

**What Will Consumerism Look Like without Fossil Fuels?**  
**Asher Miller, John de Graaf, Annie Leonard, Richard Heinberg**  
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*Our Renewable Future:* Transformation requires us to use energy differently, in every aspect of life. What would that look like?

**Richard Heinberg:** Operational vs. embodied energy is an important distinction. Embodied is huge... roads, car, infrastructure, etc. It's going to be much more difficult to embody in infrastructure like highways built out of cement and asphalt, and consumer products, than it will be to just replace our electricity supply.

Consumerism didn't just happen by accident. It was a logical and deliberate construct on the part of the economic elites in the early 20th century, who were responding to a problem of the time, one of over-production. Where cheap fossil fuel energy made it possible to produce so much "stuff", so fast, in powered assembly lines, that the economy couldn't soak up all of this production. So the problem was solved with advertising, consumer credit, and a re-orientation of both the economy and government policy, around the idea that "personal consumption," people buying more and more stuff, could be the organizing principle for the entire economy.

It's important we start by understanding that consumerism is a systemically interlinked set of institutions, rather than just a greedy proclivity on the part of some people. [BEN: Ref. Ben Hunt's comment on the narrative of one bad apple rather than systemic corruption.]

How consumerism works today in energy terms is also important to understand. We can summarize that very simplistically as: China burning lots of cheap coal to make consumer goods that get shipped via oil-burning container ships to American households and stores. So the greenhouse gases are attributed to the Chinese, who are burning all that coal... or they're not counted at all, in terms of the transport/shipping. Which gives us a very skewed understanding of what the current energy and climate situation really is. And its links to consumerism.

**Annie Leonard:** It's a particular relationship to consumption that is totally hyped-out with the availability of cheap fossil fuel energy. And its a relationship with consumption through which we're trying to find our meaning, or purpose in life, or demonstrating our value, or codifying our relationships to others. All through consumption.

I want to highlight that difference between consumption and consumerism. Which is this really out of control set of ideological and economic organizing principles. I often talk about the take-make-waste economy. Most of the economy right now is based on taking resources from the planet, using them, chucking them, and taking more resources. That is, of course, linked to massive environmental problems. I think about the portfolio Greenpeace works on, whether it's the oceans that are being completely cleared of fish and are now turning into dead zones, in many places with more pieces of plastic pollution than fish. Whether it's the rainforests around the world, the Amazon, the Congo, Indonesia, being clearcut. Whether it's toxic pollution... pretty much every environmental problem out there is driven, exacerbated and amplified by this excessive consumerism.

The one that is most obvious and visible to us every day is waste. When people think of consumerism and the environment, we often think about the waste we create. We create an absolutely disgusting amount of waste in this country; about 4.5 lbs of waste we each throw away each day. But just like there's operational energy and embedded energy, there's also the daily waste and then the embedded waste... because of all the waste created to make that 4.5 lbs of waste we're throwing away every day. That's much, much more. The waste we see coming out of our households is the tip of the iceberg compared with the amount of waste created in mining, drilling, extracting, transporting, processing, all of that stuff which we're going to briefly use and throw away. All of that is made possible by the abundance of cheap energy. So it's really an illusion that this is even remotely sustainable.

**John de Graaf:** Obviously we can see some benefits to consumerism and people, up to a point. We look at Gross Domestic Product, which is the way we measure our success as consumerist societies. When the GDP goes up, the grosser it gets, the better off we're supposed to be. That works for a while. When countries are very, very poor, rising GDP can bring a great increase in wellbeing and in personal satisfaction. But after awhile, and that's been found to be at the level of around \$10,000/year in many places, that whole thing flattens off. It's not that people don't get any more satisfaction at all... they do. But it's so flat that they pay enormous costs for those increases, and they could probably be a lot more satisfied without those increases by doing things in a different way.

