Clean Money

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Greg Dalton: Welcome to Climate One at the Commonwealth Club. I'm Greg Dalton. Today, we're plugging in to the country's clean energy markets and how they are funded. Renewable power has been growing quickly, and now accounts for one-fifth of electricity generated worldwide, according to the International Energy Agency. Getting away from fossil fuels for transportation has been a tougher slog. Batteries for electric cars remain expensive, and biofuels using inputs that don't compete with food have been slow to develop. Yet, looking at the recent freak weather, biblical floods, epic droughts, fires, melting icecaps, the imperative of delinking carbon pollution from economic growth is stronger than ever.

Over the next hour, we'll discuss financing and building a clean energy future with our live audience here at the Commonwealth Club in San Francisco. We're pleased to be joined by three experts. John Bohn is CEO of the Renewable Energy Trust. He also is a former CEO of Moody's Investor Services and a former chairman and CEO of Export Import Bank of the United States. Dennis McGinn is president of the American Council on Renewable Energy in Washington DC. He is a retired Vice Admiral in the United States Navy where he commanded the 3rd Fleet in the North Pacific. I should also mention he's a member of the Climate One Advisory Council. Clint Wilder is author of "Clean Tech Nation: How the U.S. Can Lead in the New Global Economy," and is a senior editor at Clean Edge, a research and global online publishing firm.

Please welcome them to Climate One.

[Applause]

Admiral McGinn, let's begin with you. I know you're a grandfather so, if you were to characterize the clean energy economy, would it be an Olympic athlete in tiptop physical condition, would it be an adolescent kind of finding its way and identity in the world, or would it be a toddler just learning how to go from crawling to walking.

Dennis McGinn: I'd say somewhere between a toddler and an adolescent. Maybe a third or fourth grade. But speaking about toddlers, I want to go back to what you said about some of the things that are happening. About two weeks ago, I was in Denver with my -- one of my granddaughters, two and a half years old. We're at the Denver Zoo. And as we're walking those wonderful pathways seeing these terrific animals, well-cared for, it suddenly occurred to me, "Am I ever glad that Noah believed in climate change." And not only that, but he had a nice adaptation strategy. And if he hadn't done that, he -- we wouldn't be at the zoo seeing those wonderful animals.

Greg Dalton: Great. Well, John Bohn, is there enough money for clean energy investments and they're just looking for the right projects and matching up, or is there not enough money getting into the system for clean energy?

John Bohn: Two different questions. There's plenty of money around looking for ways to get into the clean tech business. The problem is that it's -- if you like messed up, because there is an intersection between the regulatory process and the investment process. Much of what has happened over the last few years is a creature of government. It's a creature of policy. It's a creature of wanna be. It's the normative approach to the world. We want to be clean tech. We want

to have -- we want to have -- we are concerned about climate change. We're worried about all of that stuff, and therefore as a matter of government policy, we have created all these incentives.

What the government gives, the government also takes away.

And money is nervous. It goes where it's welcome. So we have, on the one hand, a whole series of the important incentives moving us in the clean tech direction. At the same time, there's a basic distrust of relying on government policy when you're investing money. And that's the big dilemma that's going on now. If you have an incentive that is -- one or two-year incentive or something's gonna change, or if the debate gets into the political arena, particularly the partisan arena, money just says, "Well, we'll wait until this gets sorted out."

So part of it is a question of structure. But part of it is the struggle for clarity on the part of investors.

Greg Dalton: So we have a third grader with lots of money in their pockets. That's what we got so far. Clint Wilder, you wanna comment on that in terms of the inevitability of this? Is it money waiting on the sidelines?

Clint Wilder: Yeah. Yeah there is. I wanna go back to, Greg, what you've said at the beginning about delinking carbon pollution and economic growth. That's sort of, at Clean Edge, and in our book, Clean Tech Nation, we kind of spin that around and say, developing clean tech, non-carbon or less-carbon technologies is critical to economic growth for our nation or any nation as we move forward. So, it's -- this false choice of environment versus economy, you know, we're still fighting it in the political and partisan arena for sure, but that's --we're kind of on the bandwagon to try and say, "Look, these are the critical industries of this century." The nations and companies and regions that lead them are going to be economic leaders as well as moving clean tech forward.

So having said that, yeah, I think there is a lot of money on the sidelines. As John was just saying, in this -- in the political season, there's a lot of wait and see.

But we think there are a lot of potential new innovations in financing, both public, private or a combination of the two, that can really move this forward, and I think we'll probably get into that, into some of that in the discussion.

Dennis McGinn: Well, if I could comment, Greg, briefly on something that Clint touched on and that is, I think behind the psychology of those who would deny climate change or doubt it seriously, is this belief that it's a zero-sum game. I can either have, you know, a healthy environment locally, regionally, or globally. Or I can have a good quality of life and environment, especially in this country. And the fact of the matter is, that you can have it both ways. In fact, it's a triple win because it's a win for the environment, it's a win for the economy, and it's a win for quality of life. And we're proving this in the investments and the growth in renewable energy. Everybody loves electricity. But not too many people wanna live five miles down wind from a coal-fired power plant.

But we're saying, there are alternatives. We can still have all the electricity we need used wisely and efficiently, but we can get it in ways that we couldn't before, because of the scale of renewable energy.

Greg Dalton: Let's talk about where some of that growth and that generation is happening. Alaska has seen green jobs, and I'm not sure exactly how they define green jobs sometimes. That's very expansive. A person who drives a bus powered by natural gas is sometimes considered a green job. But Alaska's green job went up 98 percent from 8,000 to 16,000, Wyoming, 53 percent from 4,000

to 6,000, Nebraska from 10,000 to 15,000. These are red states with real job growth because of clean energy. And yet we don't seem to hear about that in our political debate, which makes us think that, if you listen to the national political debate, you wouldn't think that there's real green jobs in red states. John Bohn?

