

You Might Be Right - Climate Change - Transcript

Al Gore: The environment and climate itself used to be a fully bipartisan issue. It was a Republican President, Richard Nixon, in spite of all his other problems, he enacted the EPA and the Clean Air Act and the Clean Water Act. And Teddy Roosevelt was another Republican, was the greatest environmental president ever. And Howard Baker, in whose name we are doing this podcast, was the co-sponsor and deciding person on the Clean Air Act and the Clean Water Act and was really a great environmentalist.

Jeff Lyash: As a matter of fact, I would tell you, I think on this issue we're talking about, we have, as a society, got to set aside ideology and focus on practicality. I just recall Aristotle and the golden mean, or the Pareto principle, or Confucius who said, "A diamond with a flaw is better than a pebble without."

Marianne Wanamaker: Welcome to "You Might Be Right," a place for civil conversation about tough topics, brought to you by the Howard H. Baker Jr. Center for Public Policy at the University of Tennessee. In this episode, our hosts, former Tennessee governors, Bill Haslam, and Phil Bredesen and their guests take on the politics of climate change. This issue has been a central priority of the Biden administration, and recent legislation included the country's largest ever investment in combating climate change.

Bill Haslam: Good to be back with you, Phil.

Phil Bredesen: I'm glad to be here. This is going to be an interesting topic.

Bill Haslam: This is one of those we both actually have some personal familiarity with this space. I come from a family business that's been a fossil fuel based business, selling gasoline and diesel to folks over the road for a long time. And we see the world changing.

Phil Bredesen: There's no question about it. And for my part, I've been the last 10 years in the solar business. And to be one of the people in harness, trying to help make some of this stuff happen, as I know you are.

Bill Haslam: So, since we taped this, while some things have changed, I personally don't think the big issues that we've talked about and the struggles really has changed, but the Inflation Reduction Act has passed since we had this conversation. In your mind, made a fundamental difference or not?

Phil Bredesen: I think anything you do to move toward some solution is good. I think, being realistic, some of the things are on target, some of the things not so much. But there's going to be a lot more needed than just that to make any fundamental difference in this. I think the really important thing right now is, and I hope we can get into it with our guests, is just not talking about something that might happen 20 years from now and so on, but we may really get into

what are some of the concrete things you can do today above and beyond this Inflation Reduction Act that really make a difference.

Bill Haslam: We are thrilled to have as our guests the 45th Vice President of the United States, a native Tennessean. Before he was the Vice President he also represented Tennessee in the Congress and the Senate. He since has gone on to found his own investment management company focusing on sustainable investment. He's also won a Nobel peace prize and he's written a bestselling book. Vice President Al Gore, we're thrilled to have you with us. We appreciate you taking time. We know this is a subject dear to your heart, and we look forward to having a conversation.

Al Gore: Well, thanks so much Bill and Phil, what a great idea for you to have this podcast, and I'm looking forward to it.

Phil Bredezen: Good. We'd want to try to explore this issue of climate change, and one of the things I really wanted to ask you about and get some insight from is that while I certainly believe that the federal government should get serious about addressing climate change and greenhouse gas emissions, I think you probably would agree that doesn't look as promising as it might in some places. There are other things going on. The private sector has been very active in terms of converting to renewables and so on.

So, I want to ask you in what you see beyond direct central government action, what are the things that can happen out there in the world that are meaningful and scalable in terms of addressing this issue?

Al Gore: Well, Phil, first of all, you've had personal experience with Clearloop and Silicon Ranch and working in the private sector to help advance the prospects of solar in particular. And the cost reduction for electricity from solar and wind has been incredibly dramatic over the last decade or so. And it's now cheaper than electricity from burning fossil fuels or electricity from any other source by far. And last year on a worldwide basis, if you look at all the new electricity generation installed in every country, 90% of it was renewable, virtually all of that solar and wind.

So, one is tempted to think, "Well, maybe the private sector can do this on its own," but it's not working out that way at all. And one reason is that governments around the world are actively subsidizing the continued burning of fossil fuels at a rate 42 times greater than the meager subsidies for solar and wind. And the turnover in the electricity generating sector of the economy is relatively slow. 60% of the coal plants that are operating now, burning coal to make electricity, it would be cheaper to just shut them down right now and replace them with new solar and wind, but the subsidies keep them going.

