they didn't try to dispose of that ice during the period of time when it had a useful shelf life and give it to 501(c)(3) charities, Federal, State or county institutions, so it could be used and utilized by American people who could have used that ice to save some money.

The same thing happens with commodities. Chairman ELEANOR HOLMES NORTON, the chairman of that subcommittee, had a hearing on food distribution of commodities where FEMA had wasted other precious commodities and dollars.

Mr. Speaker, this needs to stop. Our tax dollars are valuable and people expect their government to do right with their tax dollars. I will not stand by. When I see incompetence, when I see inefficiencies, when I see ineffective use of tax dollars, I will speak up. I am fortunate to be on the subcommittee to ask the questions on August 29th of FEMA.

It seems like the horrendous events that we had when Brownie didn't know what he was doing and the people in New Orleans were left in a tragic circumstance are replicating themselves. FEMA has not been cleaned up.

We will try to see that FEMA spends our money properly and responds properly. They haven't responded to the American people and they haven't responded to Congress. This is a wrong that needs to be righted.

□ 1900

PEAK OIL

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 as the designee of the minority leader.

MR. BARTLETT of Maryland. Mr. Speaker, just in the last couple of days a very important report that was asked for by the Energy Department has been made public. This is the fourth entity that has been asked to study this subject. One of these entities, SAIC, the large prestigious international corporation, has submitted really three reports but they are just one organization. They are called the Hirsch reports. Later this evening I will note some quotes from the Hirsch Report. This was in February 2005.

In September 2005, the Corps of Engineers in response to a request by the Army issued a report, Energy Trends and Their Implication For U.S. Army Installations. When you read that report, you might substitute the ''United States'' or ''world'' instead of ''the Army'' and it would be just as applicable. Clearly our Army is a microcosm of the United States and the world.

And then there was a third study which came out in March of this year and this was a study done by the Government Accountability Office. Through my position on the Science Committee I asked for this study and it was completed and it was made public March 29, 2007.

All three of these studies had the same message. A little later we will look at some of those messages. Well, I have one here from the Hirsch Report. ''World Oil Peaking is Going to Happen. The world has never faced a problem like this. Without massive mitigation, more than a decade before the fact, the problem will be pervasive and will not be temporary. Previous energy transitions, wood to coal and coal to oil were gradual and evolutionary. Oil peaking will be abrupt and revolutionary.''

In common, everyday English what these three studies have indicated is that peaking of oil is imminent, present or imminent, with potentially devastating consequences.

Just in the last couple of days there has been a fourth entity that has published a report, this one requested by the Department of Energy, as was the first one, the Hirsch Report. This one was by the National Petroleum Council. The National Petroleum Council has done a very large study involving a lot of experts in the world. They have just issued their report.

Today I was very pleased that several of the key members of this study came to my office and we had a very productive discussion of their report. My concern was that although one could not argue with any specific sentence in the report, that the report certainly was not in my view, and I think the view of any casual reader, was not the clarion call for action that the other reports were. But we will have a chance this evening to look a little more at that report.

There was a talk given 50 years ago, the 14th day of last month, by the father of our nuclear submarine, Hyman Rickover. He gave this talk to a group of physicians in St. Paul, Minnesota. You can do a Google search and just ask for ''Rickover'' and ''energy'' and this talk will come up. It is called ''Energy Resources and Our Future'' and it was on May 14, 1957, a little more than 50 years and one month ago.

There is nothing man can do to rebuild exhausted fossil fuel reserves, he says. They were created by solar energy 500 million years ago and took eons to grow to their present volume. In the face of the basic fact that fossil fuel reserves are finite, the exact length of time these reserves will last is important in only one respect: The longer they last, the more time we have to invent ways of living off renewable or substitute energy sources.

There have been a number of interesting articles in the public media in the last few weeks. One of them was in the New York Times on June 30. ''Oil Giants See Some Strains in the System.'' This is Mr. Mulva who is the chairman and chief executive officer of ConocoPhillips, one of our large oil companies.

The question he was asked was: According to the Department of Energy, the United States will consume 28 percent more oil and 19 percent more natural gas in 2030 than it did in 2005. Where will we find all that oil and gas?

And this is his answer. ''I question whether the supply will be developed to meet these demand expectations. I believe demand is going to be constrained by supply.''

What he is saying is the future is not going to be like the past because in the past we always have been able to find additional production when we needed it. There was only one time when that was not true for a little while and that was in the 1970s when the OPEC oil-producing companies were limiting their exports to us, and that created not only in this country but worldwide a recession as a result of that temporary restriction in providing the full amount of oil that the world's economies would like to use.

