France gets about 75 to 80 percent of their electricity from fusion. We get about 20 percent. We are much bigger than France and so we produce more electric power than France produces, but not so high a percentage of what we use.

Fissile uranium is a finite resource. The world will one day run out. I have no idea when that will be because I get wildly divergent estimates when I ask people how long will it last: 10 years, 30 years, 100 years. We need an honest broker. It is hard to have a discussion when there isn't agreement on the facts. I would like to commission the National Academy of Sciences to help us decide on what the reserves are and what the resources are so we can have a productive dialogue. But even when we run out of fissile uranium, we still can get nuclear power from what we call breeder reactors.

They have problems, and you are producing stuff that is potentially weapons grade and you are hauling it around for enrichment, and there are opportunities for terrorists. Then there is an end product that you need to store away for a quarter of a million years. I understand there are potential breakthroughs there where we can burn more of this fuel, and we end up with a waste product which is much less radioactive with a shorter half-life. So the storage problems are going

to be reduced. There is lot of new technology in the nuclear area, and I will tell you that some who have been stout opponents of nuclear, when they are considering a likely alternative in an energy-deficient world of shivering in the dark, nuclear is looking better to them.

Nuclear fusion. That is the only energy source out there that is a silver bullet. If we find that, we are home free. By the way, we have a great fusion reactor. It is called the Sun. And the Sun is the source of almost all the energy we use. It was the shining of the Sun a long while ago that produced the plants that produced the gas, oil, and coal. It is the shining of the Sun that produces the differential temperatures and makes the winds blow. It is the sunshine that lifts the water from the ocean and the plains and drops it on the mountains and it flows down through the dams to produce hydropower. There are only a few sources of power that don't come from the Sun: nuclear, a trifling amount of chemical, and the tides don't come from the Sun.

By the way, there is a huge potential amount of energy in the oceans, but it is so disbursed that it is just hard to collar it. There is an old axiom that says that energy or power to be effective must be concentrated. Look at the tides. The Moon lifts the oceans 2 or 3 feet. I carry two 5-gallon buckets of water, and that is heavy. How much energy would it take to lift the whole ocean, 75 percent of the world's surface, 2 or 3 feet? But the problem is harnessing that energy.

But there are other potential ocean energy sources, like the ocean thermal gradients. In the tropics, it is very warm on the surface and very cold on the bottom. And there are several technologies for getting energy from that temperature difference.

Then we get to the true renewables. By the way, there are many people who don't really think it is necessary to talk about this because they are market enthusiasts, and they will tell you that the market will solve this problem. The market will solve this problem. You may not like the way that the market will solve this problem because the price of oil, unless we do something and move aggressively towards alternatives, may go really high. I hear people telling me gas may go to $20 or $25 a gallon in an energy-deficient world. So the market will solve the problem, but you may not like the way the market solves the problem.

There are two problems. One is that the resources are not infinite and they are not available in the time in which the market would like to have them. The second problem is that the market signals are not timely enough.

One of the big studies done, our government, your government, has paid for four studies. They are ignoring all of them. The first one, the Hirsch Report, said that the world has never faced a problem like this, and challenges us to plan for this a couple of decades ahead because they said if you haven't started to plan for this two decades ahead, there will be some economic consequences. If it is only a decade ahead, there will be big economic problems. And if you wait until it is upon you, and apparently it is, they said the world has never faced a problem like this. There is no precedent in history.

The next chart shows those things in an interesting form. I would like to use analogy for this chart, and that is, the young couple whose grandparents have left them a big inheritance and they have a lavish lifestyle where 85 percent of the money they spend comes from their grandparents' inheritance and 15 percent is from their income. They look at the inheritance and it is going to run out a long time before they retire at the rate they are spending it. So they have to either make more or spend less.

Here we are: 85 percent of all of our energy comes from coal, gas, and petroleum, the oil. So 15 percent is left. A bit more than half of that is nuclear electric power, and the rest is renewables. Now, some people have it 86–14, but it is roughly 85–15. Notice the breakout here of the renewables. In 2000, solar was 0.07 percent. So maybe it is 10 times bigger. That is still a tiny, tiny amount.

Wood. That is the timber industry and the paper industry wisely burning what would otherwise be a waste product, filling up landfills.

Waste energy. That is a great idea, a whole lot better than putting it in a landfill. We ought to recycle what we can productively recycle and then burn the rest of it. And there is a great facility in Montgomery County, and it is really a class facility. I wouldn't mind having it next to my church. It is a great-looking building. You don't see or smell the trash, and it is producing electricity. But that is not a solution to our energy problem because most of the trash that they are burning is the consequence of profligate use of fossil fuel energy. And in a fossil fuel-deficient world, that trash stream is going to be very much less. So for the moment that is a good idea, but it is not a solution to our problem.