And same thing on transportation. The biggest source of greenhouse pollution in our country, and many other countries, is transportation. And the electric vehicles, people who get them

prefer them. The cost is coming down there too. Within a couple of years, they're going to be cheaper in almost every model category in the EV version than in the combustion version, but we need government policy to get these charging stations out there. And so we do need government policy and it's kind of urgent, because we're putting 162 million tons of manmade global warming pollution into the sky every day.

Bill Haslam: You talked a little about subsidizing one form of energy, but I guess the argument on the other side would be the government's subsidizing a lot of alternative sources of energy now to make them work. So, tell us exactly what you'd say we should be doing differently from now from a government policy standpoint?

Al Gore: Well, the difference between those two categories of subsidies, Bill, is we're putting 42 times over more in continuing to subsidize fossil than we are in encouraging solar and wind. And 42 times as much, it's just hard to overcome that. Then you have some other obstacles too, Bill, and almost 90% of the emissions growth going forward is going to be in these developing countries. But if you want to build a Silicon Ranch type solar farm in Nigeria and you go to the private capital markets, you're going to have to pay interest rates seven times higher than the wealthy countries pay. And the World Bank and the International Monetary Fund are supposed to help with a situation like that by taking the extra layers of risk off the top of the capital stack there, but they're not doing it. And so we need to address that.

Phil Bredeesen: I've often thought to myself, well, if somebody made me the czar of trying to change climate change, you've probably had that fantasy yourself on occasion, how would I go about it? And one of the things I think of is I think the first thing I'd say is, "Okay, well, first of all, where's the low hanging fruit?" I mean where's the place that it's easiest and the technology is there and the economics work even better? Where do you think those first areas ought to be?

Al Gore: Well, number one, Phil, we ought to stop forcing the taxpayers to subsidize the destruction of the future of humanity. And we ought to stop all these subsidies for fossil fuels. Now, a lot of them are in the developing countries for kerosene and gasoline, what they call petrol in most of those places, we need to stop the subsidies. We have big subsidies in the U.S. as well. And, so that's the first thing, we need to stop doing that, and that would save the taxpayer's money and help to-

Bill Haslam: Can I stop you just for one second?

Al Gore: Yeah.

Bill Haslam: Help our listeners understand where those subsidies happen?

Al Gore: Well, in the developing countries, you have subsidies going directly to lower the cost of gasoline and kerosene and coal and gas. In the U.S. we have fancier versions of it, like the depletion allowance and the tax treatment, accelerated depreciation and the tax treatment of oil

and gas assets. It's been a scandal for a long time, but it is a massive subsidy that encourages more oil and gas.

Bill Haslam: Let me ask a question. There are a lot of folks, particularly on my side of the aisle, who are just saying it's not truly an issue, but there are others who would say, "I get it. This is a real problem. It is a serious issue," as you talked about. The concern, and if I might compare it to our reaction to COVID, was "Okay, we will focus entirely on that to the exclusion of some of the other effects of those decisions."

The example I'd give with COVID would be, we need to shut down our schools and we figured out now we know that we shut down our schools for way too long, that learning didn't happen in that. The byproduct of that decision on COVID to focus on that was, I think our students will be paying for this for 20 or 30 years. I guess, reassure the folks on my side of the aisle who say, "No, this is a real issue, but we need to take into account all the other effects of our decisions." Reassure the folks on my side of the aisle who feel that way.

Al Gore: Yeah. Well, thank you for asking that question, Bill, and it's important. And the environment and climate itself used to be a fully bipartisan issue. It was a Republican president, Richard Nixon, in spite of all his other problems, he enacted the EPA and the Clean Air Act and the Clean Water Act, and Teddy Roosevelt was another Republican, was the greatest environmental president ever. And Howard Baker, in whose name we are doing this podcast, was the co-sponsor and deciding person on the Clean Air Act and the Clean Water Act, and was really a great environmentalist.

