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Rep. Bartlett's 2005 energy conference - transcript (part 3)

by Staff

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REP. BARTLETT: There is a poem by Edgar Guest saying I'd rather see a sermon than hear one any day, and our next speaker must have read that book because he really practices what he preaches. John Howe is an engineer and author. He was an engineer with General Electric and Head Ski Company and division of AMF Corporation before heading his own company, Howe Engineering and Howe Winter Sports, Inc. He has written two books of note, "The End of Fossil Fuel Energy and a Plan for Sustainability," and an updated version, "The End of Fossil Energy and the Last Chance for Sustainability." Mr. Howe.

JOHN HOWE: Thank you. One thing about being the last performer in a gig is you throw away your set list and wing it. But anyway, I'm the maverick here. I don't come from a corporation or a company. My wife and I are funding this effort on our own nickel, and because we've become so concerned with fossil energy. It's just like a terminal illness. First there's the denial, then the depression, then you say, well, what shall we do. Well, we'll try to do something. We'll try to be pro-active.

We tried to research, look for all the answers, find out what's going on, and believe me, the answers and even the questions are not something that can be covered in a half hour or an hour or one session. It takes a semester course.

I thought that maybe the answer would be to write a book and try to digest all that's happening, all the aspects of the subject into at least one understandable form. And my first book was called "The End of Fossil Energy and a Plan for Sustainability." Fortunately my daughter is a publisher. She was able to put this together. We're doing this on our own nickel, on Social Security, whatever, and because by self-publishing and printing a book we can get it out in a hurry.

The first book, 3,000 copies, went out like that. We gave them away - we give most of our books away. I'm going to talk about the book a little bit more. In the last couple of years since I started the first book in February 2003 things have changed so drastically. Things are moving so rapidly, and so many new books and people have come out, speaking about fossil energy. They talk about oil. Peak oil is the buzzword now, what's the price of gas. But you've got to go further. You've got to peel away the layers of the onion. It's not just oil. It's natural gas. It's coal. That's 86 percent of our energy. What's the rest of our energy? Where's it coming from? Where's it going? How good is it?

So like I say, I'm going to give you some different approaches, some different viewpoints of what's happening here. But I want to get back to the book. The second book, I held this off - we just went to the printer in June, I guess. I held it off purposely because I wanted to get Matt Simmons' book, "Twilight in the Desert" in here because everybody was waiting for that to see what's really happening in Saudi Arabia.

So the second book, called "The End of Fossil Energy and the Last Chance for Sustainability," the last chance. The more you get into this, the more ominous the picture gets. Believe me, there are no simple answers. Again, this is self-funded, personal project. We don't have the big corporations, I don't have the PowerPoint, and if I did I'd have to change it. So what I suggest, I really offer to you, everyone of you, everybody here, write it down, send me your address on my e-mail address: howe@megalink.net. And I will personally send you a copy of the book within a week or two. We send these out all over the world.

MR. : We can't hear you.

MR. HOWE: Okay, is that better? I need a monitor here.

MR. : Just say it more clearly - your e-mail address.

MR. HOWE: Okay, and I'll tell you again at the end.

MR. : This is the only one.

MR. HOWE: Okay, this is the one that works, okay. I'll talk like this. I need a monitor up here. (Chuckles.) This is better, okay.

It's howe - H-O-W-E -- @megalink - M-E-G-A-L-I-N-K --.net. My name is John Howe, and my wife Debbie and I are doing this ourselves and we're having a lot of fun. If nothing else, we find people all over the country that are also trying to make a difference, and we have a support group all over the world. We're dealing with people all over the world now.

So to move ahead, it's clear we have a terminal illness. We've heard that over and over again. It's easy to define the problem. We have my mentors, Dick Heinberg and Matt Simmons, Kenneth Deffeyes telling us what the problem is. That's easy, to define the problem. The solutions are much more difficult. The biggest problem we have right now is that, first off, the public does not hear this. Or the public is hearing mixed messages. The choir is not singing the same tune to the public. We're squabbling amongst ourselves. This is confusing the media, confusing our leaders. So we have a terminal illness and we desperately need leadership.

Now we can deny that terminal illness, or our leaders can fail us and not give us the answers. Do we not want to hear that we have a terminal illness? And if our leaders don't tell us we have a terminal illness, and it takes us prematurely when we had a chance for survival, then I would call that malpractice, big time. So we need leadership.

Now I'm going to jump around a little here but try to stick to some sort of format. I want to jump ahead because we've heard of the problems. That's easy to define. I want to talk a little bit about what we in Yankee-speak call debunking dead-end delusions. Because the public is getting an incredibly mixed message. You've heard it right here today, this morning. How about this, how about that. This will save us, or that's coming.

First off, the number one delusion is there's not a problem. Believe me, it's a huge problem. Whether we have 1 trillion barrels left or 2 trillion barrels left, I believe it's even more serious than that. I kind of think we don't even have the trillion barrels left because I think there's a lot of phony business going on out there. The more you get into this, the more serious the problem gets. So first off we have a problem.

The second delusion is that - well, they're not in any particular order, but I call them - I have my buzzwords - hydrogen hype. I agree with one sticker, not the other. There's a book out called "The Hype about Hydrogen." Hydrogen is not a fuel source unless you take a lot of energy to separate it, and about 97 percent of our hydrogen today comes from natural gas, and natural gas I believe if you read Julian Darley in "High Noon for Natural Gas," natural gas is in even more dire straits than oil. Even though there may be a lot of it around the world, it's a stranded resource and you just can't ship it here and there and most of it that is available in the world is already spoken for. But tankers are contracted. The L&G ports are - shipping ports are contracted. And for us to build L&G ports to suddenly get hydrogen, get natural gas in USA will take a lot of time and it's just a short stop solution.

