

Energy Well Being LaBelle

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SPEAKERS

Michael LaBelle

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Energy well being a masterclass Episode 32

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Welcome to the my energy 2050 Podcast, where we speak to the people building a clean energy system by 2050. I'm your host, Michael LaBelle. This week, I'm providing a link with the Sustainable Development Goals and the changes we are making to our energy system. Why is this important? climate change is altering both how we live and the natural resources we rely on. From water shortages phasing out fossil fuels to the race for rare earth minerals for fueling the energy transition. How we utilize natural resources is changing not only how we heat our homes, but what powers our cars. They impact, as I will discuss today is on adapting our energy system to ensure a sustainable development path is built. I'll be hitting on three topics today, decoupling energy and development, energy and sustainable development, energy and humane development, the work and these reflections stem from collaboration with professors techlace, cepe, and gaze atolls, we have different publications coming out over the next year or so on these topics. Essentially, there are two different perspectives on the energy transition. One lens provides a view through linking the Human Development Index with energy consumption, and the second lens links the Sustainable Development Goals with energy consumption. Taken together, as I outlined today, we reach a deeper understanding into energy

wellbeing, which defines how our economies grow, while delivering the benefits of economic development to people. Remember, it is the energy system that serves humanity, not humans, serving the energy system, the energy transition must be about a fair and equitable readjustment for all of society. And now, for this week's episode.

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decoupling development and energy, energy well being this is what I'm calling this episode energy well being. And I'll define it probably at the end of the episode, really, we're going to be covering a lot of issues today. And hopefully, I get this done in about 20 minutes. And again, just like last week's episode, I have the PDF available of the slides up on the web page. And you can look there, and also a link in the show notes as well. So we have three areas I'm going to hit on today about decoupling energy and development, energy and sustainable development, and energy and humane development. This whole idea is this energy transition, and climate change is coming together. Okay. And what I tried to develop in this episode was really discussing the inter linkage between climate change and the energy transition. There's a lot of overlap and a lot of discussion. And of course, we talk about climate change, and how the climate is changing, and how people and we could over say, overall, society is adapting to this. But if we get down and we kind of boil it down my thinking is we get to the root of it is the energy system. And for me, this is why the energy system is so interesting to, to explore and to analyze from a variety of perspectives, both into technology itself, what different people are doing around energy efficiency, those developments, and of course, the whole theoretical lenses that we can develop to understand how the energy system operates. And also, how is it changing. And what I'm bringing to you to you today is really this focus, I've developed with other professors focused on Human Development Index, kind of taking a quantitative approach, and the quantitative analysis that comes out of it out of data analysis, and then bringing that in and working through that through a more qualitative analysis of what does this actually mean for policymakers. And so what I brought in today, then, is some of this research that we've done over the past year, and I'm trying to frame this as an energy well being I think there's a lot more to do with this term, and more development to come. But that's kind of my my thinking through all these ideas. Okay. And first, I want to cover maybe give a justification and a case study to understanding these inter linkages between energy and even economic development. A couple years ago, when I gave presentations, I always like to show a picture of the Hoover Dam This is what you know people can do this is when a society comes together what they did during the Great Depression, and they built a gigantic dam and harness the the waters right on the Colorado River. And I and I'd like to show that this is a major project. And at that time, the thinking was, we need to have universal access to electricity. So in the United States and other developed countries, at this time, universal access to electricity was really big. So they did this. But now

actually, in today's discussion, I'm using the Colorado River, and Lake Mead, which was created there as as a backdrop to actually what's wrong, and this inter linkage between this inter linkage between climate change and economic development, because now the US government has declared a dire water shortage at Lake Mead at the Hoover Dam, excuse my voice this week, I'm losing it. But what this means then is actually is that the lake is only about 35% of its capacity. So there's a huge drought in the western United States. And so Lake me no longer and the Hoover Dam no longer represents this amazing convergence of engineering knowledge and political will to build something an energy infrastructure that can assist the economic development of the western United States. Rather,