John Bohn: Well, I think that's fair.

Again, going back to this partisan exercise, you have two circumstances. One, you have the debacle of Wall Street 2008, which has created a monumental distrust as far as the people are concerned, with Wall Street financial techniques, investment bankers, all of that. There is a real if you want, antagonism out there to money sources, people who are playing in the money -- in the money business.

The second part of it is even more, I think, troublesome. The parties, particularly the Democrats and the Republicans, have talked themselves into this either/or thing that Dennis was talking about. You can't have real environmental protection because what it'll do, it's a matter of national security, it's all of those kinds of things. But the answer, I think is, and hopefully we'll get to this when the political season is over. I think the answer is different. I think the answer is you can have both, but what we failed to focus on is the time element. You can't get there from here in a decade or two. These are huge transformational forces.

We've got our own national security. You're talking about you need affordable, reliable energy. So the debate says, "Well, we can't have that if it's just renewables." True enough. There will always be a place for, in my judgment, combined cycle energy and all of that kinds of things. But our task is not to go from A to B instantly. Our task is to modulate that transition over a couple of decades, so we preserve the good part of our electrical system and our power generation. At the same time moving to a better part and an increasing contribution for that part. That's the time thing that's the problem.

Clint Wilder: On the green jobs in red states that you were talking about, that is absolutely happening.

And I think there's no better example than the wind power industry, where you see -- if you take the debate out of inside the beltway, you know, the Capitol Hill fights. And you look at the number of Republican governors who are supporting this critical incentive for wind called the production tax credit which is in jeopardy right now. So they're differing from their party and their party's presidential candidate on this issue. But the governors of Kansas, Iowa, North Dakota, so on down the line, they know what the wind power industry means to their states.

Iowa is the second most productive wind state behind Texas, another red state. South Dakota which has a smaller overall energy demand gets 22 percent of its -- all its electricity from the wind. So again, as I say, these are -- this is not about tree-hugging and Birkenstocks. These are real jobs, often -- both installing but also manufacturing the wind components. So you know, the kind of the -- at least politically, the holy grail of American manufacturing jobs, the wind power industry is making that happen, and almost all of it is in these red states.

Dennis McGinn: This third or fourth grader, we're calling the Clean Energy Economy Transition, you know, knocks things over and creates a little turbulence. And John is exactly right. It's not whether a question of if, it's a question of when and how fast. And we've got to try to figure out ways, the right kinds of policies, investments, technologies that try to smooth out that transition, that turbulence. But there'll always be turbulence, and change usually doesn't have a big constituency. My wife has a wonderful cross-stitch sampler that says, "When God closes one door,

He always opens another. It's just hell in the hallway." [Laughter]

And the hell in the hallway is this turbulence of change going from what has been a very, very vibrant economy, has made the United States the world leader, based on, in large measure, fossil fuel. And we are going to a clean economy, we're just looking for that next door to open a little wider.

Greg Dalton: I mean, Admiral McGinn, you had a national association based in Washington. Are these state voices heard in Washington? These governors where the job growth is happening, or do they just get -- does that just get lost in the mud and the muck in the swamp of Washington?

Dennis McGinn: No. I think -- I think it really is being listened to in various ways. You don't hear that in public pronouncements because of the campaign season and the rhetorical firebombs that are being thrown. But I think that quietly to key members of energy committees or perhaps tax committees, especially given the gravitas of a governor that is seeing the benefits of wind energy or solar energy or any other form of renewable energy, saying to a chairman or certainly to their state, their delegations in Congress that represent their states. We really, really need to continue the production tax credit, for example. We're losing jobs, and we'll continue to lose jobs until we have some sort of stability. The stability that John mentioned about, you really do need to create a long term visionary policy that invites money, or creates market certainty, so that it lowers the reality and the perception of risks in the minds of investors.

And the frustrating thing is there's literally tens of billions of dollars of investment capital that are waiting on the sidelines, looking for the right opportunity to invest in this clean energy economy, but they're so afraid in many cases, that government policy will pull the rug out from under them by changing a mandate or changing a tax policy, or changing some other aspect of government involvement.

Greg Dalton: We had Jim Rogers, CEO of Duke Energy here say that, "The political cycles are two years, four years, six years. And yet investment cycles for energy are 20 years, 40 years, 60 years." So the capital cycles and the political cycles don't line up no matter who's in power. So that's a structural impediment to getting this thing done. John Bohn.

John Bohn: It's got -- it's got partly to do with that, but it's got also a partly to do with this, I would argue, futile search for a national energy policy. We spent a lot of time and a lot of rhetoric and a lot of money trying to develop a national energy policy. The real policy leadership has come from the states, to Clint's point. And a lot of it has come from people like Mike Peevey at the PUC here in California.

At the same time, we move forward in this policy in the area of renewal portfolio standards, and all the kinds of things that give renewable incentives in the industry to build and develop. At the same time, we in California have empowered everybody to stop everything. So, what we have is on the one hand, the policy initiatives that are moving forward, I think principally again at the state level, but in this excessive democracy if you like and out of our real concern that something might go wrong, it costs a lot of money to do simple tasks in California in pursuit of renewable energy.

Greg Dalton: Sounds like you're supporting Governor Brown's proposal to revise the California Environmental Quality Act?

John Bohn: Well, yes indeed. And I hate to say that as a card-carrying Republican. But the answer is yes. What we have done is to create the ability of people to abuse what is a truly, I think, innovative and important piece of legislation.

