Congressman Roscoe Bartlett
Special Order Speech - Text only
OUR DEPENDENCE ON FOREIGN OIL
House of Representatives
April 20, 2005

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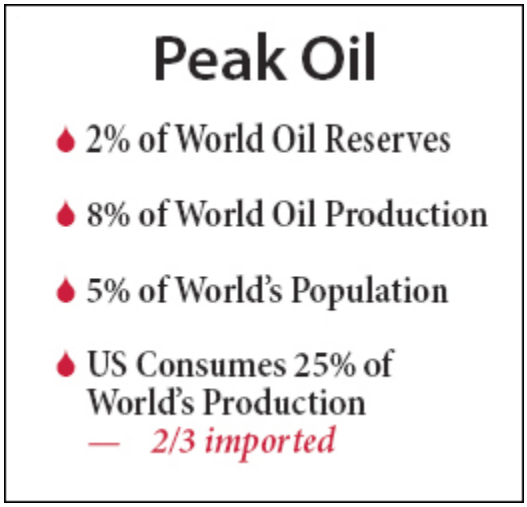
The SPEAKER pro tempore (Ms. *Foxx*). Under the Speaker's announced policy of January 4, 2005, the gentleman from Maryland (Mr. *Bartlett*) is recognized for half the time until midnight.

Mr. BARTLETT of Maryland. Madam Speaker, on March 28 of this year, 30 of the prominent leading individuals in our country wrote a letter to the President about what they considered a very critical national security issue. The letter was signed by Robert McFarlane, James Woolsey, Frank Gaffney, Boyden Gray, Timothy Wirth, and 30 other people, including 12 retired generals and admirals, five Secretaries of Defense Departments, and several retired Senators and Representatives.

[President's Letter]

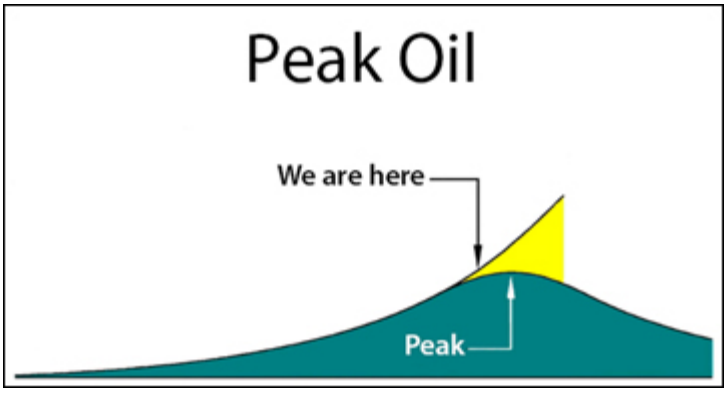
[Time: 23:40]

To understand their concern, we need to go back about 6 decades to a sequence of events that brought us to a situation that very much concerned them.