So hydrogen, in all its problems, and I don't want to go into the physics of storage and the cryogen - I'll give you a little for instance. When we send a shuttle, wasting this tremendous amount of energy to send shuttles off into space - I see some nodding heads - we should be spending energy figuring out how we're going to survive, but when we sent the shuttle up into space, it takes about 200,000 pounds of hydrogen. And when you see the pictures of Cape Canaveral, you see the fumes spewing out, it's my understanding that it takes 300,000 pounds of hydrogen to be shipped from wherever they make it in Louisiana to get 200,000 into the shuttle. That's at -460 degrees Fahrenheit. There are problems with hydrogen that you can't imagine in storage and handling and energy to make it.

Now people in our own NERL, part of the National Energy Renewable Lab, they say, well, all we've got to do - and this is our administration teaching us - all we've got to do is spin a windmill and electrolyze hydrogen and put it in our SUV's and we're home free. They've even got pictures in the Solar Today issue of the National Society of Solar Engineering. These are our leaders, these are our teachers. But what they don't tell you is that all the wind energy in USA Today, all the wind energy in one year is worth about one day's worth of gasoline. And if you put it into hydrogen at 50 percent efficiency, it doesn't work, folks. You've got to put numbers on these

things. You can't make a mountain out of a tiny speck, a little molehill. And yet there's people touting this, that these are the answers are coming. That takes care of the hydrogen hype.

And the fool cells, we call them. (Laughter.) I hate to be derogatory but we have to get serious, deadly serious because the choir's singing not a tune to the public. We're arguing amongst ourselves and the public is not getting the right message. The media certainly won't pick it up and get onto it unless it's very isolated media.

Another one is the bio BS, okay. Sunlight is our source of energy, and to make the bio energy out of it, we've used bio energy for years and years. Otherwise our ancestors wouldn't have been here to make it possible for us to be here. But we denuded the woods in the Middle Ages. Just look at Easter Island. If you take more bio energy than is coming in from that sunlight, and it's very dilute, it takes a lot of area or a lot of time to concentrate bio energy. A tree does it for us, or Mother Nature did it for us millions of years ago and stored up this wonderful black stuff that we're just blowing away right now, whether it's oil or coal or whatever.

So you can't take the energy from the sun and concentrate it into a fuel and use it at the rate that we would like to use fuels. For instance, let me give you one little factoid. If we were to make - and this irks me because in Maine our democratic leadership says we're going to turn Aroostook County into a great soybean operation and make bio diesel and we're home free. Well, let me tell you. Back of the envelope. I mean, this is not really complicated science or math. If you were to make soybeans on one acre into bio fuel, you'd get about 75 gallons, and that's with a lot of fossil fuel input and a lot of deterioration of that soil. Seventy-five gallons of bio diesel. At that rate 5 percent, just 5 percent of our diesel fuel, or 5 percent of our heating fuel would take 30 million acres. Just 5 percent of our diesel fuel. Well, there's only 300 million acres of arable land in the country today. I don't think we're going to take our food and turn it into fuel, especially as our system winds down and we need every bit of food we can get.

So another kind of delusion is that efficiency will save us. Well, there's wonderful things about efficiency. I certainly defer to my co-speaker here. Efficiency, we have to get every bit of reduction of usage that we can find. But in the long run many times better efficiency has led to more consumption. This is called Jevan's paradox. When we have better efficiency, the price goes down and people use more, and this is what's happened time and time again. So efficiency is a tiny step in the right direction. You can't argue with hybrids. They are more efficient, but they're just a tiny step.

In the long run we're going to run out, so what about the solutions? I'm going to jump ahead here to the solutions because that's what we really want to hear. And believe me, they're not very pretty or very easy. Again, be sure and get a book because this goes on and on and on.

First off, the number one solution, the metaphor I use is I'm sure many of you are familiar with the story of Ernest Shackleton and the Endurance. The Endurance just is going down and we desperately need leadership. There's not time for market forces or for individuals or whatever to - (applause) -- this is why it's so - it just was an incredible spark for us who are in this field and studying it to have this champion here, who is a voice in Washington. (Applause.) There may be hope yet.

But another - and Representative Bartlett doesn't know this, but just yesterday I was leaving the Common Ground Fair in Maine, our big fair, our big renewable, back-to-the-earth fair, whatever, and at that fair I was the keynote speaker Saturday. And I was leaving early yesterday in order to get a flight down here and Senator Kucinich was coming in and we kind of said hello. He has the book, by the way. The subject of his talk was sustainability.

In Maine we have different talks for different audiences. When I talk to the people of Maine, they know. They want to know what to do. They want to know the nuts and bolts and how to get off the grid and how big is your garden and so forth. But anyway, back to solutions. I tend to jump around here.

First off, we need the leadership. We need a Shackleton to guide us to Elephant Island and he never lost a man because when the ship's gone down and you've got to make it and you've just got so much provision to get from here to there, you can't have four people taking all the goodies and letting market forces or superior size or whatever taking the goodies and the other 16 or whatever - none of you are going to make it. The ship's going to go down. The life boat's going to go down. So we desperately, desperately - we never - civilization has never needed leadership as much as we need it right now.

