Green Myths Busted

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Greg Dalton: Welcome to Climate One, a conversation about energy, economy, and environment. To understand any of them, you have to understand them all. I'm Greg Dalton.

Today, we're taking a look at how to live a low carbon lifestyle. Consumers have an expanding universe of choices for spending their money in a way that is smart for their wallet and the earth's climate. But figuring out the carbon footprint of just one product, say a basket of blueberries or a new water heater can involve sifting through complicated third-party data and slick or even deceptive corporate marketing. GreenGuard guides offer some help, but they sometimes point to contradictory conclusions. That leaves some people to throw up their arms in frustration or make light green choices that may address their conscience but don't really address their carbon pollution. In the next hour, we'll dispel some myths and discuss the facts of how to make decisions that matter.

Joining us with our live audience at the Commonwealth Club, we're pleased to have three experts. Diana Donlon is Cool Foods campaign director at the Center for Food Safety, David Friedman is deputy director of the Union of Concerned Scientists and author of *Cooler Smarter: Practical Steps for Low-Carbon Living*, and Betsy Rosenberg is radio host of On the Green Front. Please welcome them to Climate One today.

[Applause]

Thank you all for coming. David, let's bust the myths right off the bat here. What are a couple of myths that people who think they're living a green virtuous lifestyle, that they're gonna live healthy and long and go to heaven. What are some of the myths that you can dispel right away?

David Friedman: Well, I think one of the most important myths for everyone, whether you feel like you're living a green lifestyle or not, is that the individual can't make a difference. And the reality is that every single person in this audience, every single person listening to this show can make a big difference when it comes to climate change by making some relatively simple changes to your lifestyle. Now, some things don't make a lot of sense for climate at least. You know, some people suggest you avoid elevators or start worm farms in your basement. Those are good things to do. I mean, avoiding elevators would get you in shape, a worm farm will help cut down on the amount you compost, but those aren't the big things that are going to cut your carbon emissions, and that's what we all really have to focus on. Don't sweat the small stuff, focus on the big stuff. Like the car you own, the energy you use around your home, and the food you eat. If you focus on those three big things you can make a big difference when it comes to getting cooler and smarter.

Greg Dalton: Betsy Rosenberg, what are some areas where you think that people are not necessarily making decisions that align with the facts, that are more based on other factors?

Betsy Rosenberg: Well, if I can go back just a step because I don't call myself a green expert but for 15 years, I've been interviewing green experts, so I've picked a little bit about the entire green spectrum.. I know who the experts are. So my area of focus is really education, outreach, media, and I'll give you a couple of myths on that front, on the green front, in fact. One is that Americans are pretty educated about environmental problems. I've been doing green tea parties in homes and

talking to moms in Marin County where I live and the eco-IQ is appallingly low. It's not their fault; we don't really talk about these things anywhere.

Two is that there's a lot of green media out there. There are stations on the Internet as I am right now, so people who write green books may get the feeling that they're, you know, being interviewed everywhere, but you should be on The Today Show, you should be on The View, you should be in all the mainstream outlets. And so, it's still pretty siloed. There is still not one green talk show on in America, on mainstream radio or television. Believe me, I know -- painfully, I know. And what's wrong with that when we have reality TV shows clogging up the airwaves and a planetary crisis or two.

Last but not least is, of course, the myth that there's any debate on climate change. Of course there isn't, and yet I still meet people again in fairly progressive Bay Area where they still think that there's a debate, and they don't understand that 98.5 percent of all climate scientists say it's real, we're causing it, and it's an urgent crisis.

Greg Dalton: So Diana Donlon, what are some things food-wise that sort of headline -- we'll drill into food a little bit more later, but what are some of the things food-wise that make the biggest difference?

Diana Donlon: Sure. Well, the thing about food that's really interesting is that food is actually part of the problem and part of the solution. So that differentiates food from the transportation sector and the energy sector. So the way we produce food is always going to cause some amount of greenhouse gases, that's just a given. But there are better ways that we can do it and then there are even better ways. So food is really a powerful lever that we haven't brought into the discussion yet.

Greg Dalton: Okay. Well, let's stick on food for a minute. I mean, why not start with food. Everyone loves to talk about food. Organic food -- is that a real climate solution or is that more of a personal health choice?

Diana Donlon: Well, most people come to organic food from a health perspective, so if you survey mothers, and I happen to be the mother of two teenage sons, I started buying organic food for my family because of pesticide residues. But the more I learned about it, I learned that organic food is also very good for the soil because it helps sequester the carbon or contain the carbon in the soil. It doesn't use nitrogen fertilizers and pesticides which are also made from fossil fuels. When the soil's healthier, it's able to retain water as well. So there are multiple benefits to organic and climate friendliness is one of many.

Greg Dalton: David Friedman, is the climate benefits of organics -- your book says it kind of mixed, you kind of hedge on it saying it's not really that significant.

David Friedman: Well -- and part of the challenge there is there's organic, there's organic and there's organic. And yet, most consumers don't know that the labeling that's out there isn't clear enough to tell you what's, you know, super premium organic versus just barely gets over the threshold of what's defined as organic. So part of what our book tries to do is it says, well, let's step back and let's try to make this as easy as possible. I mean, as you mentioned before, there's just an incredible amount of noise out there when it comes to advice for people -- and we've got to cut through that. So, can organic food help when it comes to the climate? Yes. It's not clear that it's, you know, a grand slam when it comes to climate, but what is clear when it comes to food is the biggest thing that you can do is cut back on meat.

When it comes to food, Americans eat about 270 pounds of meat a year, that's about four times the

global average. If a family of four cut their meat consumption in half, that would be roughly equivalent to doubling the fuel economy of one of your cars. So you should choose to eat organic, there's a lot great reasons to eat organic. But if you wanna have a big impact when it comes to climate change, try meatless Monday, cut meat out once a week or move me from the center of your plate to a side so you could cut back on it by a quarter, a third or ultimately a half, and you can have an incredibly large impact.

Greg Dalton: One other group--you cite beef, pork and chicken as sort of the highest concentration of the, sort of I guess the bad list from a climate perspective. The Environmental Working Group cites lamb as number one and you don't even cite lamb, what -- they gotta get sheep, what's wrong?

David Friedman: First of all, I mean, red meat does tend to be the biggest source of carbon emissions. In fact, one pound of red meat is about equivalent to -- it has the equivalent carbon footprint as about 18 pounds of pasta. But obviously, red meat isn't the only area. I mean I think part of the challenge with lamb is, you know, you feed them, you fatten them up and they don't -- they're not around a long time. So I think that's part why you have a higher footprint from them. But what most people eat, what a lot of what people eat, it's the red meat. And that's why we're focused on that is because that's a big portion of that 270 pounds. So again, a lot of this isn't about focusing on each and every detail of which meat is a little bit better or a little bit worse, it's where can we make a big impact. And that's cutting back on your meat, especially red meat.