On March 25 in the Washington Post there was a very interesting article. It was entitled ''Corn Can't Solve Our Problem.'' You know there has been a lot of interest in corn ethanol, E–85 and putting 10 percent in our gasoline and so forth. They made the observation that if we took all of our 70 million acres of corn and planted and used that corn to produce ethanol, and recognize the fact that there is a big fossil fuel impact into producing the ethanol, and if you discounted the energy contribution from the ethanol by the fossil fuels it took to produce it, it would displace 2.4 percent of our gasoline. And they wryly noted in the article that if you tuned up your car and put air in the tires, you could save as much gas.

I believe it is in the same article that they talk about what we might do with non-corn land in planting, and they thought there was maybe 60 million acres of that in the conservation reserve. This is not as good of land as we are planting now. It is land that is kind of marginal for crop production, and so with some incentives from the government, our farmers have put that in what is called conservation reserve. If we took that out of conservation reserve and planted it to a mixture of grasses, they estimated this might produce as much ethanol by cellulosic ethanol production as we would get from our corn. Because there would be less fossil fuel input to this, the net might be greater. It might be as much as 10 percent or so. But I don't know if they looked at the sustainability of this because if you look at a patch of weeds, to at least some extent and in places to a very large extent, this year's weeds are growing because last year's weeds died and are fertilizing them.

We see this dynamic really exhibited in our rainforests which one would suspect would represent the product of really good soils because there is so much growing in our rainforests. But when you take all of the trees, vines and so forth that are growing in the rainforest away, you've taken almost all the nutrients away and you have very thin soils in many places that bake hard in the sun. They are called laterite soils. This reflects the fact that in the rainforest almost all the nutrients are in the process of sprouting and growing and dying and rotting so that the plants that are now sprouting and growing are fed by those plants that have reached their maturity and are now decaying. So almost all of these nutrients are in this cycle.

This is true even in our grasslands. We are not pouring fertilizers on them, and grasses continue to grow. But at least to some extent this year's grasses are growing because last year's grasses died and are fertilizing them.

There has been a lot of interest in some incredibly large potential reserves of oil-like deposits that we have in our west which we call oil shales and a study was done by RAND Corporation, ''Oil Shale Development in the United States: Prospects and Policies Issues,'' and they say that currently no organization with the management, technical and financial wherewithal to develop oil shale resources has announced its intent to build commercial-style production facilities. A firm decision to commit funds to such a venture is at least 6 years away, and consequently at least 12 and possibly more years will elapse before oil shale development will reach the production growth phase. This is after the 6 years to make a decision, it will be another 6 years in building the facilities.

We are going to run through some slides now, some charts, and it will put some of the things that I have been talking about, and all of this is current, by the way. Also of considerable interest to me is both of the leader hours, one of which I am occupying this evening, both the Democrat and Republican hour here on the floor, were filled with discussions of energy, primarily a discussion of oil and liquid fuels and the fact that oil was and is $75 a barrel and gasoline is $3 a gallon.

Let's turn to our first chart here. This is an interesting little cartoon here. The fellow is at the pump and he asks, ''Just why is gas so expensive?'' I think you can see the labels here. The pump is labeled ''supply'' and it is pretty small; and his SUV is labeled ''demand'' and it is really big. Of course the reason oil is $75 a barrel and gas is $3 a gallon is because the demand is exceeding one of the readily available supply.

One of my colleagues said that one of his constituents had called him and asked what can you do to reduce the price of gasoline. I told him to tell your constituent to drive less. You see the reason that gasoline is $3 a gallon is because we would like to use more gasoline that is readily available. And in our supply-and-demand economy, what this means is when the supply is constrained and the demand is large, that the price goes up. And of course the price of oil is going up.

The next chart is a very interesting one, and this next chart takes a look at what the world would look like if the size of the countries was relative to the amount of oil reserves that they have.

Just a little word of caution here, we don't really know how much oil Libya and Nigeria and Saudi Arabia and Iraq and Kuwait have because they won't let us in to look at the books. These are OPEC countries, and they have a cartel and when oil was $10 a barrel and they would like to have it higher, they wanted to constrain production so the price of oil would rise, and so they would permit their constituent countries to pump oil as a proportion of their reserves.

□ 1915

So there was a temptation for these countries simply to state bigger reserves so that they could pump more oil and get more revenues for their country. But if you assume that those are the reserves and, relatively, this is what the world would look like, you see that Saudi Arabia has almost a fourth of all the oil reserves in the world. Little Kuwait, which Saddam Hussein thought looked like a little province down there in the corner of Iraq, has either the second or third largest oil reserves in the world. Iran is huge, you see there. Iraq is very large. Venezuela, Venezuela dwarfs the United States up here.

These colors are how much oil you use. Nobody uses oil quite like the United States, and so we are the only ones who are colored yellow here. But notice how small the United States is compared to these other countries, and yet we use a fourth of all the oil in the world.

