THE BROOKINGS INSTITUTION

AMERICA'S ENERGY FUTURE: NEW SOLUTIONS TO FUEL ECONOMIC GROWTH AND PROSPERITY

Washington, D.C.

Wednesday, May 18, 2011

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PANEL DISCUSSION: THE FUTURE OF ENERGY AND CLIMATE CHANGE POLICY

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P R O C E E D I N G S

MR. RUBIN: Could I ask you to be seated, please? If people would reconvene and get seated, we can begin. Okay. I'm Bob Rubin and I'm going to moderate this second panel. We're going to have a broad discussion of separate, but obviously very closely related questions with respect to energy, the environment, the effects of energy policy on the economy, on health, on climate change, on non-climate change environmental issues, national security and other matters.

We're going to focus on the complexity, subsequent complexity, but we're also going to very much focus on the politics. I remember President Clinton once saying to me that if you can't get the politics right, all the good policy thinking in the world isn't going to get you any place. And we have a group of participants on our panel who can focus not only on the substance, but I say on what ultimately is going to determine what happens, which is the politics.

Let me just add, if I may, a personal comment. In the years that I was in the White House and Treasury, so six and a half years, I developed a very strong conviction that protecting our environment had to be a prime priority of national policy. On the other hand, energy is obviously critical to our economy, as Michael mentioned, so out of that came three conclusions, one, that energy policy is key to our future, as Tom Steyer likes to so often say, because of the multiple effects I've already mentioned; number two, that environmental impacts of energy

use, climate change and non-climate change should be an integral part of all energy decisions, and I at least came to believe that we should try to develop something approximating a green GDP, although obviously enormous technical problems in doing that; and number three, the cost benefit analysis, which we discussed in the first panel, along the lines of the executive order that President Obama put out earlier this year, is key to sound energy policy, but that it has to be conducted with integrity and with recognition of the difficulties of quantification.

Let me very briefly introduce the members of our panel. Their resumes are in your material, so I'm not going to repeat what's in the resumes, I'll just make one comment on each.

Jim Rogers is the Chief Executive Officer of Duke Energy. Jim, as many of you know, has been chiefly involved in environmental matters and energy efficiency, all kinds of ways. He was strongly supportive of climate change legislation, endorsed both House and Senate proposals on cap and trade.

Tom Steyer is the Chief Executive Officer of Farallon Capital Management, a major money management operation in the west coast, is a friend of long standing who has acted in many ways in support of his view that the key to our country's future lies in the area of energy.

Most recently Tom co-Chaired with George Schultz the effective and successful opposition in the political process to the effort to undermine the greenhouse gas laws in California. And he and George

have now launched a non-partisan effort to promote investment in green technology and enforcement of California's global warming laws.

Mark Tercek, Chief Executive Officer of the Nature Conservancy, was deeply involved as a managing director of Goldman Sachs in developing and promoting market based solutions to environmental challenges, and he now heads the Nature Conservancy, an organization that all of us know a great deal about and that is committed to preserving environmental terrain around the world.

And finally, former Senator John Warner, who, in my view, was a model for what public service is all about. He was a stoic member of his own party, but at the same time, he was deeply committed to working across party and philosophical lines to find common ground and to move forward on critical issues to our country.

In that context, he co-sponsored Senate legislation on climate change. Since leaving the Senate, Senator Warner has been deeply involved in energy policy, has been extensively involved with the military, most particularly in the critical linkages between national security and energy independence, and also in the military research on climate change as a national security matter, and in all of these contexts on the question of transportation in the military, efficiency, and achieving energy independence with respect to transportation.

Our format will be for me to pose a question to each of the panelists, we'll go through all four, and then after that, we will turn to a

general discussion where we can discuss each other's comments, and I've got a couple of questions I'd like to raise. Also as we go through each of our panelists, if one of the panelists have a pressing question or comment on somebody else who just spoke, we can take a few moments to do that.

At the end, we'll then save plenty of time so we can have questions and discussion with the audience. Okay. Let me turn to the first question. Actually, what I think I'll do is, I'll sit in my seat, okay. The first question is to Jim Rogers. Jim, you've got about a $20 billion capital investment program going on at Duke over a multi year period, and as I said in my other comments, you've very sensitive to the social cost of the use of energy; how have you been effected in your decision-making by the inability of our political system to move forward on energy policy, particularly climate change policy, and more broadly, how have the decisions in your industry been affected with respect both to investment, and then inclusion in investment decisions of these kinds of considerations?

You might add one more thing, if you would, which I know that you have thought a great deal about basic research and its importance to our energy future, you might comment on that, as well.

MR. ROGERS: Sure, thank you very much. I'm delighted to be here today. I'm still bruised from the last session of Congress trying to push the cap and trade through. I still believe that's the right approach. I

remember the debates on clean energy standards, I remember the debates on carbon taxes, where they were going to use the money for other purposes other than addressing climate change. So it was interesting for me to listen to the panel kind of go through what we debated in the last session of Congress.

The reality today is, as one of the leading companies in the power sector, is that we are in a policy vacuum. Our country has really failed to connect the dots between energy policy and environmental policy. We have a lot of energy and environmental policy, but the dots have just not been connected in a way that allows us to have a real roadmap going forward.

Think about that for a moment and put it the context of my challenge. My challenge is to replace virtually all our fleet by 2050, 40 years out, and we need to get going on it now. So the question is, what do we build, what do we rely on, how do we make the decisions when the policy roadmap is, at best, muddled?

And I've kind of come I mean to a place that I believe job one is affordable, reliable, clean electricity. I don't have the luxury of looking through the lens of any single one of those, I have to balance, the trade-offs are quite difficult, and at the end of the day, there's no perfect solution, and that's on the supply side. I'm a great believer in pulling technology. I will tell you our company has looked at 700 different technologies, from the production side to getting productivity gains in

transmission and distribution, and even productivity gains on the other side of the meter.

And actually my focus today is on technology. And a couple points along that line, one is that we have partnered with six different Chinese companies. I've come to believe that they will scale the technologies that we will use, and so being there and participating in the learning from the scaling of the technology.

We complain about the Chinese because of intellectual property, but I believe, and it's a different thought, Mr. Secretary, that the Chinese are creating intellectual property of scaling. We're an infrastructure business. If they're going to build 24 nuclear plants and I'm planning to build an AP 1000, they will build two of them before I even begin.

And there is real advantage associated with them building – helping us build our plant. They'll build it cheaper, they'll build it faster, because it'll be the second or third generation of building the plant, as a for instance. The other thing is that we're working with storage technology. We really believe that's transformative, notwithstanding the fact that Thomas Edison said in about 1895 that battery technology is going to fundamentally change our industry and its development is just around the corner. I would tell Edison it's been a long corner.

But the reality is, we're working with BYD in China. We're also working on what I call secondary batteries with Itochi in Japan. And

so we believe batteries are fundamentally transformity in terms of how we do our grid, particularly in the context of cyber attacks, in terms of being able to seal off pieces of our grid and create almost micro grid within our system.

So technology, to me, is the key. It's the answer to solar, it's the answer to renewables. At the end of the day, this debate would be pretty easy if they were all comparable, and if you could get the cost at the same level.