Greg Dalton: Let's talk about local food. After Michael Pollan became a little popular, all of a sudden local -- you see a lot more local science in whole foods. They really started to promote local, local, local, yet you say that the food miles are overstated. They're hyped. They're not as big as some people think.

David Friedman: It's true. And it is often a shock to people that when it comes to food, focusing on how far it traveled from the farm to the table isn't that big of a deal. Now--

Greg Dalton: That's 16 percent or so of?

David Friedman: Well, it's actually less than that. So for typical food, only about five percent of the greenhouse gas emissions, the heat-trapping emissions associated with your food come from bringing that food from the farm to your table. Over 90 percent of it comes from the fertilizer you use, irrigating the fields, the farm equipment -- that's the real big area where you have carbon emissions. So potentially, if you're buying from a farm that uses, say, five percent renewable electricity the carbon footprint of that farm, even if it's halfway or all the way around the country could be lower than your local food supplier. But again, there are some really important aspects here. That doesn't mean you shouldn't buy local food. If you wanna know where your food comes from, if you wanna support sustainable agriculture, if you wanna support a more resilient food system, you should buy local food. My family does. We go about two away from the house and we buy fresh eggs and fresh vegetables from a local farmer. But we're not doing it for climate reasons. We're doing it for our health reasons, we're doing it so that we know where our food is coming from. And that's, I think, an important distinction.

Greg Dalton: Diana Donlon?

Diana Donlon: We take a slightly more nuanced view on local food. Helena Norberg-Hodge, who has been studying local food for 30 years, said you know, in the north we have to -- one of the reasons we have to have local food is because if we don't and we depend on exports from the global south, we are taking a population that is potentially self-sufficient in agriculture and is not part of the globalized system and putting them in that system so -- for our comfort. So if we wanna have

raspberries when they're out of season and they're being flown in from far away, that might mean that someone who is traditionally on the land has been displaced by agribusiness. So in that case, our approach is to advocate for local and seasonal. When you're eating in season it's more likely that the food is local, it's more likely that it tastes better, and it's more likely that it's carbon friendly, climate friendly.

Greg Dalton: David?

David Friedman: I just wanna one point to reinforce an important piece of that message and that we do point out in our book, which is that there are clear exceptions to the food miles rule and that's if something is flown in. So fresh fish, potentially, is an example where food miles can actually be a very large part of the carbon footprint because they're flying it in iced hundreds of thousands of miles. Fresh fruit, in some cases, that can be an issue.

So if it's highly perishable and it comes from a far away place, then it makes more sense when you're in the grocery store to worry about it. But that's not most of our food. And that's why we get back to, you know, if we're gonna make a big difference, we wanna keep it as simple as possible for most people and focus on the big stuff and eating less meat. And also -- and I hope you'd agree, avoiding packaged meat. I mean, one of the -- packaged food. One of the reasons to get fresh food is because there's less packaging, so there's less carbon burden associated with the packaging of the food. And less processed food because again, there's more of a carbon burden associated with processing a lot of that food. So there are still good climate reasons to get fresh food.

Greg Dalton: Absolutely.

Diana Donlon: Absolutely.

Greg Dalton: Have we mentioned the bad foods, at least according to the Environmental Working Group, lentils, fruits, milk and tofu are the ones that have the lightest carbon footprint. Betsy Rosenberg, you wanna get on the food in terms of what people are doing?

Betsy Rosenberg: Well, first of all I have a question. Does that mean we shouldn't buy blueberries from Chile ever because that's the one that I was trying to avoid. You know, having fruit that is exactly the opposite of our season. Even though it's tempting, it's usually pretty expensive. I don't know how those blueberries or -- you know, it's a long way to go. They still look pretty fresh. So it's surprising to me how many fruits and vegetables, a lot of the bananas that come from Ecuador, in fact I was at the store I remember a few months ago trying to decide between organic bananas from Ecuador or a local Dole-grown non-organic --

Greg Dalton: Right.

Betsy Rosenberg: -- and I kept going back and forth and I was laughing at myself saying if I'm confused, who isn't? And I said, I'm doing a banana split, I even completely said I have no idea.

[Laughter]

And that really, I think, sums up the conflict for a lot us. We're trying to do the right thing and, you know, like I said, if I don't know, who does? And so, I'd to know the rule about buying produce from other countries when they're not in season. I imagine it's to be avoided, but then I thought, if they're gonna go to waste and everybody gets, you know, ecologically correct are they gonna go throw it all away or will they just stop doing it? What is --

[Cross talk]

Greg Dalton: And it comes against the healthy things, right? You know, if you want your antioxidants, those blueberries year rounds look like a good thing, Diana Donlon? Or then we'll get to Dave.

Diana Donlon: Well, actually, there's new research that shows that when you eat in season, you're less likely to build up resistance and to develop food allergies, so there's a reason -- there's actually -- you know, if you work in harmony with nature it's gonna be your ally. And we used to rotate foods in and out of our diet, and so we didn't build up the resistance to them. Now, you see an explosion of food allergies and the thinking is that that is perhaps because we eat the same thing all year-round. So we've taken the anticipation out of blueberries, out of raspberries, practically out of pumpkins. And to answer your question about bananas, bananas are usually shipped by boat, so they're actually more climate-friendly than your blueberries which were flown in.

David Friedman: And same thing for apples as well, for example. Apples are much less likely to be flown in on an airplane. So, you know, you don't have sit there feeling very guilty if you're buying an apple that's coming from New Zealand or something like that. But again, you know, if these are the kinds of things you're worried about, the first question you've got to ask yourself, have I cut back on the amount of meat I buy? Am I avoiding processed and packaged food? Am I avoiding wasting food? Because those are the biggest things.

So, you know, if you've done all that then you're clearly an overachiever and you should be diving into these other details. But if you haven't done all that, make sure you've checked off those three because those are gonna give you the largest impact rather than worrying too much about some of these issues.

Greg Dalton: David Friedman is deputy director of the Union of Concerned Scientists and co-author of *Cooler Smarter: Practical Steps for Low-Carbon Living*. Other guests today at Climate One are Betsy Rosenberg from On The Green Front and Diana Donlon from the Center for Food Safety.

We mentioned meatless Mondays earlier, I wanna come back to that because -- I guess to the idea of like sacrifice, giving up something that's treasured. Meat used to be a real luxury, right? And so, is it possible -- is sacrifice necessary?

David Friedman: Well, part of what we try to do is encourage people to do -- take the steps that fit with their lifestyle. In many ways, eating less meat is quite the opposite of a sacrifice because you live longer, you lower your risk of heart attacks, you lower your problems with cholesterol. So in many ways, I would argue with -- it's quite the opposite of the sacrifice. It's something that can literally help save your life. But look, if cutting back on meat isn't your thing, that's not the only thing that you can do.

