Bill Gates Wrote “How to Avoid a Climate Disaster.” Is It Any Good? (Part 2), with Tom Campbell (Ep. 14)

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Nivien Saleh: If batteries aren’t the solution, then what is?

I’m Nivien Saleh, with Houston and Nature.

This is part 2 of my conversation with environmental attorney Tom Campbell. The topic is the book “How to Avoid a Climate Disaster,” written by Microsoft founder Bill Gates.

In part 1 we looked at Bill Gates’ explanation of climate change and some of his foundational assumptions. He does not tell us that we need to tighten our belt and consume less. Quite the opposite. He firmly believes in the power of the market and of innovation to carry us into a net carbon zero future.

Electricity is at the heart of his analysis. His goal is to make electricity clean and then have the electrical grid power most processes that currently rely on fossil fuels. That would include heating, cooling, transportation, you name it.

But how does one clean up electricity, especially when one thinks that the potential of batteries is limited?

Let’s find out!

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The promise of nuclear power

Nivien Saleh: Back from batteries to Bill Gates. He says that fossil fuels are continuous and mobile. Renewables are desirable, let's use them wherever we can. But they have disadvantages - that is intermittency and non-portability.

Then you have hydroelectric power, which also has some disadvantages. Batteries, he says - and you disagree - are not exactly the future. So what does Gates think overcomes the gap between what we need and what can be produced in terms of electricity? And here, he says "nuclear power".

Tom Campbell: Right.

Nivien Saleh: What do you think there?

Tom Campbell: The promise of nuclear power is always years out. There are some practical applications of nuclear power, but there's a lot of problems that need to be solved and addressed. While there's always been promise associated with nuclear power, that promise has never been fully realized. And I am cautious about its ability to fill a gap in the short run.

Nivien Saleh: Yeah.

And let me just interject here. Something that I have not emphasized so far is that when Bill Gates develops his options for a net carbon zero future, he doesn't just talk about the United States. He wants to create a solution for the entire world, and that becomes important especially in nuclear power because you say there are a few problems, and I agree that there are a few issues, and I would just like to point them out. Number one, I grew up in Germany and Germany is a thousand miles from Chernobyl. Maybe here in the United States, when you grew up here, Chernobyl was far away, but where I lived, it was pretty close. And it was scary.

So while malfunction doesn't happen so often, if it does, the repercussions can be just enormous. That makes me a little wary.

Number two, there is a substantial danger of enrichment and possible use in warfare.

Once you have the technology for creating atomic energy, what will keep you from developing that technology even farther and create a nuclear weapon? That's what we see with Iran right now. And that's a big concern. Then of course, the possibility of poisoning the environment for future generations.

And then also, I've heard that it's prohibitively expensive. And if it's too expensive to build in the United States, then chances are it's too expensive to build in third world countries.

Tom Campbell: Interesting, very, very difficult challenges presented there. But if those problems can be addressed, it is a renewable source of power that could be very beneficial and of course is completely carbon neutral.

Nivien Saleh: Yeah. So he bets on that. He has invested in nuclear technology. Elon Musk bets on batteries. I do hope that the battery idea will work, frankly. And maybe we will have to look at nuclear power, but I would prefer batteries.

Capture carbon at the point of generation

Tom Campbell: I think that the key is electricity, and on that I agree with Gates. Disagree on batteries.

I think a big part of a plan in the future would be carbon capture at the point of generation - facilities that generate electric power but are able to capture their carbon at the point that

they generate it. If you're emitting carbon at the tailpipe of vehicles, trying to grab those atoms out of the atmosphere seems to me to be virtually impossible.

But if you're there where the power is being generated, and you create a facility to capture that concentrated carbon dioxide, the issue becomes storage and how you store that carbon for the long run. But I think the carbon storage problem is a solvable problem.

Renewable resources are absolutely crucial. Those are absolutely key to being able to succeed.

And I then also think that the key is solution to the problem is innovation.

Nivien Saleh: In that you agree very much with Gates.

Tom Campbell: Yes, this is the only way out of it.

