

**TECHTalks | EPISODE 5 | Path to Net Zero**

*With Geoff Tuff | Principal, Deloitte Consulting LLP, US Sustainability Leader for Energy & Industrials, and John Mennel | Managing Director, Deloitte Consulting LLP, Global Sustainability Digital Assets and Alliances Leader*

**Raquel Buscaino:** Our world's climate situation is at an inflection point. On the one hand, we're well armed with information and scientific evidence that informs us as to why climate change is happening, and the economic, social, and environmental effects it will have. But, on the other hand, information isn't of much value unless we collectively take actions that actually move the needle.

Welcome to Deloitte tech talks. I'm your host, Raquel Buscaino, and I'm the emerging technology lead on Deloitte's US Novel and exponential technologies team. My team senses and makes sense of emerging technologies. And on today's episode, we'll talk about how organizations are taking actions to embed sustainability and climate into their cultures, what challenges they may face to transform their commitment into effective action, and what role climate-friendly technologies can play to enable long, lasting, sustainable transformations.

I'm joined on today's episode by Geoff Tuff, Deloitte US Consulting sustainability leader for energy and industrials and John Mennel, Global Consulting sustainability assets and alliances leader. Let's dive in.

Geoff, John. Welcome to the podcast. It is so great to have you.

**John Mennel:** It's great to be here.

**Geoff Tuff:** Glad to be here.

**Raquel Buscaino:** To kick things off, maybe you could each tell us a little bit about who you are, the work that you're doing as it relates to sustainability and climate, and maybe you know what inspired you to engage on the topic and Geoff I will start with you.

**Geoff Tuff:** Sure I'd be happy to, and I probably should start with a full disclosure that I am not a technologist, which makes it perhaps a little ironic that I'm on the TechTalks podcast. But I've spent my entire career, 30 plus years at this point, in the fields of strategy and innovation, and I came into this role somewhat naturally, trying to apply some of what I have learned and what I know about it, especially changing business models to deal with uncertainty in the energy space. And as you mentioned in my introduction, I currently have responsibility for our Deloitte sustainability work in what you can think of as being the kind of "heavy" industry space.

And I would like to tell you it was an inspirational talk with one of my kids that made me passionate about this work, but in all honesty, I was trying to find the most extreme edge of where I could apply some of what I do know about strategy and innovation, and it seemed to me that the energy transition could be one of those extreme edges.

But what really accelerated my interest was, as we, Deloitte started to build out our practice in this area and deepen our commitments, I was almost dumbfounded by the degree of interest that our talent around Deloitte had in the topic. And over the course of the 3 or 4 years as we were building our future

of energy practice, which is the precursor to the work we're doing now, we had literally hundreds of people come and volunteer their time and so that is deep in my commitment, and I will say I have 4 boys who are in their late teens and twenties and they too are passionate about this space, so I shouldn't completely not blame it on my kids, they make me passionate about it too.

**Raquel Buscaino:** It's definitely something where once you see the collective action and the interest from kids, employees across the board, I think it makes it that much more palpable, how much action we actually need in the space.

John, what about you?

**John Mennel:** So some similar parts of the story and some different. I started off my career doing a lot of work in emerging markets, and became really interested in how large companies can do good in the world, and started working with clients on those kinds of issues that broadly became branded later as ESG: environmental, social, and governance factors, and became engaged on sustainability and climate change 6 or 7 years ago and I became convinced that was really the central issue for most clients to focus on.

And when we developed our global sustainability practice that Geoff mentioned, about 2 years ago, listeners may have seen the announcement that we were investing a [1 billion dollars](#) in building a sustainability practice at large companies.

I really thought about what I wanted my role to be in that practice, and a lot of the work that I've been doing with clients was decidedly low tech. There were a lot of spreadsheets in sustainability departments at large companies and I just saw that the world is going have to change, and how we address sustainability issues was going to have to change, and I wanted to be a part of that. And so I asked for the role looking after technology and alliances, everything we do with our large technology partners, the startup ecosystems, the analytical models we develop and that's what I have been focusing on for the past couple of years.