There's a lot you can do in terms of the car you drive, there's a lot you can do in terms of your home, and I know we're gonna get to all of those, but I think that's another important myth that I think we need to bust which is, it's a myth that there's only way to be green, there's only one way to cut your carbon emissions. The most -- the way we're gonna be the most effective at cutting out carbon emissions is if each and everyone of us finds the solutions that work for us, not necessarily the solutions that work for our neighbor.

Greg Dalton: Different strokes for different folks, anyone else? So let's pick up on cars. You report that it's pretty complicated in terms of what car people ought to buy if they wanna minimize their carbon impact. It depends on the state where they live and the grids. So give us the profile of car-purchasing decisions with the climate perspective.

David Friedman: Sure. It can be very simple if you're like most Americans and you're in the market to buy a gasoline car. The typical car today gets around 20 miles per gallon, that's about the same it was five years ago, 10 years ago, 15 years ago. So no matter how old your car is that was about the average. But one of the exciting things right now is it's getting easier and easier to buy a 40-mile-per-gallon car. And so one of the things we're encouraging people to do to get cooler and smarter in their car choices is the next time you're in the market to buy a car, look for a 40-mile-per-gallon car. Switching from a 20-mile-per-gallon car to a 40-mile-per-gallon car will cut your carbon emissions by about three and a half tons per year. That's nearly cutting the average American's carbon emissions by almost 20 percent. And that's part of what we're encouraging everyone to do is this year, cut your carbon emissions 20 percent. So if you're gonna buy a car look for that 40-mile-per-gallon car and you can achieve that 20 percent reduction in one single purchase decision. Now, with electric cars it's a lot more complicated, and we can get into the details on that if want as well, where it really does vary depending on where you live.

Greg Dalton: And one of the good new stories is of course the increase in CAFE standards so that actually I think people say that the cars sold this year actually have the highest overall efficiency than they ever had because the automakers are working toward those higher standards, there's more choices out there. But on hybrids, sometimes a Prius is better or a gasoline hybrids, sometimes electric cars. So take us through that.

David Friedman: Sure. First, to your first point, what I like to say is 40 is the new 30 when it comes to fuel cars. There was a time when car companies were bragging that they got vehicles that got over 30 miles per gallon, which really wasn't that big of a deal. But now, they're actually competing to say who has more cars over 40 miles per gallon. So it's really exciting thanks to new standards that are literally going to double fuel economy by 2025, that people will get more choices. And one of those choices more and more will become an electric car. And if you live in California, for example, an electric car is a grand slam. We just did some analyses that said that driving an electric car in California is the equivalent to getting on the order of 80 miles per gallon when it comes to your carbon footprint. So it's a clear home run because California has cleaner electricity. But in some parts of the country where they rely a lot on coal, driving electric cars is more like getting about 30, 35 miles per gallon. And you could beat that pretty easily with a lot of the good hybrids out there -- Honda Civic Hybrid, Toyota Prius Hybrid and in fact even some of the SUV hybrids can get up there about 40 miles per gallon and create a real competition to an electric car.

Greg Dalton: So basically, people in the West and Northwest and Northeast, that's where the grid is cleaner. South part of the United States, there's more coal, so there are some regional differences, right, in terms of where the electric car is cleaner. Another point isn't it that the electric car will get cleaner over time with the new electricity standards?

David Friedman: Yes, absolutely. And again, this is another place where many states are clearly in the lead. California has something called the renewable electricity standard that requires that about a third of the electricity in California has to come from wind power, solar power, things like that. Michigan for example, this fall, is having a ballot initiative to raise their renewable electricity standard to about 25 percent. And over half the states in the US have these renewable electricity standards. So unlike a conventional gasoline car which gets dirtier as it age, electric cars are gonna get cleaner and cleaner as it age if we're all out there pushing to make sure that every state adopts strong, renewable electricity standards.

Greg Dalton: But what about the cost? These cars cost a premium and your report talks about lifetime savings of dollars versus gasoline at 3.50 a gallon, so tell us what that would be in terms of savings. Because a lot of people would say, "well, that's nice but it comes down to dollars and cents."

David Friedman: Right. And dollars and cents is an important piece of the puzzle. I mean if you're buying an electric car, you are investing in cutting carbon emissions. You're investing in cutting oil use. But you're also investing in saving money. In one year, an electric car, again depending on where you live, can save you anywhere from a few hundred dollars a year to more than a thousand dollars a year in terms of fuel costs. And when you combine that with some of the tax credits that are out there, a lot of the electric cars that are out there right now over their lifetime are less expensive to operate than a gasoline car. Of course, electric cars -- we need more research and development, we need more investment in producing more electric cars we can drive the cost down so that you won't even need those tax breaks to make them cost-effective.

But look, you know, no one in the audience should think that electric cars are gonna save the world today or even in five years. We're still early in that technology, the good news is because we're doubling the fuel economy of our gasoline cars, there's a little bit of time for that technology to move forward so that it can get cheaper and then it could be more affordable for a lot more people. But if you wanna cut oil use, if you wanna cut greenhouse gas emissions in about 45 percent of US, an electric car is a great investment and it's even better than buying a hybrid.

Greg Dalton: What kind of car do you drive?

David Friedman: I actually don't drive an electric car. I drive a car that gets about 40 miles per gallon. I bought it 10 years ago. It's not even a hybrid. And what I did even back then is I try to put our lessons to work and I said, what do I really need in a car? And at that time I was single, so I was able to get a compact car with a special lean-burn engine that allows it hit about 40 miles per gallon. And the reason why I haven't bought a new car yet is because I've been waiting for the electrics because a hybrid doesn't necessarily save me a lot more fuel because I already did so well with that first purchase.

Greg Dalton: Betsy, what kind of car do you have?

Betsy Rosenberg: I've been driving a Prius for a decade. I interviewed Ted Danson right when they came out in 2002, and he --

Greg Dalton: Early adopter, yeah.

[Laughter]

Betsy Rosenberg: He was so proud of his personal fuel efficiency standard, how he raised it and he went on and on and on, and it was in NRDC, Natural Resources Defense Council fundraisers, so my husband was standing next to me and he went out and leased us a Prius for Valentine's Day. And that tells you what gets my heart --

[Laughter]

Greg Dalton: And what will next car be?

Betsy Rosenberg: So I'm on the fourth Prius because I keep leasing them to get the best technology. Getting about 55 miles per gallon, which is easy to remember because it's about my age. It keeps improving -- the car mileage.

[Laughter]

My next car, I hope will be electric, absolutely. A Chevy Volt. I'd love to be able to buy an American car. In fact, David remembers a decade ago along with some moms in Marin, we started Don't Be

Fueled! Mothers for Clean and Safe Vehicles, Hybrids, not Hummers right after 9/11 when we saw these giant SUVs with Save Our Troops and God Bless America. We're saying, we could well be going into Iraq because of our oil addiction and there's a disconnect there. And we were demanding that Detroit make more fuel-efficient, family-friendly cars. Well, there's still not a hybrid minivan, there are hybrid SUVs with their hybrid lights and what we we're really saying is we wanna help the Big Three automakers in our country build American fuel-efficient cars. And I hope to finally be able to do that with the Chevy Volt.