The role of government in Avoiding a Climate Disaster

Nivien Saleh: Having looked at electricity, which is the central point of the Bill Gates book, he then branches out to a range of industries.

He looks at how we build things, how we grow things, how we get around, how we heat and cool ourselves. And in each of those chapters, he looks at: How are things done? What innovations do we need? What are the green premiums? What can we do? And how can electricity make a contribution? And we're not going to get into that because we just don't have the time and we need to give people a reason to read the book. Don't we?

Tom Campbell: Absolutely. Yes.

Nivien Saleh: So let's go to the role of government. Gates thinks that there is an important place for government in any country and of course very much in the United States.

Number one, he wants the government to invest in research and development, which he says may be sometimes too expensive for industry to invest in.

Number two, he wants the government to level the playing field and help drive the green premiums to zero so that businesses will be able to get into those carbon-negative sectors. ~~H~~He thinks that we can reduce the green premiums by making carbon-free things cheaper. And that involves technical innovation. We can also make carbon emitting things more expensive. And that requires policy innovations. And of course we can combine the two.

Next, he wants to help consumers gain information about what solutions are out there and what implications their consumption choices have.

And the government, he says, can do that.

So that's what he wants to government to do.

And now you of course have a lot of experience with government regulation because you've worked for the federal government. You've been involved in international negotiations. So what do you think?

The European Union's successful strategy of capping carbon emissions and having them traded

Tom Campbell: I think the EU has done a really excellent job on this particular subject. They have created a carbon exchange. And what they have done is they create ceilings. And if you fail to meet the ceiling for your company and their national ceiling, then you have to purchase credits from another company. And an example of a related statute, they are trading emissions for automobiles.

In the case of Fiat: Fiat couldn't produce a fleet of vehicles that met the emission standards for the EU. And they had to purchase those emission reductions from another company. And they had to go to Tesla. And they paid last quarter, $400 million to Tesla in order to buy the zero emissions.

So: Tesla had zero emissions, and they had a ceiling of what they could emit. And the difference between that ceiling and what they emitted they have available to sell, which is a way of subsidizing a company that has a technology that is worth developing. I use that by way of an example. That can happen in every area across the country.

Yes, the government needs to do research and development. For example, one of the things that they're looking at in several locations across the country is: If we pumped carbon dioxide into salt dome configurations in the ground, will that carbon dioxide stay? Can we put carbon dioxide in there so that it will actually stay in perpetuity? The answers have been pretty good, but we're learning about that, and that's not an expense that an individual company can afford - particularly in a research and development perspective. But once the government establishes that it can be safely and perpetually captured, then you'll see companies go and purchase spent natural gas fields. And that capacity to be able to sequester carbon can be then utilized. That's the type of research and development question that the government can answer. An answer that people have come up with is, let's just do a carbon tax. And that's a way of making goods costs what they should cost in reality and internalize the negative externality.

But what ends up happening, in my experience, is the government just takes that money and they spend it. They don't spend it to solve the problem. They just use it as a new source of revenue and the company just folds that into the cost of the product. They don't change their behavior dramatically. The marketplace will push them a little bit in the direction of being more conservative.

But there becomes this alliance between large companies and the government, where the government benefits from the taxes and the company benefits from having a simple

solution. I want the solution for the company to be to solve the problem. I want the Fiats who haven't been able to figure out how to build an electric car, to pay the Teslas who have figured it out.

So the Fiats get weaker, and the Teslas gets stronger. And I'm not talking about just electric cars. I'm talking about seeing that pattern repeated industry after industry. And that will cause all of the innovation that exists upon our planet to be focused on how we reduce the amount of carbon in the atmosphere.

Cap-and-trade is better than a carbon tax

Nivien Saleh: I don't remember Gates really talking about the cap and trade solution that you just mentioned.

Tom Campbell: He didn't. That was a major omission. And unfortunately it's become a polarized issue where it's capitalistic versus a more socialistic approach.

Nivien Saleh: Which one is the more socialistic approach? Because usually the Europeans get the rep here in the United States of being the socialists.