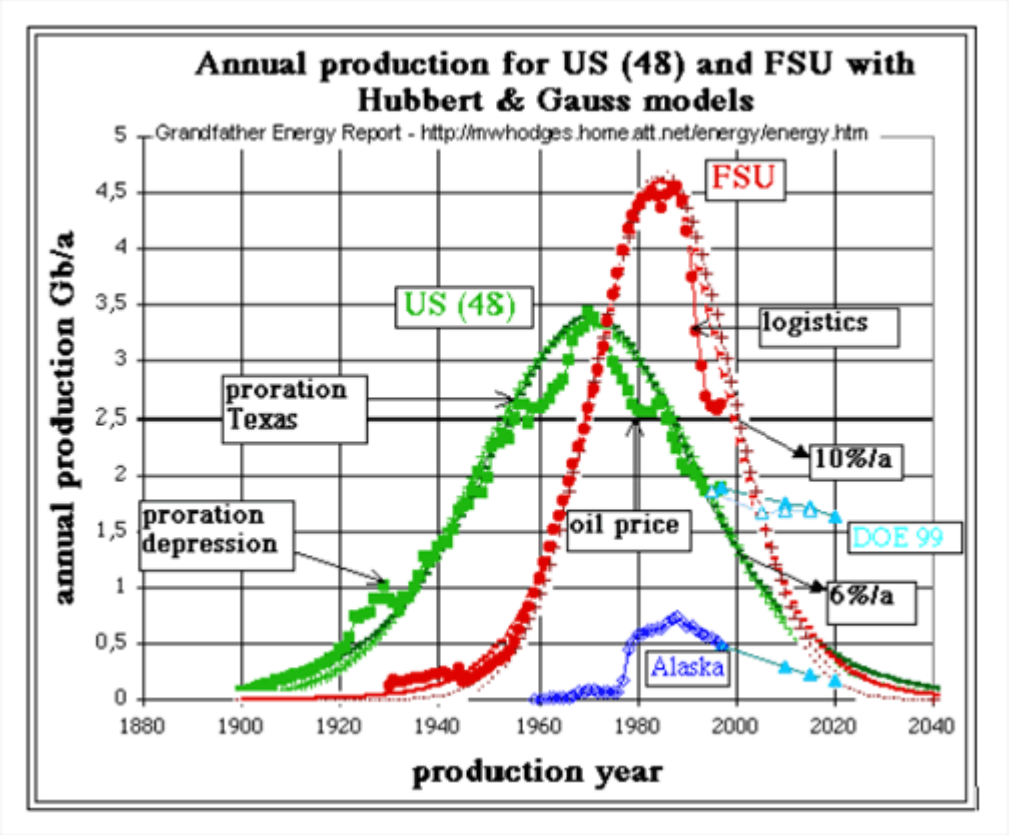


We have only 2 percent of the world's oil reserves, we use 25 percent of all of the oil used in the world, and we import two-thirds of that. We have less than 5 percent of the world's population.

How did we get here? The next chart shows us that,



and this goes back the 6 decades that I mentioned to a Shell oil scientist by the name of M. King Hubbert who, in the 1940s and 1950s watched the exploration, the pumping, and the exhaustion of oil fields, and he noted that each of the fields followed a bell curve. It rose to a maximum, and then it fell off as they pumped out the remaining oil . He noticed that at the peak of that curve, that about half of the oil had been consumed from the average field. It is logical that the second half of the oil would be harder to get and take more time, and it would not flow as quickly. He theorized that if you added up all of the individual fields in the country, you could predict when that country would peak in its oil production. And in 1956, he made a projection for the United States. Fourteen years later, which was when he said it would occur, the United States peaked in its oil production.



This curve here in green, the smooth, green curve was his prediction. The little more ragged curve, the points that do not fall quite on the curve were the actual data points which we see fell remarkably close to his prediction. We are now well down that curve. We are now producing less than half of the oil that we produced in 1970.

The red curve there, by the way, is the curve for Russia. There is going to be a second peak there, because after the Soviet Union fell, they kind of got their act together and they are going to have a second peak , but not so high, and so their real peak was when it is shown there.

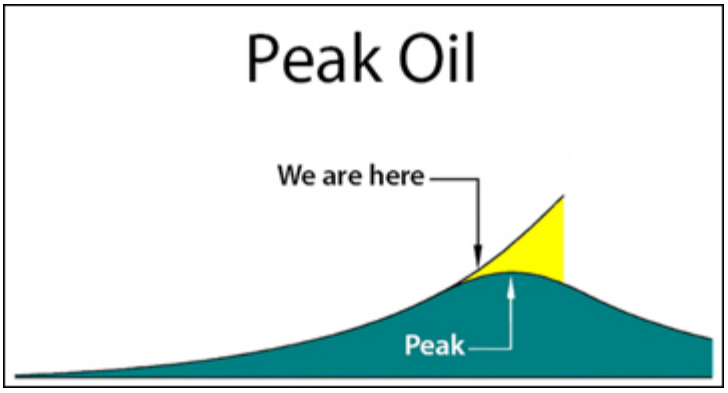
The next chart shows us the elements of the oil in this country, where we got it from.

- Potential Alternative Solutions
  - Finite Resources:
    - Tar Sands
    - Oil Shale
    - Coal
    - Nuclear Fission
    - Nuclear Fusion
  - Renewable Resources:
    - Solar
    - Wind
    - Geothermal
    - Ocean Energy
    - Agricultural Resources:
      - Soy/Biodiesel
      - Ethanol
      - Methanol
      - Biomass
    - Waste to Energy
    - Hydrogen from Renewables

We see a whole bunch of it came from Texas, and then the rest of the United States, and then NGL gas liquids, the red above, and we see what is called Alaska there. That is all the oil that we got from Prudhoe Bay, the north slope, a lot of oil . But it really did not make a very big difference. You see, we are still sliding down that slope and there is just a little blip produced by Prudhoe Bay, and then we slide down the slope.