Something which I think gives me pause for sure and I think it ought to give everybody pause is look at China and India over here. China and India together, about 2.3 billion people, more than a third of the world's population, and they collectively have less oil than we. Of course, China's getting most of its energy from coal. It has pretty good coal reserves and gets most of its energy from coal, which is very polluting, which is one of the current problems which they have.

Well, the President very correctly noted in his State of the Union message a couple of years ago that we're forced to get oil from some countries that don't even like us, in his words, and you can look at the names of these countries, and not all of them don't like us, but many of them are in very unstable parts of the world, and who knows what tomorrow will bring.

The next chart is a quote from one of the studies that I mentioned. This was a study September of 2005 by the Army Corps of Engineers, and they very correctly noted that oil is the most important form of energy in the world today. And they note that, historically, no other energy source equals oil's intrinsic quality of extractability, transportability, versatility and cost. The qualities that enabled oil to take over from coal as the front line energy source for the industrialized world in the middle of the 20th century are as relevant today as they were then.

And every time we look at any alternative that would take the place of oil that obviously cannot be here forever, we must compare them with the qualities that oil has, and as this study very correctly noted, historically no other energy source equals oil's intrinsic qualities of extractability, transportability, versatility and cost.

Gasoline at $3 a gallon is still cheaper than water in the grocery stores. Think about it. That little bottle of water you buy in the grocery store, pour enough of those into a jug to make a gallon, and you will have put in far more than $3 worth of water.

The next chart contains some statistics which caused a couple of years or so ago 30 of our prominent Americans to write a letter to the President saying, Mr. President, the fact that we have only 2 percent of the world's reserves of oil and use 25 percent of the world's oil, import two-thirds of what we use is a totally unacceptable national security risk. We really have to do something about that.

This is what the President mentioned in his speech when he said we are hooked on oil and that we needed to develop alternatives to free ourselves from our exorbitant dependence on foreign oil.

A couple of more interesting figures here. We're less than 5 percent of the world's population. One person out of 22, and we use a fourth of the world's oil, but a really interesting figure here is this 8 percent. We have only 2 percent of the known reserves, yet we're producing 8 percent of the oil. What that means of course is that we're pretty good at pumping our oil fields. We ought to be. We've drilled more oil wells than all the rest of the world put together, and so we are now extracting our oil pretty rapidly.

The next chart is some figures, and I'm sorry that we can't draw as many men as Hyman Rickover had. ''With high energy consumption goes a high standard of living. Thus the enormous fossil fuel which we in this country control feeds machines which make each of us master of an Army of mechanical slaves.'' This was 50 years ago Hyman Rickover said this. We're now 50 years later, and what he said then is even more true today.

He said that each of us represents 35 watts of electricity or about 1⁄20 of a horsepower. Looking at that, by the way, when you're looking at replacements for fossil fuels and the energy that's in fossil fuel, when you think of what 1 gallon of gasoline or diesel does, I drive a Prius. It will carry my Prius about 50 miles, and a pick-up truck loaded heavy, maybe it will carry it 17 miles or so. How long would it take me to pull my Prius 50 miles? And that's the energy in just 1 gallon of gasoline.

Another statistic which indicates the incredible energy density in these fossil fuels is the amount of work that electricity can do. If a grown man works really hard all day in his yard, his wife can get more work out of an electric motor for less than 25 cents worth of electricity. Now, it may be humbling to see that we're worth less than 25 cents a day in terms of fossil fuel energy; but that's the reality, and even 50 years ago Hyman Rickover pointed this out.

He said that the household appliances that help the average housewife, 50 years ago, the vacuum cleaners, the refrigerators and so forth, they didn't have microwaves then, that this would represent the equivalent of 33 faithful household servants is the way he phrased it.

And then we did some manufacturing, and he said that the man working in the factory that the energy available to him in the machinery that helped him to produce his product would represent the equivalent of 244 men. The automobile of 50 years ago, by the way it got less fuel efficiency than we get today. We're doing better, not as good as we could, but better. He said that the automobile used the energy equivalent of 2,000 men. When you're going 70 miles down the road, it's the equivalent of having 2,000 men push your car down the road. A locomotive, he said, represented the work output of 100,000 men, and the jet airplane 700,000 men.

Each barrel of oil has the energy equivalent of 12 men working all year, 25,000 man-hours of labor. When I first heard that I had a little trouble believing it, but then when I thought about how far that gallon of gasoline carries my car and how much work I can get out of 25 cents' worth of electricity, I can understand the enormous amount of energy in this oil.

The next chart, and Hyman Rickover referred to this in his really interesting talk, he noted that in 8,000 years of recorded history that the age of oil would represent but a blip in the history of man. When he gave his talk 50 years ago, we were about 100 years into the age of oil. Today, we're about 150 years into the age of oil. I believe that you will agree with me and many other observers that we're about halfway through the age of oil. The second half will see oil ever higher in cost and ever more difficult to get. But that means in 8,000 years of recorded history, the age of oil would have occupied about 300 years. That truly is just but a blip, isn't it, in 8,000 years.