So our problem, and I know John is still here, he won't find this – I think you'll find it consistent with his thinking, but inconsistent with our practices in the past. In technology, what I love about the Chinese, you have Tsinghua University, you have commercial organizations right here. The commercial organizations are telling the R&D people what they need developed in order to advance this technology. In the United States, we allocate money to universities all across the country, they do science projects, it never gets commercialized, and so at the end of the day, we waste our money. So in our country, we fundamentally need to change it, so that would be my first recommendation.

My second point is, the only prudent thing for someone in my position to do is to, as I said earlier, to be deeply engaged with the Chinese, because I believe the only way I can do it, provide electricity in an affordable, reliable, clean way is by reducing the cost of clean

technology, and that's where it's going to happen. It is not, unfortunately, and sadly, is not going to happen in the United States.

The last point I'll make unrelated to your question, but I just can't resist saying this, the – I heard the conversation earlier about national security, I think it's really important. What people have forgotten, that in – you go back to 1978, and basically almost 20 percent of electricity in this country came from oil. We were told to wean ourselves of oil, go build coal, go build nuclear, it was against the law to build natural gas plants, and we went and did that. And so today the grid is not dependent, de minimis amount used in peak periods, but the grid is not dependent on oil. There's just a great misconception in this country that somehow you can make the national energy security argument with respect to the grid. Yes, with respect to the transport sector, but no with respect to the power sector going forward.

MR. RUBIN: Anybody have any pressing questions for Jim? Let me just, in half a minute because we're already – but I am curious, you did the cap and trade thing, you're now advocating research and technology, how would you deal with the politics of getting – if you were running a political campaign, how would you, very briefly, how would you try to get this – try to break through politically?

MR. ROGERS: I actually think that – I believe the best thing that's been invented has been demonized and we need to find a way to resurrect it, and that's cap and trade, because I mean think about – think

back with me to 1990, when George Bush, Bill O'Reilly went to Congress, a democratic Congress, and they passed cap and trade. Capital emissions used market forces to be low cost. I actually believe that is the right answer going forward. And a carbon tax doesn't work because there's 25 states in our country that have more than 50 percent of electricity, and it's the heartland of our country, and the southeast are dependent on coal. And so at the end of the day, there will be this huge transfer of wealth from those states into the coastal states, and that politically is not sellable.

But I do believe that cap and trade could be resurrected and sold. But I think you have to tie policy solutions with technology solutions, because at the end of the day, and I'm a technologist, I believe that technology will drive the answer faster than policy given the muck we're in with respect to policy.

MR. RUBIN: Jim, thank you. Tom, you and I have talked a lot about, and you keep telling me every time we speak on the phone that energy is the future of our country, and I keep telling you, no, worry about our fiscal demise, but in any event, be that as it may, we could agree that energy is really, really important. Why don't you tell us how you and George Schultz managed to defeat a proposition that would have undermined the greenhouse gas emission laws in California, what's the politics of all that, what can we learn from that to go to the points that Jim just raised about trying to be more effective politically, both in states and

nationally? And then I know you're – from the EPA, if you want to make a comment about that, you can do that.

MR. STEYER: Thanks, Bob. As some of you may know, I used to work for Bob Rubin, so whatever he tells me to do, I immediately try to do.

MR. RUBIN: You never used to when you worked for me.

MR. STEYER: You can tell it was rough on me. Basically, when you – the proposition in California was about 23, it was put forward by a couple of out of state oil refiners. I got involved honestly because no one else seemed to be getting involved, and I have a bad temper, and I figured I'm just not going to put up with this, this is just too annoying, pretty sophisticated thinking.

But basically what we did was, we changed the framework for this conversation in California. The traditional framework for this discussion is business people, the Chamber of Commerce arguing that higher energy costs and government regulation are going to cost jobs and raise price, and they're arguing against environmentalists who are explaining that not having these regulations is going to be devastating to us in ten to 20 years, and that was the framework for the previous discussions in California on propositions, and traditionally, the environmentalists had never won, and, in fact, the people who we went out to try and get to join us were very reluctant to do so because they had poured money down unsuccessful rat holes in the past.

But what we did was, we tried to make a very different organization for this conversation, because what we said was, our argument is not going to be about the environment, our argument is going to be about new jobs, the new energy economy and the jobs that it's going to bring, and it's going to be about help, that basically Californians can relate to the idea that asthma is bad, that it's hard to breathe, that that's something which absolutely strikes a chord, and so does jobs in a state that had 12 percent unemployment at the time.

So we never gave up the jobs issue. We won more than half the Chambers of Commerce around the state. We had much better backing from business groups than they did. And we basically were able to say, you can make your argument, and as long as we have enough organization and money to make our argument, we will win, that was what our polling said and that was the truth, we won by 23 percent. We got more votes than any candidate in the United States, we got more votes than any other proposition in the United States.

I think there are two relevant further points to be made about prop 23 before we start talking about what it means outside the courageous state of California. One is, people have a very inaccurate version of who cares about the environment in the United States of America. Everybody seems to think that the people who are most sensitive about the environment are extremely well educated and well-to

do-white people, most of them with trust funds and Volvos. That doesn't poll; let me just tell you, that's not the polling.

The people who care the most about the environment in the state of California are Latinos, by far, number two, Asian-Americans, number three, African-Americans. So one of the things that was true about our coalition, it wasn't just bipartisan, Bob said, we were co-chaired by a Democrat and Republican, and we had both the sitting Republican governor and the candidate for governor from the Republican side voting with us. But we also won every single demographic. We won more than two-thirds of the Republican district. And that's one major point that was different. The second point that was different is this, for elected politicians, it's nice that we poll well, it's nice that we won by 23 percent, that doesn't seem to me to be the actual relevant fact. The actual fact that I cared by far the most about was salience, right. You may be on our side, but does it matter to you at all? How important is this to you? Is this something which is going to change your vote for people running for office? And for the people who voted no on prop 23, we had -- 88 percent of the people said it's either very important to me or it's somewhat important to me, and that meant you could not run in the state of California for state-wide office without taking a position on this, and you could not win if you were on the wrong side of this issue.

So I definitely have the strong opinion when I'm outside California that people think that Californians are a different species who

see the world differently and react different from everybody else in the United States, so let me talk about that for a second.

I don't think it's true, obviously. I think that what's going on right now, I see the same polling data on the same kinds of issues on the EPA. There's this EPA fight going on in the Senate, there are four different measures that have been put up, one of them has been voted on, there are three that are still hanging out there, and there's a strong sense that sentiment is running against the EPA, that, you know, they're doing – they're overreaching, they're a government agency that's out of touch, that the cost benefit is terrible, yada, yada, yada. Actually, that is not what the polling says at all.

What the polling says is that 69 percent of the Americans believe that the EPA is the right place to regulate air quality, 68 percent believe they should do it without congressional interference. So when you actually look at what Americans think about air quality, it is actually exactly in line with what's set up right now.

For some reason, that polling is not something that seems to be getting across, but the conversation outside of California has been changed, in my opinion, by what we did in prop 23.

The fights that are going on over this in the districts or the states which are real battlegrounds are being done on health, and not so much jobs, but especially health and somewhat jobs. And if you've seen the ads, and I don't know if any of you have had the great pleasure of

seeing the ads which are being run by the American Lung Association and the League of Women Voters, but they are extremely powerful, extremely emotional ads showing young kids, specifically a little girl sitting in her mom's lap with a respiratory, and it's asking why are these elected officials supporting the polluters and not the people.

