

# Generation Green

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

Our topic today is climate and science education in the San Francisco Bay Area and around the country. Many young people are well-informed about the impacts of fossil fuels and the promise of an economy running on clean power. But science has become a contentious topic in some communities and we'll talk about challenges of bringing environmental education beyond the left and right coasts. During the next hour, we'll discuss teaching our children well and include questions from our live audience at the Commonwealth Club in San Francisco.

We're pleased to have two students and two social entrepreneurs who have founded national organizations. Bridger Murray is a sixth grader in Marin active with Cool the Earth Campaign. Rosemary Davies is a graduate of Berkeley High School Green Academy. In the summer of 2012, she went on an Arctic Expedition with Students on ICE, a Canadian education organization. She received a Climate One scholarship to go on that trip. Mike Haas is founder of the Alliance for Climate Education, and CEO of Orion Renewable Energy Group. He's also a financial contributor to Climate One. In a few minutes, we'll be joined by Carleen Cullen, founder and executive director of Cool the Earth. She'll come up here and join us. So, please welcome them to Climate One.

[Applause]

**Greg Dalton:** Bridger, let's begin with you. I want to ask each of the participants today that your sort of a -- your story of how you became conscious about the climate and I understand you played Mr. Carbon in a school play.

**Bridger Murray:** Yes.

**Greg Dalton:** That must have been fun. Were you -- Mr. Carbon a good guy or a bad guy?

**Bridger Murray:** He is usually a bad guy.

**Greg Dalton:** Usually a bad guy. Okay.

**Bridger Murray:** Okay.

**Greg Dalton:** So tell us about that play and how you got involved in climate education.

**Bridger Murray:** So, the "Green Team", as it was called, came to my school, I think, when I was in third or second grade and they came there. I didn't really -- I was in second grade or third grade, I can't remember obviously, so I didn't really know what it was about. You know, "Green Team? What's this?" But I decided to join because I thought it was some club, you know, so I joined it. And, you know --

[Applause]

**Greg Dalton:** Do you join lots of clubs?

**Bridger Murray:** Yeah, I'm usually. I like activities and stuff but it was -- I thought it was some -- I thought it was, you know, some club or as I said before. So I joined it and I was like, "Hey, this is actually pretty cool." It was -- you know, talked about climate change, green -- reducing carbon dioxide and that kind of stuff and then it took off from there with Cool the Earth, and I started getting in skits, that kind of thing. I think I played Mother Earth a few times.

[Applause]

**Bridger Murray:** I was -- I brought this cartoonish polar bear hat too that's one of the costumes that you wear on, you know, your head during the skits and it was -- you could wear this. There was -- I think some of the characters, Koda the Polar Bear and those kinds of things. So--

**Greg Dalton:** And the polar bear chases Mr. Carbon?

**Bridger Murray:** Yeah.

**Greg Dalton:** Okay.

**Bridger Murray:** They chase him around the stage usually. So--

**Greg Dalton:** And does the play have a happy ending?

**Bridger Murray:** Yeah, usually. It's usually -- well, sometimes it's kind of almost a cliffhanger. It's like, you know, Mr. Carbon is like inside the reaches of Koda the Polar Bear and he says, "You can help," you know kind of something like that important value so.

**Greg Dalton:** It's kind of like Hollywood, they have question marks at the end of those things, I guess, okay.

**Bridger Murray:** Yeah, exactly. Next --

**Greg Dalton:** And then you got involved with Cool the Earth and you started to take specific actions at home. Tell us about some of the actions that you did at home to save energy.

**Bridger Murray:** Yeah. One of the things that Cool the Earth brought to our school was like a bright yellow coupon book and it had various "coupons" in there that were basically slips of paper that you would fill out and it would have -- I think it was the amount of CO<sub>2</sub> that you could reduce by. They had actions on it, and the amount of CO<sub>2</sub> you could reduce by doing the actions. And it was usually something very simple but very effective such as, you know, bringing aluminum metal water bottles instead of plastic ones, riding your bike to school, you know, that type of thing.

**Greg Dalton:** Food?

**Bridger Murray:** Yeah. There was some stuff about, I think, it was cutting back on -- I think there was like a meat-free day once a week trying to do something like that.

**Greg Dalton:** Meatless Mondays, a lot of people do. Yeah.

**Bridger Murray:** Yeah, Meatless Mondays. And I think it was eat a pound less of beef a week which reduce CO<sub>2</sub> emissions.

**Greg Dalton:** And sometimes you get lazy and don't do the things?

**Bridger Murray:** Yes.

**Greg Dalton:** Yeah?

**Bridger Murray:** Yeah. Various times, the coupon book was not something I would do because I just took it as, you know, extra homework, I suppose. So I -- but I would still do the actions. I would, you know, flip through it, I would do the actions. The coupon book wasn't something that worked for me but it was really a big hit with everybody else, and it really got kids doing it. So--

**Greg Dalton:** Thank you. Rosemary Davies, tell us how you went from growing up on a chestnut farm to the Green Academy of Berkeley High School?

**Rosemary Davies:** Let's see. So I grew up on a chestnut orchard, my grandparent's, farm, and that really surrounded me with nature, open space.

It gave me an innate connection that I was a part of nature instead of being outside of it. And so when we moved in the city ten years later and it was so industrial and there's so many buildings and everything was on oil, it was a little shocking at first but then I guess I kind of adapted to it and I kind of still brought that kind of farm, small town perspective. And I went from middle school to high school and I kept trying new things like whatever interested me. So like equilibristic juggling, I tried that. I was into yo-yoing for a while, drumming, then guitar, and then pen-making, and then creative reuse projects.

And then when it came time for high school, I chose the Green Academy initially because my sister was in it, and it was easier for my mom who was a single parent. But then I got really into it and it was helpful at Berkeley High School where it's a zoo, and there's 3,400 students there, and it's harder to really, I guess, stay motivated and stay focused that the Green Academy helped me by tying me back to nature and bringing me to the city where I still kind of saw my environmental impact. I still could get involved with like organizations like Save the Bay, local food markets, so it was great. Nature has always followed me.

**Greg Dalton:** I've been over to Berkeley High School and attended, and the students there have a really impressive knowledge of measuring their impacts and vampire loads at home, and all sorts of very sophisticated things. Tell us briefly about when you went to the arctic last year on this two week expedition with students from around the world, a lot of Americans and Canadians and others, and how did that impact you?

**Rosemary Davies:** That it showed me that my -- what I did had a real life consequences like my family always told me, "Whatever you do or don't do, has a consequence." And I always kind of knew that. But going to the arctic it really reinforce it, and it helped me see that, "Oh, my God. My carbon footprint affects all these people in the arctic, all the wildlife, people's futures." And it also helped me see my American perspective and what, I guess, my identity.

**Greg Dalton:** Great. Well, we'll get back to some of the things you learned about methane and other things later. I'd like to ask Mike Haas. About 20 years ago, you started to become aware. You were getting a PhD. You started to get involved in energy. So tell us about your path to founding the Alliance for Climate Education.