Getting back to solutions. The next obvious thing, taking all this into perspective, taking all you said, the next obvious thing, if you know you're running out big time, Apollo 13 or the Shackleton's

lifeboat or whatever, you ration, you conserve, conserve, conserve what you get, and my answer is rationing. And I remember well World War II, when we had the coupons. People say, well, rationing won't work. Well, I think rationing is infinitely better than letting market forces.

In Europe they let market forces take over and gas is $6 or $7 or $8 a gallon, and you know that the rich take it all and the poor ride their scooters. Now with rationing it doesn't work that badly. Everybody gets their coupons and the poor can do what they want with it, the rich can do what they want with it, but the demand, overall demand is depressed on a knowledgeable, definitive scale. So guess what? The price starts to go down. At least it doesn't go higher because the demand isn't there, and the poor can sell their coupons on the black market to the rich for 10 times as much. So what? (Laughter, applause) It works. It's human nature. And if you want to take a trip in your Winnebago, you can save up your coupons for two years and still do it. So my answer is conservation big time and rationing.

The second half of my book, the chance or the plan for sustainability, talks about all these issues. Three years ago I naively thought, well, we have 20 years to do this, if we took control of it now on a 5 percent per year basis, that we could pull this off and save so much fossil energy that would be distributed out over another 100 years and our kids could at least have a chance for a soft landing. I used to think that I was going to get out of this, it was going to be my kids' problem. Well, I don't think the way the numbers are turning up now that it's going to happen that long. We're looking at this year, two, three five. We're already seeing the problems right now.

I'm going to try to finish up here.

What to do. I come right back to the basic renewable energy sources, solar and wind. I've had a lot of fun. First off, as an engineer I try to look at this problem and say, is there any hope? Is there a modern civilization without any fossil energy? But knowing the technology we have today. And I'm a product design engineer and this is my challenge, and I think it could be done if we started now. It has to come from solar and wind. That's where the energy comes from, not from all these other things.

So I've been building - there's a picture in the back of my book of my solar-powered tractor and we can't go back to our ancestors with horses and oxen because we've got too many people. We've got too many mouths to feed. And a horse or oxen takes - you've got to feed it all winter. It takes four or five acres just to heat it - by the way, I'm a farmer, I grew up on a farm, and we have a 175-acre farm that we part-time farm now.

So the solar-powered tractor works. We take it to the fair and wow, I mean, it draws people in so we can talk about the demise of fossil energy. So I built a solar-powered car. Now I took a little golf cart, a 48-volt club car golf cart, put some panels on it, put a chiller battery system on it. I got 10 kilowatt hours of batteries in there. That thing will go 100 miles without recharging, but only at 15 miles an hour because that's - (laughter). But this sounds ludicrous, and you go out there, and I flew down here last night and drive up here and I call it petro-insanity. The more you see what's going on around the world, and the gridlock and driving these 4,000-pound personal vehicles, any other time in history, any other time in space they would look at us and say, this is totally absurd. And we grew up with it, we think it's here as part of our life. But it's just a pippin in civilization. Petro-insanity.

People ask me about the tractor. The tractor works, by the way. The tractor works big-time because when you need the tractor is in the summer, you've got tremendous amounts of sunlight coming in. And also the weight of the batteries is good. It works find. I took the tractor in a pulling contest in a fair a year ago, and the front end came up in the air, the thing just kept going, and I got a standing ovation. The people loved it. It really works, although it only worked an hour or two a day for 8 or 10 hours of refueling, but it's refueling all the time. The sunlight's coming in and it's even refueling while it's working. Even work horses don't do that.

I would say in summary, on a scale of 1 to 10, if 10 is this wonderful fossil energy we've gotten used to but is going out of style very quickly - not going out of style, going out of sight - and one is doing it by hand, one is doing it by hand, 10 by fossil energy, I would say that these solar-powered vehicles are maybe a 2 or a 3, 3 or 4. But it's better than walking. By the way, with my solar-powered vehicle, my solar-powered golf cart is a 2,500 watt portable generator, power supply. That's big-time power. In the wintertime you take these solar-powered vehicles, bring them right up to your house and run your house with them. So they work. Solar power, wind power. Get the book.

I can go on and on and on and on. You can't even begin to scratch the surface. But let me tell you again howe, h-o-w-e, at megalink.net. We talk about all these things. And thanks very much for coming, and good luck to Congressman Bartlett.

(Applause.)

REP. BARTLETT: Thank you turning in questions. There were two questions directed at me and I will include them together because they're the same subject. I understand you recently had a meeting with President Bush about peak oil. Is he aware of the potential consequences? If so, why aren't we serious about this from a policy standpoint.

And the second question is, how can we convince the administration and Congress that the recently passed energy bill was woefully inadequate and misdirected? I thought it was. I voted against it.

I did talk to President Bush. He does understand the problem. I tell you, this is a very good example of the tyranny of the urgent. The urgent always takes precedence over the important, and the urgent thing today, those couple of hurricanes down there and the urgent things tend to push important things off the table.

What we need to do is just for the American citizens. That's why we're here today. American citizens need to go to elected representatives, we have a problem, you need to do something about it.

Okay, and one for Matt Simmons. If the peak is going to be soon, five years or less, does it make sense to the U.S. to build more refineries?

We need to limit our answers to a couple of minutes or we're not going to get through our questions.

MR. SIMMONS: The simple answer is that our refinery system is so old today that if we don't replace it then - peak load doesn't mean running out, but if we don't replace it, we don't need any more oil. I mean, there's a refinery that got hurt in the hurricane, the Motiva (ph) refinery that they're talking about expanding a base unit that was built in 1903 to refine spindle top oil. We can't go 30 or 40 more years with 100-year-old refineries. So the answer is we've got to rebuild the refineries.