Tom Campbell: They do. But in this case the cap and trade really is the more market-driven approach. I had a, kind of a bitter experience with the Exxon Valdez. So we recovered a billion dollars, and that billion dollars was then going to be spent by trustees, improving the environment that had been injured as a result of the oil spill. Instead of that money being spent in the environment, you know, acquiring and preserving new lands and looking at ways of restoring injured resources, the vast majority of the money went to bricks and mortar, built a big library, roads, cars, trucks, to shuttle people around.

I didn't feel that the money was spent in the way that would have been most beneficial to the Prince William Sound. And what I've tried to do in subsequent settlements, is I've always tried to earmark the funds for actual restoration projects, so that when a company makes a mistake and they injure our natural resource, they then spend the money on actually restoring the natural resource that was injured.

I see that same pattern repeating. In this situation the government will get a lot of money - we're talking about, you know, trillions of dollars. And they'll say it'll be lock-boxed. It'd be lock-boxed just like the social security money is in the United States. It's borrowed, and the system is in jeopardy of not having enough money to fulfill its bargain to America's elderly. Let's make sure that the money that is collected is actually earmarked to solving the problem. And let's do it through a carbon exchange, where companies who are able to innovate and capture carbon get the benefit, and the companies that are not able to deal with it, not able to figure it out, end up going out of business. So we build up the innovative companies, and we let the companies that won't change and won't become adjusted to the new reality fade away.

Nivien Saleh: Yeah. Very good point. Thank you for explaining that. And honestly, I got to say before I wasn't quite clear what cap and trade is. But it's just the ceiling that the government imposes. And then below the ceiling that the government imposes you can trade. Yeah. And now I know.

Tom Campbell: I think you've very eloquently summed it up. And what happens is each year the cap goes down.

Nivien Saleh: To push the companies to innovate more and more and more, and to reduce the emissions.

Tom Campbell wants us to take personal responsibility

Tom Campbell: That's correct. That is the way we combine the capacity of government to regulate. And by the way, good companies want clear regulations, so that they know that they're going to meet the standard. And they know that the guy down the street that has the smaller operation, isn't going to be cutting corners, and that they're going to be competing on an even playing field. Let's let the innovators innovate. Let the government enforce those regulations. Let the government do R&D on big picture questions that are difficult to deal with. But then once they've answered those big questions, let companies like Microsoft take advantage of the government investment.

But I don't want to leave this without talking about personal accountability.

I think that we as individuals have an important role to play. We need to be making choices now that can potentially be a net benefit to everyone.

These choices are becoming easier and easier to make. The areas that I would talk about be, first of all, the choice of your power generation company.

Pick a power generation company that relies heavily or exclusively on renewables. They're available. Solar panels.

When I made my investment, we were looking at a seven year return on investment. That is creeping down. And there are plans that are easily accessible for people to be able to buy solar or lease the solar panels.

Take a good hard look at electric cars, because when you look at the overall cost of upkeep and the reduction of fuel costs, and you look at how long they'll last, they become a viable alternative. Things as simple as meat.

Bill Gates talked a lot about farting cows and pigs. And the real impact of methane, which as a greenhouse gas is, I believe, 20 times more problematic than CO2 is something that we all have to be thinking about.

Food is being wasted on a massive scale

Nivien Saleh: Food is something that I'm very interested in. And he points out that in the United States the food waste is just enormous. He says in Europe, in the industrialized zones of Asia and in Subsaharan Africa, over 20% of food is tossed out, left to rot or wasted in other ways.

Now here comes to hammer. In the United States the number is at 40% of food. What are we doing with all that food? I mean, we use a bunch of fertilizer to grow it, and then we throw it away without eating it? is just ....

Tom Campbell: A lot of these problems don't have easy solutions to them. I mean, I try to compost my stuff, but when you compost it, it's still releasing gases. So be thoughtful, don't prepare a larger meal than you're going to eat. And you know, I'm not telling anybody how to live their lives.

I think these are all choices we have to make individually. But we tend to be very hard on corporations. And we tend to not examine our own behavior very carefully. Let's judge them by the measure that we're willing to meet as well.