And what we see here is this doesn't go back 8,000 years, it goes back 400 years is all. We see here how little energy was used up until we came to the Industrial Revolution, and that started with wood, the steam engine and so forth, the brown line here. And then we found coal. Boy, it grew, but it took off when we found the gas and oil and learned how to exploit the energy in gas and oil.

Notice that little blip at the top up there. That's the 1970 oil price spike shock and the worldwide recession. If we hadn't had that, and since then we've been really quite efficient, your refrigerator today maybe uses a third as much as your refrigerator did in 1970. If we kept going up that curve, we'd be in really big trouble today.

Through the Carter years, every decade we used as much oil as we had used in all of previous history. What that means, of course, is you're going to use half the world's oil, at the present use rate you'd have another 10 years left. Of course you couldn't get it that quickly, and you would get less and less over a longer and longer period. But very fortunately for us we've slowed down now.

The next chart is another quote from this really interesting speech by Hyman Rickover, and I hope you will get that speech and read it. I think you will find it, as I did, one of the most interesting speeches you've ever read.

High-energy consumption has always been a prerequisite of political power. Ultimately, the Nation which controls the largest energy resource will become dominant. Boy, I read that, and then I reflected on the chart that we're going to see in just a couple of minutes.

China is going around the world buying up oil, and I thought of his statement here: ultimately, the Nation which controls the largest energy resources will become dominant. If we act wisely and in time to conserve what we have, we have not acted wisely nor in time I might add, if we act wisely and in time to conserve what we have and prepare well for necessary future changes we shall ensure this dominant position for our country.

Now we face a real challenge. I believe America is up to the challenge, but we face a real challenge. We need real leadership to face this challenge

The next chart is another quote from Hyman Rickover and this is an interesting. Whether this golden age will continue depends entirely upon our ability to keep energy supplies in balance with the needs of our growing population. And he notes that a reduction of per capita energy consumption has always in the past led to a decline in civilization and a reversion to a more primitive way of life.

Now, we have a lot of knowledge that these cultures before us didn't have, and so I hope as less and less fossil fuel energy becomes available to us that we can avoid following this typical response.

The next chart is what I referred to a couple of moments ago. It shows what China is doing around the world and all of the symbols like this, you can see them all over the world. This is where China in Canada, they were going to buy Unocal. This yellow is here. They were going to buy Unocal in our country, but they are now buying up oil reserves all over the world.

The next chart, this is a chart of the production of oil in the United States. Now, in 1956 at this point right here, 1956, a shell oil geologist by the name of M. King Hubbert gave a speech which I think within a couple of years will be recognized as the most important speech given in the last century. It was given 51 years ago, the 8th day of March in San Antonio, Texas, to a group of oil geologists and company officials.

The United States was then king of oil. Every year we produced more and more and more oil, and he told them that within 14 years we were going to reach our maximum production of oil; and after that, no matter what we did the production of oil would fall off.

He became a legend in his own time when his prediction became true because, sure enough, in 1970, we reached the peak.

□ 1930

Now he had not included Alaska and the Gulf of Mexico in his prediction. The next chart shows this breakout. This is the same chart. By the way, if you simply change the scale on the ordinate in the abscissa you can make these curves spread out or sharper. This is a little sharper curve than the one we saw in Alaska. We have compressed a little of the abscissa here.

This is an interesting one because it shows Hyman Rickover's prediction, and he predicted it would follow owe those yellow symbols. It actually followed the greenish ones here.

This is from CERA, Cambridge Energy Research Associates, and they use this graph to try to convince you that you shouldn't have any confidence in Hyman Rickover, because he really wasn't a very good prognosticator. The statistician may see some reason to believe that, but I think the average person, when they see that, says, gee, that greenish line is not very far from the yellow line. The most important thing, it did peak in 1970, and has fallen off ever since.

Now, this additional peak here, of the total U.S. production, that now includes Alaska and the Gulf of Mexico. That's because of the Alaska contribution there. The next chart shows a prediction by this same organization, CERA, as to what will happen in the future.

Several Congresses ago, I was a chair of the Energy Subcommittee on Science, and I wanted to find the dimensions of the problem. So we had a hearing on oil reserves. We have the world's experts come in to tell us how much oil they thought, recoverable oil, was in the world.

There was a fairly unanimous agreement. I was surprised at how small the range was. They believe, most of them believed, that we had found about 2 trillion barrels of recoverable oil, and that we had pumped about 1 trillion barrels of recoverable oil, so that 1 trillion barrels remain.

By the way they use a strange term here. They use gigabarrels instead of million barrels, because in England, I understand, a billion is a million million. In our country a billion is a thousand million. So to avoid this controversy, if you are talking international, use giga, and 1,000 gigabarrels is 1,000 billion barrels.