**Raquel Buscaino:** Incredible, it's so great to have you both.

I'll start with the first question. As you both know Deloitte publishes quite a bit of thought leadership around sustainability, climate, and equity. And one of the trends that we're seeing is an increasing sense of urgency among C-suite leaders to take meaningful action.

However, and this is coming out of our [Deloitte global 2022 CXO sustainability report](#), it seems like there is a lag in action actually being taken, And, Geoff, maybe I'll point this to you can you share some of the challenges that organizations are facing in turning this commitment into action and actually moving the needle.

**Geoff Tuff:** I'd be happy to. And I will play the type and talk mainly about the business model and kind of behavioral side of the equation, and there are real technological hurdles that we still need to overcome and real technologies that need to be in place, and I know John will pick up some of that.

But John and I have both been in this business long enough now to have lived through previous waves of commitment to sustainability, where there weren't really any sort of market signals that the world

would be willing to pay for decarbonized value chains for example, and the trend went away pretty quickly. I think this time around it's different. We are actually seeing the signals from the demand side of the equation that consumers and business partners are expecting us to decarbonize. But we're still not yet at the point where there are real teeth behind the need to move.

And so for the last 4 or 5 years, I'd say companies have gotten better at expressing their net-zero commitments, at declaring their commitment to certain scientific pathways, or to achieving certain types of goals, but they actually haven't yet been held accountable to say very specifically, exactly when they're going to achieve various different targets.

So that will change. Here in the US, some of it is going to come through the SEC Reporting requirements. Some of it will actually be required by, business relationships: You're not going to be able to do business as a supplier to some organizations, unless you're able to demonstrate your emissions footprint, for example.

But you know, until we get to a point where there's real quote-unquote "risk to an individual". I don't think we're going to see that movement, even though we have the science and the compulsion to try to do things differently.

**Raquel Buscaino:** I like how you mentioned that the incentives and the accountability need to be there

**Geoff Tuff:** It absolutely does. And the additional layer of complexity in all of this is that, you know, the energy transition, the trend towards decarbonization, saving the planet. Ultimately, this is not a business challenge like many of the business challenges we've seen in the past, where you can use data and past experiences to run the numbers, try to figure out what the risk adjusted value of making a move would be, and then make a decision because this space is littered with uncertainty and human beings don't deal really well with uncertainty.

The one thing that gives me some solace in all of this, even though the pandemic was an awful time. We as society learned how to deal with uncertainty, so, I have hope that we're going to be able to do that here as well but a little incentive will help as well.

**Raquel Buscaino:** I think that brings up an interesting point, because I think the pandemic did show us that the rate of rapid innovation that can be achieved when we need it to. I mean, you think about things like vaccine and life science, health care development, the rate at which people were able to adjust to almost a new normal way of working.

And so, John, I'd like to point this question to you. But in the context of this broader sustainability and climate shift, we are pushing towards "How does the role of technology come into play here?"

**John Mennel:** There are a lot of different ways to answer that. One thing that's important to think about is that most large companies have set sustainability goals. When you ask senior leaders and companies though what they need to do to achieve those goals and be confident, and to deal with the uncertainty that Geoff mentioned.

The vast majority of them will say that they don't have the data to be able to confidently know where they are, understand their footprint, adopt a strategy, understand the pieces of that strategy and achieve it over time.

And so, one of the biggest things that technology can provide is data, and the data needs to be timely, accurate and transparent. And if you think about it, most companies that have data have been doing it for reporting, so it's backward looking, so it's not timely.

And it's almost like we're in an era where you're taking a road trip, and you're doing it with a paper map. Right? That map may tell you in theory how to get to your destination, but it may be out of date. It's not going to tell you what the traffic is what the weather is. It's not going to allow you to compare your route with other people and what companies might want is a digital.