And the abuse takes the form in the reluctance of trial judges to dismiss frivolous complaints. You can almost always get a Superior Court judge to let the complaint be heard, which stops everything, which costs the developers money. And years go by, with frivolous attacks on a project. And there is no mechanism by which you can resolve the issues in a reasonable amount of time. There's a lot of money that's around and has been spent in wasted energy, wasted time.

The Environmental Act is an important piece of legislation. It's been badly abused and continues to be badly abused. And the problem is you can't ever get final resolution so that you can do something.

Dennis McGinn: It sounds to me like we need a cap and trade program. We need to put a cap on a number of graduates of law schools, and trade them into electrical engineers. [Laughter]

Greg Dalton: We're not getting that through a legislature full of lawyers. But okay. Clint Wilder?

Clint Wilder: Yeah. As a card-carrying environmentalist, I'm gonna agree with John on this.

Dennis McGinn: Should I back out of the way here? [Laughter]

Clint Wilder: And because this conflict, I think you know, we're referring to is siting solar plants or wind farms in possibly sensitive habitat areas, and that kind of thing, where you actually have the traditional environmentalist community and the clean tech development community often at odds. And I think you need to step back and look at the big picture. I mean, if we were talking about a big solar plant that can replace many, many megawatts of fossil fuel power to make some impact on reducing carbon emissions. I mean, if we don't get carbon under control, there isn't gonna be good habitat for any species.

So, you know, I think that we have to like transform these debates of the past of, "Oh, it's a big project. We as environmentalists, need to oppose it," then look at that big picture on the entire environment of the planet.

Greg Dalton: Let's talk about natural gas which is changing the energy landscape for both renewables, nuclear, coal, everything. How is that cheap natural gas, which today is under $3 per million BTU, no one expects it to stay there but everyone's kind of anxious, it could go lower. Let's talk about how that's impacting. Is it really pulling the rug under renewables. You -- John Bohn, you said earlier, you thought maybe the government would do it. Cheap natural gases doing just as much to undercut energy there.

John Bohn: I think that's right. We got lucky in this one. We suddenly discovered that we have all this natural gas and the market has not yet a chance -- had a chance to equilibrate. We will, I suspect, in the not too distant future, begin to export natural gas. The global markets will begin to equilibrate, and the price of natural gas will go up, I don't know, I've heard estimates from $4 to $6 is a kind of a stability figure, you know.

Greg Dalton: In Asia, it's in the high teens, mid teens.

John Bohn: Yeah. So, you can see, the draw of exporting natural gas to places like Asia. It is impeding if you want the renewable development. It slowed it down some because people are asking the same kinds of questions that you were asking. Nonetheless, I think we've passed the stage where the -- certainly the people who stayed in California, but I would argue, the people in the United States. We passed the stage where the question is should we do renewable, should we not do renewables. It's really now what kind of renewable, how fast can we do it, and do we and to what extent do we need government support. Because at the end of the day, government support has

taken the money out of one taxpayer and given it to somebody else.

Greg Dalton: John Bohn is the CEO of Renewable Energy Trust.

The other guests today at Climate One are Dennis McGinn, president of the American Council on Renewable Energy, and Clint Wilder, author of *Clean Tech Nation*. I'm Greg Dalton. Admiral McGinn, you're head of an organization for renewable energy, natural gas is not renewable. It's a fossil fuel. Do you support development of natural gas, even though it's cleaner than coal?

Dennis McGinn: I do, to a point. It ought to really be the transition fuel that we always envisioned it to be. It certainly got a lower greenhouse gas footprint significantly than coal. And I think it can operate in a very synergistic way with renewable energy. It can come on and off in terms of firming electrical power much more quickly than coal fired or even nuclear plants. You have to effectively boil water, turn it to steam and takes a while to heat it up and cool it down. But you can dispatch natural gas produce electricity a lot faster. And that's good for dealing with intermittency issues with wind or solar for example.

On the other side of it, you have this wonderful cost of fuel for renewables, which is effectively zero, that is a great hedge about any type of price volatility or inevitable price rise over the next 5, 10, 20 years. So if you put yourself in the position of a regulator or a regulated utility, you know, I don't think too many of them are going to make a bet for power purchase agreement of 20 years that we're gonna see sub $5 an MCF gas prices for that whole time. So it's nice to have this synergistic mix where you do have a hedge. The other, I guess, an addition to the likely export of natural gas, is gonna drive up the cost, is that, we are converting to -- from coal to natural gas for power production. In the northeast, we're seeing a conversion from home-heating oil to natural gas.

The price differential on a BTU-to-BTU basis is six to one. So it really makes a lot of economic sense to do that. We're going to see a slight increase in the cost of producing and delivering natural gas because of concerns of about methane leaks, for example. The water challenge of hydraulic fracturing is significant, especially in the western part of the United States. And there's some infrastructure things to be dealt with in terms of gas pipelines. The tragedy in December of 2010 down in San Bruno is an example. We need to make sure that we are making investments in this commodity's distribution.

But bottom line, I believe that natural gas and renewables can in fact help each other and help us all in terms of delivering cleaner power than our present portfolio is, and to do in in much less expensive way.

Greg Dalton: But as a bridge to the future, how long is that bridge? Once companies and states put a lot of infrastructure into natural gas, it's hard to get off that bridge when you got jobs and capital that are invested in what is then the status quo.

John Bohn: Right.

Greg Dalton: So some have said that's a bridge to nowhere or --

John Bohn: Sure.

Greg Dalton: -- if you know -- Clint Wilder, you're --

Clint Wilder: But as Admiral McGinn was saying, they really do pair well together. So at Clean Edge, we really see natural gas and renewables growing together for a while. And for example, I think is the largest natural gas plant in Florida by FDL has a big solar component as well. So that --

kind of solar shines during the day, and then the natural gas, you know, is on as well but fills in where the solar can't produce.