Greg Dalton: Or would you consider the Toyota Prius which are -- some of them are actually made in the United States and it's a lot cheaper, the Priuses in the 20s, the Volt's in the 40s, that's one of the tough things people are looking at.

Betsy Rosenberg: I'm not gonna do a Prius again, why? Because there's a lot of hills in Mill Valley where I live, and if you're going downhill, the Priuses have a very low front end and I'm so tired of scraping that front end. It's because the battery is heavy. So just a word to the Toyota people out there. That's bothering me.

Greg Dalton: Besides it's kind of --

Betsy Rosenberg: But I love the mileage. I mean, in Mill Valley there's so many Priuses that local officials are concerned about a new level of smugness in the air.

[Laughter]

Greg Dalton: Yes. Right, right. Yeah, they're --

Betsy Rosenberg: They're everywhere. It's not -- I don't feel very special anymore driving a Prius.

Greg Dalton: Exactly. You gotta go to the next level. Diana?

Diana Donlon: I drive a '99 Subaru Outback -- it's not an Outback, sorry, it's a Subaru Legacy, but it's a stick shift so it gets excellent mileage.

Greg Dalton: Better mileage.

Diana Donlon: But we use our car in our family the same way we eat meat, which is very judiciously. And so we're actually mostly a biking, walking, public transit family, and the car is like the meat, considered.

Greg Dalton: David.

David Friedman: Well -- and I think that part of this brings up a couple of really important points. One is, you know, it's not just about the fuel economy of your car. It's also about how you use it. And either if you're not in the market for a car today or if you already own a fuel-efficient car, there are other things that you can do. Telecommute once a week, make sure your car's tuned up and your tires are inflated. These are steps that could save people literally hundreds of dollars a year on fuel and would cut your carbon emission. So even if you're not in the market for a car using gas wisely, as was a World War II theme, still makes a lot of sense. So you should think before you drive and think if you have any other options.

That said, another really important myth is that if you care about the environment you should drive your car, your refrigerator, whatever it is, into the ground. And there was a time when that was true. But, for example with refrigerators, refrigerators today are up to 70 percent more efficient

than a refrigerator from 10 years ago. And so if you've got one of those old refrigerators, it makes sense to junk it. Only a small portion of the emissions associated with that refrigerator come from making it, most come from using it.

Greg Dalton: 2003 is the year, right? The cut-off year or the good new standards, that's the --

[Cross talk]

David Friedman: Right. 2003 is the clear cut-off year, but one of the things we offer in our book actually is a link to a website where you can put in the model of your refrigerator and it will tell you how quickly it can pay for itself in energy savings. Because the book, my wife and I went out and junked our old refrigerator and I'm saving about 20 bucks a month on my utility bill already. Literally, the whole refrigerator is gonna paid off in electricity savings in about four or five years. So I'm effectively getting a free refrigerator and I'm cutting carbon emissions dramatically. So don't necessarily drive that car, that refrigerator into the ground if you can buy a more fuel-efficient vehicle. You'll have a much better impact on the climate.

Greg Dalton: David Friedman is deputy director of the Union of Concerned Scientists and co-author of *Cooler Smarter: Practical Steps for Low Carbon Living*. Other guests today are climate wonder Diana Donlon: from the Center for Food Safety and radio host Betsy Rosenberg. I'm Greg Dalton.

Let's go into the home further. What are some other big things that people can do moving from the garage inside to the house? What are some of the big things people can do to lower their carbon impact at home?

David Friedman: That's a great question. And, you know, when you look at the typical American's greenhouse gas emissions, the average American is responsible for about 21 tons of heat trapping gases every single year. And the energy we use around our home for heating, for cooling, for appliances and electronics is responsible for about one-third of those emissions. So there's a lot that we can do around the home. Everything from replacing that old refrigerator to buying a programmable thermostat. I'm just curious if people would raise their hands. Does anyone here in this room already own a programmable thermostat? That's pretty good. It's --

Greg Dalton: I'm afraid we're gonna -- how many of them are actually programmed, that's the question.

[Laughter]

Okay. It's about a third of the people in the audience and they're pledging that they are actually programmed. Okay.

David Friedman: Which is great because these programmable thermostats can cut your heating and cooling loads by as much as 15 percent. So if you're the typical American who's spending around $1,100 a year on heating and cooling, you can save a lot of money by buying a 20, 40, 60-dollar programmable thermostat. But, as you know well, part of the challenge that we found in researching for the book is a lot of the people just plug them in and never actually program them to back off on the heating or cooling when you're not there during the day or to back off when you're asleep at night. So please, if you own one, right after you leave this talk, go home, make sure you program it to make sure you're getting the max savings you can, because literally you're throwing money out the window if haven't programmed that thermostat to back off on the heating and cooling at day and at night.

Greg Dalton: In terms of backing up, shouldn't people also sort of plug the holes rather than sort of, you know, you can still be heating the outdoors as my mother used to say when we run out the front with the heat on. So before that, what are some steps that should be taken?

David Friedman: Well, speaking of throwing money out the window, most Americans are literally -- are figuratively throwing money out the window because of air leaks on our homes. About 15 to 25 percent of the heat that our furnaces are providing in the winter and the cooling that our AC is providing in the summer comes from leaks - leaks in the fireplace, leaks around windows, leaks around doors. And, you know, you could wet your finger and hold it up around your house to try to figure out where those leaks are or you could call your local utility or your state energy agency. They'll do an energy audit. They'll find those leaks for you. They'll teach how to fix them and they could help you save $250 to $300 a year just by stopping all those air leaks around your house. It's a really simple thing that you can do; maybe you'll add some more insulation in your attic as a result of the audit as well.

Greg Dalton: We clocked our garage and it was amazing how the temperature difference, you just walk into the garage now, it's a big, you know, heat or cold cavity, and now that heat exchange -- I haven't tracked how much money we're saving but I can definitely feel the heat difference. We talked about refrigerators, flash water heaters, water heaters are often one of the culprits at home and people say, well should -- you know, we have this big tank of water that we heat but we don't really need it most of the time, yet it's hot all the time. Are flash water heaters better? Flash water heater -- we should describe what they are.

David Friedman: Sure. Well, flash water heaters are effectively instant water heaters. The concept behind them is they will heat up -- they don't have to sit with a reservoir of hot water. They just heat up the water as you need it. And these can dramatically cut back on the amount of energy that's needed to heat your hot water. So, you know, if you have an old water heater, definitely replace it. If you want, you can replace it just for the well-insulated tank water heater or you can go with these tankless instant water heaters. They can cut the electricity used for heating water by more than a factor of two. So they can be a great investment, but make sure it's installed right. Some people can sometimes have problems if it's not installed close enough to the faucets and then you lose a lot of heat as the water is getting from that instant heater to your faucets. So make sure it's installed right. Get a good high-quality installer and plumber to make sure that it's done right.