**Mike Haas:** Sure. I never finished my PhD. I think maybe two or three people in the world cared about it what I was working on it. I decided I wasn't one of them because I started becoming far more aware of the risks of CO2 concentrations and started worrying about the atmosphere. And as an aerodynamicist at the time, I was thinking what -- you know, what's an aerodynamicist to do about this? I got into renewable energy. So I did that for a while.

It's fortunate that I started a couple of other small companies. And over the course of about ten years, we put a lot of wind energy projects in service in the U.S. and in the UK. But what sort of struck me, I was at a panel like this and I was a renewable guy and there was a Mr. Carbon, 11, 12 years old, he was the natural gas, to be exact, somewhere. But I was renewable guy in an energy panel and somebody asked me, "So, you know, how much wind have you done?" And I tried to explain it in megawatts, which is kind of a hard thing to understand. I said, "Well, all the plants you built, like how many homes could that power in a year?"

**Mike Haas:** And I thought about it for a bit and kind of came up a rough number, sort of a million or a million and a half homes worth of electricity that the wind projects that I've done. And there was well-plied applause in the audience, I suppose. But I was just -- I came home and I was really unsettled because I felt like I got into this because I came to the conclusion this was a very big risk with extraordinary consequences, and I felt like I wasn't moving the needle far enough or fast enough, and decided that the only way that we're gonna be successful in taking the actions that we need to, I think, are have to begin with education. I think you've got to invest in that. We've got to bridge the gap between what scientists know about the trend, what the general public understands.

And I think that the most effective way and the quickest way to get there is to invest in young people. They deserve to know what the scientists have concluded and that's just -- they're just not getting it in our schools. That's not to say there aren't some terrific teachers in schools doing amazing work, but for the most part, they're not getting this and I think it's hard to develop the will, to make this a priority without the information. And so that kind of led me to start ACE. And I'm happy to be sitting actually next to, which I found out in the conference room, with Rosemary who I think was a freshman at one of our first assemblies in 2009 at Berkeley High. So--

**Rosemary Davies:** It's great to have been inspired.

**Mike Haas:** Yeah.

**Greg Dalton:** So tell us briefly about the organization. You present high school demonstrations by high schoolers to high schoolers around the country, and then we'll ask Carleen to come up, and we'll continue. But tell us a little bit about.

**Mike Haas:** Educators are a bit north. So they're typically sort of maybe just out of college.

**Greg Dalton:** Okay.

**Mike Haas:** So there are young 20 something, but we have educators that go into high schools and give assembly presentations. That's our first engagement. In about three years, we've been in front of about a million and a half high school students. So we demonstrated that if you tell the story right, it's a story that you have to really tell right. It's hard to see the villain, right? But if you tell the story right, young people engage. Young people -- you can shoot straight with young people. You can tell them what the scientists have concluded. And then more importantly, you can tell them what solutions there -- are out there and what opportunities this will open up and addressing what will be a big challenge for them. And so, it begins with these educators that go into these pretty cool, you know, a lot of music and video and animation assembly presentations. Our educators follow back up with students in clubs that we form to take on projects in those schools and communities.

**Greg Dalton:** And Rosemary, do you remember seeing this presentation when you were at Berkeley High School?

**Rosemary Davies:** I do. Yes, twice actually. Yeah.

**Greg Dalton:** And what impact did it have?

**Rosemary Davies:** And so it had an impact on the environmental club that I was a part of, Eco Community Club, at the time. And so we started doing the Biggest Loser competition last year.

**Greg Dalton:** Right.

**Rosemary Davies:** And that, although we never really got to complete it because of a lack of involvement --

**Greg Dalton:** Shame.

**Rosemary Davies:** Its shame. You know, you got to like make young people feel connected to these issues and then like really -- I think for me at least, in the beginning, it was hard to be like, "Climate change, why is it important? Why should I care?" But once you -- I guess, when you bridge that, you really hit something special.

**Greg Dalton:** But you're saying is it's tough to sustain a level of concern --

**Rosemary Davies:** It is.

**Greg Dalton:** -- and engagement, right?

**Rosemary Davies:** Yeah.

**Greg Dalton:** Because the people, you move on to other things and they go.

**Rosemary Davies:** And like tons have put it on the back burner from like my general impression is like, you put on the back burner for the economy, for politics, but the thing is, all these issues are interconnected. So it's more complicated.

**Greg Dalton:** Bridger Murray, do you find that too sometimes? Its like, "Well, sometimes you recycle, sometimes you don't." It's tough to keep up the commitment?

**Bridger Murray:** Yeah, yeah. And then sometimes, you know, it's like not -- you know, "Why should I recycle?" I mean it's not like -- it's not making -- I can't see visually an impact or anything but then, you know, you look into it, I guess. You know, it all adds up and it can lead to an apocalyptic environment.

**Greg Dalton:** Bridger Murray, I've been doing this five years, is the youngest guest I've ever had up here on stage, so please give him a round of applause for doing this.

[Applause]

**Greg Dalton:** Bridger Murray, living up here in Climate One.

[Applause]

**Greg Dalton:** Very impressive sixth grader, 12 years old, very impressive. So, Carleen Cullen is going to join us now, and she is the founder of the Cool the Earth campaign. And Carleen, I'd like to ask you that, welcome.

**Carleen Cullen:** Thank you.

**Greg Dalton:** I'd like to ask you the same question. How did you become sort of climate conscious and get into founding Cool the Earth campaign.

**Carleen Cullen:** Well, you asked me probably the most difficult question of the evening. In that, I wasn't very climate aware.

**Greg Dalton:** You were -- you saw an inconvenient truth and you were skeptic and said it was overblown.

**Carleen Cullen:** I saw the Inconvenient Truth and I thought, "This just simply cannot be real, you know." And so, at first, I thought, "This isn't happening. Let me go back and do some research." But it really wasn't the science that got me. This is a personal story that I don't know how many people saw An Inconvenient Truth but, you know, Al Gore, nearly lost his son and he shared that with us in the movie. And about three years prior, my husband and I also had nearly lost as our son who was three at the time. And, you know, I sat there in that film, and I just thought, "I can't let this happen to my children." I have experiences. I sat in a hospital bed for weeks not knowing the outcome, and it took me in such a way and I thought, "What am I doing with my life? If I'm aware of what's happening. If the science is right, I have to take action." And I believe that children, like Bridger, younger children, you know, we work with K through 8 that they have an ability to embrace the topic, to take charge of their own future, and to have an intergenerational approach to this issue because everybody says, "Well, little kids, what are they gonna learn? By the time they grow up, it will be too late."

So we have an intergenerational approach where the kids get engaged with the cliffhanger of the assembly, which I love that because it really is a cliffhanger in that. You know, in the end, the polar bears are saying, you know, one polar bear is bringing an iPad and dancing around and saying, "Hey kids, are you gonna do something?" Or, "Will you help me?" And Mr. Carbon is saying, "No. Forget about them." And it's up to the kids to make a difference and to engage their families in their action.