This chart shows several projected scenarios for the future. If there is about 2 trillion barrels total, that would be this line. CERA acknowledges it's that amount of oil roughly, roughly 2 trillion barrels available, roughly 1.92, they have it, that they are peaking about now.

If we found another amount of oil equal to all the recoverable oil that we have now, then you would extend the peak only out to this time.

They are projecting here that we may have some unconventional oil. We will talk in a few minutes about this unconventional oil. This is like the tar sands in Canada, the oil shales in our West that we read about in one of these recent articles. This is conjecture about how much we might get from that. It's anybody's guess how much we might get from that.

The next chart repeats some of these data in a way that's maybe a little more understandable. Here is the curve that we have seen several times now, and this is the production of oils going up, and then the recession in the 1970s and the slower growth rate now.

They believe that we will find as much more oil as all the oil that is in the ground and believed to be recoverable for today. If that happens, then they push the peak out to 2016.

The point I am making is that whether you believe that we found most of the oil that we will ultimately find, whether you will believe we will find a whole lot more oil, this exponential growth really eats up that oil very quickly.

After Albert Einstein discovered nuclear energy, he was asked, Dr. Einstein, what will be the next great energy force in the universe? His response was the most powerful force in the universe is the power of compound interest.

Very few people understand compound growth. If you had only 2 percent, that doesn't sound like much, does it, 2 percent a year, $1.02. That doesn't sound like very much growth, not a very good interest rate. But if it grows only 2 percent a year, it doubled in 35 years. It's four times bigger in 70 years. It's eight times bigger in 105 years. It's 16 times bigger in 140 years. That's why Albert Einstein said that the power of compound interest is the most powerful force in the universe.

This little dotted line, just very quickly, if you used enhanced oil recovery and get it out now, you won't have it later. Notice what happens if you work really hard and move the peak over a little bit, you get less and less out very quickly later on.

The next chart, if I had only one chart to show about the energy situation, oil and gasoline and so forth, this would be the chart. This is a really great chart from what's called the oil chart. If you go on your Web site, you can look up the Web site for the oil chart, and you can buy one of these.

This is a little insert in it, has an enormous amount of information, has almost like a textbook and a chart. This shows two things that are of considerable interest. One is when we discovered the oil. You can see here when we discovered it, way back in the 1940s, 1950s, 1960s and 1970s. But look what's happened since about the 1970s on.

On the average, less and less and less every year. Now, that's in spite of the fact that we have ever better and better techniques for discovering where oil is, computer modeling and 3–D seismic and so forth.

The heavy black line here, here, we have seen this several times before. This is the 1970s oil price hike spike in the recession. It's the slower growth now. The slower growth now is this slope and is really nowhere as steep as this slope. We are really much more efficient now than we were then, or we would be in bigger trouble sooner.

Well, since about 1980 here, we have been using more oil than we found, because we have been using this much, and we found only this much. So now we have been eating into these reserves back here. Some of these reserves are gone.

How much more will we find in the future?

Of course, that's anybody's guess, but if you were extrapolating from what we have been finding, I would come out a little less than they say. The shaded area over there is the future. Of course, it's not going to be that smooth, of course, it will be on the up and down. On average, you wouldn't expect it to be a whole lot different than that.

So in the future we are going to be using these reserves, because what we want to use is very much larger than what we will find that year to use, so we will have to be using oil that we found in past years. Now, if you draw a curve over this discovery curve, and we have seen that a couple of times, we will see it in just a moment on the next chart, if you draw a curve over the discovery curve, the area under that curve represents the volume of oil you found. That's obviously true. That's just adding up all of these little bar graphs, isn't it.

Adding up all of these bars, that used to be the volume you found. The area under the consumption curve will be the amount of oil you have consumed. It's very obvious you can't pump oil you haven't found.

So how much oil do you think we will pump in the future?

Well, that depends on how much oil you think we will find in the future, because we know what the current acknowledged reserves are. Now, we may find ways of getting more oil out of the ground. So what we think is a current reserve may end up being a somewhat bigger reserve. By the way, when we have probably gotten all of what we call recoverable oil out of the ground, there will probably be half of what was originally there that we won't get, because the cost of getting it will simply exceed any value that we get from the oil. That's why we are talking about recoverable oil.

The next chart, I just want you to note the big peak here and the smaller one here, because we see this on this discovery chart. This is what we see on the chart. You see the big peak here and the smaller one there. This is the discovery chart. That kind of smoothes out that previous bar graph we have seen.

This is a projection by our Energy Information Agency about how much oil we will find in the future. They believed, when they published this, that what we would find would be along what we call the main. We don't have time this evening to go into a very interesting transition here from fraction to probability, but the actual data points you see are following what they said was a 95 percent probability in statistics. Obviously, 95 percent probable is more probable than 50 percent probable.