Dennis McGinn: I've visited that plant in Florida and it's exactly what it does. And basically, you have the option of best value, least cost choices. And we're starting to see this as we start to get microgrids of what are the effectively the so-called smart grid where you have multiple sources of power generation on a grid.

You can make choices about what's -- is the sun shining, the wind blowing, is it bio-mass producing, or do we need to use natural gas or another form of electricity. And you can also do better balancing of load versus the power generation to manage load in a way that doesn't affect quality of life or economic productivity.

Clint Wilder: And another thing about that I've noticed since the natural gas boom, if you will, it seems to have knocked out most of this conversation about clean coal, which I think is a good thing, because, the clean coal technology is just not there at all today. And you know, it was kind of a pipe dream to preserve the coal industry, that I don't think makes sense.

Dennis McGinn: When I was a young guy coming up, and still believed in Santa Claus -- actually I still do, but the -- if you weren't a good kid, you get a lump of coal in your Christmas stocking. What kind of message was that? [Laughter]

John Bohn: Part of the -- I think one has to recognize that the traditional structure of the public utility is both part of the solution and part of the problem. It's part of the solution because, at least in California, they have been directed to buy and encourage through renewable portfolio standards or others, to encourage investment in renewable energy. They've got percentage limitations that they have to meet by certain times.

They're also part of the problem, because it is a traditionally centrally-directed monolithic sort of structure. And it is largely the utilities that have a monopoly in addition to delivering electricity, in producing PPAs that permit people to develop solar energy or wind energy.

Greg Dalton: Their power purchase agreements.

John Bohn: Okay, I'm sorry. Yeah. Power purchase agreements. So, in the one hand, you have the utility which is pulling the renewable industry. On the other hand, you've given them the power to sort of dictate the terms on which that will take place. We're working our way through a change in the utility model from what it has been traditionally to, among other things, the thing that Dennis was referring to, a series of microgrids. A series of distributed generation capabilities. That's a tough thing to do when you have billions of dollars of steel in the ground, around a model that's worked very well for a number of decades.

Dennis McGinn: Centralized power.

Greg Dalton: Well, one area of innovation around that is community choice aggregation. Giving the people the choice to get their electricity from different places. That's been tried here in San Francisco. It's happening in other places. Is that something you support, more consumer choice in electricity, John Bohn?

John Bohn: Well, I have traditionally been quite skeptical of community choice aggregation. And I've been skeptical not because I don't believe in choice. It's just that I have yet to see the numbers that on an apples-to-apples basis, permit the community choice aggregation system to compete honestly with the price at which a public utility can deliver that same power. The jury's out in my

mind whether or not this --

Greg Dalton: But if people want to pay more, could they have that choice, just like they can pay more for a Mercedes than a Toyota, something like that?

John Bohn: And they can do that through a utility. The most utilities will say, "If you want to pay more, then PG&E had a program where you can pay $5 more and get green energy." Green energy is simply an allocation of all of the electrons out there, we're gonna say this many of those electrons are green, and we take them from a particular power source and you'll get some of those.

In actuality, it's simply an allocation process.

Clint Wilder: Well, I live in Marin County where we have this, it's called Marin Clean Energy. It's the first large-scale application of the community choice aggregation. And it's been very successful so far. There are three towns that didn't join it at first, and they have subsequently joined it because it seems like a good deal to them. You can pay more if you want, or -- but you're at or at some cases, below PG&E prices. And now -- but an irony if you will, is that the provider of clean energy to Marin Clean Energy, is actually a division of Shell Oil. But, you know, this is -- but they are aggregating different renewable sources. So, I mean, it's proven. It's a much cleaner mix than PG&E offers. But you know, it's still -- so it's not just -- yeah, sounds community choice sounds like it's gonna be a lot of little things, but it's still big energy, but it is clean power sources.

Greg Dalton: Let's talk about the United States military, which has been a key driver, particularly the Navy, Admiral. But there's been some push back lately. Recently, Secretary of Navy Ray Mabus had a whole carrier group operating on bio-fuels. But there's some pushback saying, "Hey, why is the Navy paying so darn much for this fancy fuels?" And so talk about that sort of pushback against some of their progress.

Dennis McGinn: Well, not just the Navy but the entire Department of Defense and National Security structure. These leaders think over the horizon, beyond the next quarterly earnings report or the next election cycle. They're charged with trying to define as best they can the future strategic environment. And what they have concluded is that challenges like climate change and the severe weather that goes with it, challenges like energy security and the availability of, especially petroleum is going to be a challenge.

So what they're starting to do is make investments in technologies that will expand the portfolio of energy choices for both electricity on bases and forward-deployed operating bases as well as for transportation of things that fly in the air, sail on the sea or move on the ground. And in the case of the Navy, Ray Mabus has been a really visionary leader. He has invested in the testing of drop-in fuels into everything that Navy operates in terms of equipment including the F-18 Super Hornet, flying them on 50% blend of biofuel and traditional jet fuel, putting it in ships.

And the push back was, "Well, gee, this biofuel blend cost a lot more than it -- than just putting in regular fossil fuel." True. And the secretary of the Navy would be the first to tell you that he does not intend to operate the Navy at those elevated levels of fuel purchase prices but that he wants to create the demand signals there for an industry that is rapidly growing using a variety of feed stocks, including algae for example or Camelina, switchgrass, et cetera, and mixing them with great science and technology and coming up with a whole set of products. Everything from ethanol to heavy oil that is based on -- based on algae oil, algae crude.

So the pushback is a very near term focus. Quickly, historical perspective, every time the Navy has shifted from one propulsion fuel to another, there's been pushback and always it's the same thing.