**Greg Dalton:** And yeah, we don't know how the story is going to turn out and some would say we are headed toward a cliff on carbon if we keep going the rate we're going. You also have some stories in Kentfield where -- so your program is in schools and there was a case in Kentfield where a parent found out about it, didn't like it, the Republican National Committee got involved. Tell us about that.

**Carleen Cullen:** Well, we had moved from New York City, where I thought I'd seen it all. We lived there for 20 years and we started this. We wanted to just take action at our kid's elementary school and just bring a local, something we had developed, something I developed and wrote some plays, et cetera and the coupon book. And, you know, we have the approval of the superintendent, the school principal, et cetera. And at the last minute, one of the school board members objected and said the whole plan had to be canceled. And suddenly in the press and the Republican National Committee became involved. And, you know, eventually, we've had things. The Drudge Report has picked up on it. The Wall Street Journal has written things.

**Greg Dalton:** Big time.

**Carleen Cullen:** All very -- yeah, you know, I was so naïve. I got a call from the Wall Street Journal journalist and I thought it was from my friends from New York because of the 212 area code. And they said, "The Wall Street Journal." And I'm like, "Yeah, right."

And she said, "No, really. I'm The Wall Street Journal and I'd like to interview you for a story -- this was about five years ago -- about kids and climate." Of course with the Drudge Report and The Wall Street Journal, they were all very negative slant on climate change and engaging families in climate.

**Greg Dalton:** And there was even one man in Nevada who was arrested for harassing someone involved in --

**Carleen Cullen:** Yeah. It's one of the principals at one of the schools became so harassed that they -- she finally had to call the police on one of the parents to say that, you know, this was turning into a big problem. We had, for a number of years, at every school, some skeptic who was very vocal about the program, and would bring in computer slide shows to show the school, elementary school principal, why the climate science was wrong. And, you know, that's diminished over the past year and a half, I'm not exactly sure why, but we don't run into resistance. We've only been kicked out of one school and everybody can probably guess what state that was in, which was Texas. But we're in 23 states. We just ran last year in Shawnee, Kansas, one of the most successful schools we've had. So it's definitely become a more accepted program.

**Greg Dalton:** I want to dwell on the resistance. So Mike Haas, you also have a story of a Texas school where a TV truck showed up and there's, you know, these things can get really excited.

**Mike Haas:** Right. Maybe slightly unfair, you know, to be focusing on Texas. As it happened, it was a year that we were launching. Similar story, one of our educators came in, it was a school not quite the size of Berkeley High, 1,500 kids and they did four or five assemblies the one hour assemblies. It went great and it was really deeply appreciated. These assemblies are offered at no cost. They meet a lot of the addressed standards, science standards in various states. And the next morning, our lead educator in the area got a call around 5:00 a.m. from the assistant principal, who was sort of the gatekeeper and arranged to have us in, and I think he, you know, received a hundred emails, you know, since 9:00 that night had Channel 7 news truck idling in front of the school. And again, that's definitely an exception.

We've found, for the most part that, you know, schools embrace this that -- but they just need someone to offer it. And I think schools also recognize, as we do, how important it is to invest in young people and they have authenticity, sincerity, their forming behaviors, impressions for life.

And I think, you know, that's why we typically don't have these types of issues, but it happens once in a while.

**Greg Dalton:** All right. Let's move on. One of the themes we often talk about here at Climate One is the balance between hope and fear in terms of motivation, messaging, et cetera. Because if you look at the science, some of this is really scary but there's a lot of hope and optimism. So I'd like to ask all of you, sort of in your own messaging and communication, how do you balance that hope and fear because it's a little of both and perhaps different people respond differently. Mike, you know, what -- share your thoughts.

**Mike Haas:** Again, we focus on high school students. So we're in 2,000 high schools probably around the country, and we take the approach that we're a science-based organization, and we think again that young people deserve to hear what the consensus of science is on this issue and understand the risk. And we think it's important to shoot straight with young people and they can handle it.

And so we do focus a bit on what some of the consequences might look like, particularly in their areas, you know, making it local, tell them the story right, seeing how it will impact them, not in 30 years, but even today, some of these impacts. But we don't dwell on it. We put it there because we

think it's important that they get a sense of the urgency. Why should this be a priority? As Rosemary said, there's a lot of things that aren't right in the world, why should this be a priority? So we do point that out but then we focus far more on solutions, far more on the paths, the opportunity that they can take. It is really hard, I think we heard that from both Bridger and Rosemary.

I think it's -- this is a challenging problem. I think it's easy to disengage. It's easy to be overwhelmed and to think, "What in the heck can I do, you know, sort of in my own?" That's why we put so much faith in young people to try and build a connected community, you know, starting in their school, branching out on the region so that they feel they're not alone. There are a lot of young people out there that feel this way and I believe young people, again, give us our best opportunity to create the space and let our leaders know that it's safe to do the right thing, to mitigate this risk.

**Greg Dalton:** We'll get to Carleen on hope and fear in a minute, but Rosemary, Mike mentioned sort of local impacts. How will climate change affect Berkeley High School? We have high school students from the audience, from high schools around the Bay Area, how will climate change affect Berkeley High and other high school students or people in high school today?

**Rosemary Davies:** Okay. So, the Bay Area is obviously gonna be affected by the sea level rising, and for Berkeley High School, a lot about the climate conditions too. And, you know, high schools across the world are going to be having to confront this problem, and they're gonna be have -- they also gonna have to confront the problems of the families of these students too who rely on our environment. So up in the arctic, whether it's sustenance and whether if it's based on hunting and it's based on the trade there or even here where more people are employed by the like the Richmond Refinery or by non-profits.

So really, it's kind of like everyone -- it affects anyone. It's inescapable because we're already in nature and we're already in the environment and it's already happening too. So I guess there's a lot of fear that like there's gonna be resistance and it's like with any idea. Like, there is obviously gonna be some opposition but there is a consensus that we have to see that climate change is real and that we have an impact on it and that we can change. We can change our anthropogenic effects. We can change our human consequences. So there's hope. There's definitely hope.

**Greg Dalton:** So Carleen, back to hope and fear. You deal with younger kids --

**Carleen Cullen:** Yes.

**Greg Dalton:** -- and some people say it's not appropriate to scare younger children.

**Carleen Cullen:** Right, right.

**Greg Dalton:** So you got to balance differently than maybe than a high school maybe.

**Carleen Cullen:** With the exception of my own children I wanted to scare?

**Greg Dalton:** Yeah.

**Carleen Cullen:** I agree. But, yeah, so when we started this, I went and consulted with some principals, lots of school teachers, moms, had a mom advisory group, to talk about how we bring these serious topics to young, young children. And one of the things that we do is that we also are a free program is that a parent or a teacher volunteer at that local school actually runs the program, and the teachers are typically the characters on stage donning these polar bear hats, and Mr. and Ms. Carbon costumes. So they're the people that the students are very familiar with already. It's a certain trust built into that. But secondly, are you familiar with Tom and Jerry?