So, we have kind of gotten away from that bipartisan approach. The thing about climate is, it is so threatening to everything else. We have really got to get a handle on this. And, yes, of course we should go about it in a common sense and balanced way, of course, but we've got to take into account how serious this is. Look, most of the Western United States is in a deep drought right now, and we are seeing crop yields cut down, we're seeing on the coast, the sea level rise from the melting ice.

I mean the list goes on, and these tornado clusters are another consequence of it as well. And here's the thing about taking a balanced approach to it, which I agree with. We create more jobs investing in renewables and sustainability, dollar for dollar creates three times as many jobs as investing in more fossil fuel expansion. We clean up the air, we cut out the biggest source of air pollution that kills nine million people around the world every year. And we cut our trade deficit. I mean it's good. And it's massively deflationary, because the cost of solar and wind continues to come down and you don't have an annual fuel charge for it.

Phil Bredezen: Let me ask you a question. I mean I've always thought that it's been difficult for all of us, I mean you're leading the way, to communicate this effectively to a lot of persuadable people across the political spectrum. And I've always thought the problem is that you're asking people to make decisions and make sacrifices as they see now, which are very specific, in

exchange for some generalized good 20 years down the line or in the future. And we humans are not wired real well to do that. I mean we have social security for a reason. People don't save 10% of their income throughout their lives and so on. How can we do a better job of communicating to people, just given the realities of the way human beings think about the world, as to how important this is?

Al Gore: Yeah. It's another very thoughtful question, Phil. Some people have long described this as a problem from hell, and what they have in mind with that phrase is some of the things you're mentioning. We're just not wired to think on a global basis. We're not wired to think long term. We're wired to react immediately to the kinds of threats that our ancestors reacted to. If you see a rattlesnake, you're going to react instantly. Somebody coming at you with a club or a weapon, you're going to react. But using our reasoning capacity to understand that the scientists have studied this for so long and they've been right in the past, everything they predicted in the past unfortunately has come true in spades. And now that should make us listen to what they're warning about in the future.

Phil Bredeesen: Well, speaking of those alternatives, I mean there is one technology out there which has a very low carbon footprint over a long time. It's not renewable, and that's nuclear energy. How do you think that fits into the picture?

Al Gore: Well, I think that a lot of the reactors that they've been talking about closing early, I think that's a mistake. I mean one of them is on an earthquake fault line, so you do want to be careful on that. But where you can feel pretty confident about the safety of them, we ought to extend the lifetimes of these reactors, for sure. Now, as for building new reactors, the problem with that, Phil, is that they've priced themselves so far out of the market. It's by far the most expensive source of electricity you can find anywhere in the world now.

And if you're the CEO of an electric utility and you want to build a new reactor, the first two questions you'd ask is, "How much it going to cost?" And, "How long is it going to take to finish it?" And there's nobody that can answer either one of those questions. And the cost overruns and construction delays all around the world have been epic. Part of that is because the supply chain and the nuclear engineering schools took a big hit after Chernobyl and Fukushima. And Three Mile Island was probably overblown, but I've been inside the sarcophagus in Chernobyl, and that was extremely dangerous and Fukushima was even worse.

And so there has been a kind of shutdown, and in reopening these supply chains and education programs, there's been a long delay. If we can really get some new designs that are smaller, modular, cheaper, safer, then I'm all for it. But I went to Oak Ridge not long ago to get an update, and they say that none of those designs are ready to go right now, and most of them are at least 10 years off. But we need to push on that, and I think they can be a part of the solution.

Bill Haslam: The name of this podcast is "You Might Be Right." Senator Baker had a famous

saying that I've quoted a lot. And he said, "Always remember the other fella might be right," in his Huntsville, Tennessee colloquial way of saying things. Can you think of a time when in the middle of this discussion, you've heard a perspective from someone else that you thought, "Okay, that's a better way to look at this," or, "They have a point?" Can you give us your example of the other fellow might be right?