You change the names of the members of Congress and the name of the fuel but going from sail to steam, from wood to coal, from coal to oil, from oil to nuclear, non-nuclear and oil to bio-fuels, and thank goodness that over the years, over the centuries, the Navy has prevailed and said, "We've got to think about our operational capability."

And that's why -- not just the Navy but all of the services are investing in clean energy. It's all about improving their bottom line of operational effectiveness and efficiency, trying to get the most out of every taxpayer dollar that goes to national security.

Greg Dalton: And there's a mission aspect. Lives per gallon.

Dennis McGinn: Absolutely, which--absolutely.

Greg Dalton: All those fuel convoys, that go up in flames and in conflict --

Clint Wilder: Yeah. And in terms of funding, this is actually been one of the big bright spots for the clean tech industry over the past 12 to 18 months. The military is really behind this and has a lot of money to put behind it and to fund emerging technologies. The Department of Defense is the world's largest user of energy. So we're talking big, big bucks and again -- and this is Admiral McGinn was saying. We've always done this. I mean, you know, nuclear submarines weren't as cheap as what they were replacing at the time and there were naysayers, they said, "No, that's--it's too expensive. You know, we don't know if that's really gonna work." So you know, to have this kind of nickel and diming going on now is disheartening. But again, historically, the forces of progress usually prevail.

Greg Dalton: Clint Wilder is author of the-- [crosstalk]

Dennis McGinn: The point about the money and in the Department of Defense, one of the things we've talked about our financial forum right down the street here has been third-party financing where we bring in some of this private capital that John mentioned earlier and create a public-private partnerships with the Navy or Army, Air Force or Marines, to bring some of these good investments into it without having to go through a long process.

It literally takes five or seven years of setting a requirement for new energy sources for the Department of Defense, running it through the planning, programming and budgeting system to finally be approved by Congress at some future -- future date. Now, the requirement is clear the services are partnering with the private sector to do these agreements to get steel in the ground and have the benefits much sooner that -- than we would otherwise if we did the old traditional process.

Greg Dalton: And one area is also buildings. We've been talking a lot about planes and tanks, et cetera but also Pentagon -- military buildings are a big deal, that the bases use a lot of energy and there were some rules saying they have LEED-certified et cetera. But even that, there's been some pushback from the industry, it doesn't want the government building, paying more for LEED buildings. Even though in the long run, they save energy.

Dennis McGinn: They save a lot of energy, and I think we're seeing this intersection if you will, of the public and private domains. It can create a very, very nice cycle. I call it spin-in and spin-out technology where the government or the services will go for whatever relevant technology already exists, commercial off the shelf and bring it in to do things like flexible solar arrays in Afghanistan for patrols. They're not developing and the cells are going out there to the recreation and sports industry and they're seeing some of these and it really makes sense for those soldiers and Marines over there in Afghanistan. But also, as Clint pointed out in the case of nuclear submarines, there's

spin-out.

We have GPS today that is ubiquitous in our economy and society because the Air Force and Navy invested in many decades ago for narrow military purposes, but it has benefit. Same thing is true with microchips and the Internet and many other examples of the spin-out. So it's a nice dynamic, public and private investment, public and private partnerships that will help the national security early on and then we'll have many economic and social benefits down the road.

Greg Dalton: Dennis McGinn is president of the American Council on Renewable Energy. Our other guests today at Climate One are John Bohn, CEO of the Renewable Energy Trust, and Clint Wilder, author of Clean Tech Nation, I'm Greg Dalton.

Let's talk about some of the -- excuse me, some of the new things that could happen to get more money into clean technology. John Bohn, there's something called real estate investment trust. People might own them and they're 401K's, et cetera, it brought a lot of capital where people could own a piece of a hotel or an office building. It doesn't exist yet for clean energy. Is it gonna happen?

John Bohn: Well, we think it is and at the risk of delving into a promotional exercise, Renewable Energy Trust is at this point, exploring and moving forward to use the renewable energy, real estate investment trust vehicle to harness that in the service of solar PV.

If you look back at the RET industry, the RET industry which started in the '60s, as Greg said, has started out to get a wider participation, people could invest in the real estate market. You didn't have to be a big bank or you didn't have to be a big trust fund. It has evolved over time to be much more flexible vehicle. Our view is that this is the kind of vehicle that will -- that will do two important things. Number one, it will provide liquidity in the market. So if people are investing in renewable energy, particularly in our case, solar PV, they'll be able to buy and sell. They'll be able to get in and out of the market. So you're not locked in. Now, it's impossible really for John Q citizen to invest in the renewable sector. You have to either buy a company or one of those kinds of investments. We think this will provide a whole new investor class for renewable and we think it will bring a new group that are interested for the kinds of reasons in addition that Clint was talking about, people are prepared to invest. They want to invest in this industry, but they need a vehicle. What we did differently than others is we started with the RET analysis. How do these things work? Let's now figure out how to harness that for the benefit of the solar PV industry. Most people started the other way and got all tangled up in the clouds of trying to figure out how to do that.

Dennis McGinn: There are other mechanisms for bringing more wider spread base of capital into renewable energy. One is master limited partnerships. There's a Master Limited Partnerships Parity Act that was introduced in a bipartisan fashion in both the Senate and the House. The House is just last week and then--

Greg Dalton: By a very conservative Republican. [crosstalk]

Dennis McGinn: Right. Exactly. Exactly. And so, this is yet another tool in the toolbox to try to level the playing field of renewable energy investment. One of the problems we're experiencing right now is -- well, it's a myth that renewable energy can't compete on a cost basis. Well, if you start breaking down, what do the elements cost? You get material, you've got labor, you've got planning and you have cost of capital. The cost of capital is artificially high because some of these RETs and master limited partnership mechanisms aren't available to the renewable energy industry.