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Lake Mead and the Hoover Dam represent climate change and the dire necessity to transition towards different energy technologies and natural resources to power those energy technologies. And that just really came together today, when I was reading this article in The Guardian about this, and they say, you know, not even now, but here's a quote that they come out with is, I think, in the next five years, what we need to do is having have a reckoning over our water use, we have to rethink how we use water in the western United States. It's amazing. So here's this pride and joy of the United States, the Hoover Dam and producing huge amounts of electricity that changed farming methods, air rated land, and really brought a huge economic development in the western United States. And now that technology, that natural resource is basically gone, it's used up and not just used up if we think of coal reserves, or gas reserves, something like that. But actually, climate change, which is induced by burning fossil fuels, has actually altered how the United States produces electricity and the natural resources that uses to produce electricity, because now that electricity going into the dam has to be produced from someplace else, we get into this idea that economic development and climate change and growth, economic growth are interlinked. And there's a big push called decoupling decoupling, essentially, GDP gross domestic product from emissions, okay, from energy intensity from energy use, there's different ways to label this. But the idea is that we need to decouple economic growth, from the production of and the growth of energy use that we have to somehow continue to grow economically. And there are arguments for not growing economically. But let's just say we want to continue to grow economically. And at the same time, we have to reduce the amount of energy that we use. So I just have the slide up here that does show in the United States over the past, I think since 22,004 2007, it's quite small. There has been this decoupling occurring in the United States. And so we can say that's quite good. We have research from from Central Eastern Europe, there are developments in this region that that demonstrate There is also decoupling occurring, but also some faltering on that decoupling. But the general idea here is that for us to grow

economically, in a world dominated by the impacts of climate change, our energy use really does have to be

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reduced. And we have to find new ways for economic development to occur. And how do we how do we do that? How do we determine that because as I mentioned, at the very beginning of this episode, we are not here to serve the energy system, maybe that doesn't fit like out there, futuristic, sci fi, we're all working to pay your electricity bill all working to pay our gas bills, all working, you know, to afford the energy that we use, but actually, it's pie not far off, especially among the bottom half, it would just say bottom half of society. That's quite General, I'll keep it there. So we have to have an idea. We have to have a kind of, I would say a guiding framework of how we ensure we make this transition to new technologies, using resources in a different way. But also being aware of social issues, environmental issues. And this is where we get into the Sustainable Development Goals. And essentially, these are goals, what I like to call these, these are rules of new growth. Okay, maybe some people wouldn't say that Sustainable Development Goals are where we want to get, right. But there's 17 of those. And their aim, I'm quoting here, from a publication is to aim to end poverty protect the planet, and ensure prosperity for everyone by 2030. These efforts include the agenda 2030, a un effort building on the previous Millennium Development Goals, which are built on the environmental, social and economic pillars of sustainability following a holistic approach, we could say they're the triple bottom line for those that know that right, so triple bottom line, we got to bring the, the economy together, society together and the environment. And and companies should operate in this mindset, the changing of the mindset, but with these Sustainable Development Goals, SDGs for short, is that these are global in scope, but they rely on localized adjustments. So there's a lot of thinking that has gone into this, there's, these are adopted by the United Nations, and essentially all the countries in the world which is cut it short like that. And just say, this is where we want to go, these are our goals are 2030, the agenda for 2030. Okay, and some are more even ambitious over the longer term as well. But what I like to think about these, for example, number six is clean water and sanitation, number seven, affordable and clean energy, Number eight, decent work and economic growth. Number nine, industry innovation and infrastructure. Number 10. Reduce inequalities, so you get the just right. So there's a lot of these key issues we hear about every day. And these are transformed or transferred into goals that that have been agreed on. And a lot of Covenant, for example, a covenant of mayors works along these SDG lines as well. And there's a lot of effort going into redefining and redoing our economies along these lines. Okay. So for example, in the European Union, there's effort for decoupling the economic growth from the energy use. For example, within the EU, the attempt is to decouple economic growth from resource use a push to establish a circular

economy. So I'm gonna bring the term circular economy in here. And the bit of the background on that is in 2015, the UN launched the 2030 Agenda for Sustainable Development with the SDGs at its center. But what's really important for those here in the EU, is that the long term budget is set for 2021 to 2027. Period. And it has over a trillion euros involved in that. And essentially, that is working along these SDGs. Though, for example, not only is there a COVID package and some extra money there, but there's the next generation EU fund that's worth 806 billion euros. And there's further support there with the Pratt priority areas, green transition, human capital, digital digital transition, and fostering investments with open strategic autonomy there. The whole EU, for example, the new set for the budget for 2027, in the long term aligns with these SDGs. Or we could say, on paper, it aligns and what it is in reality, maybe something, but we can see both in the United States and in Europe, that they have aligned. And they have this vision, certainly Biden, the Biden administration working towards a 2030 goals in a variety of areas. And they're really making these efforts and revamping and reach and shifting the economy's on to a more sustainable trajectory, not because it's maybe a longer discussion to say it's to protect the environment. I don't think that's the case at all. It's actually to be competitive. And I think you'll have to go back to last week's episode about climate capitalism, even then I don't kind of get into this agenda of why the environments not important for making money. It is certainly over the long term. But really, there's the threat of not being competitive if you're not focused on sustainability and shifting away from the Old Energy regime of energy regime of fossil fuels and embracing something new. And now I have this kind of I want to move on a little bit on energy and sustainable development, and demonstrate when we talk about energy and climate change, or climate change and these bigger issues, energy really is at the center of the SDGs. And I'm really lucky because I came across this study here in nature energy and it was written by a variety of authors. And they really demonstrate how energy overlaps with all the other SDGs. So SDG seven, that one is energy, affordable and clean energy is number seven. But there's the other 17 ones. And there's even subsections for all these, they go through, and they find that about 65% of these targets also involve the energy system. So to meet and to fulfill the other SDGs and the subsections of those, it brings in the energy system as well, from reducing deaths from pollutions to respecting human rights. There's all these changes that have to occur, that that involve the energy system, and this for me, okay, I was always involved in interest in the energy system before, but it kind of continues my understanding why the energy system is so central for understanding politics, the economy, and how society works. That