Al Gore: Well, there have been several times where I've had that realization, Bill. Absolutely. I'll give you a couple quick examples. For decades there was a debate about whether we needed to focus mainly on adaptation to the impacts of the crisis, or instead focus on trying to prevent the crisis. And my view back in the day was we don't need to divert our attention from trying to prevent this with all this work on adapting to it. But I've changed my view on that, because we have to do both. I'll give you another quick example. I used to be very strongly in favor of ethanol growing alcohol fuels on farmland.

When I was a congressman in the old Fourth District, I had a big workshop and I've always promoted that. Well, I came to realize that the energy balance and the cost, actually, that doesn't make sense, but it's very popular and I thought it made sense. And then after I realized that the other guy said to the other guy, "You might be right," and then I checked the numbers and they were right. I changed my position, but it was so popular by then, and it still is. If you campaign in Iowa, you're going to find out how popular it is.

Phil Bredeesen: Right. I think one of the biggest things you could do for climate change is to not have an early presidential primary in Iowa.

Al Gore: No comment.

Bill Haslam: Just don't move to Indiana.

Phil Bredeesen: Start moving beyond the ethanol.

Al Gore: Well, I'm grateful to the people of Iowa for giving me a victory in those caucuses and primary.

Bill Haslam: There you go. Being with us two guys that have run for office multiple times, we understand the sentiment. Hey, but thank you very much for joining us. Like I said, the whole purpose of this is to try to have thoughtful discussions from people of different perspectives so that regardless of where you are on the spectrum, on this issue or on any other, you might listen and think, "Okay, I've learned something. I understand the argument and the other fellow might be right."

Al Gore: Well, it's a privilege to be with both of you guys, two of my favorite governors. I have agreed with Phil more than I have with you, Bill –

Bill Haslam: Hey, come on!

Al Gore: ... but I've always respected both of you immensely. And thank you both for your careers of public service. Really, I mean that from the heart, and thank you for having me as your guest today.

Phil Bredeesen: Thanks.

Bill Haslam: We really appreciate your time. Thank you very much, sir.

Phil Bredeesen: Take care.

Al Gore: Bye bye.

Bill Haslam: It actually, to me to talk to somebody like Vice President Gore, I mean agree with him or not, he's really devoted the last, I don't know, 20 something years of his life to this issue, because he cares deeply about it.

Phil Bredeesen: No, the change in the world happens when people got passion in their hearts about things, and I think he's a great example of that. In listening to it, I mean I agree with so much. I do think there's a lot of practical economic and political consideration that have to feed into that. And I may sound like a Republican there, I don't know, but there is a path forward.

Bill Haslam: Democracy is clearly the best system of government, but it doesn't lend itself well to long term strategic planning. And this is one of those issues. I mean you can care all you want, but when gas goes to \$6 a gallon, then that's an immediate felt concern. And I think my opinion is we obviously have to move away from our reliance on fossil fuels. I can say that as somebody who has a family business that's been in the fossil fuel business. So, that to me feels like an obvious conclusion. What we need is a strategic plan for how we get there without economic hardship on folks and with a realistic plan that's not going to... I hear his point about government subsidy, but I'm guessing that's because the predominant amount of fuel that people choose is fossil fuel. So, that's why the subsidy seemed lopsided in the way that he talked about.

Phil Bredeesen: I hope that what can come out of these conversations is some thought about how this gets recast just a little bit. I mean I kind of have the feeling on this subject for the last decade, everybody's just been hammering their point. And maybe if we had Howard Baker to consult, he could help us figure out how to step aside from that rock in the road and go around in some other way. But there's got to be some way in which you could engage people's common interest in something that wasn't just a negative for them. Speaking from myself as somebody who thinks this is a really important problem, who's probably more aligned with progressives about it, I think we've done a terrible job of communicating.

I mean the way it comes across so much is a whole bunch of educated well off and not threatened people who live in big cities and don't care what a gallon of gas costs, are telling a whole bunch of other people who don't have those advantages and who do care very much what a gallon of gas costs, what they have to do and sacrifice to solve this problem. And it's just a loser.