REP. BARTLETT: Thank you very much. And another one for Matt Simmons. Why is nuclear power not getting more attention in the U.S. as it is in Europe? Although the building of nuclear power plants may not mitigate the adverse effects of the oil crisis, it could provide long-term energy.

MR. SIMMONS: I was in a program at the University of Wyoming this weekend and I heard the most articulate speaker on nuclear - on the benefits of nuclear power. This is hard to see, but this is basically one nuclear uranium pellet. And this uranium pellet is the equivalent of a ton of coal. And one pellet - five pellets this size heat a home for a year. So we have got to go back to nuclear energy. It just takes a long time. And we can basically tackle the spent waste. That's a military problem.

But we also have to remember that nuclear power is electricity. We're going to have to have electricity because of our natural gas problem, but it doesn't solve the oil problem, period.

MR. SPEARS: Do we know what the supply lifetime of uranium is? Some estimates are as short as 50 years for uranium, at our current consumption rate.

MR. SIMMONS: This guy was actually part of a company in Saskatoon, Canada, our largest supplier. The reality is we don't have a clue, but we haven't explored for uranium for about 40 years.

REP. BARTLETT: I get widely divergent estimates of how much fissionable uranium is left in the world, from 30 years to 200 years. Before we can really have an effective dialogue about how to address this problem, we need to have an agreement on what the problem is. And there is just so much difference of opinion out there, and I talked to the National Academy of Sciences. They would be delighted. We need to find the money for them. We need an honest broker somewhere that tells us roughly what the truth is because we have widely divergent opinions now as to how much fissionable uranium is out there.

MR. DEFFEYES: I suggest you look at the Scientific American for January 1980, Deffeyes and MacGregor, on the world uranium supply.

REP. BARTLETT: And how much is there, sir?

MR. DEFFEYES: Every time you drop the ore grade by a factor of 10, you find about 300 times as much uranium, so that going down to the ore grade of - going down through the ore grades continues to increase the supply. But just about the time we were writing that Scientific American article, these enormously rich deposits, and big deposits in Australia and Canada sort of blew away our early estimates and we had to quickly increase the estimates. There are deposits in Saskatchewan so rich that the miners can't be in the same room as the uranium, where the uranium is being mined. They mine it by remote control. So at the moment we're swimming in uranium, but the Deffeyes-MacGregor piece, which comes out with a Hubbard-like curve, says that, no, we can go on down, and specifically we don't need a breeder reactor.

REP. BARTLETT: If we don't need the breeder reactor, that's good news because if you had to go to the breeder reactor you would borrow some problems that you don't have with fissionable uranium.

MR. SPEARS: My concern is that the investment in nuclear power is huge, and we have a long history of massive investment in nuclear power. That same level of investment could also go towards completely safe renewable energy systems and technology development -- (applause) -- without the risks of nuclear power. And without the ultimate end of nuclear power, when the fissionable materials runs out, or we find that more Chernobyls and others have totally trumped that issue. (Applause.)

REP. BARTLETT: Thank you. We have a question here directed to Mr. Wulfinghoff, but it could have been asked of any of the panelists. If energy consumption obviously is related to the number of people who are here, and the questioner asked, why haven't any of you mentioned population? I would like to note that if you want to listen to what I think is the most interesting one-hour lecture I ever heard - and he's no relative, he has my name - Dr. Albert Bartlett from the University of Colorado gives a - how many of you have heard his lecture? He's given it 1,600 times, I think. He's pretty good at it by now. But he gives a lecture on the failure of the industrial society to understand the exponential function, and it's a lecture on energy.

You can find it-do a Google search for Hubbard's peak, or a Google search for peak oil and I think that you'll find Albert Bartlett there, and he give you a very good introduction to this and the population effect.

MR. DEFFEYES: What we don't want to hear about, one fellow said we've got 6 billion people, we're headed for 9, we're going to wind up with too many people and not enough food. His answer was cannibalism. (Laughter.)

MR. WULFINHOFF: Just to answer the question, I'm no more expert on that question than anyone else here, but I think everyone would agree, population is the big driver. And so yes, intelligent, responsible control of having kids is obviously a big part of the picture. I think that's a truism that we can all agree to.

MR. SPEARS: I'd like to get my two cents worth in. I don't think population control is a very tenable solution. However, education is, and if we have a population of educated people that understand and take full responsibility for their own needs in a society, which is completely technically possible if our society allows it to be, then we have a population that uses a very, very small fraction of the footprint of the planet that we currently use, and we could support a much higher population.

REP. BARTLETT: I believe that every industrialized country in the world, if it weren't for immigration, has a negative population growth now. That's true in the United States. Were it not for immigration - I think if it weren't for illegal immigration, our population would be declining in this country. And that's true of most of the industrialized world.

Is there another comment on this? John?

MR. HOWE: I think we should not get off this population issue too quickly because you keep peeling away at the layers of the onion, the energy, where we go from here, remember that, like Dick Heinberg said, the population grows with the resources. Since the beginning of this country we've had unlimited resources and we pat ourselves on the back saying how wonderful we are. But there are tremendous resources there. And then especially when the fossil energy came on.

So population has increased, like any biological species, and right now we are in such dire straits, and this is why I tend to be more pessimistic than just going over and sliding down Hubbard's curve because population wants to continue to go up, just like any biological species, at a time when resources are not only leveling off, they're going down. So we have this double whammy,

this diversion between population and demand and resource capability. So this is going to open up pretty quickly, very quickly, and the population issue is incredibly important.