And the point of that comes back to one thing, in my opinion, which is salience. You can't watch that ad and think it's not going to change votes. You can't watch that ad and think that people aren't going to sit around their kitchen table and think this matters, this is an important point, you know, honey, how can we put up with it.

So I actually think that the way – that, as Bob said, I think this is a huge issue, it runs through our entire economy, it's central to our entire economy, and I don't think it's appropriate that we change the way we live, as much as these, you know, we were talking about cap and trade, and, you know, carbon tax, and clean energy standards, these are huge deals, in my opinion, they're gigantic impacts on everybody's life, and I think that if that's going to happen, it's going to happen because the people of the United States have thought about it and what it means. So, from my point of view, it's entirely appropriate as we go forward that we have this conversation very explicitly in ways that people can relate to. I've got one percent of the people behind me already. Let me say one last point.

When you think about this, one of the things that's changed, and I think it's going to stay changed, although I think events may make that not true, but for the time being, it's going – the message is different.

I mean I've been saying to you guys, look, what people care about is not what you think they're going to care about. What normal human beings can relate to in terms of health instead of the environment is not what people are talking about, what I think of as the elite level, but if that's true, if the message is actually going to be different from the traditional message, then the other thing that's going to be true is, the messengers are going to be different.

The funny thing is that in California, the people who had the most credibility, I mean if you watch the ads that we put on TV, and you kind of sit in a room and you – maybe 150 people watch your ad, and they show how much they believe it and how much it's impacting them, the people who had the most impact were the American Lung Association, and the reason they had the impact is, the people in that room believe they were telling the truth about air quality and health. And so if the arguments are going to be about jobs and health, the people who are going to make those arguments are going to be people like Jim Rogers, because they're going to believe. If it's about jobs, we need to hear from business people. We need to hear from people who have income statements, hire people, understand about jobs.

So let me make one last point, which is this, Jim's exactly right, this is a regional issue, it's a state issue. The problems in Ohio or Pennsylvania are extremely different from the problems in New Mexico, State of Washington or California.

So when we think about this, we all want to end up in D.C. with a national policy, but the fact of the matter is, we have to understand the different regions of this country are facing different issues, and we need to have a way to both take in that information and consolidate it, because ultimately, I've been saying for a long time, this is a huge conversation, it's a big, long, ground game in a football analogy, we're going to have to work through this in a comprehensive way, because it's actually a massive undertaking. I think the idea that we're going to come to D.C., it's going to be fourth and 38, and we're going to throw a 50 yard touchdown pass is really unlikely. I don't think we'd get there without the hard work.

MR. RUBIN: Tom, that was terrific. I would love to ask you a whole bunch of questions, but instead, I'm going to take your comments and change the question I was going to ask Mark. Where did Mark go? Here he is. Mark, I know that you're very involved, but I'm going to also feed off what Tom said.

You're very involved with preserving the forest, and if we're going to have a climate change, sorry, if we're going to have a cap and trade regime of some sort, then there will probably be offsets and then

you'll have preservation of forest or destruction – destruction of forest, and at least one question is, how is all that going to work, how are you going to monitor it, how are you going to make it effective?

Another question is, if we don't get a national climate change regime, and, at least for now, the politics are actually very difficult, what can you do that would be effective to preserving the forest, and explain why it is important to preserve the forest. And I'm also very curious, so that's that, okay. I would also like to ask the following question. Tom has just laid out what I at least thought was a very persuasive, well, at least interesting, a very interesting and probably persuasive approach, though I think there are a lot of questions you could ask, approach to dealing with the politics of energy policy.

And the Nature Conservancy is this massively well regarded organization, and you have this tremendous standing. Why don't the – why don't you and the others like you get together and develop a national political program of the kind that Tom just mentioned and try to – if he's right about the polling, then this ought to be doable.

MR. TERCEK: Okay, great. Thanks, Bob, and it's nice to be here.

MR. RUBIN: Any why haven't you done it?

MR. TERCEK: There's a lot of great questions there. First, I'm happy you mentioned forests so sometimes these kinds of forums were focused on energy and climate and, you know, forests – the

destruction of forest is about 20 percent of greenhouse gas emissions. So if you're serious about making a dent in reducing emissions, you've got to deal with forests, so it's good that it's on the table. Second, from an economic perspective, it's a very attractive option. So Jim and I were both part of the U.S. CAP, the U.S. Climate Action Partnership. Duke was one of the many leading companies involved, and Nature Conservancy was one of the NGOs involved. We put together a comprehensive plan, it really was very much – the Waxman-Markey bill relied on our advice a lot.

It was difficult to reach a consensus across that district group. It was not difficult, though, to reach a consensus on the importance of paying to stop the deforestation, and that's for two reasons.

This is a low cost way to reduce emissions, and it's a low risk way, it's a low technology. So as we think about all these technologies in the future, and John Bates' paper talked about how the government can, you know, create the R&D investments to make these new technologies happen, that takes time. And so a good bridging strategy is to reduce emissions from deforestation today, it's low cost and it works.

There's some complexity in the execution, but these are hurdles that are easy to overcome, and we're making – organizations like ours and many others are making great progress all the time. So it's a great economic way to reduce emissions in the near term while minimizing impact on the economy. And then finally, you know, there are all these

additional reasons to care about forest. From a political perspective, you asked about politics, so if we think about the international regime, where are these rainforests? They're in different important places in the developing world. And it's a superb way for the U.S. and other developed countries to engage with the developing countries on this important dimension of climate.

Take Indonesia, the largest Muslim country in the world, actually on its own making great progress attacking deforestation, we have huge commitments there. And interestingly, China is now emerging. It's a very big player in Indonesia on this front, and the U.S. shouldn't be on the sidelines. So there's a whole host of diplomatic reasons.

Brazil, the second biggest economy in our hemisphere, again, huge commitments to saving the Amazon, making big progress, it's important the U.S. be engaged there, and right now we are.

There's a coalition of developed countries who have, you know, we have to fight for the funding, I suppose, but there's something like $5 billion available for funding the next two years, it will be an ongoing struggle to make this work, but the stakes are high. But what about the other benefits? You know, so I run a big nature organization, it's important for me to remind you, if we lose a forest, it's gone for generations, so there's a lot – there's some precious urgency involved here.

And, of course, we care about forests for reasons like biodiversity. You may or may not be motivated by that, but it's important

to remember what forests can do for people, what they do for emerging economies.

Just take the Dominican Republic and Haiti, for example, one island, one ecosystem, but if you fly over, you'll notice in the Dominican Republic, the forests are not in bad shape. You look at Haiti, they've been wiped out. And then the consequences, it's not the sole cause, but a lot of the consequences that we see in Haiti, when these terrible storms occur, you can't attribute it to the tremendous deforestation occurred there, so mistakes are really very vital. So there's a whole bunch of reasons to care about forests.

And Bob said, well, what about policy, it's true, you know, (inaudible) recommended cap and trade, and cap and trade works – lines up very nicely with programs to avoid deforestation. Regulated entities, in this case, in the U.S., who couldn't otherwise reduce their emissions fast enough in the near term could pay for deforestation overseas, it would be the biggest financial breakthrough in conservation ever, and so I still hope we can make it happen.