Bill Haslam: I think a lot of things in this country come back to the divide between the so-called cultural elite in folks who know somebody who drives a Ford F-150. And the example's always like, that's the most popular vehicle in the country and the folks who live in the middle of the country, they think, "Well, those people on the coast, do they know anybody like me?" Not like me personally, but like themselves. And I think we have to start exhibiting that kind of conversation that says, "I get it. Where you live, where you have to commute 30 miles to work and back every day, the world looks a little different than where I live, where I get on the subway."

Phil Bredezen: Yeah. And for that person it might be a lot harder than it is for you to balance, "I want to have a nice house. I want to take vacations with my family. I want to be able to send my kids to college," and those kinds of things. I mean most people don't have reserves of resources to put into these kinds of things.

Bill Haslam: The other thing, again, thinking about in the bigger context of the arguments we're having in this country today, again, too many folks on my side say, "Well, it only matters what happens here in our country," but I'm not a scientist, but I would say the ozone layer doesn't respect country boundaries very well. And so we do realize this is one of those places where you can say, "Well, it's not our fault. It's China's fault, or it's India's fault," et cetera. But the reality is this is one of those where it doesn't really matter. It does matter. We need to solve it. But in terms of trying just to blame it on somebody else and say, "When they fix their problem, I'll care about mine," probably doesn't work.

Phil Bredezen: Right. Well, but I have to say, I mean the pushback I hear from a lot of people is precisely that, which is, "I don't know why you're so interested in doing this, because India and China are busy going way, way beyond anything we ever thought in terms of fossil fuel emission. So, maybe when they take care of their problem, we can focus here." And I always just say, "Look, our country has always been a leader in things, and we need to be a leader on this as well."

Well, Bill, our next guest is somebody who's right in the middle of making things work here, Jeff Lyash, he's the President and Chief Executive Officer of the Tennessee Valley Authority, which is the largest public utility in the country and a very large generator of electricity. And he came to Tennessee back in 2019 from running a very large integrated power operation in Ontario, Canada, and has just a lot of experience about what the realities are on the ground. I think this would be an interesting conversation.

Bill Haslam: Jeff, and thanks for joining us. Let me just start with the obvious one. We can have all the conversations we want about climate change and impact, but you have a lot of customers who rely on you every day when they get up in the morning to make certain their lights come on and that the bill is at a reasonable price. So, maybe start with talking about what does your current energy mix look like? How do you answer the here's where we want to get, here's where we are? In the meantime I've got to provide great service at a reasonable price.

Jeff Lyash: Well, there's a lot in that questioning, Governor Haslam, so I'll try to do this briefly. Electricity is one of the most important elements of people's lives. I mean just think about how much you rely on electricity in your home, in your business, in your community. From everything from keeping your refrigerator cold, to heating and cooling your house, the lights at your kids' schools. And you're relying more and more on electricity every day, so I think we have to keep that in mind. You're likely to consume twice as much energy in the form of electricity by 2050 as you are today as the economy electrifies.

Think about electric vehicles, electrifying space heating and cooling. And I think that's a good thing, because you can use low carbon electricity if we can produce it. And we are determined to produce it, to fuel that life of yours and do it at very low carbon and decarbonize the economy. But in doing that, I'm a believer you have to keep a balance between four very important elements, affordability, reliability, resiliency, slightly different than reliability. Reliability is what we have right now as we talk, resiliency is what happens when the price of natural gas triples, or there's a cyber attack, or an F5 tornado.

So, affordability, reliability, resiliency, and sustainability, which has a broader definition. But for the purposes of this conversation, let's make it synonymous with greenhouse gas reduction. I think if you don't keep the balance between those four, as we transition, we won't be successful. Now, how is TVA doing that, which is your question. So, we do it with a diverse portfolio. And today about 60% of the energy that TVA produces is carbon free. That is nuclear, hydro, wind and solar combined. And about 40% emit some amount of carbon, namely natural gas or coal fired.

Now, we are retiring all the coal. Our objective is by 2035, and we have a plan to do that, perhaps a little quicker, we'll see. And along that timeline to reduce that coal, that will get us to an 80% reduction in greenhouse gas emissions against the kind of universally accepted 2005 benchmark by 2035. And again, we'd like to go a little farther a little faster, if we can. We're going to accomplish that by building about 10,000 megawatts of solar, we have 2,800 megawatts of that under construction or in service right now, by optimizing our hydro and nuclear fleets and by building storage as we can.