Mr. Speaker, we remember a couple of years ago, the Gulf of Mexico oil , and that oil was going to solve our oil problem. That oil is represented by that yellow there. Not a whole lot, and it did not stop our slide down Hubbert's peak . The amount of oil that may be present in ANWR is predicted to be, who knows; it may be very little, it may be a whole lot, but the prediction is about half of what was in Prudhoe Bay. So you may agree or disagree that we should drill in ANWR, but it really does not matter because there is not enough oil in ANWR to really make a difference.

The next chart we have shows a very simple curve, the problem that we face

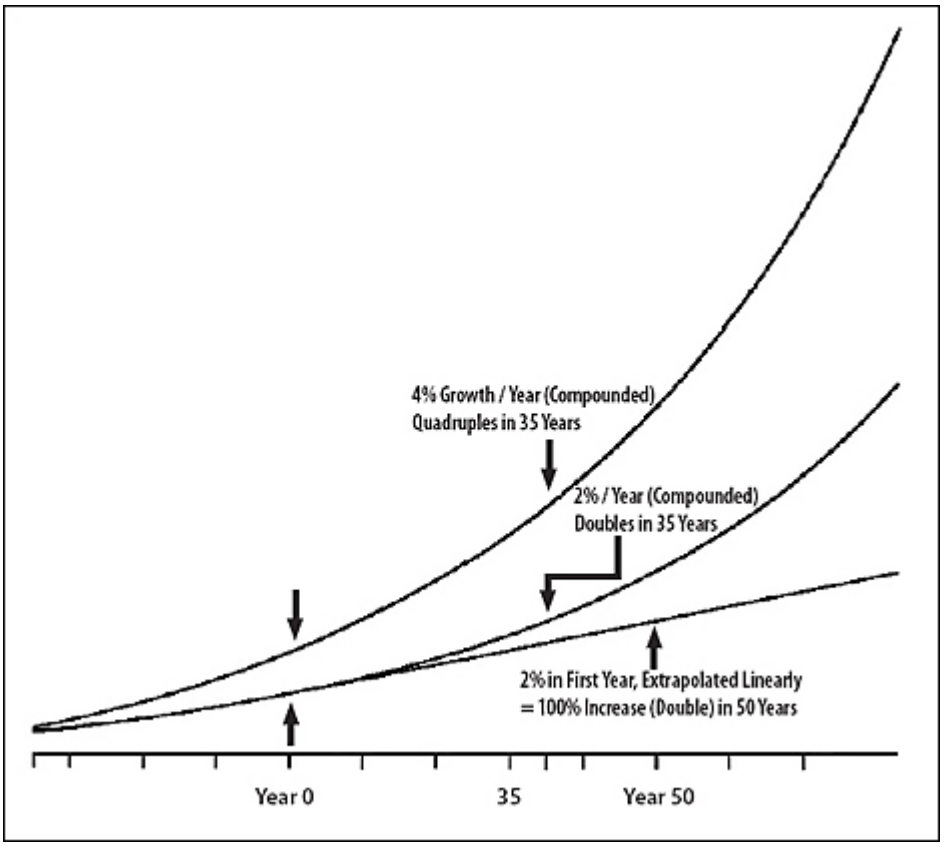


If, in fact, we have reached peak oil , and I spoke here on the Floor a bit more than 5 weeks ago for an hour on this subject and we have had a lot of people come through our offices and a lot of phone calls and e-mails from all around the world, and I will tell my colleagues that there is nobody who does not believe that we are either at peak oil or will shortly be at peak oil . As this chart shows, you do not have to be at peak oil to have a problem. If peak oil occurs here, and we are here, you see that there is a bit of yellow between our use curve and by the way, this use curve is only a 2 percent growth. Now, we think that if our economy is not growing 2 percent, that the sky may fall, the stock market reacts very badly, and this is only a 2 percent growth curve. Look what happens with this 2 percent curve, with that yellow there, that is what we would like to use at only 2 percent growth, and the blue line there shows us the oil that will be available. Now, we cannot use oil that is not there. So that is going to be all the oil that we have available to use if, in fact, this is correct.

Now, I would point out 2 things. One is that M. King Hubbert was right about the United States. Using exactly the same prediction techniques, he predicted that the world would peak in about 2000. It did not quite, because he could not have known about the Arab oil embargo or the big price spike hikes or the world recession that resulted from that net delay that is probably occurring about now. But we have a problem of a shortfall before we actually get to peak , and that is probably where we are now.

Let me just spend a moment on this chart, because I want to point out some realities here. This is the amount of oil that we would like to use, following up this just 2 percent slope. And the amount of oil we will have to use is represented by the blue curve here. But we cannot use all of that oil for the present purposes for which we use oil , because if we do, there will be no oil left over to make the investments we have to make in the alternatives and the renewables that ultimately must take the place of oil , because you see, we are shortly going to be sliding down Hubbert's peak .