But it's not like we failed in passing climate policy. We haven't succeeded yet, that's for sure, but, you know, this is a pretty ambitious undertaking. And my colleagues were reminding me, if you look at past environmental legislation in the U.S., it takes a long time. It took about ten years to deal with acid rain. It took more than ten years to phase out TFC's. The old pollution act, I'm told, I was in a different

business at the time, took, you know, 20 years to pass, so the battle continues.

And so I second Jim's thoughts. Cap and trade, as we think about these different alternatives, and the papers we looked at earlier today, as you think about some of the pros and cons in contrast to the cap and trade, I think you'll say in many cases, you know, although demonized, cap and trade lines up pretty well with some of the demerits of these early proposals. So then you come to the politics, and it's hard, but Tom is exactly right, environmental issues poll very well. They don't just poll very well, state ballot initiatives pass. So Tom talked about what happened in California. In Idaho, where – in Iowa, excuse me, where there's been terrible flooding, a sales tax initiative was passed last year, so Iowa is not a kind of – Iowa is not a left leaning tree hugging state by tradition, but as Iowans came to think about their floods and understood how, in the past, lack of investment in flood plains and wetlands creates these terrible floods today, they chose to raise taxes on themselves to invest in those ecosystems in order to protect our of their important outcomes, having – reducing floods, saving topsoil for their ag community, et cetera.

So I think that Tom's right, the polling is there. Jim was right, in my view, the structure that hasn't succeeded yet is not a bad one. Forests are vital, we have a lot of work to do. Tom also mentioned messaging, we have a lot of work to do in figuring that out. And then, Bob,

you asked at the end, why aren't we doing more about it, I mean we are. The environmental organizations are trying very hard to come together and work as one. It's not easy to do. The Nature Conservancy, we happen to be a big one, we're in every state in the U.S., each state has got a Board of Trustees, that's 1,500 trustees across the U.S., about half are republicans, about half are democrats. Our very organization embodies the notion that the environment is not a partisan issue. We need to do a better job of conveying that to our policy-makers, and that's what we're focused on now.

MR. RUBIN: When people ask you, Mark, in that context if we can get a climate, if we can get a cap and trade, if we can get an effective EPA, so forth, how does that effect our international competitiveness, what is your answer?

MR. TERCEK: Well, you know, it's not as if – we lose sight I think in the U.S. a little bit about what's going on in the rest of the world. So I was just in China for a couple of weeks, and, you know, China is moving. China – Jim will know more about this than me, but China is making investments in R&D that we're debating today. And China is moving. China has the commitment – has the largest deforestation commitment in the world. And I mentioned China is investing in saving the forests of Indonesia. So I think it might be a little bit of a canard if we begin to take these actions, it will somehow jeopardize us as these are the nations we compete with. They're moving full speed ahead, and, you

know, by my way of reckoning, they've got it right. The future is different than the past, the early movers are going to garner more of the advantages, and the risk is, we'll be sitting on the sidelines falling further and further behind some of our international competitors.

MR. RUBIN: I'm where you are, I'd like to see us have a cap and trade regime, but your references were the technology as opposed to cap and trade --

MR. TERCEK: Oh, you know, the –

MR. RUBIN: -- or restrictive –

MR. TERCEK: I misunderstood the question, I'll be quick because I know you have others. But the UK announced just yesterday more aggressive targets for reducing emissions. China is talking openly about, well, their new five year plan, and they basically achieved their five year plan. They've reduced economic growth targets so that they can invest more in protecting their natural capital, and they're talking openly about a cap and trade within China. Brazil is talking about a cap and trade. So the world is moving on these fronts, as well, not just R&D.

MR. RUBIN: Well, maybe that will help us with our politics.

MR. TERCEK: Yeah.

MR. RUBIN: Senator Warner, I know you've been very involved, and I'm just going to do this in a very broad way.

MR. WARNER: Sure.

MR. RUBIN: You know so much about all of this. You've been very involved with the military in a whole host of issues with respect to climate change, with respect to transportation, a more effective use of transportation, energy efficiency, the relationship of climate change to our national security and all the rest.

My question to you I guess would be to describe or discuss, whatever you'd like, with respect to the military, but also to add one more point, and that is that historically, research in the military has been enormously important in terms of then moving over into the private sector and commercial sector, with the internet probably being the most dramatic example, and how do you see that process working here, and what do you think the potentials at least are for significantly contributing to private sector and commercial development?

And then finally, if you'd be willing to do it, it would be very, very interesting, obviously, to hear you comment a little bit on how we can most effectively move forward on the politics of energy policy.

MR. WARNER: Thank you, Mr. Secretary. And if I might say, I've had the privilege of traveling throughout this country and working with forums like this, and I want to tell you up front, the Hamilton Project has put together an excellent forum, you can tell it, but it's these forums that are out here on the front lines of these issues right now, because our federal system, and I'm not here to criticize, the Executive Branch and the Legislative Branch have yet to sit down and devise the policy that this

nation needs to go forward in so many areas, particularly to make investments.

You made your career largely on investments, so you know – you'd like to know what's the ball field, what's the goal post, and what is the penalty box. So this we've got to do, but by virtue of the participation of everybody in this room, you're helping to make it work in America, so I thank you.

Now to your question. First I want to pick up on what my distinguished commentator to my left said. He talked about the importance of how the excellent campaign in California, and I learned a thing or two from that listening to you and I'm going to study it, how that was predicated on jobs and health. Well, I suggest this one more element that's very important. You talked about the credibility of those ads, because it was simple and they were understood, but this is the true project on energy and climate change and national security, to report on what the men and women of the armed forces are doing on their bases here in the United States, in their deployed bases overseas, namely Iraq and Afghanistan, and I personally have visited them over there on many occasions while I was in the Senate, they have the highest credibility, ladies and gentlemen, of any single group of Americans right now.

I've seen this pendulum swing all the way from World War II when they had tremendous credibility when they came home to the depths generated by the controversy over Korea and Vietnam; it's back again

where America loves these young men and women. And I'm privileged on behalf of Pew to travel to the bases, as I did on Monday this week, to Fort Bragg, to learn what they're doing. And when I use they, it's the men and women in uniform, it's the privates, the corporals, the sergeants, the colonels and the general. They have a slogan on Bragg, every soldier, irrespective of rank, should think of energy conservation, energy savings, energy -- how do we use it, how can we use less, and how can we use what we have more efficiently? And that's taking charge, and it leaks out into the civilian communities.

Each of our major bases in the United States is supported by civilian communities, and there's a good deal of shift back and forth, after all. Liberty off-base is a little better than on base. So they get to know each other. And the local communities are saying, well, you tried this, maybe we should try it, and the military go out and share their knowledge, as was mentioned here. So that should be added to the two things that Tom talked about.

Now, the other thing that was mentioned, where are we as a country? Again, I'm not here to just advertise Pew, but this is a good report, this is an analytical report of the G-20, 20 leading industrial nations.