What are some of the costs we pay? The biggest costs in my book we pay socially for constantly feeling like we have to grow and we have to consume and we have to keep this going, is overwork, in a massive way. We've not had a lessening of the work week in the U.S. since the Fair Labor Standards Act of 1938. In fact, according to many experts, we're actually working longer hours today than we were in the 1960s and 1970s. The cost of this is very, very high, because that time spent at work is time not being spent in relationship and connection with friends and others; in time spent building community and volunteering and taking care of that community; in time spent appreciating the natural world; all things we know make us more satisfied and happier with our lives. The result is that we see sharp increases in loneliness, particularly as people age in the U.S. AARP and Time Magazine did a study and found that in the decade between 2000 and 2010 alone, the percentage of older Americans (over 45) who could be called "chronically lonely," in terms of their expression of how lonely they were and how they missed out on connection with others, increased in that decade alone from 20% to 35% of that population. That is an enormous tragedy; not only for those people who are lonely, but it's a huge impact on our healthcare system, because it's precisely those older and chronically lonely people who are suffering the kinds of diseases we pay for the most in our healthcare economy. We're spending twice as much money in this consumer-obsessed society which the U.S. is, on healthcare than people in virtually every other wealthy country, with arguably the worst results. We have the lowest life expectancy among rich countries, the highest mortality, the greatest amounts of stress, the highest amounts of anxiety and depression; we're using some 60% of the world's anti-depressants.

One could go on and on, but there are other factors socially, too. As all of society becomes marketized, it becomes having social commons in which we can find things that are enjoyable that we do with each other. The Italian economist Stefan Obarcalini looks at the whole idea of GDP and says that where we see rapid GDP growth in already rich countries, this is a sign of decay in the social system, not of dynamism. For example, this rapid rise in GDP results in overwork, resulting in disconnection and loneliness, destruction of the environmental commons we share. What do we do? We sell those things back to people through the market. You're lonesome? Buy this car and you'll have lots of friends. No

contact with nature because we've destroyed and bulldozed nature and put up high-rises instead? Fly to a tropical paradise and spend time in a pristine environment for four days. All of that looks great on the books, because GDP rises. But all of that, in fact, is a symptom of the decay of the social order in society. I think that's as important as the obvious environmental damage we're doing by all of this which Annie correctly pointed out.

**Asher Miller:** Thank you for that. We've talked a little already about some of the environmental impacts, the rampant consumerist economic system that we developed that is unsustainable for a lot of reasons. We've also talked about some of the social costs and impacts on society and human beings as individuals as a result of this frenetic consumerism we've created. I want to get back to this question of the relationship between energy, and the transition towards renewable energy. There could be lots of reasons why we might want to shift or want or need to shift away from this consumer-based economic system that have nothing to do with our energy inputs. But I'm curious from the three of you, when you try to imagine the future where there aren't these fossil fuel inputs into the system, what comes to mind in terms of questions, visions, our production of "stuff"? Are there going to be any changes to that system, just based on the relationship and role that fossil fuels have played?

**AL:** It's not a question of 'if' we're going to need to meet our needs beyond fossil fuels, but 'how' we're going to meet our needs beyond fossil fuels. Many decades John and others have argued about the problems of consumerism which are so huge. Consumerism is trashing the planet, and we're trashing each other, and we're not even having fun. So clearly we need a different system. But we're beyond the point where we need to emotionally, intellectually, or factually argue that consumerism is not the right way... it's just physically not possible to sustain this level of consumerism because we're bumping up against the planet's limits. Scientists now say that 80% of known fossil fuel reserves need to stay underground if we want to avoid absolute climate catastrophe, which I would argue is something we'd like to avoid. So the question is not 'if', but 'how' we're going to change how we consume. I really feel like we're at a crossroads, while we do still have fossil fuels to burn. We can either dig our heels in and say that the American way of life is non-negotiable, and absolutely be in denial, compartmentalize and keep going. Or we can say, let's be proactive about this. Let's be strategic about it. Let's use the fossil fuels that we can still use in an intelligent way. We're going to change either by design or by disaster. Either way we're going to change. If we're proactive and change by design, lots of things are still going to be hard. And as John was saying, lots of things are going to be better, too, once we get through this transition. But if we do change proactively by design, we can be more strategic, more just, less violent. If we don't get going to figure out really quickly how to have a sustainable level of consumption, fueled by sustainable energy, it's just going to get really ugly.