**Greg Dalton:** Yes. Yes, the cartoons?

**Carleen Cullen:** The cartoons?

**Greg Dalton:** Yeah.

**Carleen Cullen:** So, you know, our assembly is basically a big Tom and Jerry, a copy of Tom and Jerry. You know, you got Mr. Carbon chasing after the polar bear.

**Greg Dalton:** Slapstick fun, yes.

**Carleen Cullen:** Slapstick fun. It's cartoonish. It's very silly. The kids are never afraid but they come out and they know what carbon dioxide is, they know what methane is, they know about renewable energy, they know about the importance of electric vehicles, but all in a very fun, upbeat way. And most of them they know when they walk out of there, that they can use the coupon book or not, like Bridger, he just took action. You know, they can either take the actions. They can use these coupon book that can help them know how they can reduce their carbon emissions, and ways that they can also engage their parents in reducing their carbon emissions because trying to get adults to pay attention to this, when they've got busy lives, even parents who are concerned, they can't take a step back to take action but their kids can come in. And when they learn about this together, then they can really start moving forward as a family. So it's really no fear at all at this age level.

**Greg Dalton:** And there's a number of very prominent stories of children who've gotten to their parents, who are very influential. John Doerr in Silicon Valley, we have recently, Bob Inglis, former Republican congressman from South Carolina who was a climate denier. His first term in Congress, one of his daughters got a hold of him and flipped him. And now, he's -- he lost his congressional seat partly because he would -- he said, "I'm a Republican and I believe in the Science." So kids getting to their parents can be highly effective.

I'd like to ask Mike Haas, how do you measure the impact, you know, you can have a really -- you know, Rosemary's here a couple of years after hearing the presentation, it seems like it had impact on her life. She was already on this path, but how do you know that this stays with people down the road when you can get one hour perhaps with a student out of a very busy.

**Mike Haas:** So we got together with a few of the -- sort of the experts in the world in terms of how to communicate climate science, and we came up with some surveys that we go in to test this because you're absolutely right. Is this -- are we doing a good thing? And we --

**Greg Dalton:** A lasting impact.

**Mike Haas:** A lasting impact, right. Because what we're trying to do is get started on a path of behavioral change and that's hard. It is hard but we need to do it. It's -- just because it's hard, it doesn't mean we can't try to do it. What we try to do with these assemblies is to create an extraordinarily memorable experience so that they have a first, for some of them, it may be the first time that they've been in front of somebody like this, and some of them that have heard it before, maybe we've connected the dots in a different way. So it's more lasting and meaningful. But that first memorable experience, an awakening moment, what we do is we measure surveys. So we've gone out and done thousands of pre-assembly surveys and then post assembly surveys after the assembly and then, you know, in some deferred periods of time, to measure, you know, knowledge but more importantly attitudes and behaviors.

And what we've seen is, among the million and a half students that we've been in front of, our

analyses is that we've got something like sort of 50 percent shift in attitudes and behaviors. So taking people from disengaged to concerned, from concerned to alarmed, and we think that -- and the researchers have looked at this, have never seen anything like it in a one-hour engagement.

They've seen shifts like this in terms of attitudes and behaviors, but over maybe many months or many years with multiple intervention points. I think, again, it comes down to telling the story right.

So is it enough? No. Is it necessary? We believe that it is. It's this first memorable experience, but then what we got to do and that's why our educators go back and continues to work with the kids afterwards.

**Greg Dalton:** It's a fantastic presentation. It's on the web. I've seen it a couple of times live. It's been to my son's school. I highly recommend it to anyone who hasn't seen it. Carleen, how do you measure the impact? I don't know if you have time to get to know that when kids get into high school that they're still remembering Mr. Carbon?

**Carleen Cullen:** We don't have that sort of longitudinal study yet. But about two years ago, we collaborated with some researchers at Stanford University who did a full-year long evaluation, three-page evaluation load program. And some of the things that they discovered were, number one, that the kids were engaged but also that they went home and told their parents about what was happening at school with climate change or with the assembly. And we also found out, we did some focus groups, well they did, some focus groups with parents. And over and over again, the moms largely would report in and say, "My kid comes home and says, you know, I'm only using these sorts of water bottles or we need to reduce our carbon emissions." And, you know, to some kind of funny things where they're taking their showers and supposed to take a seven minute shower, and the kids banging on the door saying, "It's time to get out", you know.

So, you know, mostly good things but it's a really great symbiotic relationship because parents have reported that, of course, they're aware of climate change but they really haven't made the time so they work together to remind each other in household. And that in and of itself, extends the length of the program, the length of the impact. The -- I think looking forward, we have an opportunity that we think will extend the life of the program significantly and I'm not sure if I should go into that or wait a little bit on that.

**Greg Dalton:** Well, one, I think you're looking at games and games is a way --

**Carleen Cullen:** Yeah.

**Greg Dalton:** -- that that's one thing that's interesting in terms of making these fun -- fun and sort of, you know, video game where it's, you know, Rosemary talked about the Biggest Loser.

**Carleen Cullen:** Yeah.

**Greg Dalton:** How can games be a factor?

**Carleen Cullen:** Right, right. Yes. So, one of the things that I am frustrated by is the -- that we need to get there faster. We need to keep expanding. We know the program works. We found out through the Stanford evaluation that 38 percent of the parents said that after the program concluded, they went on to make more expensive retrofits, they thought about green purchases, and they got engaged civically. They wrote to their newspaper, wrote to a local elected official. So we wanted to keep expanding that but reaching more and more students, more and more families, and we have just announced recently that we are partnering with Guitar Hero, the founders of Guitar Hero, which is the number one grossing game in the world ever.

And the two founders of that are going to be partnering with us. They're personal friends of mine and we're working on bringing all the mechanisms that we've learned over the past few years, the past six years from the Cool the Earth school-based program, and bringing that in to where kids live which is on their PDAs, their mom and dad's iPhones or iPads, but still having that same interaction. There's gonna be a story about polar bears and Mr. Carbon. There will be actions they can take from the Cloud that we think the families can do, and they'll be using some fun technology to authenticate that they took actions, some photo journaling or, you know, Instagram sort of technology.

So it's an exciting project and we just learned that we -- we're in the advanced stages as the language with the McArthur Foundation for funding this project. So we're very excited about that.