Beginning a decade ago, America is on top, now America has tumbled down to third place, China and Germany having taken over. But it shows in detail, but in a good summary, that those nations that have a central policy are gaining the more jobs, the work to do in the clean

energy field. Those that don't, like the United States, are tumbling back in line. So I would conclude by saying, and then we'll go to your question, somebody said it right here, it's going to take time, but it's going to take all of us, we cannot simply look to the President, who has, I think, shown good leadership on this issue.

The Congress, our next speaker, I think is best qualified to describe what the future holds there, but it is our system, and it has got to be made to work, and that pressure to work comes from the grassroots. So to the extent that we can stimulate interest at the grassroots of America, and they, in turn, communicate with their Congress, then we'll see the momentum forward that we need. Thank you, Mr. Secretary.

MR. RUBIN: Senator, thank you very much. One follow-up question, if I may.

MR. WARNER: Yeah.

MR. RUBIN: I know that when I was in the administration, DOPA was an enormously robust center of basic research in a whole variety of areas. Are they still robust in the way they used to be, and secondly, are they focused on these energy issues?

MR. WARNER: I'm really familiar with DOPA, and it's our sort of central tank to decide is this technology worthy of going forward, and do we have the money within the DOD budget to do it, and should we do it. And then they put out the project, a lot of them go work for the private sector funded by DOPA. DOPA is functioning well, except it's

always dragged down by the usual bureaucracy and the paperwork and so forth, but it is moving forward.

MR. RUBIN: And it's focused on these energy issues?

MR. WARNER: It's focused on these energy issues. When you walk on the base today, from the moment you step on it, you will see their consciousness of energy.

MR. RUBIN: Okay. Why don't we now turn to a discussion amongst all of us? I'd like to raise one question – well, would anybody like to raise a question about something that somebody else said before I raise – no, okay. Let me raise my question.

MR. WARNER: Well, I'd like to – to Jim down here.

MR. RUBIN: Senator.

MR. WARNER: You know, as I studied through this history, the United States has led in innovation. You mentioned the internet and we can go on the Teflon all the other things out in space, but we have been the leaders, and we get the ideas, and then suddenly they sort of flip out of our hands, not necessarily in violation of the law, and they go to other nations, which seize upon them and do them and implement them, Jim, why has that happened so much? You've seen that happen.

MR. ROGERS: I think in the infrastructure business that we're in, it's fundamentally different than like Facebook or other iPad, iPod, et cetera. I actually believe what has happened is that we don't have the ability to scale infrastructure in this country. I use the example of

24 nuclear reactors being built in China and zero actually being – dirt is being turned and being built here.

I look at the fact that I'm on the Board of Applied Materials, and we just moved our – which will become the world's largest research center on solar -- to Shiang in terms of the development of solar going forward.

MR. WARNER: Where was it before that?

MR. ROGERS: We didn't have one, because we were just moving into the business, we were doing it in Santa Clara, but we wanted to put it there because – why did we put it there? We knew we could scale it faster there, and there is innovation, Senator, that really comes from actually doing, building, particularly infrastructure, and we haven't had the will to invest the money in the infrastructure here.

And in the private sector, one of the reasons is because our – the real price of electricity has been flat for 50 years, and no one wants price increases during this very difficult financial time.

MR. RUBIN: Let me ask a question that – John Deutch, who I think is in the back, sitting in the back some place now, wrote a really interesting piece, some of you may have – probably many of you read it, it was in Foreign Affairs about two or three or four months ago, I don't remember, about fracking, and the potential for natural gas, and my recollection of what John said was that fracking for natural gas in the United States, and horizontal drilling, had –- was a revolution, and was the

most important development in energy in the last 50 years. Obviously, there are very substantial environment issues that have to be faced with respect to fracking. But is there anybody on the panel who knows enough about this to have a view as to how significant this may be as we think about future energy of this country? Mark and Jim both. Jim nodded his head and Mark raised his hand. Mark, go ahead.

MR. TERCEK: It's usually significant. We have a new source of energy, it's abundant, it's relative inexpensive, it's relatively clean, and it's domestic. These are good things. I think that's black and white. These are really good things. And it's available right now, too.

So a little bit like forests, natural gas can be a bridge toward, you know, newer sources of energy that have zero emissions are much cleaner. There are just some issues we need to be smart about. You know, there's a lot of concern – so there's this rush to pursue fracking and natural gas, and there's a lot of concern about drinking water, and there's a lot of concern about what you do with the produced water, and these concerns are legitimate.

And so industry – it's really important that industry leaders work with regulators to set the bar very high, so that natural gas expiration, fracking can proceed in the safest way, otherwise, we'll lose momentum, lose the trust of the public, that's very important. There are some other important stuff, too. How it's done from a wild life or habitat perspective is very important. You could imagine railroads, pipelines and

pads throughout what are today pristine ecosystems, so we need to move at a pace so that we can be clever about how we do this.

And horizontal drilling gives us some flexibility. These horizontal drills can go extraordinarily long distances, so how you situate the expiration pads, we have some flexibility, but we need to be smart about it.

And then maybe most important from a long term perspective is, natural gas is cleaner than coal, and so natural gas can be a great replacement. It can help us accelerate phasing out the less efficient, dirtier coal plants, that's great, but because of the economics, we don't want natural gas to disincentivize the important investments in wind and solar because we need to get – natural gas isn't clean enough, we need to get to zero emissions, and so we can't let the availability of natural gas upset a lot of the programs that are already in place to incentivize investments in cleaner energy. So balancing that is all the challenge, but it's good news, this is a high class problem.

MR. RUBIN: Actually, my follow-up question was going to precise to that, but you – no, you hit it on the exact point. You've got all these renewable sources, although they're going to be more expensive, if you can solve my (inaudible) fracking the natural gas, and so how do you maintain the momentum on the other?

MR. TERCEK: I mean Joe Aldy's paper talks about that a little bit, and President Obama is talking about it in his clean, you know,

economy standards. You need to – clean energy standards. You need to continue to support in ways that will make it viable of investments in wind, solar, et cetera.

MR. RUBIN: Jim.

MR. ROGERS: You know, I have to plan for 40 to 50 years to build a plant and kind of try to look over that time horizon. And this new Shell gas could be a game changer. But I don't – whether it's real or a mirage, it's still an open question. Because remember, in '07, the EIA had zero, almost zero unconventional or Shell gas in their reservoir calculations of the energy available. The only – if you're concerned about – really concerned about climate, there are some projections that say that by 2030, 37 percent of the electricity in this country will come from natural gas. If we're on that schedule, that basically says we'll be – it will be impossible to reach by 2050, an 80 percent reduction, because of the amount of gas production that's already been built. So I think we need to step away from this and kind of ask the bigger questions, what is the proper mix, will it allow us to achieve our goals, and are there other alternative ways.

And my final point, and Mark did a wonderful job of summarizing it, but from an environmental standpoint, water will be the next oil in this century, and the tremendous amount of water that is used in the fracking process raises significant questions, raises significant study. We just need to work our way through this, because I'm sitting here, kind

of no public policy, is natural gas – is it Shell gas real, and I have to make a decision because I have to make sure the lights come on.

MR. RUBIN: I'll turn to Tom, because Tom – give me one person reaction to a little bit of – I think all those questions sound to me at least like the right questions, but then I wonder to myself, do we have the right political processes in this country to make sensible, balanced judgments on these matters in some reasonable period of time, which I at least think is the most fundamental challenge facing our country, which is the functioning of our political system in the broader sense, both the legislative and executive dimensions of it. Tom.