And cost is cost, whether it's cost of capital or cost of labor and material. And we see that the

possibility of creating a virtuous cycle where if you can get more capital at a lower cost, it lowers the cost of delivered renewable energy which causes scale-up and a reduction the cost of the technology material and it really, really invites, the more and more it accelerates, that transition to the clear energy economy.

Greg Dalton: And we should say that these vehicles, master limited partnerships have been one of the key vehicles for funding oil and gas exploration in this country, right?

John Bohn: Exactly. Right.

Clint Wilder: Yeah. So the final chapter of Clean Tech Nation is called a seven-point action plan for repowering America. And two of the seven points have to do with investment vehicles. One is exactly what these gentlemen have been talking about, adapting master limited partnerships and RETs to the renewable energy space. And the other is to create a national green infrastructure bank, and there's legislation has been introduced to do this. And the model for this, it's to leverage both public and private money, and the model is one that John will be very familiar with, the export import bank which you ran for a while?

Dennis McGinn: Yeah.

John Bohn: Yeah.

Clint Wilder: So, this is not a new concept. The Export Import Bank was created in 1934 as part of the New Deal. And we've already seen at least a couple examples at state and local level, the state of Connecticut and the city of Chicago, under Mayor Rahm Emmanuel, have instituted this at a local level. And it wouldn't all be all clean energy but grod improvements which is a big part of clean tech actually for smart grid, and other forms of, you know, we desperately need infrastructure investment and projects. And that will create jobs as well.

Greg Dalton: Let's get the audience's questions involved here.

We're going to put a microphone up here and invite your participation. Again, if you are in this side, please go out that door if you can rather than crossing this camera here and the line will start with Sarah or Jane Ann right there and we welcome your participation and encourage you to join us with one part comment or question.

Dennis McGinn: As those questions are being formulated, Greg, something we might want to talk about is the other aspect of our energy lives, and that's transportation energy. We talked about briefly it in the context of the Department of Defense. But our addiction to oil, while it is being slightly diminished through the adoption of CAFÉ or corporate efficiency, we need to expand the choices of fuel to more electric-powered vehicles or plug-in electrics. We need to have more natural gas vehicles at the fleet level if you will, delivery trucks or waste trucks or buses or what have you and every percent of our transportation energy budget that we take away from oil we're that much more secure and that much more prosperous because we're sending a heck of a lot of money out of our economy to pay for our oil addiction. And that's money that could be used for infrastructure improvements like Clint mentioned or education systems, et cetera.

Greg Dalton: And spending a lot of our military to protect those supply routes. Let's have our audience question. Yes, welcome to Climate One.

Female Audience: Thank you. My name is Ann Dever. Thank you very much for your time educating us all on these issues. My question has to do with policy prescriptions. Not necessarily financial, which is the topic of this obviously, but if you have your dream, what would be the top

three policy prescriptions that would spur the development of renewable energy here in the United States? (00:44:00)

Dennis McGinn: My top --

Clint Wilder: Admiral McGinn.

Dennis McGinn: My top one is to have a revenue neutral carbon tax that would basically help to capture the externalities of each element of our all of the above energy portfolio. And in this case, greenhouse gas production of fossil fuels loses every time when you compare it kilowatt to kilowatt or BTU to BTU with renewable energy. So by putting in a carbon tax, that would -- you'd be able to rebate if you will, those who are most affected by that turbulence, that I talked about the change from a fossil fuel-powered economy to one of a clean economy, clean energy economy, that would be number one. Number two, if you did that and it captured in a good way, the fully accounted costs of each form of energy, each element of energy in this portfolio, you could just about eliminate all government subsidies for all forms of energy. Fossil fuel, renewable or whatever, and you'd have a much more level playing field in a free market economy. John, you might have some thoughts about that.

John Bohn: Well, we debated endlessly whether or not the carbon tax was the right idea. Its virtue is simplicity. Having spent the better part of seven and a half years listening to the discussions about what to do with the proceeds and having nobody willing to give up their share of it, we get into a whole series of discussions that are the same kinds of discussions that go on in a democracy and that is to say, which values benefit from that? And I -- I guess I'd come down as slightly differently, I guess I think that the cap-and-trade system provides two great values.

Number one, the private sector is given a target that it can deal with and time to deal with and the resources. The real way to equilibrate this kind of change, in my view, is to permit the various values to compete in and around a cap-and-trade structure. That's the first thing. The second thing I think I would do would be to rewrite the -- some of the climate legislation, some of the environmental legislation in and around what I think now is a much more rational consensus that Clint points. We're going through a process that can only be described in some cases as Zealotry -- zealotry on the side of the environmentalist and frankly, zealotry on the part of the big business and the utilities.

I think we're now in a position where we recognize that both of those have values, and I think it would be wonderful thing if a rational legislature could sit out and actually have the same discussion based on the current understanding and the current players.

Greg Dalton: Probably with a rational legislature. [Laughter] Okay. I'm just trying to catch you. Yeah.

Dennis McGinn: That's the same as cleaning the coal, right?

Clint Wilder: Probably, our most controversial policy recommendation in the book is to phase out all energy subsidies over the next ten years. So the subsidies were -- renewables would go way as they were taken away for oil, gas, nuclear and all the fossil fuels. The dominant, the unleveled playing field -- I mean this MLP, master limited partnership is a great example. This is a vehicle that's open to oil and gas and not to renewables. So talk about not leveled playing field. Anyway, we think the price of renewables are coming down.

Solar, we've seen a dramatic drop recently, coming down in a way that if you really took away all the

goodies for all the energy sources that ten years out, they would compete and we think beat their fossil fuel counterpart in the market.

Greg Dalton: Let's have our next audience question. Welcome to Climate One.