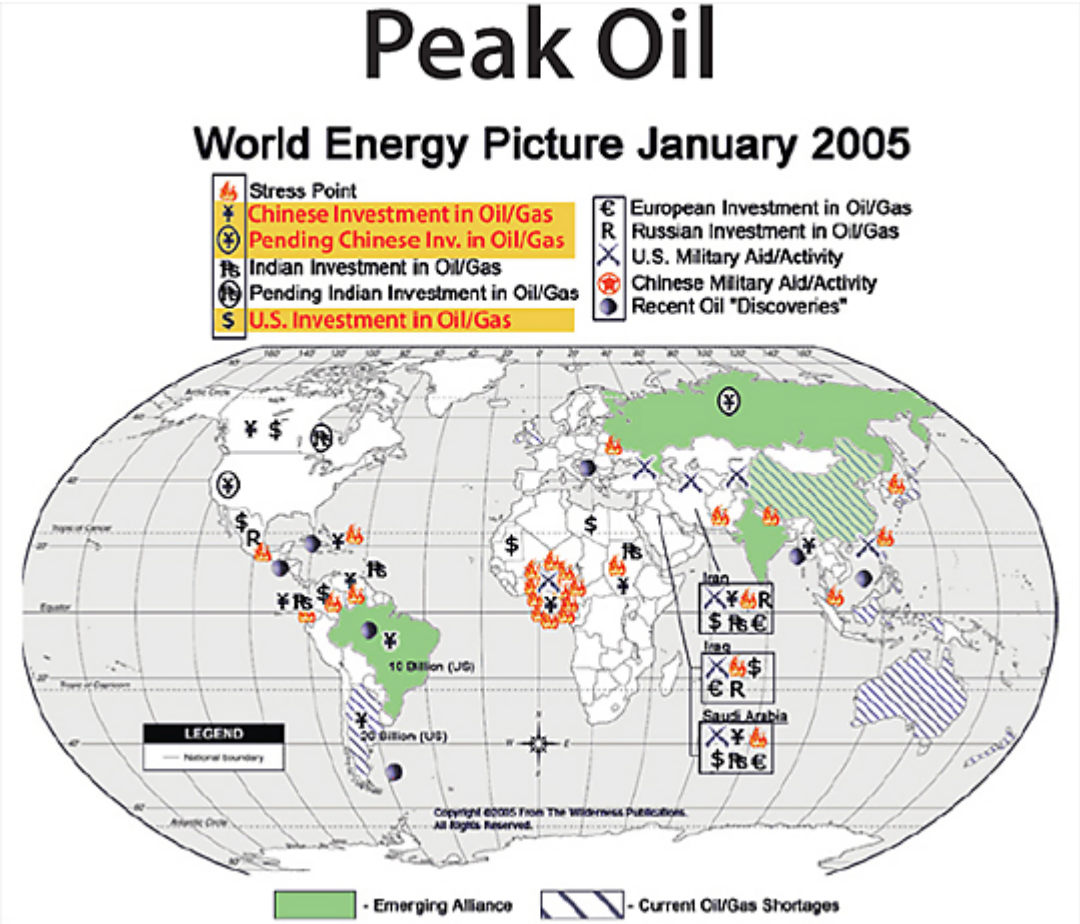
The next chart shows us the slopes of these peaks when you have more than a 2 percent growth.



This is the 2 percent growth line, if you chart out with 2 percent growth and then extrapolate that as a straight line, but that is not what growth is. Growth is always exponential. It is like compounding interest, and people understand compound interest, and I am not sure why they do not understand exponential growth, but 2 percent growth follows this curve, it does not follow this straight line curve. The next curve above it is only 4 percent growth. I would note that last year, the world economies grew by 5 percent on average. Now, we did not do quite that well, but China did a whole lot better. China grew at 10 percent. I was kind of playing around with this chart and I think the 10 percent curve goes about here.

Mr. Speaker, with a 10 percent growth curve, every 7 years, it doubles. That means in 14 years, it is 4 times bigger, and in 21 years, it is 8 times bigger. As a matter of fact, one of the biggest forces in this world is the force of exponential growth, and it is very difficult for a lot of people to understand. Albert Einstein was asked, Dr. Einstein, you have been instrumental in developing nuclear energy. It is really very powerful; from a little tiny bit of this, you get a great big explosion. What will be the next big energy source? And his response was the most powerful force in the universe is the power of compound interest, which is an exponential growth curve.