**JG:** If I talk about what this might look like, I think we all know we're going to need to be a lot more local. We're going to have to have a lot more localization. We simply can't waste the fossil fuels and other energy of the world transporting back and forth across the ocean huge numbers of automobiles from a country that makes them to another country that makes them. And you can use that argument for a whole lot of goods. We need to be making and using things locally, and obviously we need to make a lot less automobiles. That also means we need to travel differently. We need to walk and bike and use public transportation. This society will look very different. It will be slower, quieter, more involvement in growing your own food. But you can't just do that, given the way we are today. Many people simply find that they don't have time to ride a bike or walk to work, or to grow their own food or pay a lot of attention to how they cook their food. That's why we have fast food, etc. because we

live in this hugely time-pressed environment which is really about working endless hours in order to consume more. So in my view, the single most important step we can take to move towards the kind of society we need is to start trading our gains in productivity and technological gains for time, instead of money and stuff. We need to shorten the work week; we need all those kinds of time so that people actually have time to do the things that we need to do. The Swedish Environmental Protection Agency found that if you move to a 30-hour work week, as some cities in Sweden are doing, you will cut greenhouse gas emissions by some 20-30% almost automatically by both the embodied energy and transportation and other things going on. You'll reduce not only carbon footprints, but ecological footprints, as you're consuming less, and the people who work a 30-hour week, according to the Swedish EPA, are more satisfied with their lives than those who are working 40 or 50 hours a week. This is a win-win; it isn't about sacrifice. Sacrifice now is about sacrificing your time to live.

**AM:** How do we go about managing this transition, if we do wisely use the resources we have, vs. letting these limits and crises shape the future for us. There's a question here about justice in the international context. We here in the West consume far more per capita than other people do. Meanwhile the consumerist system has a lot of components to it which have to do with the bottom line of businesses who have a lot of wealth and power, policy, advertising. Here we are, having globalized the promotion of a consumerist lifestyle... how do we deal with this question where we're seeing the costs significantly outweighing the benefits of a consumerist society and lifestyle, whereas other people around the world are hoping to get a little bit of what we've been advertising to them and showing them in movies and TV. How do we deal with that international conversation?

**AL:** Folks around the world that are hoping to get a little bit of what we've been advertising, it's easy for us to say that we consume too much, but if you don't have a roof or access to education or healthcare, or even shoes, you should consume more! You should have more. That's why a primary value that all of us have to absolutely be committed to is EQUITY. If we do not absolutely embrace equity in every single thing we do, we'll end up with a kind of resource apartheid, where those who can afford it have Nissan Leafs and solar panels and local organic food, and many, many people will not have enough for even basic decency. So equity has GOT to be at the core of how we think about this. I live in Berkeley, and I saw a bumper sticker that said, "Less and Local." I thought, well, less for some... some of us on the way-overconsuming end of the spectrum, yes, absolutely less. But some people in our own country, as well as internationally, rightfully need more, to be able to reach their full potential. Others are consuming so much, it's undermining our full potential. But that's why equity has to be core. And that's why this is such a profound and threatening thought. Because if we accept that the planet has ecological limits, and the economy must act within the planet's ecological limits, then there is a limit to growth. If we accept that we cannot have indefinite economic growth, there is only one way to get more stuff to the people who actually need it, and that's to share more, or as some people say, to redistribute the wealth. That's why talking about equity in the arena of consumption really is going to the heart of our capitalist economic system. It really is talking about, rather than focusing on individual profit and growth maximization, we're going to talk about cooperating, sharing, and redistributing. It's the only ethical and physically possible way to go forward.

**JG:** I absolutely agree with Annie on all of that. When I was talking about less work, I do believe that we need to work less, but I do also believe that the people on the bottom need to be paid considerably more for the work they are doing. We need to raise the minimum wage at a minimum. If we have growth, we should ask what should grow, and what should shrink. What needs to grow is decent

homes for people who have no homes. Being able to meet healthcare needs and those kinds of things. But the pure consumerism of more and more stuff, luxury goods and so forth, that really needs to shrink if we're to have a future. So inequality is a huge driver of this problem because the people who don't have, naturally want. And that's understandable. We have a situation where CEOs are making 400 times what the average worker makes. That is intolerable. That is simply unacceptable. And that is driving the model for how we all ought to consume. It's crazy.