And so we think we can do that, back to my other comment, without raising the price and without adversely affecting reliability and resiliency. The issue comes beyond that, that remaining 20% carbon, but more importantly, that potential doubling of electricity consumption that happens. And that's the challenge, the timing and the content of that transition. Really

important.

Phil Bredezen: You mentioned in describing that nuclear, and obviously even among some of the most passionate advocates of greenhouse gas reduction, nuclear becomes a bit of a third rail with very differing opinions. What sort of a role do you think nuclear has going forward in the future, as opposed to the existing stable?

Jeff Lyash: Yeah, it's a great question. And one that doesn't have a definitive answer at this point. Today, TVA makes about 42% of its energy with nuclear, and it is our second lowest cost energy source. It's slightly more expensive than our hydro fleet. As I think about that transition we have to undergo, we're going to build as much renewables as we can, but without carbon capture, low carbon fuels, large scale, long duration energy storage and new nuclear, I just can't make the math work. So, I think this nuclear technology, if we're really committed to affordable, reliable, resilient, and clean, nuclear has got to be a part of this.

And that means preserving the existing nuclear fleet and building new nuclear. And TVA's role here, I think, is certainly to do that in a way that protects the interest of the 10 million people we serve. But TVA also has a national responsibility to help to solve this important problem. And one of the contributions we can make there is leading on a new nuclear next generation nuclear building. That's what we're considering doing our Clinch River site right here outside Oak Ridge.

Bill Haslam: I guess the two big questions about nuclear are always ones of safety, number one, and then, two, we hear from a lot of folks that building new nuclear construction, both because of the cost and the time to get it approved by the NRC, either cost or time prohibitive. Come in on those. You talk about new nuclear. Can you do that at a reasonable number?

Jeff Lyash: First, let me address the safety issue. Nuclear power's safety record in the United States is impeccable. It's the safest form of generation we have. It's certainly the safest form of generation I've ever run. And so I think you have to start out there. But this next generation of plants incorporates 60 years worth of operating history and takes a huge leap forward in terms of safety and reliability. So, you're moving from safe to safer with this next generation. Now, on a cost and duration to build, I'll focus on two things, Governor Haslam.

First, unlike any other sorts of generation, these are not 10, 20 year projects. These projects last 100 years and produce. Our nuclear units today are between 40 and 60 years old and they're performing better than they ever have. We will certainly run them 60 years, 80 years, I think we'll run them 100 years. So, the upfront capital cost and the time commitment to build them, can't be viewed in the same context that you view other assets, because these live much longer and produce such mammoth amounts of energy. You have to keep that in mind.

I think the levelized cost of power out of this next generation of plant can be very competitive with natural gas, particularly as we see natural gas prices rise and as society puts a price on carbon, they will be cost competitive. Now, the first of a kind always takes longer, always costs

more. So, I personally have no interest in building one reactor. If that's all we're going to build, there's no sense. You make that kind of upfront investment to prove the technology and the construction and the cost so that you can build a fleet, and the fleet becomes very competitive with much shorter timelines and capital costs.

Bill Haslam: Jeff, you have a unique role in this kind of quasi public entity that operates with presidential appointments as board members and you live in the politic world, but also you run a little bit like a private company. All that being said, you talked about, if I have my numbers right, you want about 2050, have an 80% reduction in greenhouse gases, even though our electricity use will double, am I somewhere in the ballpark?

Jeff Lyash: Yeah, let me correct you. Our plan right now that we're executing, it's not an aspiration, it's an execution, gets us to an 80% reduction by 2035.

Bill Haslam: Okay.

Jeff Lyash: And the challenge beyond that is going to take technology, storage, carbon capture, low carbon fuels, and nuclear. Keep pushing that 80 towards zero, even as electricity consumption grows.