But they believed that we would find, in much of their projections, and all of their projections in the future, in our Energy Information Agency are predicated on finding a lot more oil. They thought we would be finding oil along this green curve. That would mean a reversal of what's been going on for 30 years.

The next chart is a statement by one of the giants in this area, Laherrare, and he made a statement saying the USGS estimate implies a five-fold increase in discovery rate and reserve addition for which no evidence is presented. Such an improvement in performance is in fact utterly plausible given the great technological achievements over the past 20 years, the worldwide search and the deliberate effort to find the largest remaining prospects. Now, you may not think that that is improbable, that this is his view.

The next chart is a schematic. Here, this is the same peak that we have been seeing, but here we have spread out the abscissa and compressed the ordinate a little so we have a little flatter curve. I wanted to show you this one, because this shows a 2 percent increase rate in use. That's about what we have been doing, about 2 percent. That doubles in 35 years.

This point is half of that point on the ordinate scale. So that yellow area represents 35 years. What you see there is that the shortages which drives gas to $3 a gallon, and then oil to $75 a barrel, the shortages begin a bit before the peak. Now, everybody is focused on trying to fill that gap.

I think that a more rational thing would be to determine how we can live better on what we have got and hope, and hope that we can provide enough alternative sources to maintain this level of energy production for the future.

Now, the next chart, and, again, this is from the big Hirsch Report, and it says, world oil peaking is going to happen. There is no question. Obviously it's going to happen. The world isn't made out of oil. Obviously, the amount of oil in the Earth is finite, it will not last forever.

The only question is, when will it peak? Oil peaking presents a unique challenge. The world has never faced a problem like this. This is no precedent in the past to prepare us for what will happen with oil. You know, when will it occur?

The next chart references, from A to U, that's most of our alphabet, a lot of different experts in the area, some of them really aren't very definitive when they think it will occur. This source believes, J, believes it could occur as early as, what, about 2013 or could occur beyond 2100, very indecisive when it might occur.

But notice that most of these have fairly narrower ranges, and almost all of them believe that it will or could occur fairly soon. Look how many of them believe that peaking will occur before 2020. That's just around the corner, this is 2007, right? Thirteen years from now most of them believe that peaking will have occurred 13 years from now.

The next chart points out something for which we ought to be very thankful. I have referred to it several times this evening, that is how efficient we have become. This lavender-shaped area there represents the amount of energy we haven't had to use because we have increased our efficiency. That's really good. I think a little later we will have a chart or two that shows us something about that efficiency.

The next chart, and I wish it was in living color so it was a little more sexy, but its message is really an interesting message.

On the ordinate here we have how satisfied you are with life, how good do you feel about what's happening in your world?

On the abscissa here we have how much energy you use. Well, guess where we are? I think most Americans feel pretty good about their lives, and we use more energy than anybody else in the world. So look way over there on the right. Here we are, way up here on the right.

But notice if you draw a line at our level of satisfaction, there are 20-some countries that use less energy than we who are happier with their station in life than we are. So you don't have to use as much energy as we use to be happy with your station in life.

It's interesting here that if you have very little energy, it's hard to be happy about life. Look at these poor folk here, Bulgaria, Romania, Lithuania, Georgia, these are some of the poorer states of the former Soviet Union. But as soon as you get up to about, what, a fourth of the energy we use? People start feeling pretty good about their station in life, which really points out that we can use less energy and still feel pretty good.

The next chart is an interesting one. I understand that today it may be even been better than that, because this is 2000 and they were just starting that improvement.

□ 1945

The average citizen in California, I am told, today uses only half as much electricity as the average person in the rest of the country. That would be really hard to argue they don't live as well in California as we live here, and they are using half as much electricity. This shows about 65 percent and this was 7 years ago, and I am told today it is 50 percent. They are doing that because they have very stringent regulations for efficiency.

The next chart is a really interesting one, just one little example of efficiency. Several months ago there was a picture on the front of Time magazine that showed a little screw-in fluorescent bulb and a big pile of coal, it was 500 pounds of coal. And what they said was that if you use that little screw-in bulb compared to the incandescent, you will save 500 pounds of coal for the electricity it would have taken to make the same amount of light from the incandescent bulb.

Here is our incandescent bulb. It is not a very good light source; it is a really good heater. When I am incubating little chickens, I use an electric light bulb because 90 percent of all the energy that comes out of the bulb is heat. Just try to take one out just after you have turned it off; it is really hot. Well, if you use fluorescent, you know that is much cooler. And this is the same amount of light. This is the light and the dark blue is the heat.

Now, the really efficient one is the light-emitting diode. Months ago I, got a little light-emitting diode flashlight. I haven't changed the battery yet. You will forget when you put the battery in, because almost all of the energy from the light-emitting diode goes into light. Very little of it goes into heat.