Male Audience: Thank you for coming and thank you for inviting me to talk. So -- great, my name is Gary Latra. The question I have is, to comment on the concept of having the Federal Reserve provide funding. Right now, the Federal Reserve is buying mortgages which is -- encourages urban sprawl.

Greg Dalton: Printing money, printing green money, printing money for green projects. John Bohn?

John Bohn: The Fed is not equipped to be able to do that in my judgment. I would argue that there's some serious concern whether they ought to be doing what they're doing and whether they would in fact be doing what they're doing or not in election year. When you get into those kinds of market distortions, it's another concern of private capital. If the Fed is buying mortgages, what's the real price at which I as an investor can buy a mortgage? How do I know what price to put on a loan that's gonna be secured by a mortgage? When you have this policy interventions, it's really hard for the market place and the private sector to work it out. I just don't think they do it very well to be honest.

Greg Dalton: Let's have our next audience question. Yes. Thanks for that question. Yes, sir. Welcome.

Jerry Fetler: Hi, I'm Jerry Fetler. First of all, thank you for bringing up the military. They are real leader in renewables and they don't get mentioned often enough. And I just want to suggest that one thing that I think could have real impact on ability to produce energy and also save taxpayer money is giving the military the ability to do longer procurement cycles.

One of the issues that they face is, they're shackled by Congress, often to 1, 2, 3 procurement cycles and you need a ten year off-take to finance a plan. It would be easier, people won't talk about it much but it's an easy thing to do and I think it could have a huge impact.

Dennis McGinn: It's a great--

Greg Dalton: Admiral McGinn.

Dennis McGinn: --great comment and in fact, there's been progress, I'm happy to report in this regard. They've gone back to existing legislative authority in the case of biofuels for example, creating commercial off-take contracts that are looking to be as high as 15 years. They've already adopted the idea of power purchase agreements for the three gigawatts of electrical energy from renewable sources that the department wants to get in place by 2020. And that is really another good thing. And it's all about mechanism as you all know, to create investor and contractor assurance that, no kidding, I can't have this long enough time to recoup my investment and to make some money.

Clint Wilder: I mean, that's a great example of how as a nation, we really do need to think more long-term than we do. China does it, Japan does it, Germany does it. And we write about this how, having those kinds of long-term plans in place, whether it's military or you know, what is our energy future going to be, is really important as we move forward in the century.

Greg Dalton: Let's pick up on the China question that comes up and we need to touch on that --

long policy cycles, long investment cycles. Admiral McGinn, China recently launched an aircraft carrier, got lots of attention, and as a symbol of their growing technological sophistication. How is China becoming a big player driving down prices?

Are they gonna run away with some of the leadership here on clean energy?

Dennis McGinn: Well, they have a huge economy, the have a huge population. They've got -- I would not, in a thousand years, trade our challenges for theirs. It really is tough and they're trying to grow their economy to create jobs. There is big urbanization push, they're trying to meet their energy needs in a whole variety of ways. You need only travel to Shanghai or Beijing to experience that rapid growth right into your eyes and lungs with the --

Greg Dalton: It's disgusting.

Dennis McGinn: --with the smog. It's incredible. So there are tough challenges. So I think the magic is for us to do what the United States does best, which is innovation, invention, education and the working partnership with Chinese to create investment opportunities flowing both ways, technology flow. There's been too much emphasis I think in the production of solar modules that are coming in much less expensively from China But when you really think about the whole value chain of actually producing solar power including inverters and installation and balance of system, I think that you have a different take on how we're doing vis-à-vis China with the production of clean energy. We need to be cooperative--

John Bohn: Can I comment -- can I comment on that because I would argue, it's a much more complex question than that. You're talking about two different theories, two different kinds of economies. I'm old enough to remember when the Koreans put Westinghouse in a number of electronic businesses, power business, where because for one over short-hand, state-sponsored capitalism. That's what the Chinese have been doing. The Japanese did it in the 60's.

It does in fact deal with a number of highly important policy issues. It's not just as simple as saying, whether or not the costs are down or not. It's the question of, if you took a macroeconomic approach, the Chinese banks are largely bankrupt if we did an actual analysis of them. They are supported by the government along policy lines. And when you start talking about planning, that is, I would argue a viable alternative method of moving to where you want to go for a time. And my Republican friends disinherit me when I say this. But the real world is, China has done this for a particular series of reasons. They, like the military in our country, can actually make a decision. Democracies have a tough time in accommodating different choices. And there is now a very active discussion worldwide about whether the China model is the one that developing countries ought to use or whether it's the American model. That debate and the intensity of that debate did not exist 10 or 15 years ago.

Greg Dalton: Thank you, John Bohn. Let's have our next audience question. Welcome, sir.

Male Audience: Hi. You mentioned in terms of innovative financing structures the possibility of using like a RET or a master limited partnership type of structure to finance the clean technology space. Do you envision this geared towards any particular subset like, towards residential, purchase of residential systems where they have some sort of power purchase agreement or do you envision this for larger type of implementations or across a vast program?

Clint Wilder: I think it could apply at many different levels. Residential, whether it's aggregated or a company that was doing a whole series of residences, commercial level, think big box stores for examples, and also the utility level. (0:56:00)

The whole point is to try to get more investment capital at a lower cost into the renewable energy transition, and I think ways in which we can do that are going to be made more possible hopefully after this political season ends and we start going from politics to policy and advancing the business of clean energy.

John Bohn: Just a--

Greg Dalton: John Bohn?

John Bohn: --a comment on that. The models that relate to financing residential are really different from financing utility scale and industrial or commercial. In the case of real estate, that is based on rooftops. You aggregate a whole lot of those, and the credit decision is made on the diversification. And that's what you hear -- when you hear people talking about securitization, you take a whole bunch of receivables, like it could be credit card receivables or any kind of receivables. That's one way to get in to the market through a securitized structure.