Bill Haslam: So, where I'm driving is you have 10 million customers, I think, right? And then you have Congress and all the political institutions that you have some responsibility toward. So, you have customers and the political institutions, and then you have advocates of all types who are constantly wanting to make certain their input gets heard. For those who say, "Oh, that's great by 2035, but that's not fast enough." What's your answer?

Jeff Lyash: Yeah. My answer is I'd love to go farther, faster. I have no desire to restrain progress toward that low carbon future. As a matter of fact, we're investing hundreds of million dollars of research and development into projects to do just that.

The other son of the coin, governor, is, I don't think it helps anybody to be unrealistic. So, I have an aspiration and TVA has an aspiration to be zero by 2050. We're executing to be 80% reduction by 2035. The difference is we know we can deliver 80% and we're doing it, right now. We're ahead of almost every utility in the country in this regard. The difference between execution and aspiration is innovation, it's technology. And the message I'm sending there is if we want to go farther, faster, we need to invest in these technologies and get them at a scale and a cost that can maintain that balance between affordability, reliability, resiliency, and clean. Because to say we can do something we don't have line of sight on is to mislead people and take the pressure off innovation. At the same time, if the innovation comes, we need to be ready to grab it and use it to go farther and faster. And that's exactly the way we're focused on this.

Phil Bredeesen: I think it's applicable to you as a public utility, but a government is in various ways trying to encourage this transition. And sometimes they do it through tax credits or

subsidies of some sort. And there's obviously talk about things like carbon tax and so on. I've always wondered though, if there are other things that they could do, whether it be speeding up NRC, or some accounting changes, or something, are there things that are just more down to earth, but they kind of would practically allow a place like TVA, or a for-profit utility, to move more quickly, to move some constraints.

Jeff Lyash: Yeah, that is a great question. And it's a question I think bears a lot of thought and there is likely not one answer to. I think, if I pick a couple of technologies, as I consider, say long duration energy storage, there are likely things the government could do to encourage research, development and incent storage in the market. Likewise, as an example on storage, we have one of the largest energy storage facilities in the country, at Raccoon Mountains, a pump fiber electric facility. I'd like to build more of those, because it is a much more effective, dispatchable, I think, environmentally neutral storage alternative. So, perhaps streamlining and supporting some of the environmental permitting and integration would be helpful.

I'll tell you on new nuclear, one of the things I've engaged in the discussion with the government about is that if you think new nuclear is a part of the energy future, that it's necessary to solve this problem, sprinkling some incentives around aren't going to make it grow. It's too big a capital investment and commitment. You really need the nexus between an energy policy, and an industrial development, and economic development policy to stand up the infrastructure in this country to build hundreds of these, to support that long-term goal. And I think the government has a clear role to play in doing that perhaps by contracting the output to decarbonize government operations, as an example. One 300 megawatts Small Modular Reactor at Clinch River would decarbonize the entire department of energy.

Bill Haslam: I'm reminded, as the two of you're talking, that we have a Harvard trained physicist, and a mechanical engineer with as much experience in power generation, and a history major. So, let me maybe ask the history question. Can you think of a time when you've had that experience of you might be right? That in the middle of working through a hard issue, you've gained perspective from somebody who had a different outlook than you do?

Jeff Lyash: Oh, almost every day. One of the things I've learned is, as I've gone on in my career, is how little I actually know. And so, how useful it is to get a whole lot of perspectives involved. As a matter of fact, I would tell you, I think on this issue we're talking about, we have as a society got to set aside ideology and focus on practicality. I just recall Aristotle and the golden mean, or the Pareto principle, or Confucius who said a diamond with a flaw is better than a pebble without. And so, we as a society need to stop fighting over what the right answer is on a topic like this, and understand that we're all actually right, in some way, at some level, and start pouring that into this transition.

Bill Haslam: That's what we're hoping to do with these conversations, is to move from the ideological that's gotten everyone stuck in a corner to the practical. Okay, how are we actually going to solve this problem? So, what we're grateful for your insight, Phil?

Phil Bredeesen: It's encouraging to listen to you. I mean, TVA has in its DNA a broader role in society than just putting together cheap power and reliable power. And it's really good to see the attention that's being given to these broader issues. It is exactly what a big public utility ought to be doing. Thank you.