Nivien Saleh: Yeah. And one thing that you can do, I think, if you don't yet have an electric car - and I got to say, we do not - is buy carbon credits to neutralize your carbon footprint. Of course, you have to find an organization that does that for you, that is reputable, that will use your money in the right way. But it is a possibility.

Tom Campbell: Right. And don't run out and buy a car to replace your perfectly good car. But when it becomes time to change a car, really give these electric cars that are coming out a good look, because your money signals to the marketplace, that people are willing to buy this more environmentally sustainable product.

Nivien Saleh: Yeah, I so agree with you. The way we buy creates incentives.

Tom Campbell: Right. A lot of the waste we get is at restaurants. And they serve extraordinarily large portions because that's what the customers want. We can all do better.

We just need to think about it as we're doing it. We have to do what we can. And I think in doing it, it illustrates the complexity of the problem, and it will educate us and inform us in a way that just reading a book won't.

Key take-aways from “How to Avoid a Climate Disaster”

Nivien Saleh: Yeah. As we come to summarizing and looking at the big picture , let me give you my insights and my takeaways from the book. The book gave me a great sense of just

how complex the problem of climate change is. You need knowledge about how the climate will likely change, and that comes from the scientists.

We need knowledge about how will that change will affect humanity, not only in the United States, but also in the rest of the world. We need knowledge of the various technologies that are available for combating climate change and also non-technical solutions. We require policy expertise on how to encourage the development of solutions, not only in the United States, but all these other countries that have very different regulatory environments that we do.

And we need - and here come see international angle - we need expertise on how to herd the nations of the world together, to agree on a framework that will encourage implementation and penalize non-implementation. And we also need to develop a really good system of carbon accounting.

I recently watched a webinar put on by the Baker Institute, where representatives and analysts of the oil industry talked about the challenges that their industry is going through as they are trying to become less wasteful producers. So as they produce these fossil fuels, they want to waste less. So that, that does not create a carbon footprint that doesn't need to happen. What I heard from that is that the carbon accounting is not standardized. Different companies have different ways of reporting. And different governments have different ways of requiring reports.

So the European Union requires different information than the Environmental Protection Agency. That is between the U.S. and the EU. Now add how many other countries? 200? You also need to develop ways to count the carbon footprints in countries that do not have the capacity to do so themselves. And at the international level you need really good support for poor countries. And that good support that might come from the United Nations, from the World Bank, needs to tell these governments or poor countries, these are the challenges and these are solutions that might fit your particular situations. So your country may not have a lot of wind, may not have a lot of water. So what would be the best way for you? How can we help you get to the point where your carbon output decreases, thereby benefiting all of us?

So it's a lot.

“How to Avoid a Climate Disaster” fails to mention ocean acidifcation

Tom Campbell: It is. It is. It's a huge problem. But it's a problem that we have to address. And what I would say kind of summing up my view is that Bill Gates, um, I am grateful that he wrote this book and commend it to everyone to read.

I don't agree with everything he's saying on the solution side. I think he has some blind spots that we've discussed.

And he didn't even talk about - well, he barely mentioned it - ocean acidification.

Nivien Saleh: That's right.

Tom Campbell: And what is happening is that the chemistry of the ocean is changing and it is making it harder and harder for hard shell creatures - corals, crabs et cetera - to draw the calcium they need out of the ocean water in order to create their shells.

We'll see a dramatic change in the oceans as we lose coral reefs, as we lose, uh, shellfish of various sites. And that'll be swapped out biologically for fin fish and jellyfish. The entire character of the ocean is going to change. Whether that's going to happen in 50 years or a hundred years, I don't know the answer to that. But it's going to happen.

I'm a conservative, and I believe we should not be conducting broad, risky experiments with our atmosphere and our ocean. And we should be taking steps in order to be able to preserve the status quo.

Nivien Saleh: You are correct. He barely mentioned ocean acidification. It is disconcerting. And we should absolutely not engage in risky experiments with our natural environment.