Deloitte launched a global product called [Deloitte Green Light](#) which helps with that data problem. Green Light is an end-to-end decarbonization solution that helps large companies move from strategy to action as the way that we talk about it.

And it's a modular system, it helps companies set a target, calculate their carbon footprint, develop a series of projects and investments that are needed to get to that footprint, and then, really importantly, to optimize that project over time because economics and technology are changing so fast, and because for most companies there's not one way to get to net-zero or to get to their goals.

And just as one example we work with a large energy company that had already put together a decarbonization strategy and had an investment portfolio in capital expenditure projects that they needed to reach net-zero. The bulk of those projects, by the way, were quite profitable, and had positive NPV. For the company.

And so, these are all good things for the company to be doing, both from an environmental and business standpoint. But they needed quite a lot of capital to get them going. With Green Light, we were able to optimize that portfolio and reduce the amount of capital required. And it's those kinds of uses of data and technology that are going to be really important to make decarbonization practical for large organizations.

**Geoff Tuff:** And if I could add on that, John, having seen the power of Green Light in action. Going back to some of the behavioral challenges behind the shifts that need to be made to bring this on. One of the powerful things about Green Light is you can actually play around with scenarios and visualize the outcomes in real time.

And you know, as an executive that's trying to understand the nuance of making one capital investment versus another, but also see what the cumulative effect is going to be. If you change certain toggle switches that gives you the confidence to say, okay, "Not only do I understand the full range of options right now", but I have the confidence to take the first step to actually go and do something, and that ultimately is what all this technology is meant to enable.

**Raquel Buscaino:** It makes sense, how can you possibly and improve something that you can't measure right? And so, just being able to understand the data is the first step there.

And then I think you touched on something that's also important, which is recognizing that probably each company has very different objectives and different ways that they can get to their own goals. I think there's another question here which is about. How do we start to incorporate some of those more emerging technologies into the strategies that we bring forward to clients?

**Geoff Tuff:** So I'm gonna let John go deeper on the individual technologies, as I should. But the one thing I'd say, and we're starting to see pockets of this in various different clients that we work with.

We, as society, will see the exponential impact of actually dealing with climate when we have full visibility and full traceability through value chains of some of the information for example, the emissions profile that companies in any value chain have, and the responsibility that they have to one another.

And so what's interesting right now is, we are seeing a variety of different technologies being deployed that feed into the type of system, the Green Light system that John talked about before, so think about low Earth orbit satellite imagery, for example, to do more effective monitoring of a plant location or a mining location to make sure that we're getting an accurate read on what their emissions footprint looks like.

Or think about better methane leakage detection by installing new technologies on old infrastructure. All of that is going to come to scale pretty rapidly and hopefully at some point be an interoperable system that that really does create value chain transparency.

**John Mennel:** Yeah, Geoff touched on a lot of the important technologies. Just to give some examples. AI machine learning is incredibly important. We have a project to bring AI to forest fire prevention. It's called [Fire Aid](#), and it's a product that can help governments and utilities actually predict where forest fires are most likely to occur, and then to take action, which is incredibly important in the changing world we live in.

We're also doing a lot of work with agent-based models and AI to create digital twins to model policy differences. So we're helping State local governments understand where to place the infrastructure. How can you change traffic laws, road patterns to get more resilient cities with less pollution from an internal combustion engine vehicles?

We're seeing a lot in blockchain. And Geoff talked about some of the use cases that there's a requirement that, for example, Lithium Ion batteries are sources that are acting responsibly, and then they're recycled. Blockchain is extremely important to be able to establish that chain of custody and know what's happening to all those materials as it goes all the way from the mine into the battery, into the vehicle.

There are really interesting opportunities for quantum computing in material science. Quantum computing can be used, for example, to make the electrolysis process for hydrogen hubs something that Geoff works on quite a lot to make those much more efficient and improve the business case.

We've just been talking about the soft tech. So kind of the information technology. And then, when you get on with the hard tech side. There are incredible advances in fuels for sustainable aviation fuel, maritime fuel and green steel.