**AL:** One thing I'm getting out of this conversation which was evident before, but it's a strong reminder, is that you can't look at any particular sector of the economy or human society without recognizing its connections to every other piece. Here we're talking about the larger economic system, we're talking about justice issues, energy, environmentalism -- consumerism is connected to all those things.

When we think about the role individuals play, we're often told that we need to be good consumers, right? And we're described as "consumers," which I would say is one of the first things we need to get rid of... redefining who we are, as people. But what do you imagine the role is of individuals, of people who have taken the time to participate in conversations like this? It means they're already concerned about these issues. So what role can those of us who care about these things play, and how do we who exist in modern society -- here we are using our modern computers to talk to one another -- most of us have smartphones -- we've bought into a consumer culture, dependent on the products themselves, that we actually don't have much say or control. For example, Apple just said they're going to make it possible for people to work from their phones, basically. There's such a planned obsolescence that's built into the consumer system right now. So what can individuals do? Is it about buying less? Making different consumer choices? How can people support the transition to something that's more sustainable and just, now?

**RH:** I was just going to bring up the subject of planned obsolescence. Because it really is one of the main strategies of consumerism as a systemic program of modern industrial society. Clearly as we move away from consumerism, we're going to have to replace that with almost the opposite strategy of planned reuse and repair; a reorientation of manufacturing around quality. And redesign of stuff so we basically stop manufacturing stuff that's ephemeral, that nobody really needs, and things that people really do need, we need to make in such a way that they can be repaired, reused and recycled almost indefinitely, with minimal inputs of new materials mined from the Earth. So your question, Asher, is very apt. How do we, as citizens, promote that kind of transformation in the manufacturing sector? We have limited power, of course, because you and I are not CEOs of Apple or other good manufacturing companies. But when we do buy things, I think it's important that we ask ourselves if we really need that thing, first of all. And second, is this something that can be reused, recycled and repaired? And third, how is it being produced now? Where is it being made, under what conditions, are there plans on the part of the manufacturers for dealing with this thing, if and when it's no longer useful? So those are some thoughts.

**JG:** Following up on that, Richard, Vicky Robin, who wrote the book, "Your Money or Your Life," and has focused on a lot of these issues of how do we get people to be more frugal, consume less, consume more wisely, suggested at one time the idea of a credit card condom, or credit card prophylactic, which is basically an envelope you stick your credit card into. And on the outside of the envelope it has several questions that are precisely the ones Richard raised, which are: Is this renewable or recyclable? Could I borrow it from somebody else? Do I really need this? What does it

cost to the Earth? Where is it made? So you take this out and when you read and think about these questions, you can practice "safe shopping." Safe in the sense not only of ourselves, but also of the planet.

**AL:** I've thought a lot about what people can do, because after I made "The Story of Stuff" film, I got over a million emails asking what they could do. I was torn because, on the one hand, individual shopping decisions aren't really a great leverage point. On the other hand I couldn't really tell these people, "Go transform the global economy to be sustainable and just." So I've thought a lot about what individuals can really do. I've come up with four leverage points, or four "fronts" that we need to be working on.

1) Fight the bad stuff. There are currently things from coal mining on public lands, to garbage incinerators, lots of dirty, destructive technologies and processes and products that are undermining equity and wellbeing. We need to fight the bad.

2) We need to build the good. We can't expect people to want to jump off this consumer ship, even though it's sinking, to a new ship, unless we can offer them a better solution. The good thing is, we can. Whether it's building cooperatives, setting up sharing centers -- in my neighborhood, the public library system has a tool lending library, so any time I need a power drill or anything, I don't have to go buy it and keep it in my garage stored there for years, I can just go borrow it. Working for workers rights and collective bargaining. There are so many ways we can both fight the bad and build the good.