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here, it's a demonstrated again, in the SDGs, that the energy system is central for solving climate change, social issues, economic issues. And I would really say in the area of

politics and governance, the energy and the energy system and understanding how it works, and how people use it from a position of power or abuse is essential for that I just have come to this understanding of how the energy system is. And we if we think about this, you can look at any diagram for what is the energy system, and it goes from resources. For example, fossil fuels, I even write in mind or in farmed depends where your resources come the sun, the wind, there's some natural resource that we have to harness somehow. And that takes technology, which we kind of classify as generation, that could be a coal power plant, it could be a nuclear power plant, it could be solar PV, but there's some kind of technology that humans develop, and humans work through. And you can't just have the generating degeneration of electricity, it's a form, you have to have distribution as well. So you have to have a grid, whether that's electricity grid, or a gas grid, and it goes out, it distributes that power, the power from the energy source for that from the energy technology. And of course, you have the end use technology, that could be a furnace, that could be a computer, it could be your, your computer, I'm looking at, like, I'm looking for examples. So here's the end use technology. But actually, you know, that is an object, your furnace, your computer, your stove, but you're getting a service from it. And, and the service is about cooking, illumination, maybe you're listening to music, there's some kind of service being delivered, that you get, or someone gets from burning fossil fuels or capturing the sun, sun rays, that that we all get a service at the end, maybe it's a nice, warm bedroom at the end of the day. And and these things come together. And we have to look through and understand how the finance, you know, this is done. And of course, as the economy, as the economy grows, people have more money, people can, for example, pay for a refrigerator. If you look at slums, and the types of technologies or objects that people have a TV or radio, a refrigerator, these things are really essential. And then you can move up to transportation, whether that's a motor scooter, or bicycle. Or we could even say an electric bicycle, actually. So all these things right consume energy, and how we use them affects our quality of life. For example, having an electric car is something very nice, but who can afford an electric car, and who are the tax breaks, for example, are the money given by government who that can buy an electric car, others have to rely on an oil based system diesel or petrol, gasoline, to power their vehicles. And then therefore, they're kind of caught into this the geopolitics of oil and gas. I want to kind of move this back about goals and energy and that there's a really a large overlap between the SDGs and energy in development. And just for the fact then, is that looking at if we eradicate poverty, access to clean water, food and even modern energy sources, all these things, even energy efficiency rely on a highly integrated, renewable based energy system. That is we have to make this transition for economic development. A sustainable economic development is not relying on fossil fuels, is relying on renewable energy sources. And this is the big decoupling that has to occur, we could call it the big decouple. I don't know, there must be some joke there. But the big decoupling that needs to occur, and in fact has to occur even faster. If we think about the

raw resources that were used in the past that drove economic development, such as hydroelectric dams, we could even see nuclear power plants being shut down because of low river water. That's an example as well, fossil fuels can't be used. So these older technologies, even if they're green, like some people perceive hydro power as green. But if the climate change is drying up rivers, and drying up these these reservoirs for water, then we can't