The next chart shows a reality here that we really need to pay attention to, and this was the reason, this was the reason for the letter that these gentlemen wrote.

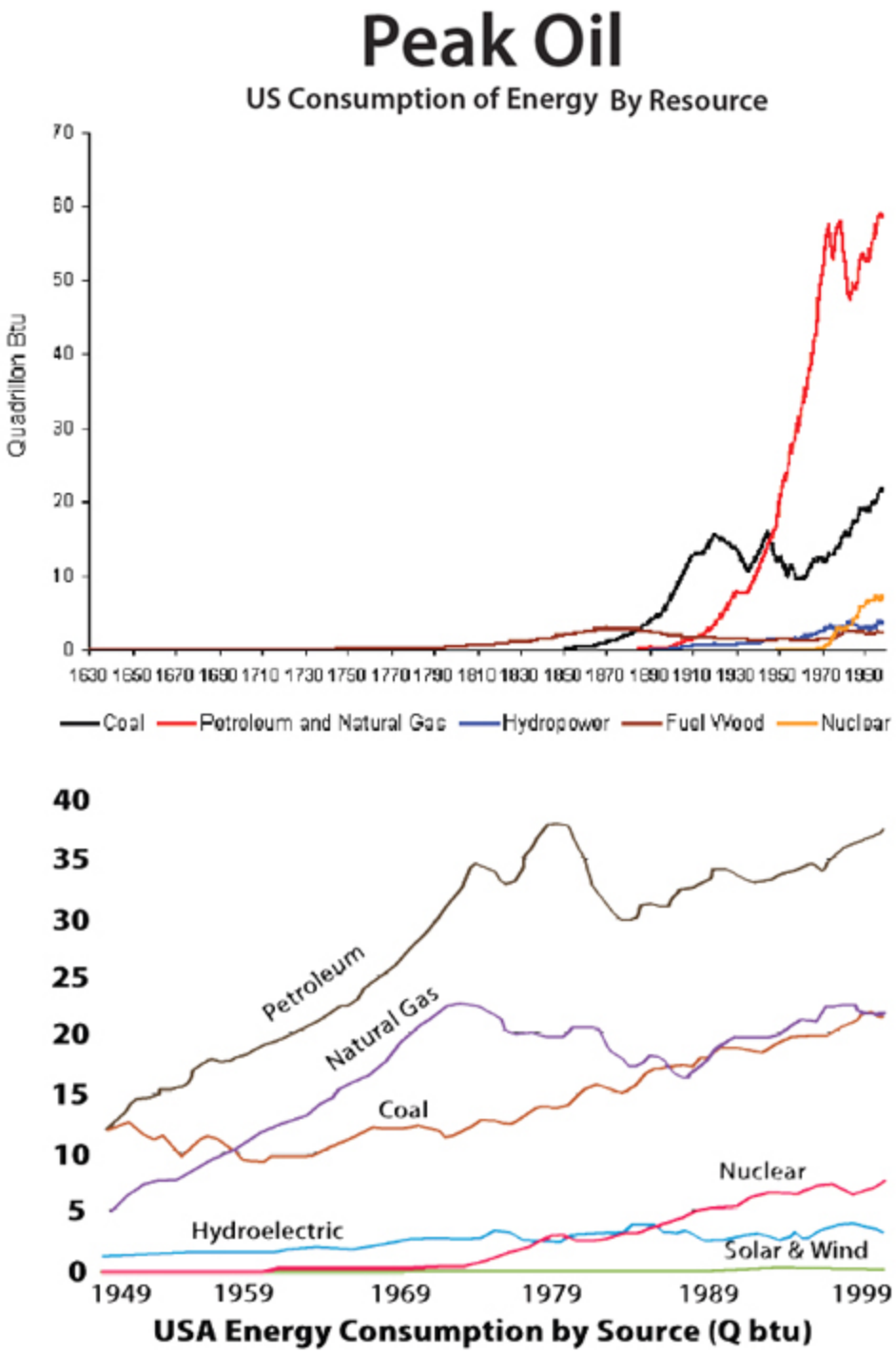


It was in the letter that they said, the United States' dependence on imported petroleum poses a risk to our homeland security and economic well-being. If we have only 2 percent of the known reserves, and we use 25 percent of the world's oil , and we import more than two-thirds of it, and as the President said himself, much of that oil , he said, we rely upon energy sources from countries that do not particularly like us. Yes, Mr. President, that is true. Most of the reserves of oil are in the Middle East, and many of those countries go a bit further than just "do not particularly like us."