MR. STEYER: I just wanted to make one distinction about what I think are two different kinds of policies that people set out, and it's with reference to what Jim was talking about in terms of China and solar and, you know, the fact that they are scaling it, they are the biggest producers of solar panels in the world, and they are pushing very hard to be industry leaders in that, and, in fact, they're pushing to be very hard to be global leaders in clean tech, period. They see this as a huge economic position.

But I want to point out that there's a big difference between economic policy and environmental policy, and that sometimes the two don't go together, and, in fact, in China, it's not clear that they go together at all, because at the same time that they are pushing very hard to produce solar panels as efficiently as possible and pushing very hard on

storage, they're pushing hard on batteries, they're pushing hard on EV's, they're pushing hard on a number of specific industries, at the same time they're building a ton of coal plants. If you go over there and look at the environment, you know, how they're actually treating the environment that their citizens live in, let alone anything having to do with carbon, you would think that they were less than fully attentive to those goals.

And, in fact, the solar panels that they're working so hard to scale and to build so cheaply they intend to sell in Germany. So really what I think it's important to think, when we think about jobs in this, what are we going to do that are going to create jobs and also create, you know, how are we going to make our economic policy and our environmental policy coincide? What are the ways that we're going to think about creating jobs, being able to make this transfer from an old energy economy to a new energy economy, just the kind of questions that Jim Rogers is facing.

What kind of plants should we be building? Should we be getting rid of the hundred dirtiest coal plants? Should we be fixing up from an energy standpoint the nine billion commercial office square feet in California? Those are all job related, they're also a question of really what counts from an environmental standpoint.

MR. RUBIN: But, Tom, I was going to ask you when you made your own comments, it does have – and I know Mark responded to this, but it does get a bit complicated. Technology is sort of arguable, I

think, I mean you have to make sound judgments and you have to make sure they're not politicized and so forth, which is a very big consideration.

But if we have – if we do what Michael Greenstone wants to do, and if we include all social costs in the pricing of energy, and if we're competing with countries that don't, how does that effect us economically?

MR. STEYER: No, I understand. There's a real question here which you're posing which has to do – I mean if you think – since there's so many economists around here, it's the prisoner's dilemma. You know, it always pays for you to be the person who cheats.

As long as everybody else is good about anything, the fact that you cheat doesn't make that much difference, and you get the benefit of everybody else, and if they cheat, as well as you, then nothing good would have happened anyway, so you always take the cheat in the prisoner's dilemma, and the question is, how do you break that cycle, you know, what is the means for breaking that cycle? I think there's no way that you break that cycle without leadership. You know, for what it's worth, California has passed laws that, you know, we have renewable energy standards, we have, you know, cap and trade, we have a whole bunch of laws that the United States has chosen not to pass.

MR. RUBIN: But as you said, that was a funny sort of place.

MR. STEYER: But let me say this, we get over two-thirds of the venture capital money for clean tech. The companies that are going to be produced in clean tech in the United States are going to be

overwhelmingly in California. And I think there's a real issue about the job aspect of it, Jim, as you pointed out (inaudible) in the California company and you're talking about locating a significant facility in China, that is going to be a real question, but I think there's going to be – I'll make one last point about this.

If you ask Angela Merkel why Germany has done relatively well for any really industrialized country since 2008, there are a lot of discussions about, you know, union compromises and the society (inaudible) but if you actually ask her, she would say that what happened was, they passed laws to retrofit houses for energy, and that's what put people to work in Germany, and that's what drove their economy. So, you know, she's got the leading economy for an industrialized country in the world, and that's what she believes, maybe she's not that stupid.

MR. RUBIN: I think she's very, very smart. But I mean – that analysis I'm sure has a lot to it. I think there are some other explanations why Germany has done well, but it is true that they had a very large – I mean that is true. I mean they have, as you said, they have a lot of other things, but it's just a complicated question I was – let me – I have one more question and then we're going to open it up to the audience.

Senator, it just occurred to me at this moment actually, the military has enormous purchasing power.

MR. WARNER: Correct.

MR. RUBIN: Why don't they use their purchasing power to catalyze the private sector to engage in both research and actual production of energy efficient transportation, power generation or whatever it is that they purchase?

MR. WARNER: Well –

MR. RUBIN: Could their purchasing power provide a real economic incentive for the private sector to do the kinds of things that we –

MR. WARNER: Let me pitch it back to you then. You've been in administrations and keep jobs. The military's main mission is freedom and to protect it, and they can't be viewed as a mini Department of Energy, taking their budget and spreading it out across the land.

Now, because I watched those budgets for 30 years, and I'm an old chromogen. I mean if you look at me, you probably – all these fancy degrees, my PhD is in the hard knocks of politics, America's greatest blood sport. So I've been there, been grilled and grilled others, so you've got to be careful of that Pentagon budget, because Congress does look at it, and directed at freedom – you're going to get support. When they start spreading out, you're going to get in trouble. But I'm going to pitch the question over here, Tom.

You mentioned the word "leadership", and you're absolutely right about that. Oh, by the way, I think you could make a good senator,

so why don't you give it a shot? But here's the thing, you also spoke I think quite well, and I'm going to do some research –

SPEAKER: I'm getting nervous now.

MR. WARNER: -- about the demographics of the win of prop 23, and the composition. It wasn't just all the people on top, it's a lot of folks down, lesser economic status and lesser learning and so forth. But this is my problem, when we sat down to write this report about the military, we did it very simple, picture after picture of the soldiers and their wives and what took place.

These reports that Hamilton puts out, and I may never be invited back, I tell you, they're beautifully written, but they're frightfully complicated, and they just cannot be used for wide dissemination to get that public support that we need. So as we think about this subject, think about the messaging, and necessary to make it simple and understandable. Do you agree with this theory?

MR. STEYER: No, I think – when you're talking to any audience, the question is, what are they capable of hearing from you, what are they in a position to hear, and sometimes nothing. If you're the wrong person, they're not in a position to hear anything regardless of how right you are. But I want to tell one story and one aphorism. The aphorism that I learned in prop 23, which was – people kept telling me this is not the Harvard/Yale debating society, Tom, and don't ever forget that. I have a friend who is a state Senator from LA, he represents – he's Latino and he

represents a very poor Latino district, and he was in my office talking about clean tech, and I also have another friend who runs a residential solar company, and he has some innovations, you know, software innovations, so it's cheap, they don't have to go to your house, financial innovations, you never have to put any money down, you start getting money back in the first month, a bunch of neat things, and I started to tell my friend who's the state Senator from LA this story, and he goes, Tom, let me explain something to you, the people in my district, if we put residential solar on their houses, the houses will fall down, don't talk to me about that, the people in my district want to hear one thing, jobs and clean tech, if you tell me that, then we have a lot to talk about, and if those jobs are good, decent paying, you know, jobs that people can afford to live on, we've got a lot to talk about, and he was very excited about it.

So I think when you're talking about people sitting around their kitchen table, what is going to be meaningful for them, you can't be too fancy.

MR. WARNER: You're absolutely right.