**Greg Dalton:** Let's ask Rosemary and also Michael about, can being green be fun?

**Rosemary Davies:** Being green can totally be fun. I mean, I don't see why not. I mean, okay. I'm in university right now and one of the fun things that I do is the residence hall council and the programming coordinator. So last semester, we had a really fun before finals events. It was Swap When You're Swamped. So--and basically, people would come and they would party, and it was an open mic, and there was live music, coffee, and people could swap stuff like people could trade like, "Hey, oh my God, I really like that shawl of yours, I'll trade my fan for it." You know there's that kind of interaction and that you don't have to be such a huge consumer to be happy like money isn't happiness. And you can form these interpersonal connections with green. And then, sometimes, green it seems so fun that it isn't green. I mean --

[Laughter]

**Rosemary Davies:** So like stuff like fun outdoor sports, like orienteering or just like programming or like just talking green too and like saying, "Oh my God, have you heard about the ozone layer today or have you heard about that really cool sea mollusk?" And then like connecting the dots something like, "Wow, this is great! This is environmental?" And then you find this like really innate environmental stewardship that I guess you don't even have to create, you just have it. It's in you.

**Greg Dalton:** Mike Haas, Rosemary mentioned DOT and DOT is part of the Alliance for Climate Education campaign Do One Thing.

**Mike Haas:** Yeah.

**Greg Dalton:** Because this thing, climate becomes so big and so overwhelming, as Bridger mentioned earlier. Does what I do matter? Where do I start? And so Do One Thing is a very clever way that you sort of get people on the path.

**Mike Haas:** Right, right. It's one of the immediate tasks that are--accompany presentations aside from, you know, coming in and forming a club if they don't have an environmental club. Everybody can do one thing. We think, you know, one step -- taking one step, is the thing that can most ensure that you take a second one. And if you take a second one, there's a better chance you're going to take a third one. So -- and we don't prescribe what that is, we leave it up to the people.

But, you know, to your point, can this be fun? I think that is such a key point because what we need to recognize is that, you know, people have different interests, people have different passion, people have different things that motivate them. We share this common bond of this risk but it's important to meet people where they are, whether you're performer, right, whether you're an aerodynamicist or an aerodynamicist could be a baseball player. Bridger, told me about his baseball team. We've

got football teams, you know, plant trees to offset their carbon impact. We've had fashion shows, you know, put on by students. So whether you're into the science, whether you're in to the performing arts, whether you're into athletics, whether you're into physics, you know, you can find your voice --

**Greg Dalton:** Saving money. Some people are motivated.

**Mike Haas:** -- whether you're into just saving money absolutely, through efficiency, energy-efficient things. You've got to meet people where they're at and we think that's the best single way to develop this community so that you don't have this feeling of, "I'm on my own. What difference can I possibly make?" You know, we need to draw people and meet them where they're at and that's we think is very important. The young people really get and they respond to when you meet them where they're at.

**Greg Dalton:** If you're just joining us, Mike Haas is the founder of Alliance for Climate Education. Our other guests today at Climate One are Rosemary Davies, a University student at Chatham University in Pittsburgh, and a graduate of Berkeley High School's Green Academy; and Carleen Cullen, founder and executive director of Cool the Earth. I'm Greg Dalton. You can listen to this and other Climate One shows on iTunes, podcasts and iTunes.

Sometimes environmentalism is seen as an elite pursuit. It's for people on the coast. It's for people in upper income brackets. Rosemary Davies, is that true? Is this something that, you know, caring about the environment is a luxury if you got a job and a certain level of living?

**Rosemary Davies:** I think it is because a lot of times, when you're on a lower socio and economic status, when you're poor, climate isn't really at the top of your list. You're more like, "Can I meet like housing for next week? Can I keep this job?" And I think that definitely, when you have wealth and you can live well, you have time to think about climate but -- and also to be green too. But the thing is green applies to all people of all walks of life.

So I come from a very frugal family and we're not exactly very wealthy, but we're not exactly really poor, and it's hard to say if we're middle class or not, but we have an online book business and it's -- being green really helps because we go to Costco sometimes not to buy but just to like roam through the aisles and collect cardboard. It's like one of the most fun things ever.

[Laughter]

**Rosemary Davies:** It's like shopping for cardboard but shopping for free. And so we use that to wrap our books and it makes the whole process easier for us. And recycling is easy too. Reuse is even easier. So like being green is hard when you have so many other things to work for and it's kind of like beating that paycheck, but there's a part of green where it's everywhere at once.

**Greg Dalton:** Carleen, are you in liberal, upper income neighborhoods and schools?

**Carleen Cullen:** Well, we are in some, yes. And about 30 percent of our schools are lower income schools, and so we have all of our materials in Mandarin and Spanish, and we see about the same rate-of-return of actions from those. But I wanted to say something about the elite, the rich and environmentalism because I think that was perhaps true 20 years ago or 30 years ago before climate came into the picture. And now, unfortunately or not, that same group are actually typically the worse carbon offenders, and it's actually the lower in the socio-economic scale that have a smaller carbon footprint that care a little bit more about their gas bills and their utility bills.

And I think that it's the messaging that's appropriate to get to the variety of people. All the time, I'm

talking to foundations or potential funders who are interested in low-income communities and we feel like the knowledge needs to be, their education, the opportunity, but do we also really need to address this upper echelon, who maybe feel they're green because they're flying to some open space to go hike, and that's a huge carbon footprint. So it's really turned -- climate change has really turned some of those.

**Greg Dalton:** We've heard about those 8,000 square foot green homes in Marin. Yeah. So and Mike Haas, also, the people who are in the lower income levels are the most vulnerable and that they're gonna be hit hardest, in many respects, and have less of a buffering cushion.

**Mike Haas:** No, I think that's right. And I think, you know, the science doesn't really care a whole lot of who's wealthy or not. The wealthy certainly probably are gonna be able to handle the consequences, certainly better than those that are less fortunate.

But you're absolutely right that it's those that are least equipped to handle this that are gonna have the hardest time with it, which again, is why we believe that it's very important that everyone has an opportunity to understand what the scientists are saying. Our programs, you mentioned, you know, the left coast and the right coast, you know, we're in a whole lot of states in between, not just the coast, and about two-thirds of the schools that we're -- that we go into are public schools, about half of those are on some federal assist for lunch programs and things like that. So we think it's -- we think it's actually, you know, which I'm sure you'd agree, it's not one or the other, it's all. That we need to make sure that, you know, those that have the best capacity to handle this, understand what's going on and those with the least. And that to solve this problem, we're gonna need everybody. We're gonna need everybody to understand, everybody to come together.

**Greg Dalton:** And that includes students. So in some schools, there's a bell curve, there's sort of the middle, and there's some real advocates.

**Mike Haas:** Yeah.

**Greg Dalton:** People have engaged perhaps like Rosemary and Bridger. So you're trying to get a few leaders that then really go on or are you after the whole population along the spectrum of engagement?

**Mike Haas:** Sort of we're building a pipeline. So we've been in front of about a million and a half students. Out of those, there's probably -- out of a typical assembly of ours, a couple of hundred students, let's say, 5, 10, 20, 25 students will come down afterwards, truly inspired, want to do something, right?