Let me go one step further. Even when there's a horizontal level, plateau of resources, life is not very friendly because Mother Nature always wants to produce more than the resources can stand, so there's always this chaos, the die-off or cruel short life, whatever you want to call it, and the males of the species try to go out and get their neighbors' stuff and the other males try to defend it so that it leads to a lot of chaos. That's normal with any species. We see it with the mice in the barn. We call it the mice in the barn theory.

So we're reaching a double whammy. We're not only going to have horizontal population, we're going to go downhill in population, but we're going to go downhill in resources where population wants to continue to go up.

Now China's faced up to this problem for years and they've tried this one child per couple. It's been a very ugly situation in China. It has not worked very well. They've had midnight raids and abortions, and the women take the brunt of the problem. I'm going to go on record right here and you might want to throw me out, but I'm way out of my area. I don't know whether my area is as a philosopher or what. (Laughter) But rather than try and approach this the traditional way of the contraception or abortion or embryonic control or whatever, I think we should face up to the maleness of this issue. We're the trouble-makers. We're the ones that cause all the problems and don't want to admit it.

My solution to this, John Howe, Yankee solution, you heard this for the first time here, would be to one child - and this is the law of the land, by the way. Just like incest or murder or anything else. Every male. You have one child, you get a vasectomy, period. That's it. End of subject. (Applause.) It didn't hurt me a bit 20, 30 years ago. That's enough.

REP. BARTLETT: This next question deals with a subject that I had a question about. I called Mr. Simmons, he was gone, haven't had a chance to talk with him. So I'll now ask the question, along with the questioner from the audience. There was a recent article in one of the papers - was it the New York Times, the Washington Post? The Times, I think. About an experiment in Colorado where a plot of land 20 by 35 feet, and they got 1,500 barrels of oil from it, and I did some calculations that said there would be a hole in the ground 100 feet deep if that's true if they got that much oil out of that. They said they got 10 times as much out as if they mined it and cooked it on the surface. And that they put in one unit of energy, got out 3.5 units of energy. And if that's true, we're home free. What's wrong with this news story?

MR. SIMMONS: First, I think they're talking about the experiments that are going on in oil shale on the western -

REP. BARTLETT: That is correct.

MR. SIMMONS: And what it is is basically a return to a new concept that used to be called Project Rifle, which was effectively an experiment by Cosco (ph), which was the oil shale company, to bring a nuclear bomb into the oil shale and create an internal furnace there. What they're now doing is putting some electricity rods down. That's just very energy intensive, so they're ignoring the energy intensity to actually create a little bit of oil out of shale.

REP. BARTLETT: But they said in the article, at least the lady who wrote the article said that she was told that they put in one unit of energy and got out 3.5. They cooked it for two years, they froze all the ground around it to keep it from polluting ground water, and it was inconceivable to me that that could be energy-positive.

MR. SIMMONS: I just think those studies don't do a real honest energy count. And what we desperately need is a bureau of energy standards that take all the things that are required to make these things work and measure the energy. What they're doing is they're taking just one element. (Applause.)

REP. BARTLETT: Another one for Matt Simmons. Two-thirds of the oil that's still in the ground, why then are we not doing more to get it, and why are we not using renewable energy to power enhance oil recovery?

MR. SIMMONS: The whole two-thirds in the ground is an interesting concept because what's - that's probably a good number we think, but the third that's gone was the high quality useable oil. And what's left gets more and more energy intensive to be able to convert it into useable oil. I think one of the really terrible vocabulary words we created was tar sand, and we talk about it like it's useable oil. Tar sands are tar. They have to be melted by seam and then oozed out of the

ground and then refined into heavy oil and then diluted with sweet oil to make synthetic crude.

Now it doesn't take rocket science to say that is really energy intensive. So we should call it coal. We shouldn't call it oil.

REP. BARTLETT: There are several other questions here that relate to some slides that I had for summing up, and maybe we'll go through those and answer those questions when it comes to that point in the slide. And we'd like the panel, too, and we'll just stop for comments as we run through this series of slides.

Okay, the next one. This one we've seen before. This is a typical bell-shaped curve, and the next one I think shows the break-out in this country. This was a very interesting one that shows where we've gotten our oil from from 1935 up until the present, and you see that we peaked in 1970 and one of the presenters noted the contribution of Prudhoe Bay, that's the Alaska oil there, and that was just a tiny blip in the slide down Hubbard's peak.

Now I'm opposed to drilling in ANWAR, not for environmental reasons (applause) -

MR. SIMMONS: Congressman, while you have that up, it's interesting basically, if you take the peak in 1970 and exclude the natural gas liquids in Alaska, and then you come down to where we are today, about 2 million barrels a day. About 40 percent of the two is our stripper wells, which are 2.2 barrels of oil a day. And we also strip out about 100 to 500 oils a day of brine.

My guess is that the energy used to pump the 500 barrels of brine is more energy than the 2.2 barrels. But luckily we have those stripper wells left or we'd be down to about 1 million barrels a day of conventional oil, excluding Alaska.

REP. BARTLETT: The reason I'm opposed to drilling in ANWAR is that Prudhoe Bay, which is much bigger than ANWAR will ever be, had very little effect on our downhill slide. I'm having a lot of trouble understanding, if we have only 2 percent of the known reserves of oil in the world, and use 25 percent of the world's oil, and import about two-thirds of what we use, I'm having a lot of trouble understanding how it's in our national security interest to use up the little bit of oil we've got as quickly as we can. (Applause.)

This may be a rainy day. I think there's going to be a rainier day.

Mr. Wulfinghoff, you have a comment.