The next chart introduces us to the subject that I wanted to spend most of my time on this evening, and obviously we won't be able to do that because most of it doesn't remain, but at least I want to start talking about this and next time promise to spend most of the time talking about what we have a right to expect from the alternatives.

I hope we have made the point that, in all probability, there will be peaking of oil, and there is a huge challenge. And we are starting to do that. We were talking about hydrogen, we were talking about corn ethanol, we were talking about and still are talking about soy diesel and switch grass and cellulosic ethanol and we are talking about a lot of things that we might use to replace the fossil fuels that we are now using.

By the way, I might note that there are three major groups that have common cause in wanting to do the same thing; that is, use less fossil fuels and depend more on sustainable alternatives. One of those groups is the national security people who are really concerned, and I am concerned. We use 25 percent of the world's oil, we have only 2 percent of the world's oil and import almost two-thirds of what we use. That really is a prescription for disaster. And so what you need to do to fix that problem is to use less oil and more of something else. So they want to move off of that.

Then there are the people who believe, and I also think they are probably more right than wrong. By the way, even if I thought they were wrong, I would want to lock arms with them because what they want to do is exactly what I want to do for the other two reasons, and these are the people who believe that our large use of fossil fuels releasing this carbon that has been sequestered now for a very long time, releasing it very quickly is producing global warming and climate change, and what they want to do is use less fossil fuels and more of something else; and I believe that that may be true. And whether it is true or not, I say I am going to lock arms with them. And, thank you, Al Gore, for leading this charge. I want to lock arms with them because what they want to do to solve that problem, even if it doesn't turn out to be a problem, is exactly the thing we need to do to solve the national security dilemma and to solve the dilemma of peak oil, because we have got to find something to replace these fossil fuels because obviously they cannot last forever.

What will we replace them with? In the transition period we have some finite resources that we can turn to. We can turn to the tar sands of Canada, the oil shales of our West, our coal, or we can use nuclear. Let me spend just a few moments talking about each of these.

We are now getting 1 million barrels a day from the tar sands of Canada. There is potentially at least 1½ trillion barrels of oil there. How much is recoverable? Who knows, because we don't know the techniques that will be developed when it can no longer be mined the way it is now. Now they have a shovel that picks up 100 tons, it is dropped in a truck that hauls 400 tons, and then they take it and cook it with natural gas which will soon run out, and they are talking about building a nuclear power plant there. They use lots of water, and they have a huge tailing pond they call it; it is really a lake full of nasty chemicals. And what they are doing there they know is not sustainable and they are producing 1 million barrels a day. It sounds like a lot, doesn't it? But it is just a little more than 1 percent of the world's oil.

We have at least as much potential oil in our oil shales, but nobody yet has developed the technology which is economically justified in producing it even when oil is $75 a barrel. We will get some energies from both of those, and ultimately we will get a lot of energy from both of those, I think, because oil will go up and up in price, which will make it more and more attractive to get energy there. But no one that I talk to believes that we can develop that fast enough and in large enough quantities to meet the demand produced by the tailing off of the production of conventional oil.

We will come to coal in a few moments. Let me just note briefly nuclear. There is fission and fusion. The only future scenario that gets us home free is fusion. And if you think we are going to solve our energy problems with fusion, you probably think you are going to solve your personal economic problems by winning the lottery, because I think the odds may be about the same. That doesn't keep me from enthusiastically supporting the $250 million a year roughly that we spend on fusion research. That is like a controlled hydrogen bomb, is what the sun is doing, because if we get there, we are really home free.

We now use fission. France produces about 75 percent of their electricity with fission. But the light water reaction uses fissionable uranium, of which there is a finite supply in the world, but we can go to breeder reactors not now used for energy, have been used; we used them for producing nuclear weapons. You can produce energy with them. They create some problems, and it is a trade-off. Is solving other problems worth the energy you get from it? But we need to be taking a new look at fission. I note some very bright people have been opposed to nuclear in the past, but when they are contemplating a future where they may be without nuclear shivering in the dark, nuclear is not looking all that bad today.

I am going to put this down to the side here because I want to put it back up, and we are going to look at the next chart here. And this is looking at worldwide proven oil reserves. This is to help us have some sense as to how much confidence we ought to have that we are going to be getting the oil from the reserves that are out there. Even though they are there, they may not be available to us.

This is the worldwide proven oil reserves by political risk, and this is the number of barrels. You notice they add up to a bit more than 1 billion barrels. This is the number of barrels that are in areas of various risk. Only about one-third of the barrels of oil are in countries that have low political risk; the biggest chunk is in countries with high political risk, and roughly another one-third in countries with medium political risk. So most of the world's oils in these two categories where there is either medium or high political risk. These are called aboveground problems. There are underground problems: Can you drill deep enough? Can you get it? Will it flow? Do you have to put seawater in? Do you have to pump live steam down there?