What we have here on the easel is a view of the world which shows what China has been doing. China has been scouring the world, looking for oil . And all of the blue, here is where China has been: In the Orient, in the Middle East, several places in the Middle East, in our backyard. They have contracts in Canada, they have contracts in Colombia, they have contracts in Venezuela, they have contracts in Brazil, they have contracts in Argentina, and they almost bought an oil company in our country [Unocal]; they were just outbid a little. They will be back again trying to secure an oil company in our country.

China now is the second largest importer in the world. Last year, they increased their demand for oil by 25 percent. Now, that will not go on year after year, because last year, they shut down a lot of coal-fired power plants because the pollution was killing them, so they bought a whole bunch of diesel generators; I suspect that the pollution might be almost as much from them, but they are more widely distributed, which is one of the reasons they used so much oil last year.

The next chart shows us something very interesting about energy and the effect that it has had on civilization and on growth of economies.



On this chart, and I am sorry that most of it is blank, but that is just the reality of what has happened through history. We started out the industrial revolution relying on wood, and here it is, the brown curve here. We were burning wood. As a matter of fact, the industrial revolution almost floundered before we discovered that we could get energy from coal, because we had largely denuded New England in sending the trees to England to produce charcoal to produce coal. There is a little relic of bygone years up by Thurmont, Maryland, and they denuded the hills of Thurmont, Maryland for a tiny foundry there in Catoctin, up near Thurmont, and then we discovered coal. And notice, there is a big jump. This is quadrillion Btus.

The SPEAKER pro tempore (Ms. *Foxx*). The gentleman from Maryland (Mr. *Bartlett*) is recognized for 10 more minutes.

[Time: 23:50]

We were going along with the coal economy, they are about leveled out, and we discovered that we could get even more energy from oil . And look what happened in the age of oil: way up. This chart points out something very interesting and very important about these fuels.

Every time we went to a new fuel, we went to a higher density fuel, higher energy density fuel. The energy density in oil is just incredible. One 42-gallon barrel of oil , which if you bought it for $50-some and refined it, maybe another $40-some, it would cost you $100 for the refined products of that barrel of oil .

But the energy you get from that is the equivalent of 25,000 man-hours of labor. That would be 12 people who did nothing but work for you all year long. Everything they did was for you, and the energy they would expend in that full year is the energy equivalent of one barrel of oil .

Now, you may have a little trouble understanding that, but let me give you a little anecdote that may be simpler to understand. A couple of weeks ago we took my brother-in-law and his wife down to West Virginia. And we have a little Prius car, we get 45 miles per gallon, not that time because it was very heavily loaded and we were going up mountains. And the worst mileage we got was 20 miles per gallon in this Prius hybrid electric, hybrid car, carrying this big load up this steep mountain in West Virginia.

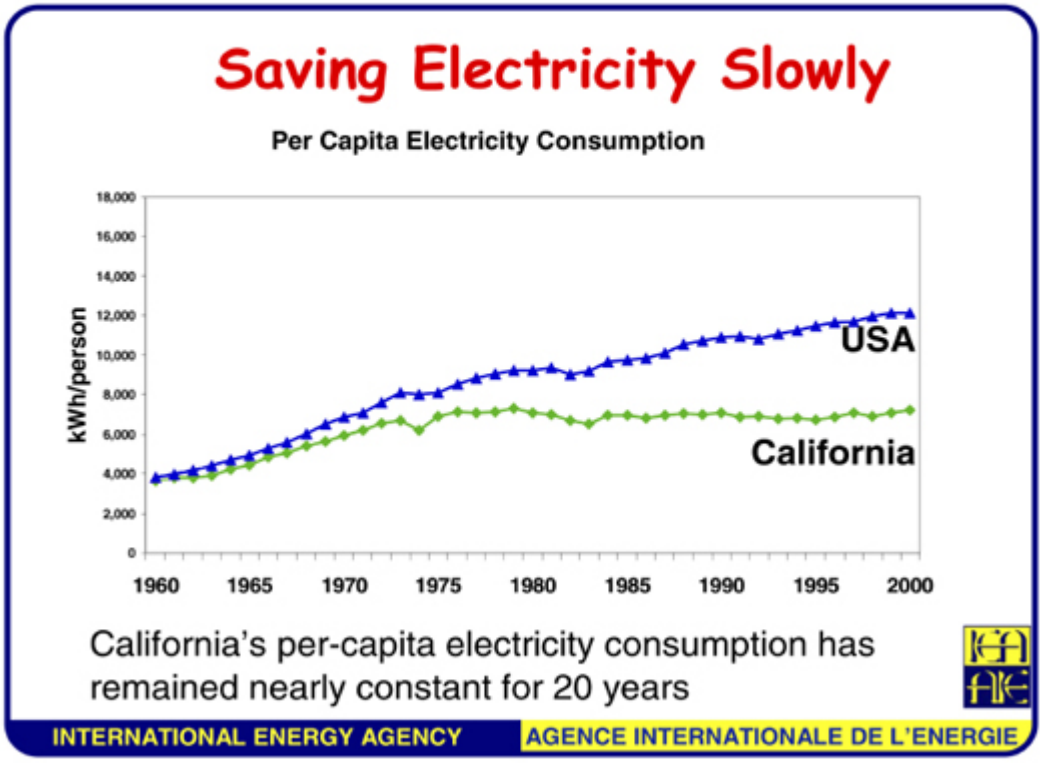
That was 1 gallon of gasoline. Still cheaper, by the way, than water in the grocery store. But look at the energy in that 1 gallon of gasoline. It took this car, heavily laden, 20 miles up a steep mountain in West Virginia. Now, how long do you think, Madam Speaker, that it would take you or me to pull that car up the mountain?