Wind. Wind is the most rapidly growing alternative today. The leading country in that is Denmark. They produce electricity at a cent and a half a kilowatt hour. We can do it here for 2.5 or so cents a kilowatt hour.

Conventional hydro. We are tapped out on that, probably. Some believe we can get as much hydro from what is called microhydro. It is much less environmentally threatening, small devices in streams to produce electricity.

Alcohol fuel. I have just a moment to spend on that. The National Academy of Sciences says that if we turn all of our corn into ethanol, all of it, and discount it for fossil fuel input, that it would displace 2.4 percent of our gasoline. This is not ROSCOE BARTLETT saying that; this is the National Academy of Sciences. They noted if you tuned up your car and put air in the tires, you could save as much energy as you would get from all of our corn converted to ethanol. We haven't converted it all, but the amount that we have converted has doubled the price of corn. And our farmers diverted land from wheat and soybeans to corn, and there was an increased demand for wheat and soybeans, so now the price of all three, for these major foods, for poor people around the world is up.

In fact, a member of the United Nations said what we had innocently done, inadvertently done, unintended consequences, was a crime against humanity because now three of the basic four foodstuffs in the world, rice, corn, wheat and soybeans, have increased in price because we had this government-subsidized corn ethanol program.

We will get something from biomass, from cellulosic ethanol, something from corn. But Hyman Rickover cautioned wisely in his speech 51 years ago, you should be careful eating your food. He also said you should be careful you don't burn up the fertility of your soil by removing the organic material which produces what we call tilth, which is what makes the difference between topsoil and subsoil. It holds nutrients and water. We will get something from these. I think now there is an irrational exuberance, as was said about the market a few years ago. We will get something, but it is not a silver bullet. It will not be a huge amount. And we use so much oil, it will barely make a dent in it.

Geothermal. That is true geothermal, tapping the molten core of the Earth. That is one source of energy that didn't come from the Sun. We need to exploit that more. That is not tying your air conditioner, your heat pump to ground temperature, which is a great idea. In the summertime to cool your house, you are trying to heat up that 100-degree air outside. It is easier to heat up the ground at 56 degrees. In the winter, you are doing the opposite.

The next chart looks at coal. This assumes 250 years. If you grow only 2 percent, and I think we will need to dip into our coal more than 2 percent, if we have less and less oil, it shrinks to 85 years. If you use some of the energy from the coal to produce a gas or a liquid, and it is not fair to make the comparison if you don't, then it shrinks to 50 years.

Now another interesting phenomenon here, which is unavoidable, we are going to have to share that with the world because if we use the oil that we produce from coal, then the oil we might have used someone else will use. So in effect you are sharing it with the world. So now 12 divided by 4, we use a fourth of the oil, is 12.5 years. It is even less if it is only 100 years, maybe 6 years or so.

The next chart is a great example of efficiency. This shows producing light from the incandescent bulb, the fluorescent, and the light-emitting diode.

The green on the top is the light. It is the same in all of these. The blue is the energy. And notice that the incandescent bulb is a better heater than light source. I brood my chickens with that.

Notice the light-emitting diode. If you have an LED flashlight, you will forget when you put batteries in it, and we need to move to these kinds of technologies.

I have one final chart to end this discussion with. There are two major entities in the world that follow the production and consumption of oil, and they make assumptions about the future. I wouldn't pay much attention to their assumptions about the future because they have been consistently wrong, but they are very good at charting what we have used.

This is the EIA, the Energy Information Administration, a part of our Department of Energy; and it is the IEA, the International Energy Association, this is a part of the United Nations. This is a group that has been following what has been going on in Iran. Both of them have been tracking what we have been using in oil, and these are their lives.

□ 1730

And these are their lines. And notice, for about the last 3 years, 30 months or more, they're essentially flat. And during that time, that's just about the time that I have been coming here to the floor. It'll be 3 years the 14th day of March that I made my first speech on the floor here relative to this subject. And during that time, oil has doubled in price. Here we are at about $50 a barrel. And there we are up there at, well, off the chart now, above $100 a barrel.

In the few moments remaining to us, I'd like to look at a couple of charts. This is a very recent statement, January 22, by the CEO of Shell Oil. By the year 2100, the world's energy system will be radically different from today. Boy, will it. The world's current predicament limits our maneuvering room. We are experiencing a step change in the growth of energy demand. And Shell estimates that after 2015, supplies of easy to access oil and gas will no longer keep up with demand. He's saying it's going to peak about then.

Mr. Speaker, I would like to close by saying again that this is an enormously invigorating challenge. America's up to this challenge. What we need is the leadership necessary to make this happen.