MR. WULFINGHOFF: In the '70s they called that strength through exhaustion.

REP. BARTLETT: Notice the yellow up there. Remember the fabled Gulf of Mexico oil discoveries, and they were going to save the world? That's the contribution they made. That's the contribution they made.

The next slide, please. This is the schematic I showed before, and this is just a 2 percent growth here. Now you can make that Hubbard's peak as steep as you want by simply changing the abscissa and changing the scale on the ordinate. This is a 2 percent growth curve. It doubles in 35 years, so from where that use line separates, the demand line separates from the available line, that yellow consumes - that's 35 years because that's the doubling time with 2 percent growth.

So we're going to have problems of supply and demand - 17 years, it says, 17.5 years before we actually reach peak. So those who say peak is in the future, yes, peak will be in the future but we could still be having problems now. The next slide, please.

Okay, this is one I mentioned, and these numbers prompted Boyden Gray and McFarland and Jim Woolsey and a lot of retired four-star admirals and generals to write the president a letter saying, Mr. President, these numbers represent a totally unacceptable national security risk. We have got to do something about that.

Matt, you mentioned our pumping. We have only 2 percent of the world's reserves of oil, but we produce 8 percent of the world's oil from that. We're really very good at getting this oil out of the ground. What that means is that our 2 percent is going to run out more quickly, doesn't it? So we're going to face problems before others face problems. The next slide.

Okay, this is a really interesting one. The one at the bottom, by the way, is just a few years of the one above, and we separated out the gas and the oil. But this goes through - it begins back in the 1600's or something, I think. This looks at the industrial age, and first there's wood on the bottom,

and that was stalling out and we found coal, and boy, we jumped with coal. Then we found oil, and look what happened. And if we were plotting the world's population, it would pretty much follow that oil curve. It has really been exploding.

When Malthus made his prediction that eventually population would outstrip our ability to provide food, we had less than a billion people. Now we're approaching 7 billion people. 5,000 years of recorded history. We're 100 years or so into the age of oil. In another 100 years or so we will be through the age of oil. What then?

By the way, we will transition to renewables. There is no question. There is no alternative. We will transition to renewables. The only question is how we do it, and the longer we wait, the longer we wait the more difficult the solution will be. The next chart.

This is a really interesting chart, and one of the presenters mentioned 86 percent - either 86 to 85 percent of all the energy we currently use comes from fossil fuels, and you see it up there in those three segments of natural gas, the petroleum and the coal. Of the 15 percent that is not fossil fuels, 8 percent of that is 20 percent of our electricity, 8 percent of our total energy comes from nuclear. That could grow. You need to determine whether the environmental penalties are worth the benefit you get from growing nuclear, but that certainly could and maybe should grow.

Now we've pulled out and expanded the renewable energy part of it there, which is 7 percent, and we've broken that down into 100 parts. Breaking that down into 100 parts solar is 1 percent of that 7 percent. That means it's .07 percent of our total energy production. Very attractive because it's non-polluting once you've made the cells. You could pollute while you're making them, but once it's in operation then it works. It really works.

Any by the way, it's kind of humbling. Two of those little 60-watt panels is all I'm worth in terms of energy, right? About 120 watts. You know, when the sun is shining, two of those panels put out more energy than I can put out - (audio break, tape change) -- geothermal is the one - that's true geothermal. That's tapping down into the hot core of the earth.

One of the presenters mentioned geothermal air conditioning and heating and so forth. That just wisely is coupling your heat pump - not to the air that you're trying to heat in the summertime and cool in the wintertime, which is really kind of stupid, isn't it - but it's coupling the heat and air conditioning to ground temperature where it's, here in Maryland, a constant 56 degree all year.

But true geothermal - and Iceland doesn't have a single chimney; it's all geothermal there, I think. We have some places in our country where you can get there.

Agriculture - about 0.14 percent - what this points out is that the sources that we're going to have to turn to in the future are now minuscule in terms of their contribution to our total energy supply. We have got a long way to go.

Conventional hydroelectric - that's almost half of all of these renewables. That's not going to grow much in our country. We've dammed up about everything we should have dammed up and maybe some things we shouldn't have, and we're breaching more dams now than we are making.

Wood - that's (not the ?) West Virginia hillbilly up there at 38 percent. That's the timber industry and the paper industry wisely using what would otherwise be a waste product to produce energy.

The 8 percent there from waste - that's one that really needs to grow. If you do down here to Dickerson, they have a plant down there that is burning municipal waste, and you know, I'd be happy to have my church next to it because it looks like an office building from the front of it, and they bring the trash in in containers. You never even see it until it's dumped into a big pit that the crane lifts it out of. I mean, we really shouldn't be burying this stuff; we should be getting some energy from it.

But this presents the enormous challenge we have. The energy sources that we will need to turn to as we wind down the age of oil now represent tiny, tiny contributions to our energy supply.

We must invest three things to get there. One of them we won't worry about: we won't worry about money; we'd never do that in Washington. (Laughter.) We have, by the way, the most unique credit card in the world in Washington. It's my voting card. It's a card without limit. I can change anything, any amount. There is no limit to how much I can charge. And it's really unique because I'm charging it to somebody else's account. I'm never going to pay that back. My generation is not going to pay it back. My kids and my grandkids are going to pay it back, so that's a really - that's a really unique card, isn't it?

We need to invest money, but we will borrow that from our kids and our grandkids. We won't worry about that in Washington. But the two things we can't borrow from you is time and energy, and that schematic curve that we showed a little bit ago, we can't even use all of that oil that's available to us for our ordinary economic activities or we'll have nothing to invest in these alternatives, so we have got to embark on a very aggressive conservation program so we have something to invest.