And so we focus very much on that group that come down that are inspired after this first memorable experience of the assembly and we invest heavily to try to help them become leaders where they're at, whether it's in the arts or the athletics or civics or what it is, we support them to find where their best opportunities are to become a leader. So we invest heavily post-assembly with those students that come down that, you know, that really want to do something but through, you know, virtual engagement and sort of grassroots with those leaders, they go back into schools and engage the rest of the crowd, you know, that hopefully have been introduced to this concept, they're thinking toward that.

Our analysis, you know, shows that that is indeed the case. But we've got these grassroots leaders in the schools that will keep us alive after this first assembly experience. And just one final point, there's like 20 million high school students at any given time, or if not in high school, unfortunately, some of them not, but in this sort of age range 14 to 18. So 20 million, five million a year, you know,

entering our civic society. And so we think it is so important to make sure that young people have a chance to make this a priority.

**Greg Dalton:** That's why we're happy to see so many young people in the room and on stage. You know, we often, I sit here and talk to people with gray hair like me, we're talking about the future but they're not part of the conversation or they're not in the room. So we're especially pleased to have you all here today. We're gonna go to audience questions in a minute. But first, I want to ask you about your own carbon footprint in your own lifestyle. So what have you done?

**Carleen Cullen:** I have to leave now.

[Laughter]

**Greg Dalton:** Is it Carleen? I saw you parked at -- I saw you drive up in a Hummer, Carleen. So tell us what you've done?

**Carleen Cullen:** My helicopter dropped me off.

**Greg Dalton:** Yes. We do have a helipad on the roof. So tell us what you've done about your own personal carbon footprint.

**Carleen Cullen:** Yeah. Well, so when we started Cool the Earth, it was about the same time that we decided that we wanted to move to solar PV on our rooftop, and that we also wanted to have an expandable rack that we could add more if we decided to buy an electric vehicle, which we did five weeks ago and I love it. So if you haven't tried one, you definitely should. It's fantastic.

**Greg Dalton:** And you have a Nissan Leaf which I have. Yeah.

**Carleen Cullen:** I have a Nissan Leaf drove in from Marin with a few other people and it was fantastic. So, you know, we tried to attack some of the big things that we could do first, and then in small ways throughout the day, you know, making sure we cold water wash all those things that you would expect that one would do. But I think perhaps, the most important thing I do with my carbon footprint is that we've reached 250,000 kids and their families, who have taken a quarter million actions. And I think that that's, you know, personally, probably the most valuable thing.

**Greg Dalton:** That's great food, transportation, solar. Where a lot of people get hung up on this is air travel.

**Carleen Cullen:** Flying.

**Greg Dalton:** And flying. I'm guilty of this as anyone. I've done all those things, electric cars --

**Carleen Cullen:** Yeah.

**Greg Dalton:** -- less meat, solar on the roof.

**Carleen Cullen:** Yeah.

**Greg Dalton:** But, you know, we've taken some discretionary family trips which honestly, we maybe, you know, didn't need to take.

**Carleen Cullen:** Yeah, I know its travel -- air travel is by far the biggest problem, I think, and the things that we don't have many options for. We do things that my kids really dislike, but when we go

see their grandparents in L.A., we drive our Prius. And, you know, there's, you know, "Everyone else is flying." But, you know, we can get there on about a tank of gas and so we make all of those trips. We try to really make anything that's reasonable that we drive the gas guzzler of the Prius.

**Greg Dalton:** My kids are looking on with worry but, okay.

[Laughter]

**Greg Dalton:** Rosemary?

**Rosemary Davies:** I'm guilty of the air travel too because I'm across the country in Pennsylvania, so I have to take a plane here, and I have to take a plane back. But definitely, my university has been really paramount in being green and making the students kind of green too. We don't sell bottled water. We -- all our food in our cafeteria is organic and it's locally produced. We also have a -- we're also having our first sustainable campus called Eden Hall. It's gonna come about in the next ten years and it's really neat because it's gonna be zero-net energy, which I'm looking forward to although, I'm sure that I'm gonna be an alumni by then. I will be old and wrinkled but --

**Greg Dalton:** I don't think so.

[Laughter]

**Rosemary Davies:** But it's gonna --

**Carleen Cullen:** You got a ways.

**Rosemary Davies:** It's gonna take some time and -- but also like my student ID is a bus pass so I take the bus a lot, port authority, to like wherever like there's so many districts in Pittsburgh. I can't even like name them all but -- and then also just -- there's a lot of initiatives on campus and nearly everyone you meet is gonna be an environmentalist. We're also -- one of our main alumni is Rachel Carson so she's definitely left a lasting impact. Even our mascot is called Carson the Cougar so I mean it's hard. It would be hard not to be green there.

**Greg Dalton:** Mike Haas, what have you done?

**Mike Haas:** Lots some are the same.

**Greg Dalton:** But you've also built --

**Mike Haas:** I only shower about every three days. It drives my wife --

[Laughter]

**Mike Haas:** It drives my wife kind of nuts. The boys don't mind but -- no -- but seriously, I think that, you know, it is important to sort of walk the -- you know, to walk the right way, but I also believe that we're not gonna crack this through conservation. Doesn't mean we shouldn't do it.

We're gonna have to crack this, I think through legislation. I think this is a big enough challenge that we've got it, to get through legislation, not just through conservation. Don't get me wrong. We should all be doing everything we possibly can.

And so I feel the same way that Carleen that, I feel like the, you know, the most important thing that I'm doing is trying to bridge the gap, as I said earlier, between what the scientists understand and what the public understands, and focus on our young people. Because again, you can have you and

me sitting up here no offense, you know --

**Greg Dalton:** Yeah.

**Mike Haas:** -- but if you take Bridger and you take some of the young people that we work with, then they'll move the room and there's still an element that we got to pull the heartstrings on this one. So to have a chance of addressing this right, I think we've got to build the will, we've got to make this a priority, and I'll continue showering only every few days but that's the most important thing I'm gonna try to keep doing.

**Greg Dalton:** All right. I think I'll join you. Okay.

**Mike Haas:** All right.

**Greg Dalton:** Let's invite audience participation. We're gonna put -- we have a microphone here and we're going to invite you to come up and present one, one part question or comment. This is often the most lively part of it and we encourage you if anyone's -- a student in the audience, a little bit reticent, we're really, really happy to see you participate in this. And once the first student steps up, others will likely follow. So we encourage that first brave one. So let's include our audience questions. Yes, sir. Welcome to Climate One.

**Audience:** Thank you very much. As a aged student, Mike and Carleen, hi guys. I've heard you talk a lot about solutions and things but what I haven't heard tonight about is, adaptation and I'm curious how you're incorporating the adaptation message with our young folks.