MR. STEYER: It's got to be something that hits them, their kids at a gut level, and if it doesn't, you're not getting through.

MR. WARNER: But you do agree, we've got to build this fight from the ground up, and we need those people.

MR. STEYER: It's not happening without them.

MR. WARNER: Right.

MR. STEYER: That was what I was trying to say. This is going to be a football ground game. If you don't have that ability to grind it out, I don't think you win.

MR. WARNER: I couldn't agree with you more.

MR. ROGERS: Mr. Secretary, let me just add one thing on the jobs --

MR. RUBIN: Jim.

MR. ROGERS: -- because it's really a critical point that Tom made. We need to get 13 to 15 million jobs in this country by 2016 to get unemployment down about four to five percent. And if you think about the power sector, if we had the – if we had a clear path and we could go through the modernization of our (inaudible) plants, 40, 50, 60 years old, many coal plants haven't been retrofitted, need to be torn down and new plants built, new technologies. Just in our industry alone, for every billion dollars we spend, that creates about 15 to 20,000 jobs either directly or indirectly. So if we started on a path of modernizing the generation fleet, if productivity gains, and transmission and distribution, and beyond the meter, I think that gets us on the way to the 13 to 15 million jobs we need to get back to a four to five percent unemployment.

I think using the word "green jobs" is too limiting. I think we need to talk about jobs more broadly, because people don't understand green versus orange versus red, what they understand is j-o-b-s.

MR. TERCEK: Can I make one more point exactly in line with that, Jim? We had really low – I mean California is an extreme case, we had five percent unemployment, and that was very heavily dependent on a construction sector that was going crazy. I mean we had a housing boom that was incredible, and it ain't coming back, and Americans are smart enough to know that. So when they look around and say where are the new, decent, good paying jobs coming from, it's going to be something new, it's not going to be going back to housing, we're not going back to the housing group in the foreseeable future.

MR. RUBIN: The Senator has just reminded me, and he's right, we should allow time for questions, and so we will take questions from – let's see, we'll start over there.

SPEAKER: (off mic) for all you gentlemen, and I know Jim and Senator, you know, in the spirit of Alexander Hamilton, Secretary of Treasury, Secretary Rubin, Senator Warner, you asked the most operative question, perhaps one of the most insightful questions I've heard in over a decade, and Jim began to answer it, and I have great respect, Jim, for you.

The question you asked, and Jim answered, and he used the word "infrastructure." Now, I have been a serial entrepreneur, I have founded 13 technology companies, including IP Communications, and why the internet took off wasn't software, it was because the infrastructure underneath was built, and it was built on low cost capital because the

public equity markets were throwing money at building pipelines, ADSL, DSL, IP networks, the building of Cisco. I have started medical device companies. Now I'm the chairman of a solar company and a battery company, and I spend a lot of time in China. The root cause of what we're all talking about – and let me also point out that Evergreen Solar is near bankruptcy, GT Solar, which I helped start, moved to China, applied open centers in China. The root cause, in the spirit of Secretary Hamilton, is the cost of capital.

Jim is one million percent right, in energy, more than medical devices, software, communications, I've done all of these start-ups, but in energy, and you might as well be talking about –

MR. RUBIN: Equity capital or debt capital?

SPEAKER: Equity capital; I've raised a half a billion dollars of equity capital. Equity capital.

MR. RUBIN: So that becomes what?

SPEAKER: The question really at the heart of America creating jobs, and why China is a jobs engine, it's the cost of capital is relatively slow globally, it's plowed into infrastructure. We might as well be talking about transportation, food, clean water, or energy here, it's the common denominator which America has to get its grips around.

MR. RUBIN: Yeah, but what is the question?

SPEAKER: My question is, we as a nation are incapable of doing long term planning, long term infrastructure, moving hundreds of

billions of dollars to capital, where it needs to be moved, because we're on this two year congressional cycle, one year message of the tax code, until we answer as a nation that word that Jim rightfully said, infrastructure, we can't build anything of consequence, and if you don't build it, you don't create tens of millions of jobs.

MR. RUBIN: I'm not sure quite what the question is, but –

SPEAKER: The question is, I'm asking you as former Secretary of Treasury, in the spirit of Hamilton, how do you mobilize capital in America to invest in infrastructure?

MR. RUBIN: Okay. If you're talking about private capital, Mark would know massively more about this than I would, but there's a lot of – I think a lot of people looking at this question of public/private and trying to get private capital into – am I right?

MR. TERCEK: Uh-huh, yeah.

MR. RUBIN: In terms of public capital, I think we have a heck of a problem, because we have an unsustainable and really deeply dangerous fiscal situation, and what it's done is, the progress of the ability to make the absolutely critical public investments that are – I think you're right, that are essential to our future, and one reason I would say – while I agree with Tom, that energy is key to our future, I think getting back on a sound fiscal path is, because then we'll be in a position where, within that context, if we make a decision about priorities, we can invest in the kinds of things you're talking about. But the politics of all this are extremely difficult, so

for me, at least, it all comes back to our political system, and that I think is the ultimate challenge of our society, one person's view. Way in the back.

SPEAKER: I just want to piggyback on some of the things that I heard and then –

MR. RUBIN: But you've got to make it brief so that other people can ask questions, as well.

SPEAKER: Absolutely; so it seems to be that the most intriguing thing that was introduced today is this idea that we have to reset the baseline of social behaviors to new norms, because ultimately, if you don't convince the American public that it's the right thing to do systemically, it's not going to happen politically, fiscally, or, you know, when it comes to global issues and getting into treaties that are going to help move the needle in a big way. So I thank Secretary Rubin for asking the question of Jim Rogers, how do you resurrect cap and trade, which has been tarred and feathered and needs to be rebranded, and bring that back, or barring that, what are other things that you can do with the speed and the scale required?

And I'd just say that I think Jim Rogers, I feel like I'm going to sound like a shield for him, but I think his being at the head of Duke Energy is like having Teddy Roosevelt, you know, in charge of standard oil 110 years ago, and I think that's not an overstatement, I think that's true.

To have a champion like that, you know, on the power production side with that much influence is huge. And he's smart and he

knows he wants to have a seat at the table as these discussions evolve, and he doesn't want, you know, policy to hamper his business goals, so he's a smart business man, and I think that comes back to some of the analogies that were brought up.

And Senator Warner resonated with me the most. I've been helping to build small emission reduction projects in the developing world and the least developed world, and so Nepal, we actually had a micro hydro facility going up, and there was a Maoist revolution there. So we sort of feel like the mass 4077, way out into the bush, and our forward cover keeps getting pulled back –

MR. RUBIN: Translate this into a question.

SPEAKER: Yeah, so we keep having to back out, and we'd like to get involved in our own backyard, and the forward cover being pulled out is the U.S. withdrawing from Kyoto, you know, with nothing significant, there's no coherent energy policy going on in the United States, we're playing the mixed metaphor sort of – well, no, stick with the surgical metaphor, we need to stabilize the patient.

The clean energy policy that we heard today is great, it's (inaudible) surgery, really what we need first is a silver part to come in, which, to me, the silver bullet is energy efficiency.

MR. RUBIN: Let me see if I can cut through those metaphors.

SPEAKER: Well, I'm going to get right at my question now.