Obviously, we cannot pull it, but we can use a little mechanical advantage and get it up there. It is a winch called a come-along and there is a guardrail and there are trees and you can use a chain, and you could get the car 20 miles up the mountain. Do you think you can do it in 90 days? If you did it in 90 days that would be just about the equivalent. By the way, that would be a tough pull. That is a long distance per day to go 20 miles in 90 days pulling your car up the mountain.

That is the kind of energy density that is there. So the big challenge we have is finding alternatives that have something near the energy density of oil , because there is an enormous amount of energy density there.

The next chart I want to show you is a very interesting one, because one of things that we have got to do very quickly is to conserve the use of oil .

Peak Oil



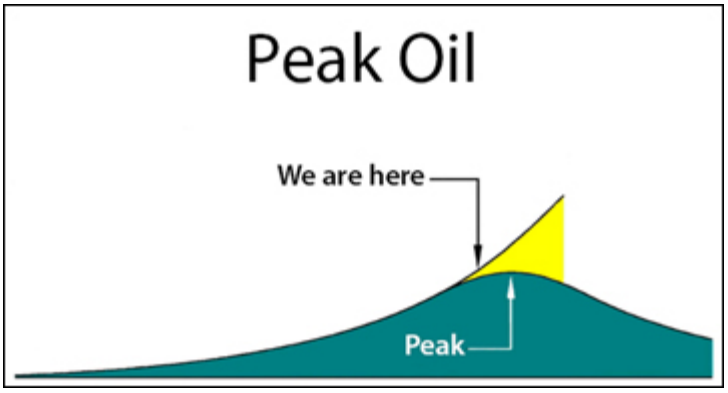
We have got to buy time through efficiency and conservation. This is a very interesting chart. This shows the energy use for people in California and the energy used per person in the United States.

And notice that the people in California are only using about 60 percent of the energy that is used by the average person in the rest of the United States. Now, nobody told them that they had to do that. I know that they have some regulations that are a little more stringent than some in other States because they have some bigger problems with pollution.

But you remember several years ago they had some blackouts there and it was predicted that they were going to have rolling blackouts year after year there. They did not have any. That is because voluntarily the Californians, without anybody telling them they had to do it, reduced their consumption of electricity by 11 percent. It was enough that they did not have any rolling blackouts.

I will tell you, it is going to be awfully hard to argue that people in California do not live as well as the people in the rest of the United States. And they are doing it on just a bit more than half of the energy that the average person in the rest of the United States uses. So this is really doable, friends. We can conserve. We can reduce our use of oil . And we must do that, because, as the next chart shows, we have got to ultimately move to some other sources of energy.

Oil is not going to run out.



But the age of cheap oil is probably over, and we are going to be sliding down Hubbard's Peak ; there is going to be less and less oil . No matter how hard you suck on that, you cannot get more out if it is not there.

This shows the alternatives that are available to us.