Tom Campbell:

But this book ... it gets you in - into the issue. It gets you into the complexity of it. And it does provide some potential solutions. From my perspective, at this point in time, our path forward needs to be to expand our commitment to renewable energy. We need to build that renewable capacity around our existing electricity grid.

Nivien Saleh: And we need to do so massively.

Tom Campbell: Yeah. We also have to look at the negative externalities associated with wind and solar.

Nivien Saleh: Absolutely.

Avoid a climate disaster with batteries, research, and a good cap and trade system

Tom Campbell: And those need to be considered as part of the equation.

I think we need to invest an enormous amount in battery-slash-energy-storage technologies. And that's an area where the government could do a significant amount of basic research. At the point of generation of electricity, we need to really emphasize carbon capture capabilities and incentivize companies to capture and then store carbon. That's another area where government research and development needs to be accelerated. And that is how would you capture carbon? How do you store it? How do you keep it where it is? And then after that, I think the government does have a significant role, and that is in incentivizing industry and individuals in reducing the amount of carbon that they consume.

And I believe in the very best way to do that and to focus that innovation towards actually solving the problem is through a cap -and-trade system that incrementally reduces the total amount of carbon being produced. That allows the consumer, you and me, to choose the products that we want and allows those companies to trade within that cap, so as long as the cap is coming down. And Nivien, you're exactly right. This system will only be as good as our ability to account. We have to keep the system honest. And there will be fraud. There will be fraud in any system that we create. But putting the money into the companies that create the greatest carbon reduction will drive the innovation . I do believe a lot of that solution is in the private sector. And finally, as individuals to have the credibility to be able to even discuss the issue, we need to do our own accounting,

Nivien Saleh: Yeah.

Tom Campbell: And be accountable personally.

We speak with more authority when we speak to government and to industry, if we have done what we can and understand the complexities on a personal level. We can be more persuasive advocates.

Nivien Saleh: Yeah, So totally agree with you. Totally agree with you on the things that you say. And I would like to put the bow around this whole conversation by saying that I really enjoyed this book. Number one, it is well-written. It is understandable. It is conversational. Number two, it is optimistic.

And I have such a hard time reading these climate books that will tell you we're all going to doom. Honestly, I force myself sometimes to read them, but I have a hard time. And so Gates's optimism is so valuable. Of course his optimism is backed up by a ton of suggestion. Now I may not agree with all of them. And I don't. But what I love is: He put a book out there and says, these are my solutions. And that gives us at the very least a baseline where others can come and say, well, here are my solutions. But what you can't do is just say, oh, I don't like him. I don't like nuclear power. So I'm going to dismiss him because not doing anything is not an option.

Tom Campbell: Yeah.

Nivien Saleh: And so I'm grateful.

Tom Campbell: He has some blind spots, but he did illuminate the field. You know, I've been dealing with these issues for 30 years. And he brought to my attention issues that I hadn't really thought about and should have been part of my thinking all along.

Nivien Saleh: Thank you so much, Tom. I know that you've got a very busy professional life, and we had a little bit of a hard time finding this date, but we did, and I'm grateful that you made it happen and very grateful for your very interesting thoughts.

Tom Campbell: Thank you for your perseverance. And I will end as we started. I always enjoy our conversations, Nivien.

Nivien Saleh: We've arrived at the end of this episode. If you enjoyed it, please share it with a friend.

You can view the transcript and show notes at HoustonNature.com/14. That's HoustonNature.com, a slash, and the number 14 for episode 14. I'll include the link to the Texas Climate News, an independent magazine run by a former reporter for the Houston Chronicle. That is really the only specialized magazine in Texas that I know of, and we are lucky to have it.

To stay in the loop about future episodes, sign up for the Nature Memo at HoustonNature.com, and I'll send you an email when the next episode gets published.

I hope Tom and I have managed to take you out of the gloom of climate change. There's a lot of cool stuff going on. What we all have to do is keep our politicians focused on prioritizing climate change. And as Tom explained so eloquently we fare better if we lead with personal accountability.

I wish you all the best.

For Houston and Nature, I'm Nivien Saleh.