Greg Dalton: Not to mention all the water that's wasted because it runs away, right, while you're heating. That's they way it burns me -- it doesn't burn me but, you know, it's like just the waste of -- and there's a lot of energy embedded in the delivery of that water. Diana, would you like to get in the water?

Diana Donlon: I was gonna add at what you've just said about the energy and water. California, as you know, uses a tremendous amount of energy to move water around in the state. So one thing we can all do at home is conserve water. We certainly did that during the '70s during that prolonged drought. But you can get a rain barrel; you can use that to water your garden. They have these rain barrels now in Singapore and in Australia that people just as a matter of course save their rain water. We can do that in our arid climate. You can run your dishwasher only when it's full, same with your washing machine, really just save up. Instead of running a half load. Wait until it's full, there's no reason.

Greg Dalton: But aren't there health concerns with having standing water sitting around?

Diana Donlon: Well, sure there are, absolutely.

[Cross talk]

Greg Dalton: Mosquitoes. So -- didn't say water buckets but then there's some health concerns. It used to illegal.

Diana Donlon: They're special rain barrels that account for that. You just have to do a little research online.

Greg Dalton: The San Francisco Public Utilities Commission actually is trying to get people to take them because they've realized that the processing of rain water that goes through the drains, that costs money. So they need money -- water diverted from the municipal system to save the city money. Betsy Rosenberg?

Betsy Rosenberg: Water waste, that's what got me into this crazy environmental illness I have. I hate waste. I started trash talk 15 years ago because my husband was shaving, brushing his teeth and the water was going down the drain. And he was doing his best thinking while the water was flowing and it drove me nuts.

[Laughter]

Betsy Rosenberg: So we now have bottles of water like a vase near the sink, so when it's heating up just put in there and then use that to water the plants. And then also in the kitchen while -- in the shower, first of all, have a watering can. So if you're in a home where it takes one to two minutes to heat up the water, it's catching it, use it to water indoor, outdoor plants. And then I do the same thing while I'm clearing up the table. If there's water in the glasses I pour it into the orchids -- not a drop of water gets wasted in my house. I get apoplectic. So thank you for bringing up my favorite subject.

David Friedman: And if you're really worried about both water and the climate, one of the reasons why California uses so much energy associated with water usage is actually a lot of the water is used to cool power plants. And so if back off on the amount of electricity you use at home by upgrading that refrigerator, by insulating your home, by even just doing simple things like getting a power strip, plugging your TV and your laser printer into that power strip, you can save hundreds of dollars a year on your electricity bill and you can cut back on water use because those power plants won't be having to run as hard wasting a lot of water as they cool them off as they're generating heat to ultimately generate the electricity to power our lives.

Greg Dalton: One of the things that people talk about here is feedback loops, that is, giving information at the time of use that reinforces that behavior. The Prius dashboard is famous because it tells you how much energy you're using right now. The problem with the utility bill, you get it some weeks or months later and it is not correlated in time with that power strip or the water heater, etcetera. So let's talk a little bit about the giving of information that correlates with that behavior to be reinforced.

David Friedman: Sure. I mean, in general, one of the most powerful things we also did find about saving energy around the home is to pay attention to that utility bill. It may come only once a month, but if you keep track of it and then if you apply some of the tips in our book, you will see that fall just like I did with my refrigerator. But there are quicker ways of doing it. A lot of libraries actually have these watt meters, these little devices that you can bring into your home effectively clamps around a wire so it doesn't mess with the system, or it just plugs into a socket and then you plug in to that and it will measure the amount of electricity that you use in various devices around the house. And one of the things you will surprisingly find is, if you own a laser printer and you're

not turning it off at night, you're potentially wasting a hundred dollars a year because laser printers don't have a good sleep mode, and so they're wasting a lot of energy. You'll also find the same thing for your big entertainment system and video game consoles. These are --

Greg Dalton: You mean that 90-inch TV uses energy?

[Laughter]

David Friedman: It turns out it does. It's one of those vampires when it comes to electricity even when it's off. And that's why simple things like power strips can be so powerful. You know, there are other ways that people have done in this. For example, I believe it was in Phoenix where people signed up for a program where they paid for their electricity more like the way we pay for gasoline. They would effectively charge up their account that would allow them to use a certain amount of -- to pay for a certain amount of electricity, and then they would watch that account balance fall and then their meter would effectively give them an alert when they're running low on their balance. And what the utility found was with the combination of better information and that pricing signal to let them know that they're basically running out before they have to recharge, people were able to cut back on their electricity use 10 to 15 percent just simply by getting more effective information about how much electricity you're using and how quickly it's draining the bank account. So it does make sense to find different ways of getting more information.

Greg Dalton: Betsy Rosenberg?

Betsy Rosenberg: Since we're talking about green myths, I've had some questions I've wondered about. So we've got the expert here so let's continue to drill you. True or false that if you're leaving a room for more than two minutes you should turn out the light? And same with the computer, should you put in sleep mode or turn it all the way off at night or if you're leaving for, you know, half the day, a few hours? What is the cut-off? And then also, I get asked a lot -- well, I heard that hybrid car batteries are really bad for the environment both in terms of disposal and of, you know, life cycle and also that there's some danger with EMFs and that it's going to be even more so with the electric car batteries because they're larger, more robust. If you could address those urban myths.

David Friedman: Sure, I'll do my best and I may have to come back to you to remind me of all those excellent questions. So, the first one, turning off the lights. You know, my wife and I used to -- often be on each other over who left the lights on. And it would end -- lead to endless arguments. And I've got a great way to solve that.

Greg Dalton: I have that today.

David Friedman: There you go. Buy compact fluorescent light bulbs. Get rid of all the regular incandescent light bulbs in your house, and just that single step, you can avoid arguing about who left the lights on. Why? Because switching from an incandescent to a compact fluorescent is equivalent to literally sitting in the dark for three out of every four days without actually having to sit in the dark. LEDs, which are a little more expensive but a lot of people say have even better, higher quality of light than incandescents, installing those is equivalent to sitting in the dark for six out of every seven days.

So what I would say is I don't care what the rule of thumb is. Buy more efficient light bulbs, you don't have to have that debate anymore.

Greg Dalton: We put LEDs at our house and we also put them in our will because they cost so much and they're gonna be 40 years. And so, when I move out of the house, I'm gonna unscrew

those suckers and take them with us, that's for sure. [Laughter]

David Friedman: They're a great investment.