3) Changing the rules. Right now the rules of our system are set up to facilitate and reward trashing the planet. It's not just by coincidence that people drive instead of take bikes; there's no subsidies for bike lanes like there are for highways. There's actual rules that create the kind of society we want or don't want. Things like banning toxic chemicals out of consumer products. Isn't it crazy that our childrens' pajamas have chemicals that stunt neurological development? It's crazy! We need to ban toxic chemicals, we need to mandate that products be made safely, and as Richard said, that can be repaired and reused and recycled. We need to ban advertising in public spaces. We're one of the few countries in the world that allows commercial advertising in schools and targeting children; it's obscene. We need to move government subsidies away from the old dinosaur fossil fuel economy to a new clean, sustainable, just economy. We need to start charging for externalized costs. There are so many ways we can change the rules to facilitate the kind of society that we want.

4) Changing the story. Our entire system is propped up by a societal narrative about the role of consumerism. That the role of us in a society is that we are consumers. And the way we demonstrate our self-worth and define our relationships to each other is through consumption. And that more stuff will make us happy. Every one of us, every day, has an opportunity to tell and live another story. We can, as John says, choose time over more stuff. We can redefine our family holidays and traditions around time together instead of around stuff. We can invest in the Commons, utilize the Commons, take back our physical landscape, rather than always participating in the market economy. There are so many ways we can tell and live a different story. And the truth is, once we get through this transition, it's a way better story, a way more fun way to live. Which is very lucky. We're not saying, "come join us and we'll be martyrs forever." We're saying, "come join us and we'll have a much richer sense of community, better health, better food, stronger families, and figure out how to live on the Earth together.

So those are the four fronts that I see where individuals can push.

**AM:** That's great. It seems to me that those four are not in isolation or solely, but the local context seems like a perfect way to be able to work on all four of those, potentially. By changing the world locally, thinking about the story we're telling locally, and being connected with people locally. So are there any examples that you've come across either here in the U.S. or abroad, of how communities, individuals, businesses are exemplifying some of the things you're talking about?

**JG:** I can talk about a couple. I mentioned Sweden's EPA looking into the whole idea of a 6-hour day. It's better for people, both socially and for health and well-being, and also environmentally. Several cities in Sweden are moving in various ways in that direction, led often by businesses, who are making a choice to go to a 6-hour day. We're seeing that in the U.S. as well. They're finding that people are healthier, happier, and quite productive when they're working, but being so productive is not necessarily the goal, as we've talked about.

The Netherlands has a great policy called the Hours Adjustment Act. In which you can go to your employer and you can say, I want to work less; I want to work three or four days a week instead of five or six. Unless that employer can show that this would create a real financial hardship for the firm, the employer is required to grant you that request. Now you'll make a little less money, you'll consume a little less, but you'll have more time to do the things that you want to do, your benefits will be pro-rated, and you keep your healthcare, because in every other sane country outside the U.S., universal healthcare is simply a right that people have. So how do the Dutch use that? They have the highest number of part-time workers than anybody on Earth, enabling them to spend time doing other kinds of things with each other, their children, and so forth. As a result, Unicef and the OECD find that Dutch children are not only the happiest in the world, but the most well-off in a number of areas. Their parents are the least stressed; they are the happiest. So what we're seeing is that many Dutch people are making a choice, and it's a consumer society no question, but they're making a choice to consume less and work less, in order to live more... and it's paying off for them.

**AL:** I think there's examples everywhere you look. If there weren't so many examples, it would be really depressing getting out of bed every morning, because the latest science about climate, as well as the latest data about inequality, are so grim. What gives me hope every day is, literally, all of the world, people are making change, whether local, nationally, or internationally. I've been looking a lot at companies that have been making big changes. I think Patagonia is doing some really cool work around challenging consumerism, and making what they call "worn-ware," or used stuff, cool. If we could make used stuff, with patches and mending, cool, instead of always buying new stuff, that's one of those kinds of mindset shifts that could help challenge excessive consumerism.

There's a company called Interface Carpet that's a huge multinational carpet company, the biggest commercial carpet manufacturer in the world. They didn't like the fact that their business model was based on selling carpet to be used up quickly and ripped out, thrown away, and replaced. So they've been experimenting with leasing as a fundamentally different business model than selling. Imagine if you leased stuff instead of purchased it. Then the manufacturer would have a built-in incentive to make it as long-lasting as possible, so they can keep getting their monthly fee. So there's a lot of companies experimenting with different paradigms and models around consumerism.