We had a hand up here for a comment? Yes, sir.

Q: What's really important in this discussion is how we and the policymakers and the public and the citizens frame the discussion. Historically we have framed the discussion about renewables and conventional energy as if renewables will always only be a small minuscule fraction of the mix, and in fact, almost all the energy experts you hear touting the future talk about new technologies in sort of conventional technologies: new oil, nuclear power, more conventional approaches being the biggest part of that pie, and renewables still only being a small fraction. Everybody says renewables will never be able to meet the demand of a growing industrial country.

That is absolutely false. Over and over we've proven, every single day, that you can provide 100 percent of the demand of an industrialized country with 100 percent renewables, and unless we start the discussion where that's the goal - which inevitably, as you said, it will ultimately become that because everything else is going to run out - unless we start framing the discussion around that notion, we'll never get there. We'll only incrementally reduce our dependence on fossil fuels and never really give the focus on transitioning to a 100-percent-renewable economy that it needs to make it happen.

(Applause.)

REP. BARTLETT: A generation - thank you - a generation ago there was a scientist - C.P. Snow I think his name was - who made a statement that I wonder if you agree or disagree with. He says be optimistic about all of the alternatives - how much energy to get from them - add them all up, and you still come way short of both the quantity and quality of energy we're getting from fossil fuels. That's true?

MR. SPEARS: I don't deny that. One of the things I think we should all take a quick look at - that study I showed, "Energy-Rich Japan" is at energyrichjapan.org, or if you just Google energy rich Japan, you can get that study; it's available free on the Internet. And it shows what technology can do in an industrialized country.

I know what I can do with somebody's house or somebody's community. I can make that completely self-sufficient. I can't imagine why we can't build communities that are completely self-sufficient.

We're never going to run Hummers on renewable energy, and that's the fallacy, and we have to have deep, deep efficiency improvements. Efficiency is energy. It's the fastest developing energy supply we can have. If we want to immediately reduce our dependence on foreign oil, all we have to do is improve the efficiency of our existing infrastructure, and we can do it real quickly.

REP. BARTLETT: Yes, the cheapest oil you use is the oil you don't buy, isn't it - that you don't need to use because you've conserved.

The next chart, please. Okay, the upper one shows a controversy that's going on. I spent, about three weeks ago, a full day in Washington at the National Press Club. Dr. Pimental was there and his colleague from the West Coast, and they contend that more energy goes into producing ethanol - more fossil fuel energy goes into producing than you'll get from it. I hope they're not correct.

What I have up here is the data from the Department of Energy, which I am told by the experts is wildly optimistic, and on the left you will see that they believe that you can get a million BTUs with an input of about 750,000 BTUs from fossil fuel. But at the bottom is the one that I want to spend a couple of moments looking at because that's a really interesting one.

This is the energy that goes into producing a bushel of corn. On the right over there, that purple one - almost half of the circle - is the energy from natural gas to produce nitrogen fertilizer. Before we learned how to do that, the only nitrogen fertilizers available for agriculture were barnyard manures and guano. Guano was the droppings of tropical birds and bats for hundreds of thousands of years, and we have an industry, ships going around the world.

The last time I was in Grand Canyon, there was still a rusty cable there for a cable car that went

into a bat cave in the wall of the Grand Canyon to bring out guano. Without fossil fuels, we can't have nitrogen fertilizers in the quantity we have them today, and it's very energy intensive. Almost half of all the energy that goes into a bushel of corn comes from natural gas producing the nitrogen fertilizer.

By the way, you may have wondered why, if you water your lawn, it's never quite as green as after a thunderstorm, and that's because you get more than just water from a thunderstorm. We get what we call poor man's fertilizer because the lightening now combines nitrogen in a form that's carried down by the water into the soil and can be used by the plants. And we have learned to do that now with enormous energy.

Look at almost every other segment of that pie there, and it's fossil fuel energy. The production of these crops is very, very energy dependent.

The next slide. This is one that we've been talking about all day: potential alternative solutions, and we'll just start down those.

The tar sands and the oil shales - there's an incredible amount of oil there, but whether or not it is recoverable, both economically and energy-wise is debatable. The Canadians are now getting oil from their - what do they call them? Oil sands they call them, I think, there. They're getting it at about $30 a barrel. But I'm told that they're using more energy from natural gas - by the way, they're producing it at $30 a barrel so they make a big profit selling it at 65 (dollars), but I'm told that they are using more natural gas energy to produce the oil than you will get out of the oil. That's called energy profit ratio. Not only is there a dollar-and-cents profit ratio, there's an energy profit ratio you have to think of in these things. So although there's a great deal there, it's not going to be very energy positive if in fact it is energy positive, and you're going to pay a big environmental penalty because of all the energy you have to use to get some little net energy.

Coal - 250-year supply in our country. Many people will tell you not to worry; coal will take care of us. There is 250 year supply at current use rate, but if you increase the use of coal just 2 percent, compounded - which Albert Einstein says, by the way, is the most powerful force in the universe, the force of compound interest - if you have a 2-percent growth compounded, it shrinks from 250 years to 85 years, and then if you allow that you can't put coal in the trunk of your car, you're going to have to convert it to a gas or a liquid, you now use some energy to do that, so now you're down to 50 years. With a - either a big environmental penalty using that coal because all the coal that's in our country now is pretty dirty stuff with a lot of sulfur in it, or a big energy penalty in taking the pollutants out of the coal.