Greg Dalton: Yeah. Hybrid batteries is a good one, because that does come up. People say, "Ah, hybrid car. The mining of the metals, the disposal of the batteries…"

David Friedman: Well, first let's talk the climate angle on hybrid cars. Just as with the refrigerator, only a small portion of the climate impact comes from making and disposing of your car. For the typical gas-linked car, it's only about 10 percent of the climate impact comes from making and disposing it. Ninety percent comes from using that vehicle. With the hybrid car, it's very similar. So when it comes to climate change, if you're buying a good hybrid which can boost fuel economy by 30, 40, 50 percent or nearly doubling it, then you're clearly after the first, say 10,000-15,000 miles you drive -- you're saving carbon emissions. So that's clear hands down.

Now, the more complicated question are these other environmental impacts associated with mining and, you know, resource gathering. And the key here really is that what we've got to make sure that happens is that those batteries are recycled. Cars are already one of the most recycled products out there. Why? Because steel is valuable. A lot of the materials in those cars are valuable so car companies would rather reclaim that materials and other companies would rather reclaim that material than buy it from overseas. They can potentially save money on that. It's the same thing with the batteries. The batteries contain very valuable substances and so the first thing people are gonna do is -- and companies like Honda and Toyota and others, and Nissan, are already doing this -- they're trying to make sure those batteries are reused. So maybe your battery will have a second life as back-up power supply or high-quality power supply for Google Server. And then once its life is truly finally over after that, recycle it and it could go into a new car.

So the key to making sure that those broader environmental impacts don't get out of hand is making sure that we recycle those battery packs.

Betty Rosenberg: And the makers of the hybrid cars are in fact doing that, mostly. Toyota and Honda, as far as you know, they are refurbishing or at the -- have we had the end of life cycle of Prius yet?

David Friedman: Well, and that's the challenge. They all have programs in place to do this but one of the interesting things is hybrid batteries are turning out to be lasting with the lifetime of cars. And so we haven't been facing this big glut of hybrids that have to be recycled because in this case, the car companies did a pretty good job of designing those vehicles to last. As the technology gets more popular, this will become a bigger issue, but the good thing is, in countries like Japan and Europe, they're already ahead of the United States when it comes to what they call, you know, cradle-to-the-grave management. And so there's a lot of momentum here, and the economics are on the side of the environment in this case.

Greg Dalton: David Friedman is deputy director of the Union of Concerned Scientists and co-author of *Cooler, Smarter: Practical Steps for Low Carbon Living*. Other guests today at Climate One are Diana Donlon, Cool Foods campaign director at the Center for Food Safety, and Betsy Rosenberg, host of On the Green Front, radio program. I'm Greg Dalton.

We're gonna invite your participation. We're gonna put a microphone up here and as Jane Ann said if you're on this side, please go around through that door rather than crossing this camera, and we'll get this part going in the line. We'll start back with Jane Ann right there. And we have a lot, so whoever is first can come on up.

Male Audience: Thanks for a nice overview. Getting back to cars for a moment. You didn't mention the diesels that are being produced in Europe, particularly the German ones which are very clean-running. And my little brag is about what I think is the ultimate at the moment. I put some solar panels on my roof which deserves a little bit of time. I did it, you can do it. There are various ways to purchase or lease or finance them, and they're quite reliable I assure you. And that in combination with my Volt, lets me drive virtually guilt-free.

Greg Dalton: German diesels --

Male Audience: And if you do via Volt, when you get to the bottom of the hill, it scrapes too.

[Laughter]

Betsy Rosenberg: I'm not living in Mill Valley anymore.

David Friedman: Now, that was a perfect example of an overachiever, I would say. In terms of the first question, diesels can -- diesels have gotten a lot cleaner. The diesels that a lot of the car companies are selling are not the old dirty diesels that we were used to, where they're belching smoke. So, diesels can be a great choice. They are a lot cleaner. Two things to remember about diesels -- one is diesel is a thicker fuel and that has a lot of good things. It means you can tend to go farther on a gallon of diesel, but it also means that a gallon of diesel has about 10-15 percent higher carbon emissions than a gallon of gasoline. So, diesel cars are still good for cutting carbon emissions, but when comparing them to gasoline vehicles, you've got to put about 10-15 percent discount on their fuel economy, but the easiest way to do it is to go to places like fueleconomy.gov, which is a federal government website that gives you the carbon footprint of both gasoline and diesel cars, and you can make that comparison yourself.

But diesel cars can definitely be a good piece of the puzzle. And you know, solar power, it's hard to argue with solar power as anything but a great option. We need a lot more of it. Our utilities need to be tapping a lot more into it, and if you're gonna install those solar panels at home and charge your Volt or you leave, like I said, you are -- you are one of those clear overachievers and we need more like you.

Greg Dalton: Let's have our next question.

Male Audience: I have a solar comment, and then a question with it. About a year ago, I put in solar panels that cost 14 grand or so. I didn't touch any bit myself, so it was all paid for. Just got my first 12 months bill, I paid $11.83 for electricity last year. And that was administrative charge, by the way. Before that, it was costing about $250 a month, so let's say 3 grand a year. So I'm gonna break even on this saying that about -- between year five and year six or something like that, and then it's gonna spin out $3000 a year. They -- seems like they plateau at about 80% efficiency, so for a long, long time. So my question is, what I don't understand is why people aren't running to this? So there's a way to cut electricity and oh that's good. By the way, I do have LEDs, 10 bucks a pop, I'll tell you where. A later thing.

[Laughter]

Greg Dalton: That's what I've heard.

Male Audience: But, on the whole electricity front, you can do that and should do that, but why not roll your own and let the sun make it? I just don't understand why people aren't -- aren't going that way.

Greg Dalton: Roll your own. Okay. We got it.

[Laughter]

Betsy Rosenberg: at the Commonwealth Club.

David Friedman: Yeah, I mean it's -- again, solar power is a great alternative for folks. It may not work for everyone. And again, I think that's one of the important lessons of *Cooler, Smarter*. In fact, one of the things you can do is you can go to coolersmarter.org, answer a few questions. You know, if you're an overachiever, it may not work as well for you, but you know, the typical American, if you go to coolersmarter.org, you can answer some questions and we'll give you 20 tips over 20 days on how you can get started and cutting your carbon emissions.

Greg Dalton: Welcome.

Carleen Cullen: Hi. Thank you. Hi, Diana. Hi, Betsy. I run a nonprofit called Cool the Earth, and the essence of our program is about behavior change -- getting families to reduce their carbon footprint. And the way we do this is by inspiring kids. Kids can get their parents to buy things like Lucky Charms, and they can also get them to change their energy behaviors. And I was interested in having the panel comment on the inertia factor, because I often feel that we're really not fighting CO2. We're fighting inertia and behavior change.

Greg Dalton: So it's a psychological issue, a cultural issue. Betsy Rosenberg?