MR. RUBIN: No, I think you just got to it. Let me try to do it for you.

SPEAKER: Yeah.

MR. RUBIN: I think your question is, how do we get some political fashion behind putting in place a cap and trade, or equivalently, or at least somewhat equivalently effective set of policies in this country; is that a fair –

SPEAKER: I think that's right.

MR. RUBIN: Okay.

SPEAKER: But the question is actually about energy efficiency, it's the low hanging fruit, it's where, you know, groups like Duke Energy can get the most bang for their buck, and I'm wondering why we're not using that to give the American public an economic incentive to do the right thing at scale and at speed.

MR. RUBIN: I thought Jim's – I never heard this expression before, that China is developing the intellectual property, the IPR of scaling, really that's – that was one comment I'll take away from here because I can use it, and the other is this comment about people with trust funds and Volvos, that was very good. But, Jim, why don't you take that on?

MR. ROGERS: I think at the end of the day –

MR. RUBIN: Teddy Roosevelt, by the way, ultimately destroyed his health by going down the Amazon, the river of doubt, so I wouldn't recommend you do that.

MR. ROGERS: No, and actually Teddy Roosevelt is one of my heroes, mainly because of his quote in The Man in the Arena. But I think the important point here is, we have to invest in energy efficiency. We can do it by having people, behavioral changes, but that takes a long time. I think technology is evolving today where we can deploy the technology and make it as back of mind as flipping the switch is turning on the electricity. So until we can make energy efficiency that back of mind, you're not going to get the rapid adoption of it in the future.

MR. RUBIN: Yes, sir.

MR. HOLTMAN: Hi, Nate Holtman, University of Maryland. Whether you're talking about cap and trade or a tax, you're talking about a lot of revenue, and I heard a couple of comments about how do we get traction on each of these issues, and so I'm very much interested in whether the panel thinks there is any traction on the revenue side, both for thinking about funding of clean energy innovation, R&D, and also about the side for thinking about individual people and whether there's some kind of dividend option for either of those programs.

MR. RUBIN: You mean by a dividend option, some sort of a cap and trade with an option, and then you somehow redistribute the proceeds, is that the idea?

MR. HOLTMAN: Yes.

MR. RUBIN: Anybody have a view on that? Mark, Jim.

MR. ROGERS: Yeah, I do have a view. One of the biggest problems of cap and trade is, they try to turn it into a system where it generated revenues that were reallocated. The primary purpose of cap and trade is to smooth out the inequities of putting a cap on carbon and reducing it over time.

So in a real sense, the notion of trying to take the dollars generated and redistribute it for other purposes, in my judgment, doesn't allow us to achieve the objective of bringing our entire country forward in terms of moving to a low carbon world.

MR. RUBIN: Tom.

MR. STEYER: Could I just second that? Because I think when we think about some of these policy options, there's a little bit of judgment and a desire to do justice in them, and actually what we really need to do is move forward. And Jim's point is exactly right, our job is not to punish people who are producing a lot of carbon, our job is to have our economy move forward and to not – we're not going to win politically if we go around punishing people. Really, it's not about reallocating money, it's about getting the most efficient energy economy we can have.

MR. RUBIN: Maybe I – I must have misunderstood, but are you all saying that we should auction the – we shouldn't have an auction – we just give it out?

MR. ROGERS: No, because having been through the debate in the last cycle, there were a lot of people that said, yeah, we can do an auction, and then I heard one major leader in the Senate say, boy, that would be perfect to take that cash and use it so solve health care.

So once the dollars get in the appropriations process, my answer to him is, how about this ecologically crisis climate change, shouldn't we be – if we're going to use the money, use it for that, and I know because of the appropriations process, it'll never get back to solving the problem. So I'd rather solve the equity issues, because think about it, Mr. Secretary, go back to the '70's and '80's, particularly the late '70's, our policy was to build coal, build nuclear, and wean ourselves from oil. We did that, and a lot of states really built coal plants, Three Mile Island happened, we didn't build more nuclear plants, and now they come back, they were carrying out national policy, now they come back and punish them for having carried out the national policy, it's just hard to sell, because, as I mentioned earlier, the 25 states who were carrying the policy out and building coal plants when more than 50 percent of the electricity comes from coal.

So I view the allowance dollars should be to smooth out the impact, because you want everybody committed to moving to a low carbon world.

MR. RUBIN: You may well be right, I don't have a view on it because I don't know nothing about it, but somehow or other, if we're

going to have a cap and trade, and if it's going to increase the cost of energy, it seems to me we have to have some mechanism for dealing with the anti-progressivity aspect of that. And I'd always thought that one thought was, you auction these, you get the revenues, and then you somehow or other allocate those back for that purpose.

MR. ROGERS: The way the government was structured and some of the proposals is that utilities would be the tax collectors, the government would send the check. But under – and so they were Santa Clause, we were the bad guys. And so our approach is mainly using the allowances that flow through the customers to minimize the rate impact on consumers.

MR. TERCEK: (off mic) And, Bob, this really comes back to the point that different states, different regions state very different energy efficient, so that you're concerned about equity, but really what Jim and I are trying to talk about I think does address your equity question, because we're really talking about the states that have a lot of coal, getting the – that the money goes back to them, so you're not punishing them for being who they are. And your equity issue, those tend to be not necessarily the risk of states in the country.

MR. RUBIN: Okay, always gets me back to the same issue, which is these are technically and subsequently immensely complicated issues, but this is (inaudible) analysis, the problem is, how do we get our political system to actually engage, address the issues the way you would

in a business, and then reach a conclusion? Do we have time for one more question? Okay, we have time for one more question, that gentleman right there.

SPEAKER: (off mic)

MR. RUBIN: It wasn't you actually, it was this gentleman here, I'm sorry.

SPEAKER: I'll be brief out of respect to the Senator and everyone here. As a former political operative and a recent business school graduate, I appreciate the comments of the panel. And to go to the ground game analogy that you used, my question briefly is, what are some of the – in light of the policy vacuum that's been discussed, what are some of the low hanging fruit politically and business-wise that will get the traction to get these first downs to move the ball down the field? So politically and business-wise, what are some of the things that can be done to either catalyze momentum, business or politically, to solve some of these issues?

MR. RUBIN: Low hanging fruit.

MR. ROGERS: Low hanging fruit, it's a regulatory paradigm, right, so we make as much money putting a dollar in energy efficiency that we get from putting a dollar in a nuclear plant. If they did that, we would put the money into energy efficiency and drive it forward, that is the low hanging fruit.

MR. RUBIN: Senator Warner.

MR. WARNER: Well, I just want to say that I really challenge the Hamilton organization to try and work on this issue of messaging. You pick up on what Tom said, you've got to understand that audience and the audience we need, we need other documents than the ones we put together.

MR. RUBIN: Thank you all, and thank you for being with us.

MR. ROGERS: I'm just thanking Senator Warner for being here and for that last suggestion about Hamilton really doing some serious work, because Bob Rubin doesn't have much to do, so this will give him an opportunity to make himself productive.

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I, Carleton J. Anderson, III do hereby certify that the forgoing electronic file when originally transmitted was reduced to text at my direction; that said transcript is a true record of the proceedings therein referenced; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were taken; and, furthermore, that I am neither a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

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Expires: November 30, 2012