The next chart shows another look at this, and this is worldwide proven oil reserves by investment risk. Now, obviously if there is high political risk, there is probably high investment risk. I don't know too many people that are interested to invest in oil production in Iran today, would you think? Well, it says here that the biggest chunk of these countries have high investment risk. So it is not easy to get money to invest there to develop the oil. And the medium. And then the no foreign investment allowed in this sector. The low is here. So for most of it, for much of it this pie chart there is either high risk for investment, medium risk for investment, or they won't let you invest. So national oil, you can't invest at all. So who knows what will happen there because they have total control.

Let me put this chart back up for just a moment, and introduce us to what ultimately when we have lived another 150 years and are through the age of oil, we will then have sustainable renewable sources. Whether we like it or not, whether we plan for it or not, that is what we will have. And this is not an exhaustive list but a reasonable list of these renewable resources: solar and wind and geothermal and ocean energies and agricultural resources, soy diesel, ethanol, corn ethanol, methanol from wood, biomass, cellulosic ethanol, waste energy, hydrogen from renewables.

Just a word or two about a couple things here and then we will put the next chart up. Hydrogen from renewables. You are not hearing much talk about hydrogen today, and the reason for that is people have finally figured out hydrogen is not an energy source. Hydrogen is produced from another energy source, and it will always have less energy than the energy it took to produce it. So why are we talking about hydrogen? For two reasons. One is, when you finally burn it, it produces water. That is pretty clean; it is great. And the second is it is a great candidate for a fuel cell if we ever get a fuel cell that is economically supportable. But they are probably 20 years away before we get there. The waste energy, really a good idea. We ought to be using more of that.

Let's put the next chart up. Let's look at this whole chart.

Eighty-five percent of all of our energy comes from fossil fuels, only 15 percent from renewables, and most of that from nuclear, a bit more than half from nuclear. The 7 percent, which is true renewables and that is broken down this way: conventional hydro, we probably won't get more of that; we have dammed up about all the big rivers we can.

I will promise that when we come back again to talk about this that we kind of start here so that I can spend some time on realistic expectations for what we can get out of these alternatives.

We are the most creative, innovative society in the world. There is no exhilaration like the exhilaration of meeting and overcoming a big challenge. We have a huge challenge in preparing for this energy future. With proper leadership, I think the United States can really, really become a world leader in this, and Americans will feel better and better about who we are and what we are doing because we are leading these developments.

SPECIAL ORDERS GRANTED

By unanimous consent, permission to address the House, following the legislative program and any special orders heretofore entered, was granted to:

(The following Members (at the request of Ms. WOOLSEY) to revise and extend their remarks and include extraneous material:)

Mr. SARBANES, for 5 minutes, today.

Ms. DELAURO, for 5 minutes, today.

Ms. WOOLSEY, for 5 minutes, today.

Mr. DEFAZIO, for 5 minutes, today.

Mrs. MCCARTHY of New York, for 5 minutes, today.

Ms. KAPTUR, for 5 minutes, today.

Mr. SCHIFF, for 5 minutes, today.

Mr. ALLEN, for 5 minutes, today.

(The following Members (at the request of Mr. BARTLETT of Maryland) to revise and extend their remarks and include extraneous material:)

Mr. POE, for 5 minutes, today and July 24, 25, and 26.

Mr. JONES of North Carolina, for 5 minutes, July 24, 25, and 26.

Mr. BILIRAKIS, for 5 minutes, today.

BILL PRESENTED TO THE PRESIDENT

Lorraine C. Miller, Clerk of the House reports that on July 18, 2007, she presented to the President of the United States, for his approval, the following bill.

H.R. 556. To ensure national security while promoting foreign investment and the creation and maintenance of jobs, to reform the process by which such investments are examined for any effect they may have on national security, to establish the Committee on Foreign Investment in the United States, and for other purposes.

ADJOURNMENT

Mr. BARTLETT of Maryland. Mr. Speaker, I move that the House do now adjourn.

The motion was agreed to; accordingly (at 7 o'clock and 59 minutes p.m.), under its previous order, the House adjourned until Monday, July 23, 2007, at 10:30 a.m., for morning-hour debate.

EXECUTIVE COMMUNICATIONS, ETC.

Under clause 8 of rule XII, executive communications were taken from the Speaker's table and referred as follows:

2588. A letter from the Congressional Review Coordinator, Department of Agriculture, transmitting the Department's final rule — Pine Shoot Beetle; Additions to Quarantined Areas [Docket No. APHIS-2006-0169] received June 21, 2007, pursuant to 5 U.S.C. 801(a)(1)(A); to the Committee on Agriculture.

2589. A letter from the Congressional Review Coordinator, Department of Agriculture, transmitting the Department's final rule — Black Stem Rust; Addition of Rust-