OIL AND GAS AND THE ECONOMY

The SPEAKER pro tempore. Under a previous order of the House, the gentleman from Texas (Mr. BURGESS) is recognized for 5 minutes.

Mr. BURGESS. Mr. Speaker, we all spend time with search engines. We all spend time with Google. You know, if you Google the term ''gambling'' you'll get millions of matches. And of course, you can't come to a Google page without seeing the Wikipedia. And if you go to Wikipedia to see about gambling, it states that ''Gambling has a specific economic definition, referring to wagering money or something of material value on an event with an uncertain outcome.''

Mr. Speaker, this is exactly what is going on with energy policy here in the United States House of Representatives. Earlier today, the price of oil rose to a record high, nearly $106 a barrel.

We all feel pain at the pump. In fact, I drive a hybrid car back home, but it's still getting awfully expensive to fill up. And like any good Texan, I have a Ford F–150 pickup truck, and last week when I had to fill it with metal to drive to the recycler, it cost me almost $80 to fill up the truck.

In fact, since the Speaker of the House took the gavel on January 1, 2007, the average price of gasoline has increased by about $1 a gallon. The price of gas now back home for me is about where it was in the days after Hurricane Katrina. You remember Hurricane Katrina wiped out almost all the refining capacity in the United States, and the price of oil went up higher than anyone had ever seen it go before. The price of gas at the pump was higher than anyone had ever seen before, and we're there now.

And I've got to tell you, in Texas, this time of year, we generally have our cheapest gas. So what's it going to be on May 1 when we start having to have all of those fancy blended gasolines for the compliance with the Clean Air Act, and the peak of the summer driving season is about to start? We're likely to see gasoline at $4 a gallon back home.

And how does the House of Representatives handle this uncertainty and the resulting rise at the pump? By gambling. We bet our energy policy chips on future sources of energy that cannot fully support a country as large or as energy reliant as is the United States of America.

Last week, the House of Representatives voted to provide tax breaks to consumers who make green choices, and extends tax breaks to producers of renewable energy to create green jobs. Fair enough. But unfortunately, this scheme ignores the fact that green choices and renewable energy are currently more costly for consumers and are not yet ready for full market use.

In addition, the plan offsets these breaks by sending an $18 billion bill to the energy industry that will ultimately pass that cost on to the consumer.

Now, I'm not all that good at math, and I'm certainly not a gambler, but for the life of me, no matter how you add and subtract, I cannot understand how we stand to benefit by handicapping the very resources that we rely upon to get to work, to create our jobs, to go to school, to go to the grocery store or even to the doctor's office. By doing so, the democratic majority here in the House of Representatives is gambling American resources on a horse they know full well cannot possibly win the race.

Thanks to this legislation, the country has now lost $18 billion that could have been spent by experts in the energy industry to expand renewable and alternative energy capabilities, the same energy capabilities that this scheme purports to promote.

I hope these new green jobs are close to home, because workers are going to have to pay for walking shoes in addition to work boots.

Mr. Speaker, why is the majority willing to gamble our economic and national security on the uncertainty of the energy sources of tomorrow in order to bow to the billion dollar environmental industry today?

Of course, Members of this House want to expand alternative and renewable energy resources. In fact, we must do so, as we just heard in the last hour. We must have clean, safe, reliable, affordable sources of energy to continue to compete in the 21st century. But these are not new technologies in which we are investing. Ethanol has been subsidized since the 1970s, in fact, probably earlier than that. We've had solar and wind power capabilities since the 1980s. Yet, somehow this majority believes that the reason that these technologies have not taken over is because of some sort of cabal by the energy market.

So rather than financially support the research into new technology, this body chose to strap higher costs on the backs of already cash-strapped Americans. What about the needs of the Nation's families today? What about the families struggling to pay for oil to heat their homes, gas to drive their cars?

Today we face a slowing economy, a credit crunch. We have a hard hit housing sector. So how does the majority respond to those who are struggling to pay for gasoline and heating oil? They say the energy equivalent of ''let them eat cake.'' Let them pay for something that is inherently more expensive than the current market provides.

Mr. Speaker, if California wants to cut energy demand by pricing people out of the market, as we just heard in the last hour, that's fine for them. But please don't think that the rest of the American people are going to sit back and let that happen without a fight.

Our economy is suffering. Our energy needs are great. This is not the time to double down on short-term schemes that deals long-term problems. America relies on energy to fuel our economy and our lives. That means that America needs real change to spur the development of new technology in the fields of renewable and alternative energy.

Let's spur this development in the right way and invest in all forms of energy, and let's do so without prejudice, without handicapping or picking the winners and losers based upon the