What we're talking about is commercial and industrial and utility scale. And that requires an underwriting of each project. That's more complex, it relates to bigger numbers in terms of production of megawatts and the rest. Both of the MLP and the RET structure, I would argue our better designed to deal with the big numbers and securitization, which is again, a proven technique. We did it at Moody's 25 years ago. It's probably where the rooftop is gonna go at least, first.

Greg Dalton: Makes me nervous when you say securitization based on some recent history. The -- another thing I'll mention is that there's some people trying to get crowd funding into local, local rooftops, solar projects or use, you can invest $25, $50, $100 into local projects.

And there -- one firm here, Solar Mosaic, recently received a regulatory approval to sell that kind of investment to small investors to broaden the funding base and get -- give people more funding options.

We've got a few minutes left here. Let's address something that was touched on earlier. The myths about green energy. What are the myths about green energy that you'd like to address that you think are off-base?

Dennis McGinn: One of the --

Greg Dalton: Admiral McGinn?

Dennis McGinn: One of the assets that we have deployed the beginning in June at ACORE was about 30 content-contributing partners in renewable energy space, is a wonderful website called energyfactcheck.org. And if you're a Twitter follower, it's @energyfactcheck. It is a fact- based, business-oriented and nonpartisan. But we've taken on some of these information things, the political football aspects of renewable energy. We're trying to do things like put Solyndra in a really broad context, not to say it was a good thing but to say it was something that happens when you have a very dynamic , growing new business and new industry. We tried to take on this like -- renewable energy is entirely depended up government investment or that renewable energy won't scale or that renewable energy will always be too expensive. And we just put it out there with really objective facts, sources and everything.

So it's intended for journalists, it's intended for staffers at the state and federal level. It's a really good asset to really tell people the truth about renewable energy, and it is a good story. Those facts indicate a very healthy, vibrant growing industry. Not one without challenges but one that is unbelievably better than what you here in the political airwaves, I think--

Clint Wilder: I think my--

Greg Dalton: Clint Wilder?

Clint Wilder: My number one myth is that clean energy can't scale, I think, you know, I mentioned the states getting 15%, 20% of their power just from wind.

There is one weekend in May in Germany, they got 50% of all their power from solar. And that's -- Germany, not everyone knows this. Germany's not the sunniest part of Earth. It's the world's largest market for solar power. And they had one particularly sunny weekend and so it just shot up to half the country's power from solar, and you know, we see this, it's just growing all over the place.

Dennis McGinn: A bit of irony, Clint. Germany's best solar footprint is thought as good as America's worst. Right? If you draw a line across the latitude, you come out about the Hudson's Bay up in the Canada. And I've been threatening my friends in Florida to outlaw the sunshine state until I get serious about solar power.

Clint Wilder: Right. Exactly.

Greg Dalton: But Germany--

Clint Wilder: -- shows you what policy you can do.

Greg Dalton: Germany paid price for that. A huge price. John Bohn? With the government, and they created an industry and a powerhouse and they paid dearly for it. John Bohn?

John Bohn: Well, not only that but it almost brought down the Spanish government. The same kind of sort of diving in headfirst. My myth is that Republicans don't support renewable energy. And somehow, the political season has produced the fact that it's the Democrats and the liberals who promote renewable energy and the Republicans are all hung up on oil and gas and all of that stuff. I'd like to get rid of that myth because what we're really talking about is time and how to get it done. And the excessive verbiage on both sides has -- and -- have I think, clouded the issue rather than helped. And so I'd like to get rid of them with that myth.

Greg Dalton: Well, how about on a climate science? Is it a myth that Republicans doubt and challenge climate science?

John Bohn: Well, some Republicans and even some Democrats challenge the science. I don't think that the Republican Party or the Republicans or the Democrats doubt the science.

Greg Dalton: Well, Mitt Romney's walked it back and he certainly is not saying things that he did when he was government of Massachusetts. It's very different now.

John Bohn: Well, this is the silly season, you know.

[Laughter]

Dennis McGinn: We just got a change in the Etch-A-Sketch and it'll be back on board.

Greg Dalton: But Admiral McGinn, Lisa Murkowski, Republican Senator from Alaska, obviously, big extraction state, she wrote a very nice thing about you when you took your new job as president of the American Council on Renewable Energy. She's from an oil and gas state. Where is she on this renewable energy?

Dennis McGinn: She is, I think the embodiment of all of the above. She's got a good balanced approach, she is a ranking member on the Senate Energy Committee. She's got good common sense, experience-based, so we really enjoy working with Senator Murkowski. I was in Alaska in April. They've got some great opportunities. They have a—they pay a tremendously high cost of energy both for gasoline at the pump as well as electricity especially in some of the remote villages. Yet at the same time, they've got unbelievably good assets for renewable energy, whether it's micro-hydro or wind or even solar half the year is pretty darn good, and so -- and tidal currents. So I see Alaska as being one of those states that has all of the above potential and they're well represented by Senator Murkowski.

Clint Wilder: On the Republican point --

Greg Dalton: Clint Wilder.

Clint Wilder: --the, one of the most powerful voices advocating for the elimination of subsidies is George Schultz, a very prominent Republican.

Greg Dalton: Let's have to -- we have to end it there. Thanks to our guess today at Climate One talking about renewable energy and finance. John Bohn is CEO of the Renewable Energy Trust, Dennis McGinn is president of the American Council on Renewable Energy and retired Vice-Admiral of the U.S. Navy. And Clint Wilder, author of "Clean Tech Nation: How The U.S. Can Lead the New Global Economy." If you just joined us, you can listen to this and other Climate One podcast in iTunes by looking for Climate One in the iTunes store. I'm Greg Dalton, thank you all for coming to Climate One today.

[Applause]
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