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rely on that to produce the electricity, we need to fuel our economies and provide society with the energy services. So we start to have to understand that energy has to be decoupled from economic growth in order to for society to continue to benefit from economic growth. And that an energy system, a sustainable energy system needs to be built that delivers, we could call it humane development. And the environment, of course, is important. When we talk about climate change, the energy system is central for solving both the environmental impact and the social impact in the economy. Businesses need to figure it out, and join and participate in a better energy system than what we have now. And that's where we get to energy well being. So the energy well being is I just kind of provide a very basic, because a building block of what energy well being is okay. And I have these three categories, basically, the first category is energy, then we have production. And then we have consumption. And the overarching category is energy production, and consumption. These are the two categories, because in a sense, that's all we're doing in the energy system is either producing energy, or consuming energy. And that production, and the producing of energy comes from resources, as we started out to session with the resources that we're using. And what's essential for understanding the resource use is the cost, I just put cost in there. That can be the cost of technology, it can be the cost of conversion, it can be the cost of distribution, it can be the cost of the item, your object, the cost of your computer, whether it's really highly energy efficient, or low energy efficiency, maybe your refrigerators better example, or an air conditioner, right? So the cost of that item using the energy providing you with that service, or the cost of transportation impacts, and it doesn't really matter. What, what we're talking about the cost overall, it's gonna be the overriding and the most important factor in influencing the production and the consumption of something. And resource use is the top of the pyramid essentially, this is where everything comes from is are you using water? Are you using wind? Are you using fossil fuels, the resource that's being used in the production process, and then the cost of using that. And then we have the consumption, we have consumption, we again, we have energy production, and then consumption categories, and within consumption are two categories. One is efficiency, as I mentioned, for example, with your refrigerator, whether it's highly efficient or low, because efficiency and affordability go together, and then say, in a sense, without providing any scientific

evidence here, but we can see, right? The the least efficient refrigerators are usually the cheaper ones, the more efficient refrigerators are the more expensive ones. And this is about affordability, because the sad fact is maybe the more expensive refrigerator is more efficient. But the consumer, the person that purchases that puts up more money upfront, and they pay less over the longer term, where people that maybe can't afford a more expensive refrigerator by by a less efficient and cheaper refrigerator. But they have to pay more in energy cost. But that's how it's affordable to them. They can do a monthly payment plan essentially for their higher energy electricity bill, rather than an upfront payment that that pays less or that they are forced to pay over the longer term. So all these through this very basic building blocks of energy wellbeing. Energy Production consumption and the subcategories there, we start to understand that how we use the resources, how we produce the energy that we're doing, and how we're consuming that, how efficiently we're consuming it. And how can we can afford that consumption is what energy well being comes into play. So hopefully you follow me along. These are all I would say, just preliminary ideas. I'm going to conclude, here's the conclusion is that we need and we are decoupling energy use. And part of this is around climate change. Well, it is because of climate change.

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If we had the chance, I'm sure people would be using fossil fuels forever. But we have climate change. And we decouple the energy consumption from economic growth. So we have climate change, and addressing that the rules of the new game are essentially the Sustainable Development Goals. Here's our targets, this is what we need to do. What's guiding us is more of a quantitative assessment through energy, well, being in the HDI Human Development Index can be our guide at how well we're meeting. And we're achieving some midterm goals towards this SDG. Over the long term, it takes a lot of focused effort on energy production, the technology, we're using the resources that we're using, and it takes a lot of focus again, on the energy consumption side, I have this podcast with Ed vine, I'd suggest you to listen to that. Because really, we go into great detail about energy efficiency, energy consumption, and just the huge increase. And that's of the benefits of energy efficiency. And that's where the focus needs to be. So we have to decouple energy and economic development. Business as usual, is adaptation. Okay, simply, we're going to use, we're going to build more wind farms and more solar farms, just to increase our energy production. So we have higher economic production. I mean, that's one way to do it. But what I'm saying here is that we need to do a smart adaptation, we need to decouple energy use from economic growth, and then decoupling energy and resource use. And this is where we can get to where we can get to a more sustainable future by decoupling energy and resource use for our economic development. Having said that, I hope I at least got across a few ideas of mine from different research projects. And I

brought those together and put those with the Sustainable Development Goal, the HDI. And hopefully, this may be a bit foggy, but it starts to understand that we can't do business as usual, of just adapting to climate change. But we actually have to decouple energy use from economic growth. And we have to do it in a really smart and targeted way. By understanding that energy well being is a means to address an adaptation for society, and particularly those people in society that can least afford it. The with that I want to thank you for listening. Really, if you made it this far, in listening to this podcast, I really appreciate it. Please feel free to leave a comment or a discussion No, or even just a thumbs up and the LinkedIn post and feel free of course to share it and get in contact through LinkedIn. I would love to hear from you. Okay, thank you very much. Thank you for joining us. For this episode, we produce the energy 2050 podcast to learn about cutting edge research, and the people building our clean energy system. If you enjoyed this episode or any episode, please share it. The more we spread our message of the ease of an energy transition, the faster we can make it. You can follow us on LinkedIn where we are the most active on the my energy 2050 web page. We're on Twitter and Facebook. I'm your host, Michael LaBelle. Thank you for listening to this week's episode.