Obviously the improvements that we know that have happened in renewable energy, which kind of allowed this whole energy transition process to, really be revolutionized.

So there are quite a lot of important roles for technology in this transition.

**Raquel Buscaino:** Wow! I mean as you went through so many different technologies right there. Just to pick out a couple I mean. I like the blockchain example for supply chain provenance, and so to be able to say, with a certifiable nature, that this item was sourced from what we say it was source from, and then I, as a consumer, can make purchasing decisions based upon the information. I think that's something that's powerful.

There's a lot to be said for the hard tech aspects, too.

**Geoff Tuff:** I think you said that well. I mean a lot of the work I'm doing these days, and I'm sure we'll get into this in a bit more detail is in the hydrogen space and working on a gnarly problem, trying to solve what many think of as being a technology problem because it does have hard tech issues like, how do you produce an electrolyzer and get a supply chain in place to produce an electrolyzer at a cost that can actually work within the economics of a hydrogen hub.

So there are a lot of technological problems that we need to overcome in order to make clean hydrogen happen at scale. But ultimately I think all of those things are solvable. With hydrogen in particular, right now it does ultimately come down to a business model challenge and a business model problem that will be the key to unlocking all the power behind these technologies.

**Raquel Buscaino:** John. You lead the assets for our sustainability practice. What are some of the ways that Deloitte is leading the charge on the space?

**John Mennel:** We talked about Green Light. Just one other example Raquel of a product that Deloitte's released. We've also released a product called [Green Space](#) that works on the hard tech side, and when I we say climate hard tech. It's all the non-information technologies, the actual physical things in the world.

And what Green Space helps clients do is look forward and understand what technologies are coming down the pipe that are in development, and it uses AI to go source multiple sources on what universities are working on, what startup companies are working on. Organizing that into a roadmap by technology readiness and the key technologies that need to go into new advances.

It helps companies understand what they need to invest in, where they need to be piloting, whether there are companies or countries and spots of innovation that are blind spots for them, and really understand all the innovation that's coming down from the capital that has been invested in these climate technologies.

**Raquel Buscaino:** Well, it's so exciting. I mean, I think, that for so long sustainability has been a backgrounder thought right. It's like we're going to develop the products we're going to develop. And then we'll think about the effects afterwards. And what you just mentioned with Green Space. Is, it's actually driving the innovation itself right?

it's not even just happening at the same time as the innovation. It is sustainably designing from the very beginning and it sounds like from what the example you shared earlier it doesn't always have to be sustainability at the sacrifice of profits, too. The sustainable transformations can be positive. I mean, maybe you could share some thoughts around that.

**John Mennel:** Yeah. And Geoff, and you may want to jump in on this, too. But I believe that sustainability should be good for business, because capitalism is an engine we have for scale to solve the problems in front of us, and if there's not a way to make these challenges into opportunities, then we just won't get the scale that we need and what we're seeing are companies launching products that are both sustainable and better in some aspect. We work with a food company that's launching climate-friendly beef.

It's actually an amazingly hard thing for them to do, because it requires them to go all the way down to the ranch and change the practices that those ranchers are using to raise cattle, and really, specifically to reduce the amount of burping that that cattle does, and the amount of methane that they burn. It requires them to exchange information and financial incentives all the way down that supply chain, and it's producing a product that has a better taste profile. I think that's what we're seeing in sustainability that there shouldn't be a trade-off between sustainability, quality, or sustainability and profitability.

**Geoff Tuff:** The other aspect of this, though, is that I'm sure many recognize that sustainability and the push for sustainability is ultimately a catalyst for transformation in almost any industry that we work in.

And it, You know, we've had lots of other “quote-unquote” types of transformations in the past, maybe called a digital transformation or a whatever the transformation may be. But I think that we will see business models and value change shaken up by what happens with sustainability.