There's stuff happening in terms of waste that's great, all around the world. Things like mandated composting, which is such a no-brainer. If I was queen of the world tomorrow, the first thing I would say is that everyone has to compost. It's such a simple way to combat climate change and reduce our waste flow. The Philippines government has banned garbage incineration, which is a really important achilles heel of this consumerism system. Garbage incinerators are organic machines that burn all the stuff we're throwing away. So they make it "disappear." It doesn't really disappear, it goes into toxic ash. But it provides an easy "out" and hides that fact that we're such an unsustainable amount of waste. So that's really exciting to see countries say there's no more garbage incineration.

One thing I see happening on the national level in the U.S. I think is really important, is, it's very hard to promote solutions when our government has been so captured by industrial interests, especially the fossil fuel interests. So I've increasingly realized that getting a functioning democracy is a pre-condition for creating a sustainable and just economy. So one of the things we all have to work on, whether our expertise is energy, consumerism, education, healthcare, anything. One of the things we've got to do is reduce the influence of money in politics. I've been feeling extremely hopeful by this movement growing across the country that includes workers, environmentalists, faith-based groups, civil rights groups, that are all saying that we have to fix our democracy, because a functioning democracy is a pre-condition to the changes we know are needed and necessary.

**RH:** I would just add one other example in the area of consumer electronics, which, when we were doing our energy analysis of transition to renewables, that was one of the sticking points we found, trying to imagine how to produce consumer electronics without fossil fuels. Ultimately there's not really a great answer there. But the closest we were able to come is imagining, for example, that on your 18th birthday you get a smartphone that's almost infinitely repairable. You keep it for the rest of your life, and it gets updated and changed in various ways. But you never think about just throwing it away. There is a company called FairPhone in Europe that's sort of trying to do that; at least they're making some efforts in that direction. It's certainly not a full solution, but at least the problem is being acknowledged, and some people are thinking about it.

**JG:** One thing we really need to do... in some ways you get what you measure. We measure what we consider to be important, which we call GDP. Around the world, people are starting to look at different metrics. The OECD has a Better Life index, you can look at all the data they've gathered around the whole of life, everything from environmental to social data. They put out a report, "How's Life? 2015." The little country of Bhutan, which I have the great joy of visiting three years ago, has been a leader in that with its promotion of Gross National Happiness, rather than GDP, and taking a lot of steps to figure out how to measure GNH. In the U.S. in a number of states, we now have Genuine Progress Indicators, which give us a much better sense of holistically how we're doing as a society, than this constant focus on the quarterly GDP. I think we ought to encourage those things, as well as all the other points that have been made.

**AM:** Are you familiar with the idea of Extended Producer Responsibility? In terms of expectations of producers of products, has that been an effective strategy? Do you see an upside to it?

**AL:** The idea of Extended Producer Responsibility means that the companies that make stuff are responsible for it at the end of its life. So when your phone breaks, or your shoes wear out, whenever

something is at the end of its life, rather than just throwing it out in the garbage, where you're externalizing the cost of that crappy design because the city has to use public money to pick up the garbage, so rather than dumping the disposal of these often-difficult-to-dispose-of products to the public sector, we turn it back to the company that made it. The idea is that it would spur better design. If Apple knew it had to take back all its phones, it might use only one plastic resin so it was easier to recycle, or make it easier to disassemble and repair, or remove toxic chemicals (they've actually done a good job with this). That was the idea, to force producers to make better decisions at the front end. I still think it's a good idea. It has not yielded the results that those of us hoped it would, but there's a lot of potential. It's basically an embodiment of the "polluter pays" principle. It's the right thing to do. If Dell or Panasonic wants to make poorly designed, toxic, easily breakable junk, it should be their responsibility to deal with it, rather than our municipal governments, who could be using that money to build bike paths and school gardens.