Bill Haslam: We really do appreciate your work and your time with us.

Jeff Lyash: Thank you gentlemen. I enjoyed it. Take care.

Bill Haslam: What do you think?

Phil Bredeesen: I was encouraged? I mean, I thought he's talking about a mature, sensible, planned approach to the thing. But he's not backing off at all from making the transition. He's just saying it's a big complex process and we're going to run as well as we can. I particularly like the idea of separating the actual plan from the aspirational. You can have high aspirations, but also need a realistic plan that you can measure against. And I think that's an important element in this.

Bill Haslam: I thought the same thing. He had a quote, and I hope I get it right, I tried to write it down, "difference in aspiration and execution is innovation". And I combine that with his comment about these nuclear reactors are expensive, but they have a hundred year life, and you have to look in that term. I'm in East Tennessee, from East Tennessee, a traditional Republican area, where you have TVA, this dominant force, and so we've always had this kind of love hate, you know, this is this big government entity, but it's producing jobs and producing cheaper power.

But it did occur to me that they have a unique position in that it's hard for a private firm to justify the payback on something, that even if it lasts for a hundred years, the market's not going to reward that. A pure government agency might be totally caught in the politics and say, "Hey, I need something that's going to give me a return before my next election." Perhaps they are best suited to make those best long term decisions about how do we do this?

Phil Bredeesen: Well, I mean, literally what I have taken out of this conversation is that the thing which is missing is someone who has the standing to talk about it, putting forth a realistic approach that is dedicated to getting greenhouse gases and carbon out of the mix, but understands that it's a generational complex problem, and has a realistic strategy to achieve it. That's the thing we're missing.

Bill Haslam: I think you're a hundred percent right. The challenge in the way our country has become is we no longer have those people of standing that are widely respected by people on both sides of the argument. So, you have folks on my side of the aisle, too many who are saying, "Well, this just isn't a problem, or it's really not manmade". Which I think is a major

problem for us, because I think that the data is there. We should be people who live by what the numbers tell us, and the numbers are telling us this is an increasing problem.

You want to bounce that with, as you said, somebody who realizes that we can't react to this, as I said to vice president Gore, the same way we did with COVID. Well, we're just going to shut everything down without thinking about the ramifications. And I think if we could have someone who could present it that way and say, here's a long term strategic plan to get from where we are now to where we need to be, taking into account that we all still want to pay reasonable prices for the power that we need, that would be a path forward.

Phil Bredeesen: Yeah. I mean, so much of what's being discussed ideologically is not useful. I mean, I'm aware that advocates are pushing big oil companies to divest themselves of refineries. Well, that doesn't do anything. It just means somebody else owns the refinery, which is doing the same thing again. I wish there were some institution or some person in this country who just had the gravitas, and had the standing, to be able to talk about this and have people from all sides listen. That may be a wishful thinking, but it sure would make a difference in this discussion.

Bill Haslam: What we really need is leadership that will take that principled stand that is both principled and practical, and how we keep generating that idea. Because, I mean, that's true, if we could get somebody who could sing the song well enough that everybody go, "Yeah, that's what I want to do and be."

Bill Haslam: Which kind of brings me back to the point that I'd want to make. At the end of the day, and I guess I've stolen it long enough I don't need to footnote it anymore, but somebody said what a leader does is define reality. And I think what we have to have today is leaders who define reality and say, this is an issue. The data is there. Now, let's talk about how we get from here to where we need to be in a way that doesn't put an undo economic burden on people in the meantime.

Phil Bredeesen: Yeah. More than anything else, and this conversation so far is just underlying that for me, is that I really think we need some new ways of talking about this. But we've been going on for a decade and more now just hammering at the same points on either side, and everybody who can be convinced by either side of the argument has already been convinced, and we're just not getting anywhere.

Marianne Wanamaker: Thanks for listening to "You Might Be Right." Be sure to follow on Apple Podcasts, Spotify, or wherever you listen to your favorite shows and please help spread the word by sharing, rating, and reviewing the show.

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