Whenever that happens, no matter how established a business model you have, no matter how established a company you are, you have the opportunity to reinvent parts of your business and to create new types of economic value that you've never had the opportunity to before.

So, beyond the economic impact of making profitable, sustainable products, we also have the opportunity to create new profitable sources of revenue that we haven't had access to as companies before.

So if you take, for example any of the super major oil and gas companies that are out there today who have had a very tried and true business model for a long time around extracting carbons from the earth and selling them in a variety of different ways. Now they suddenly have an opportunity to launch new businesses, doing carbon capture.

It's interesting to help them determine how they make that transition it creates all sorts of new opportunity that they wouldn't have had if they didn't have the sustainability transformation as the underlying foundation to what's going on right now.

**Raquel Buscaino:** Yeah. It sounds like a lot of the companies that we work with are recognizing that. How are we as Deloitte, thinking about sustainability and climate? And how do we approach the market at large?

**John Mennel:** It's a good question. We think about it in terms of 5 capabilities that we think that most of our clients might want to have as part of the sustainability journey.

The first one we call "charting and achieving a path in net-zero", which is all about the environmental transformation, so both in carbon reduction, but then also in waste and water efficiency.

The second one we talk about is responsible supply and value chain and that's how large organizations interact with suppliers and customers, and how they jointly create value with their suppliers and customers in the transition.

The third is we call making quality and transparent disclosures, which is all about the reporting to the markets of where companies are on their journey.

This is gonna become more and more important as there are requirements for disclosures both from the SEC in the US and in the EU.

The fourth capability we talk about is being physical, risk and resilience. So, understanding how changing weather affects your business, your buildings, your physical assets, your supply chains, and how to prepare and manage for those risks.

And the fifth we talk about is infusing equity in the business, because equity is really important for the success of these efforts, not only because it's fair, but because when we assume that these are primarily engineering problems, we forget that there are people involved, and if people are not involved early in a way that integrates them we just won't be successful. We think about our work as helping clients mature on those five capabilities.

**Raquel Buscaino:** It's a long journey but taking the first step is always the first step. I know we've covered so much, so far. We've talked about the technologies, the business models, what successful companies are doing in this space, some of the challenges that they face too. As we think about closing up this conversation. What is giving you the most optimistic view of where we're heading.

**Geoff Tuff:** So I'm happy to kick us off, and I feel like I'm a bit of a broken record, or at least I always come back to the subject of clean hydrogen. And how exciting that space is right now.

But the thing that gives me great faith and that I get excited about we're seeing different types of companies being willing to come together and try out new ways of operating together and to work on a problem collaboratively, sometimes even with some of their competitors, in order to get to the greater good.

If we've got the technology side figured out as great innovators, and we get the business model side figured out as great business managers and leaders. Then we will actually be successful on what we're collectively trying to achieve.

**John Mennel:** I agree with that point. Now, I'll give you something that's kind of a strange thing to be optimistic about, but I'll explain why. One of the things that makes me optimistic that we'll answer this challenge is that we're no longer really arguing about the facts. The weather is changing. People are seeing that and people are reacting to that.



Deloitte does a CXO survey every year. We started asking the question a few years ago about whether your company and you personally have experienced the effects of changing weather and climate change.

In our latest survey, 86% of CXOs said that they have personally experienced the effects of climate change that lines up very well with my anecdotal experience of people I talk to. When people start experiencing things in a way that is personal and is not theoretical we're starting to see that the people as humans are starting to think about this in a new way and take action. And so maybe strangely the fact that we have started experiencing the effects of, you know, living in a 1.5 degree plus world actually makes me optimistic that we'll get our acts together and deal with the challenge.

**Raquel Buscaino:** Geoff, John, I mean thank you so much. Feel like when we started this conversation there were quite a lot of questions on the table for how we actually start moving the needle on a wide variety of things as it relates to sustainability and climate, and I think we've covered quite a few of them. And to all our tech savvy listeners out there. Thanks for tuning in. I'll see you on our next episode, and until then stay savvy.

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