**Greg Dalton:** Adaptation being bracing for impacts that are coming our way regardless. Mike Haas?

**Mike Haas:** I'll take a quick start. We're really focused on mitigation. I mean, to us, it's about mitigation. However, you're absolutely right that we're shooting straight with young people. They deserve that. And -- but we believe that if we focus on, you know, what the scientists are saying, things that they can do, you know, they will also learn about certain consequences that we may not be able to get in front of, but it's all about mitigation. But by learning how important this is, you learn sort of about the consequences and what people kind of deal with. But we believe that, you know, for everything we can do to mitigate, it's gonna pay off multiples in factors in terms of having to deal with adaptation. So we're really all about mitigation.

**Greg Dalton:** And mitigations were one of those Latin-rooted words, which means like reducing the actual carbon.

**Mike Haas:** Yeah, reducing CO2. So, it's all about trying to bring down levels of CO2 and that's what our focus is. But they understand obviously, that if we, you know, if we don't, that there's gonna be a whole lot more that we have to do but we don't want to go there yet.

**Greg Dalton:** Carleen Cullen?

**Carleen Cullen:** Yes. So we also are largely mitigation program so, you know, actions and attitudes. But with the parents, we have often times taken an additional approach which is to talk to them about adaptation. One of my favorite things to do in the Bay Area is to get the BCDC map with the flood zones, and to have this out at a fundraiser, a little party and, you know, you see everybody with their up close magnifying glass, trying to identify where their house is and if it will be underwater. And it is one of the best tools to get people to start mitigating because they start learning about, what do we gonna have to do personally to adapt and what's the whole Bay Area



going to have to do?

**Greg Dalton:** It's also one of those Bay Conversation and Development Commission maps that has the headquarters of the technology companies and that get your attention when you see where Yahoo! and Oracle and Google are relative to sea level rise. Let's have our next audience question. Welcome to Climate One.

**Audience:** I'm Yvon. I was just wondering if you guys do private schools yet like Cool the Earth.

**Carleen Cullen:** Yes, yes. We like all schools so private schools, public schools, Montessori schools we -- yeah. Any sort of --

**Audience:** All right. Because --

**Carleen Cullen:** -- like --we're K through 8 and so we'd love to bring your school in.

**Audience:** Right.

**Greg Dalton:** And what grade are you in? May we know?

**Audience:** I'm in sixth and I went to Wayne Thomas last year so we had Cool the Earth.

**Greg Dalton:** Okay, great. Thanks for coming to Climate One.

**Carleen Cullen:** Thank you.

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

**Audience:** Hi. I'm Edmond and I'm in eleventh grade. So I'm in my Green Academy at my high school, and in our green academy, we learn about how small actions can contribute to like a big impact. And I was just wondering what do you expect the next 10 to 20 years maybe what your little actions and how they can impact the future?

**Greg Dalton:** Rosemary?

**Rosemary Davies:** Okay. So it's really true. Like alone, we're just about a drop but together, we're like a flood. So like what we do right now like shutting off the lights when we don't need them, like to do one thing like vampire, I think it's like vampire --

**Mike Haas:** Vampire slayer.

**Rosemary Davies:** Vampire slayers, yeah, being a vampire slayer. I like being conscious about what you eat.

**Greg Dalton:** Vampires are -- explain what vampires are.

**Rosemary Davies:** Oh, Vampires basically, when you pull your plug-ins out of socket and you're not really needing it, it's still using energy so you're gonna unplug that socket right out and save energy, which is good. In general, I mean, there's no bad things, right, about conserving energy which is good. But -- and then we've already seen like impacts of what like, the past has done and we can certainly see those in the future like with bio-accumulation especially in the arctic because a lot of like the wind and ocean currents bring a lot of that pollution in. So we're definitely seeing impacts there and also in hunting and the species distribution like there's tons of impacts. So we're already seeing and what we can also expect to see in the future although, we hope to mitigate that as a

whole generation and as a whole past generation too because we still have everyone with us.

**Greg Dalton:** Rosemary Davies is a graduate of Berkeley High School Green Academy here at Climate One today. Did you have anything to add?

**Carleen Cullen:** Oh, I'm just gonna say that I think as new technologies are developed, ones that are already present and emerging and new ones coming forward, those will become the norm, and the younger generation will just see those as basic as having an iPhone and that's not gonna be anything out of the norm. And, you know, the best thing was, my 11 year old daughter, had a friend over last week and I was upstairs and I heard her say to another friend, "Hey, you guys got to come see this car. It's totally sick."

And it was my Leaf that they were going out and see. And, you know, here are some 11 year old girls, sick being a good thing, and, you know, wanting to see this great car, and so I think that that's kind of what's happening and that's what's gonna be emerging as we go forward.

**Greg Dalton:** Fantastic. Let's have our next question. Welcome. Hi.

**Audience:** Thank you. I'm Mina and I'm tenth grader at Lick-Wilmerding High School. I'm a co-leader of our environmental club and we've been having little issues getting off the ground. I think a big problem for us is that our school is actually pretty green already. We have a big emphasis on it in our classes, some of our mandatory classes. There's a big unit on climate change and I feel like a big problem for our school is that students, they think, "Oh, recycling, reducing. Oh, turn off the lights, blah, blah, blah." And then they're like, "Oh, how does this affect anything?" And everything green just turns into sort of like this big mush and they're like they don't understand like the connection between not using that extra piece of paper and the world in general. And they think, "Well, since our school is already doing such a good job, because oh, look, there are solar panels on our roofs, we don't have to do anything." And it's kind of like this attitude where they're like, "Oh, well look, we're doing pretty well. We're in San Francisco. We're not in like oh say that state over there where, oh, they've never even heard of green energy," you know. And I'm just wondering your thoughts on sort of like bringing sort of motivation.

**Greg Dalton:** Thank you. Yeah, so there's -- to do one green deed, does that buy you a license to do all sorts of other thing?

**Rosemary Davies:** Not at all. I think green is -- green is not like a point in time, it's more like a process than it's more of a goal. And so I think it's hard when you're in like a community that like already has that like label of being green to like burst that bubble and be like, "Oh, my God. There's communities that don't know what green is." Or like, "Oh, my God. I'm still having an impact here." Or like, getting out in the community where people really haven't really heard the word green and haven't made the connection. And also, maintaining what green is and trying to still remain a steward and retain that responsibility because as green as you are, you're still going to have an impact.

**Greg Dalton:** Mike Haas.

**Mike Haas:** And if I could maybe just add to that. Please come wherever you went, please come and talk to me after this because one of the best things you can do is, you know, be a leader to others. So if your school is doing great, I would suggest, there probably still more to be done but one of the best things you can do is be a model school. This is all about story-telling a lot of other high schools can get inspired by what you've done. When they see that there's young people, you know, at a different school doing this stuff, you can be a leader. And so -- and we can help you do

that. So that's one of the best things you can do is just be a role model for other schools and tell the story right to them to inspire them to taking them up to your level.