- Potential Alternative Solutions
  - Finite Resources:
    - Tar Sands
    - Oil Shale
    - Coal
    - Nuclear Fission
    - Nuclear Fusion
  - Renewable Resources:
    - Solar
    - Wind
    - Geothermal
    - Ocean Energy
    - Agricultural Resources:
      - Soy/Biodiesel
      - Ethanol
      - Methanol
      - Biomass
    - Waste to Energy
    - Hydrogen from Renewables

Some of those are finite resources. Some of them are pretty big, by the way. It may be difficult to get it, but the tar sands of Canada, I am going up there in a month or so to look at that, Canadians called after they heard our speech 5 weeks ago, please come up and visit us and look at our tar sands. We have a lot of oil shale in our country. At $50, $60, $70 a barrel, that is probably going to be competitive, and we can get some oil from the tar sands and the oil shale.

Now we have coal, and I should have brought a chart, next time we will bring a chart on coal. Because what it shows is that when we really start using coal to make up for the oil we are not going to have, there is only about 50 years of it there, at just a 2 percent growth rate, now the world grew 5 percent last year. China is growing 10 percent. We sure as heck would like to grow more than 2 percent, but at just a 2 percent growth, that coal lasts only about 50 years.

They will tell you there is a 250-year supply now. That is at current-use rates. But if we have to start using it faster; it is not going to last anywhere near as long. Then we come to nuclear. There are three kinds of nuclear. We need to explore all of them. I had in my office today a gentleman who really believes that we are going to get to fusion. Now, it is not tomorrow, it is not the day after tomorrow, as a matter of fact it is maybe 30 years from now; but he believes we will get there.

Fusion is the kind of energy you have from the sun. It is the kind of energy that you have in a nuclear weapon. If we can really get there, we are kind of home free. But I will tell you, I think the odds of our solving our energy problems, at least for the immediate future through fusion, is about the same as you and me, Madam Speaker, solving our personal economic problems by winning the lottery. It would be nice if it happened, but the odds are not very good that we are going to solve our personal economic problems that way.

There are two other kinds of nuclear power. One is the light water reactor. That is what we use in our country. And we need to have more of them. We produce now about 20 percent of our electricity through nuclear. Some of those who have been violently opposed to nuclear, looking at the peak oil problem, are now reevaluating whether we should go to nuclear or not.

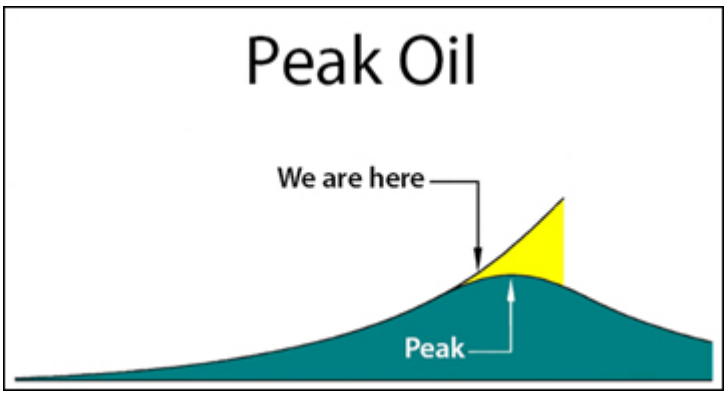
But there is not fissionable uranium in the world. So then you have got to go to breeder reactors, and they have lots of byproducts that you have to squirrel away somewhere for a quarter of a million years. So we face some real challenges that we have to think through about what we are going to do with nuclear.

Than we look at all of the renewables, solar and wind and geothermal, if you are close enough to the molten core of the Earth. Ocean energy. Boy, the moons raise the ocean about 2 feet on average. But it is awfully disbursed out there. That takes a lot of energy to raise the oceans 2 feet. It is going to be hard to harness that. But we are trying and we need to try further.

And then enormous opportunity in agriculture. And several previous speakers spoke to that, about agriculture: soy diesel, biodiesel, ethanol, methanol, bio mass. And our agriculture really has an opportunity to contribute here.

And then waste to energy. We have a lot of waste that ends up in the landfill. Some places are burning it. More people ought to be burning it. Then hydrogen from renewables. By the way, hydrogen is not an energy source. Hydrogen is simply a convenient way of moving energy around. You burn it very cleanly. It produces only water. You can use it in a fuel cell and get twice the efficiency in a reciprocating engine.

I would just like to close by going back to one of the charts I had before.



The real challenge now is to use conservation and efficiency to reduce our demands for oil so that we have enough oil left to make the investments in these alternatives and renewables so that we can take the place of the oil that we are not going to have because we are sliding down Hubbard's Peak.

Now, we have very clever people in our country. We are really innovative, we are really creative, and what we need is leadership, Madam Speaker, to make this happen.