Betsy Rosenberg: If you let me start, I won't leave enough time. This is -- this is what I lose sleep about. I don't really understand, you know, what it is about we Americans. I guess it is cultural that we're, you know, it's about entitlement and abundance and the American way and, you know, you can go from nothing to everything. But we've taken that too far clearly, because we're not taking our crisis seriously. And I can give you all kinds of examples, but just look again at the media lacking not only designated programs for these very real and complex and urgent issues, but also just government leadership. You know, schools are teaching it and that's a great program. You just heard about -- but where are the adults learning? And you know, we baby boomers are gonna live to 120, right?

So, we make choices everyday, so I'm so glad your book is out and I will promote it at the green tea parties, but this is a puzzle to me. A psychological, sociological puzzle, why aren't we more alarmed and, you know, we don't like bad news and we don't like, you know, longer, you know, answers and more complex problems. But we have to get over that really quickly. And I don't understand especially parents having that sort of lethargy and apathy and putting those blinders on when we parents have more invested in the future than anyone. So there's really a disconnect there.

Greg Dalton: Diana Donlon?

Diana Donlon: Well, I love Carleen's program. My children did it in school and you take these little coupons and you bring them home and you go over it and say something like, you know, hang you clothes up to dry -- check. You know, turn the water off when you're brushing your teeth -- check. Ride your bike to school -- check. So you can enlist kids in all of these things that are climate-friendly. And they love it. They're very enthusiastic about it. And I wanted to make one comment. Going back to cars and transportation, I think a lot of parents feel that they have to drive their children places, that they're entitled and that that's quality time with your children. It's not quality time. It's very stressful, traffic, all those things. What's quality time is riding your bike with your kids, walking with your kids, or giving your children wings so that they can learn how to figure

out -- how they're gonna take that bus, how they're gonna take that ferry. They have a cellphone. They can all you when they get there, and you know, let them out, reel them in.

And programs like Carleen's really help teach kids, and I think that helps with the inertia factor.

Betty Rosenberg: Yeah. I just don't think we should put it all on our kids to solve this thing, you know.

Diana Donlon: No, no. We can work together.

Greg Dalton: It's for them.

David Friedman: Well then, I mean that sounds like a fantastic program, and I hope I've got a three-year-old and I'm sure he will be pushing me to change my lifestyle. I guess one of the things I would ask of everyone here, are kids should be climate leaders? Everyone here should commit to become a climate leader. Everyone this year should commit to cutting your own carbon emissions 20 percent, and then you can have stories that you can tell people. You can tell them about the money you save. You can tell them about no one having to argue over who left the lights on. Everyone here can become a low carbon leader by committing to cut their carbon emissions and spreading the word. We have to beat that inertia by making changes in our own lives, but then talking to the people we know, talking to our policy leaders, showing them, "Hey, you may not be leading on this, but I'm making these changes and you should be following my lead."

Greg Dalton: Welcome -- let's have our next question. Hi.

Female Audience: Hi. I've heard that a number of the car companies and the utility companies too are considering this problem of if you're in California, maybe you have cleaner grid electricity, whereas if you're in another state like Midwest, you might have dirty electricity, and that they're combating this by associating RECs with the car purchase.

Greg Dalton: Renewable energy credits.

Female Audience: Yeah. And the other way that they're doing it is, for example in Austin, in many other places, when you charge your electric car, you can actually charge wit renewable energy. And so, I was surprised that I haven't really -- we have a couple of questions about renewable energy but I haven't heard you speak yet about the importance of renewable energy as a whole. That's my question.

David Friedman: Well, look. Part of what we're asking with our book is for everyone to commit to a 20 percent reduction in carbon emissions this year. But if we're ultimately going to deal with climate change, which really is the single largest long-term environmental threat facing the nation and the world today --

Greg Dalton: Existential, not just environmental. Yeah.

David Friedman: Exactly. And in many ways. We are going to have to cut our carbon emissions 80 percent. So everyone who can start with 20 percent should start with that 20 percent. But everyone who can invest in renewable power, whether it's buying renewable electricity credits, whether it's signing up with your utilities program where maybe you pay a few extra cents, and they'll invest that money in renewable electricity, or maybe it's talking to your local representatives, your governors, and pushing for renewable electricity standards in your state. I mean California is going -- already going for 33 percent renewables by 2025, and we're already close to meeting that. I mean California can go way beyond 33. So again, part of being climate leaders is pushing for things like renewable

energy so that everyone can drive a lot cleaner if they're buying electric car.

Greg Dalton: We have about 10 minutes left and a lot of questions, I'm not sure we'll get through them all but let's try. Yes, welcome sir.

Male Audience: PG&E has been installing SmartMeters on electrical systems here in the Bay Area. Have they been designed and installed in a manner that is -- the users have feedback enough to help reduce the greenhouse emissions?

David Friedman: I don't have a good answer for that. I know -- I know they've been installing SmartMeters. I know there's been some, you know, various controversy and issues around them, so I don't know if either of you --

Greg Dalton: That's your -- Diana, on SmartMeters?

Betsy Rosenberg: I'm gonna pass. They're such a controversy that whatever I say, someone's gonna get mad at me, so --

Diana Donlon: I think in theory, they're good idea. I don't know that they've been well implemented.

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

Male Audience: Good evening. So, everyday I face this, as you call the challenge I eat every single day. And I decisions everyday about changing a light bulb, turning switches on and I make cast decisions. Now, I'm pretty diligent. I have an '01 Prius that I have to order on the internet when they were first shipping then in. And I'm a diligent consumer, and I still don't know what I'm doing. You know, what do we do at the point of purchase? There's Eco Score card, Eco Label index, Good Guide, Green Wizard, GreenerChoices.com, level-certified -- there's certifications and lists and -- I mean Good Guide is about the best of them that I found, but what are we doing about point of purchase? Or is anyone doing anything that actually will help people make decisions. We're kind of the good guys here, I think, you know. These are -- we're pretty evolved, that's why where here. But the country is really making decisions, and I can't make these decisions everyday in a smart way. I wouldn't know which bananas to buy. I'd rather buy the cheaper ones.

Diana Donlon: Well, it does feel like you'd need a PhD to go to the supermarket these days, but you really don't. If you think about a couple of things -- trying the fresh food, avoid the processed food because it's gonna be healthier and even healthier for the planet, right? Try and eat locally and in season. Watch your meat intake, watch your packaging and watch your waste. We waste up to 40 percent of the food that's grown in this country, and you think that after we go to the trouble of growing it, packaging it, processing it, shipping it, refrigerating it, we would at least eat it. [Laughter] So there's something right there and -- the reason we're focusing on food is because not only do we have the CO2 but we also have methane, which is 23 times more powerful than CO2, and nitrous oxide, which gets into the whole industrial-agricultural model which is 294 times more potent than CO2.

So, when you are eating three times a day, you can keep those principles in mind and you will be eating cooler food.

Greg Dalton: Let's have our next audience question. Yes, sir.