**AM:** Young people are coming to a world as adults that is already being buffeted by climate change and going to get worse. They see issues with our democracy, they don't necessarily see a lot of economic opportunity, they often have burdens like student debt. They're also, in general, technology-savvy, connected to consumer products in that way. If we're needing to make a shift from a consumer economy to a conservator economy, what would your advice be to young people? Where can they make a difference as individuals, or see opportunities for them in terms of careers in this huge transition we're undergoing, which is not only an energy transition, but a larger transition as well?

**JG:** This may be slightly off-topic, but one thing we need to say more to younger people is to get outside. Kids today are only spending about 1/3 as much unstructured time outdoors as they were just one generation ago. This is having an enormous effect. We need to understand the value -- there's a great book written by Jay Griffiths called "A Country Called Childhood" about just how important it is for kids' sense of satisfaction and wellbeing to get outdoors, spend a lot of time in nature, free play that's not all set up, or a game with rules set up by somebody else. Those kids end up being happier, being much less interested in consumer culture and the kinds of things consumer culture requires. This year is the 100th anniversary of the National Parks System that some have called America's best idea. We need to have another focus of just how important it is to get out in the natural world, and appreciate it. Because people who don't experience that don't care about the environment in the same way, I don't think.

**AL:** I agree. It's hard to care about and love what you don't know. So we do need to know the natural environment. I speak at a lot of colleges, and it's sobering to speak to young people today, because they are graduating with often hundreds of thousands of dollars of student loans which is just crushing. And they ask my advice. I have to tell them things I tell them. One is that I get they have student loans and it's hard to avoid that. But don't get consumer credit card debt as well. Do everything you can to avoid consumer credit card debt. Sometimes you have to use credit cards for school or food; I get that. Except for those, do not get consumer credit card debt. If you get trapped with consumer credit card debt, it's like being a bonded laborer for life. The choices available to you as you enter the world as an adult are severely limited because you have to pay your credit card masters. So really avoid getting sucked into that whole narrative that it's through consumerism that we demonstrate our value. Because you'll just be much more free. I remember when I graduated from grad school; I lived in a group house with a bunch of environmental activists and we got our furniture on the street, made lots of pasta and rice meals, and I worked for Greenpeace who paid me pennies... but I loved my life. I

would sometimes visit friends who had taken much higher-paying jobs, and their apartments would have way-nicer furniture and way-nicer stereos and cars, and I would sometimes think, "am I making the right choice here?" Then I'd go back a year later, and they'd tell me that they hated their jobs, but they couldn't leave because they had a mortgage and payments... and they were stuck. I'd think to myself, "don't get stuck. Don't give away your freedom." So that's my first piece of advice.

My second piece of advice is, it's time for a political revolution. We are literally at the cusp of ecological collapse, and what are people doing? Going shopping! It's time for massive widespread non-cooperation. The current economic system so fueled by consumerism and cheap fossil fuel, kept in place by this oligarchy that controls the government, it is leading us to massive environmental collapse. We need massive non-cooperation. Take non-violent disobedience training, fill the streets. French students filled the streets when their tuition went up 2%! I just went on a college tour with my daughter and learned what current tuitions are. We should be filling the streets to demand that our leaders lead to get corporate interests out of our government, and to start investing in a clean energy economy that we know is possible. There's no point in waiting and doing it later, because there won't be a later to do it in if we really do not rise up now.

**JG:** And the nonsense that we can't afford some of these things, like free college education so people aren't strangled by debt and aren't having to take the most high-paying jobs and so forth, is just crazy. In 1964 I went to the University of California Berkeley, FOR FREE. A few years later I went to the University of Wisconsin for \$300 a semester, still not a lot of money. That was a time in which this economy was producing a third as much stuff, as much wealth, as it does today, and we could make education free for people. Don't let them tell you that it can't be done. As far as a political revolution, I think young people are responding to Sanders' call for free education and many things, and I think that is an important place to go.

**AL:** It's true that the interests that benefit from the current business-as-usual system have more money than us... absolutely. But we have more people. If you look at the spectrum of American society, the vast majority of people actually want the Earth to be able to sustain human life. The vast majority want their babies born without toxic chemicals already in their blood. The vast majority of people share these values. Our goal is to move them from sedate consumers to active citizens working together for change. If we can do that, we can take back this country. We can build the kind of economy and society that not only will allow us to continue living, but is a much, much more satisfying way to live. If we are active... that's what we have to do. There's way more of us than them. We can take it back.