**Greg Dalton:** Let's have our next question. Welcome, hi.

**Audience:** Hi. I'm Barbara Wallace from Montgomery High School in Santa Rosa. I'm also the president for our green team there. So we actually just had a waste audit in 12/12/12 and that was lot of fun sorting through trash and we actually recently just put in compost bins. So--

**Greg Dalton:** Nice. A waste audit and compost bins, all right.

**Audience:** I actually had a couple of questions if that's all right. What about putting solar panels on airplanes and the other one was the vacuumed-air blimps?

**Greg Dalton:** Mike Haas, you're the PhD up here so that's almost --

[Laughter]

**Mike Haas:** No, no, no, I never finished it.

**Greg Dalton:** Let's hear your take.

**Mike Haas:** I never finished it. I dropped out. You know, it's slightly hard to imagine but let me say this. That is exactly.

You've demonstrated exactly a point and this age group, right? That we're kind of talking about, don't squash them. Don't hold them back. Give them the information. Let them know what's out there and let them innovate. Let them put their creativity there, innovative spirit to use. And I may sit here and say, "Well, I don't see that happening and there's gonna be some 14 or 15-year-old that's gonna crack it if that's a good idea."

So the solutions that will come from young people who recognize that this is a way to help solve this problem, right? I can't imagine what those look like. What I know is there's plenty that we can do right now today. We don't have to wait. But the creativity, I mean, the innovative spirit is gonna come from this age group that do not like the word "no", right? Don't want it. I didn't like it. A long time ago, when I was that age, and that hadn't changed, they don't like to hear the word "no."

They're gonna innovate out of this, but they've got to understand what's at stake, and that there are paths to get there.

**Greg Dalton:** Fabulous. Let's -- hi. Welcome to Climate One. Step up to the mic. Yeah, thank you.

**Audience:** Thank you. I'm one of the other leaders of Lick-Wilmerding High School Environmental Club and I also agree that we've had some trouble but this question is a bit like I heard the -- it's important to get legislation through on all these topics like how they're talking about the legislation of the XL Pipeline and stuff like that. How can young kids like us get involved in the legislative side of it since like I only recently turned 18 and finally got to vote but I know a lot of kids who are younger than me who know just about as much as I know, maybe more about some of these topics, but because they aren't 18 yet, they aren't able to put any of their influence into legislation. And I just wondered if there's a way that we can get our voices heard in the legislative side.

**Greg Dalton:** If you write a letter to your congressman, you don't put your age on it but yeah.

[Laughter]

**Mike Haas:** Well, you know, one thing I would say first is, you know, we don't view this as a political issue, this is a human issue. But, you know, I did say that I believe that this is something that we're gonna need our leaders to help solve and it has to be solved through legislations, civic engagement. Then there's a science education. There's a civic education here as well. You know, as Carleen said, you can't vote yet if you're less than 18. Family, friends, others, talk to them about it. You'll be surprise how receptive parents are when their kids come up to them and want to talk about something. I'm finding it myself, you know, with my kids.

And, you know, furthermore, you're not that far, you know, from when you'll be able to sort of be able to exercise your democratic rights. And then lastly, and this is one of the things that we do with high school students, we plug them into organizations so that as they -- as you do become a bit older, a lot of options out there, a lot of organizations that will give a chance if civics, if activism is a path that you want to blossom into in terms of your own leadership what you're gonna do about this, lots of organizations and groups that are out there and again, opportunities that we try to point out to young people to be able to engage.

**Greg Dalton:** Carleen Cullen?

**Carleen Cullen:** Yeah. I think also, I would say, Google. That would be the first thing I would do is, you know, go online, find other youth groups that are taking action. Join in. There's an XL Pipeline protest coming up very soon. I forgot the exact date of it. There's one in D.C. and there's one also here in San Francisco. So join in on those things. You don't have to be a certain age. I bring my kids all the time and, you know, they're young, they -- so just showing up in person to support some of these initiatives that's something that you can do at any age.

**Greg Dalton:** Rosemary?

**Rosemary Davies:** I agree with Carleen too because like protest is a really important part of social change because the government is for and by the people, and one way that like you can get involved is like in marches. Like, I remember there was an "I Matter March" like a year ago that I went to, and that really like, that put me on the front lines and like although I couldn't vote at the time, you were still involved. So it's important to look at that opportunity too.

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

**Audience:** Hi. Thank you so much. My name is Clara Vondrich. All of you thank you for what you're doing. It's so important and Rosemary, in particular, I just wanted to say that you were so inspiring. Please keep your idealism because I came out of high school all fired up as well and I'm still fired up but it's amazing how after the years and being in the "real world", you start to get pressured to adapt your views and to be a little bit less idealistic. So I'm just encouraging you to keep that up.

My question is about Bill McKibben. He's one of my big heroes and I understand that he's going around college campuses all around the country and he's making quite a splash with young people, and I wanted to hear whether that's in fact true, whether you have had experience getting involved with 350.org. And also, whether you know about his divestiture campaign where he's urging colleges across the country to eliminate their investments in fossil fuel energy sources and what you think about that.

**Rosemary Davies:** Unfortunately, he hasn't come to my campus yet. I really wish, hopefully in the future, but I have heard of 350.org and it's -- the parts relative -- carbon dioxide are going up too so it's getting a little crazy but hopefully, we can get to that optimal point again. Hope is out there.

But I think --

**Greg Dalton:** The divestiture campaign is also something, the idea that colleges not invest their endowment funds in fossil fuel companies.

**Carleen Cullen:** Yes.

**Greg Dalton:** That's something that-- yeah, Rosemary?

**Rosemary Davies:** Oh, yeah. My university also purchases a lot of green power especially from wind energy and we also have solar, thermal on top of two of our residence halls, but there is a point where we're still trying to go green, and we're still trying to get more connected with the community that doesn't have as much like options yet, and I guess to spread green across the world for it to be as contagious as a flu. Yeah.

**Greg Dalton:** We're right here at the end. But last word, Carleen?

**Carleen Cullen:** Oh, it's just a comment on the divestiture program by Bill McKibben and its interesting. I read an article in New York Times analyzing this. And while, this worked with South Africa in apartheid. There's a lot of skepticism that universities won't be able to actually do this because of the big oil money that's necessary for their portfolios, et cetera. But I think like Mike was saying earlier, I'm like, you know, to -- can I say this? Hell, with the practicalities, we've got a crisis here. We have to do something. We need everybody on deck and we need to try all options.

**Greg Dalton:** Mike Haas, last word?

**Mike Haas:** 350 is an example of a group that, again, when we're with young people, it's exactly what we're trying to do. We try to make sure they're aware of all these different groups, you know, that can meet them where they're at. It's so important to meet them where they're at and that's an example of a group where again, we help point them too so it's extraordinarily important, 350 and all kinds of groups that are doing great things.

**Greg Dalton:** Our thanks to Mike Haas, founder of the Alliance for Climate Education; Rosemary Davies, a student at Chatham University in Pittsburgh, Pennsylvania; and Carleen Cullen, founder and executive director of Cool the Earth campaign. I'm Greg Dalton. Thank you all for coming to Climate One today.

[Applause]

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