Male Audience: So far, the conversation has focused on cars, home energy, and food. A few years ago, I calculated that my share of an economy class seat round trip from here to the East Coast and

back -- I don't remember, I think it was something like twice what I use in my home in a year. My home energy use is modest. Why has not that come up -- I'm actually feeling a little angry that that whole issue hasn't been raised. I feel like if I can't be happy here in San Francisco, I'm probably not gonna be happy in Barbados or whatever.

Greg Dalton: Bigger mission. Point taken. Maybe airlines -- if you go to the California Academy of Sciences, they have a little exhibit, what we were -- inputs in your car, you know, the airplanes just --

David Friedman: That -- though your car emissions annually are about, if for the average American, are 10 times your airline emissions. So the reason why we focus on --

Greg Dalton: But that's an average. And most Americans don't fly that much. But if you're sort of --

David Friedman: Right. If you fly a lot, it's a place to focus. Stay out of first class. You know, try to get airlines that -- where everyone shares the same amount of seating and you'll have a lower carbon footprint but --

Betsy Rosenberg: What about offsets?

David Friedman: Carbon offsets can make a lot of sense but, you know, what we always say to folks first is the first thing you should always do is cut your own carbon emissions before you pay someone else to cut theirs.

Greg Dalton: Yes, sir. Next question?

Male Audience: We know there are a lot of incentives for installing solar panels on private homes. We keep hearing that the prices are regularly coming down. But I live in a 110-unit condo building. How many years away are we from the optimum price point for solar panels on our roof?

David Friedman: I don't know the exact answer to that, but what I do know is building integrated photovoltaics, so, integrating solar power onto condominiums, onto businesses, onto the roofs, and even in some cases the sides of commercial buildings can be a great way to spread solar power. I know in California, there's already some interest in pushing farther with distributed solar power so that a lot more people can get access to solar power right where they live, which has the added benefit is you don't need a lot of transmission lines to get the solar power to you if it's coming from next door.

Greg Dalton: That's one of Governor Brown's big initiatives, the distributed solar -- particular on state lands. Let's have our next question. Welcome.

Male Audience: Hi. So, my question is -- what's better, to buy an old car and rebuild the engine and redo all that or to go out and brand new Prius, let's say, or some other eco-friendly car?

David Friedman: It comes down to the fuel economy. If you're rebuilding your car, it gets 35, 40 miles per gallon, maybe it's roughly a toss-up, but in most cases, because the average car only gets about 20 miles a gallon, that new Prius is gonna be hands down better when it comes to carbon emissions. Unless you really found a gem to rebuild.

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

Female Audience: Special thanks to the panel for offering actionable advice here. I was

wondering if you could elaborate on what renters do to reduce their energy footprint. For example, the refrigerator example was poignant. And I got to tell you, my landlord would not be interested in me saving money on my energy bill when he has to foot it for the refrigerator.

Greg Dalton: Classic. What they call the agency problem. David?

David Friedman: Now, that's a classic problem. And even homeowners have this problem where the builders will avoid insulation or avoid other things that may lower your cost, but increase their cost or at least increase the first cost of it. I mean first what I would say for people who do live in apartments, focus on making sure -- you could potentially have control of your light bulbs, you can have control over whether you have power strips to shut off that TV, to shut off that laser printer. In certain cases, depending on where you live, there are some kits that you can use to increase the insulation on your windows that won't cause any damage to the window but can actually save you money. And -- look, if there's only so much you can control in your home, focus on how you get around. Focus on your food. There are other categories beside your home that you can also get to a 20 percent carbon reduction this year.

Greg Dalton: I'm gonna end with provocative question which leads to another event that we're gonna have later in this year. There's an economist at the Environmental Defense Fund, Col. Wagner, PhD, who's written a book that says that individual action doesn't matter. Policy is what matters. There's something called the action bias, so where they argue that actually, individual action distracts from collective action, and at least feel-good things, they make us feel better but they're not solving the problem. Betsy Rosenberg, you're nudging your head.

Betsy Rosenberg: Completely agree. I mean, it has to start it us so this is important, and that is equally important if not more so. And my take on this is that what we need is an educated population. We need an ignited America to be demanding greener policy products, politicians, presidents. That's not gonna happen. And guess what? It's not happening. I mean, the last research showed that Americans' opinion of steps needed to combat climate change is going down, at the same week that we have -- we're just -- you know, opening Pandora's box here, I am with this whole deep-pocketed fossil fuel industry putting up billboards that's saying, you know, if you believe in climate change, you're equivalent to Ted Kaczynski, the Unabomber, and other murderers. So you're a murderer.

There's a really deep-pocketed, dark, you know, force at work to turn all this over and then some. And we have to aware of that. So I think until we connect the green dots for Americans and get, you know, outside the choir, God Bless You, the sacred choir, but it's still the same people. When I go to conferences, when I hear speeches, the same people show up, you know, in transition town events, in Marin over and over and over again. We're a tiny fraction of America, you know, and we need to get out of the silo and take it, spread it everywhere now. And only then will we have a chance of addressing this, you know, mother of all eco challenges.

Greg Dalton: Well, David Friedman and Diana Donlon?

David Friedman: I would say, look, individual actions matter. Period. End of story. I completely disagree that they don't matter, and it's for two reasons. One, look -- if every American cut their carbon emissions 20 percent this year, that would be the equivalent of shutting down one-third of the United States' dirty coal-fired power plants. So, individual action matters. But remember, policy change is individual action, too. Because politicians aren't gonna change unless we're telling them to change. Politicians aren't gonna change unless, for example, nearly 300,00 people speak up and ask for doubling of fuel economy. Well, they did it. And guess what, we're gonna get it. Unless millions of people in California speak out and say we need to protect our cap-and-trade program,

protect pricing of carbon against interests -- oil interest from out of state who are salting it, well guess what? Californians did that.

So, individual action is also all about making changes in your own life but also about sharing those changes and sharing that passion to create much bigger changes when it comes to policy. We cannot and should not choose between them. We need both and we need a lot of it. And I hope everyone here will commit to being a climate leader.

Greg Dalton: Diana Donlon?

Diana Donlon: Well, we see so much energy and excitement in the food movement, that's where you see the rise in farmers' markets, you see the celebrity chefs, you see the small transition towns being revitalized around food issues. We see record numbers of young people interested in farming. So there's a lot of energy in this movement that we can harness to the climate movement, and bring some of that fresh energy, bring different voices, bring women's voices to the climate world. They haven't been very present. Very male-dominated, it's very science-dominated. We need young people who have a stake in the future engaged. And they're engaged in food, so that's why we are choosing to focus on food even though it's only 14 percent of our personal climate emissions. The potential for policy change is enormous.

Greg Dalton: Diana Donlon is Cool Foods campaign director at the Center for Food Center. Other guests today at Climate One are Ben David Friedman, deputy director of the Union of Concerned Scientists, and Betsy Rosenberg, host of On the Green Front radio. I'm Greg Dalton, thank you all for coming and thanks for listening to Climate One today.

[Applause]

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