We talked about nuclear, and if in fact there is an essentially unlimited amount of fissionable uranium and you are willing to accept the environmental impacts of that, we could be producing - France is now -- what, 70, 80 percent of their electricity is produced by nuclear, and so that's something we really need to think about.

Nuclear fusion, by the way - I support all the money. About 300 million (dollars) a year goes into that. You know, I think our chances of getting nuclear fusion are about the same as my odds of solving my personal financial problems by winning the lottery. (Laughter.) Now if you think that's a good bet, well, you may think that nuclear fusion is a good bet. That doesn't mean we shouldn't try, and I support all the money that that sector of our technology can support.

Then we get down to the true renewables: solar and wind and they are now 0.07 percent each. They can grow, but it's going to take a big investment of time and energy, building the factories, making the solar panels, making the wind machines.

I've heard the wind machines make a lot of noise. My wife and I were coming back from West Virginia. We came by Thomas - Davis, West Virginia, where they have a whole string of them there. We pulled off of the road. I didn't need to turn off my engine - I'm in a Prius; when you stop, it stops - opened the windows. I didn't hear anything. These were the great, great, big machines out there. People don't think they're pretty. I don't think these scars through our forests - running these power lines through - are very pretty either, but somehow we've learned to live with those. To get to any meaningful amount of energy from solar and wind, we're going to have to make big, big investments of time and energy to get there.

Geothermal - where it's available, we really ought to be exploiting that. That's essentially forever. Once you get there it will just work and work and work.

Ocean energy - can you imagine how much energy it takes to lift the oceans two feet? That's what the tides do, that's what the moon does with the tides, but because it is so diffuse, we have a hard time harnessing that energy.

I used to be very optimistic about energy from agriculture, but I'll tell you, tonight a fifth of the world will go to be hungry. Our topsoils are not increasing in either quantity or quality; as a matter of fact, until we learned to no till, they were decreasing in both quantity and quality. So I have some concern about how much biomass we can take from our agricultural lands and still have good agricultural land. There's probably something, but I'm not sure it's all as much as we had thought before.

The soy, diesel, biodiesel, ethanol, methanol, biomass - waste energy that we really should be doing. We really should be doing that.

Hydrogen - we talked a lot about that. Hydrogen is not an energy source. Hydrogen is simply a convenient way of transporting energy when you finally use it. By the way, the battery in your car is totally non-polluting when you finally take the energy out of it, isn't it, and hydrogen is the same way. I mean, you get water out of it, which is pretty non-polluting. But you may have polluted when you make the hydrogen.

We have three experts down in Washington, and we're talking about the hydrogen economy in the future, and they all agreed that only one technology would get us there. Three ways to store hydrogen: one is to put it under pressure - the lightest element that we have; always wanting to expand and get out; big, thick vessels, very heavy. The second was to liquefy it; very, very cold; lots of insulation, lots of energy and liquefying it. And the third was the one that they thought would work, and that was some chemical combination - reversible chemical combination. That's a hydrogen battery.

I don't know if inherently the hydrogen battery is going to be that much better than the electron battery which we have today, but a lot of people believe that hydrogen is an energy source and it's the solution to our energy problems, and if we get there we're home free. We just aren't home free because you've got to make the hydrogen. You'll always use more energy making it than you get out of it. It's still a good idea, by the way, because it is transportable. Use it in a fuel cell where you have twice the efficiency of the reciprocating engine.

Is there a last slide? Oh, the last slide is the challenge we have, and we now need to make - if we're going to have anywhere close to a soft landing, we have now got to be making some decisions equivalent to the kind of decisions they made in Apollo 13, so that - you know, they had a fairly narrow window, and if they'd hit that window, it was disaster.

Now we have a really rough ride - it's not a perfect analogy because we will get there; we will get to renewables. It's a question of how rough the ride is going to be.

Well, any comments or questions from our panel before we thank everybody for coming and thank our panel for their contributions?

MR. : Thank you.

REP. BARTLETT: Mr. Wulfinghoff?

MR. WULFINGHOFF: Yes, one of the points I didn't get to make because I was running overtime is that the single most important thing that we have to do right now to make this happen is to get the word out, and I want to thank you and your staff for doing that. You are doing the critical thing that we need to survive.

(Applause.)

REP. BARTLETT: Thank you. Thank you.

The questions we didn't get to - we'll try to answer those by mail. Just call our office - any of our offices and we'll be responsive to your questions. And we won't know the answers, perhaps, but we'll get them from the panel.

I want to thank the panel very, very much. I'm really honored they'd come. They've come from all over the country, they are the world's experts in this area. Thank you all very much for coming.

Audience, thank you for your participation. Thank you very much. (Applause.)

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~~~~~~~~~~~~~~~~ *Editorial Notes* ~~~~~~~~~~~~~~~~~~
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I thought it was very significant that Rep. Bartlett went on record as saying that President Bush knows about Peak Oil:

> *There were two questions directed at me and I will include them together because they're the same subject. "I understand you recently had a meeting with President Bush about peak oil. Is he aware of the potential consequences? If so, why aren't we serious about this from a policy standpoint."*
>
> *...I did talk to President Bush. He does understand the problem. I tell you, this is a very good example of the tyranny of the urgent. The urgent always takes precedence over the important, and the urgent thing today, those couple of hurricanes down there and the urgent things tend to push important things off the table.*

Perhaps a member of the Washington Press Corps could follow up on Bartlett's statement, with a question at a Presidential press conference?

For a report on the Bush-Bartlett meeting, see www.energybulletin.net/7024.html

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Original article available here.
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