**JG:** My friend the late David Brower, the great environmentalist, used to do a "sermon," in which he compressed the age of the Earth, 4.6 billion years, into a single week. When you do that, you find that human beings don't even appear on the planet until three seconds before midnight on the final night. The Industrial Revolution doesn't occur until a quarter of a second before midnight on the final night. And this consumer society that we've been talking only began in the last 1/100th of a second of our week's time on earth. In that 1/100th of a second, Brower said, we've managed to cut our fossil fuels, our forests, our soils, our oceans, and who knows what else, by at least a half, and we have seriously changed the climate. There are people, he went on to say, that believe that what we've been doing for that last 1/100th of a second can go on indefinitely. They're considered reasonable normal ordinary

people. In fact they run our governments, our corporations. But they are stark raving mad. We can't go on like this.

**AM:** There's a balance between finding something like a campaign to focus our energy on, feeling like we can see it through to the finish line, against the recognition that these are systemic issues we're dealing with, and there are a lot of fronts for it, as Annie said earlier. We need people pursuing all of these fronts, and more. What would be your advice to people? Is it better to focus on the one thing you're most passionate about in this immediate timeframe? Is it better to pace yourself, spread your energy around a number of different issues because of their systemic nature? How have you all maintain your sanity and recuperate your energies going forward for as long as you all have been doing this important work?

**AL:** John already dated himself when he said his tuition was \$300/semester; I think that's what one textbook costs today. I think one of the great things about this all-pervasive problem is that there's an almost infinite number of ways to get involved. People don't even have to do something boring. This is not about doing your boring civic duty and sitting through boring meetings. You can find lots and lots of ways to get involved that are fun, and that provide those very things that most make us happy. This is what's so cool about getting involved for making change. It makes you happy. Scientists have figured out the things that really contribute the most to our happiness and wellbeing, and John mentioned them. They are things like having a strong social fabric and community, having a sense of purpose and meaning beyond yourself, working with others toward shared goals. The cool thing is that taking back our country, taking back our government, building a fair and sustainable economy, provides all those things that most make us happy. So why would you not want to come to this party? It's going to be so good. People should try different things; there's lots of different ways to be involved. Some people want to chain themselves to a train track to stop an oil train from getting by. Other people want to provide pro bono legal assistance for the people who do that. Other people want to babysit the kids of the people who do that. Other people might want to make beautiful artwork and inspiring songs. There are literally as many ways to get involved as there are people, and they all help. I think you should do the thing that most excites you, because then it's a joy rather than a burden.

The one thing I will say is important is to find other people to work with. When you look at the history of social movements and what were the defining characteristics of people who really stuck with it, it's if they had friends and a community involved. There are so many organizations, locally, nationally, internationally. Reach out, look online, ask your local church or community, find student groups, find other people to connect with. Then not only will you have a peer group, so your voices are stronger, but you'll also be growing your community.

**JG:** I second everything Annie said. In the short run, I do think it's important to stop a very dangerous trend in this country. We clearly have a candidate for president who could take us way back in the dark ages, who claims, with others in his party, that climate change is a hoax, who claims we need to get more fossil fuels rather than fewer out of the ground, and so forth. We have to stop that. That requires attention and energy. But it's not the only thing. We have lots of other things to do, and a lot of them can be a lot more fun than just stopping disaster. It's an honor to be involved here, and thanks to the great work of the Post-Carbon Institute for what you're doing, and Greenpeace, and all the others.

**RH:** I feel like all of us who have spoken here are really lucky to be able to have as our work, ways of contributing. I feel very fortunate in that regard. When I'm not working, I try to create as much beauty in the world as I can, through music, art, being in nature, gardening. Psychologically that's really important for us at this particular time in history, to not just focus on the things that are going very, very wrong, but also to focus specifically on creating something beautiful.

**AM:** Thank you all. Let's keep the conversations going into the future as we ask ourselves what kind of future we want.