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**Welcome to the Tortoise Quicktake podcast. Thank you for joining us. Today, Tortoise provides a timely update on trending topics in the market.**

**Brian Sulley**: Thank you for joining us today. I'm Brian Sulley, a client portfolio manager here at Tortoise. Nearly seven years ago, our team here at Tortoise launched a strategy to facilitate a way to invest in the trends we were witnessing gain a foothold across the landscape of North American energy. In particular, we saw a real opportunity for U.S. energy production to increase that has largely come to pass, and has led America to become a net energy exporter for the first time since the Eisenhower administration.

And nearly a year ago we were able to bring our London team onboard and add their expertise in globally listed clean energy, sustainable infrastructure and utilities in transition to our nearly 20 years of experience in North American energy and energy infrastructure. The combination of these teams has enabled us to take a global perspective on where the energy sector is evolving towards in this decade and beyond.

With that in mind, we're extremely excited to begin addressing just how the energy sector is evolving and where we see things headed. We'll invest in securities benefiting from the long-term growth associated with the changes in energy supply relating to the global energy transition that is currently underway. The catalysts driving the transition include increasing global energy demand, lower carbon fuels with low-cost profiles, global renewable energy policies, the transition of transportation vehicles towards electricity and/or other low-cost fuels and governmental policies focused on improving energy efficiency and reducing greenhouse gases and other air pollutant emissions.

Three specific themes we've identified for this strategy include electrification driving global energy demand growth, endeavors to drive carbon dioxide emissions reductions and U.S. exports being a key component to a global solution realizing those first two points. Joining me today from our London office is a portfolio manager for the strategy as well as a member of the investment committee, Jean-Hugues de Lamaze.

Jean-Hugues, can you tell us a little bit about how we define utilities in transition here at Tortoise and their role in the growing importance of power generation and electrification of countries around the world?

**Jean-Hugues de Lamaze:** Yes, hi Brian. Yes, utilities are definitely going through a structural evolution, which we believe opens the door to many attractive investment opportunities for our investment strategies. The transformation of utilities worldwide is very much related to the need to de-carbonize the power generation mix across the globe. Interestingly it's taking different forms in the U.S. than what we are seeing in Europe. In the U.S., it's consisted mostly over the last few years of transformation from coal into natural gas power generation mix. While in Europe, the switch has been more dramatic, I would say, out of coal, but also more generally speaking, out of all the thermal, conventional generation sources, directly into pretty clean renewable power sources. We've seen dramatic changes. One striking example is the case of the United Kingdom. In the UK, a country which was very much dependent on coal, about 50% of power generation was still stemming from coal about ten years ago. Last year in 2019, that proportion of 50% has dropped down to below to 2%. In less than a decade, the UK has completely phased out of its coal power production. A big illustration of that is Drax, the largest coal power generator, a few years ago. Drax has transformed 100% of its power generation mix now into biomass and is now aiming at being carbon-negative by the end of the current decade. So that's to give you an idea of how transformational the trend is but how quickly those changes are happening for utilities. We have a couple of other examples which are worth mentioning in context to Europe. German utility major RWE which was largely exposed to coal-fired units up until a couple of years ago, is now about 2/3rds renewable energy, wind and solar. And we've seen that this has driven a significant re-rating on the equity markets of its valuation. The stock was trading on something like 10XPE up until a couple of years ago. It's now trading on 17XPE, so again that re-rating of the valuation of a stock like RWE we think is very much related to the transition that we're talking about. Interestingly, a month or two ago, Enel, the Italian utility, announced a similar program to completely phase out of coal which still accounts for about 25% of its power generation mix by the mid of the current decade, so by 2025. So very fast move and transition of utilities into a more decarbonized world and power generation mix.

**Brian Sulley:** So, along with the power generation mix changing, has this also changed the business model of some of these utilities and what their investment characteristics look like?

**Jean-Hugues de Lamaze:** Yeah, I think it's interesting. What we are seeing is that the utilities business model is de-risking. Again, what we have seen in Europe is interesting I think. Ten years ago, in 2008, about 50% of the operating profit of a typical utility group in Europe was coming from conventional power generation. A business which was largely merchant, largely dependent on commodity prices and therefore volatile. If you look at the situation today, a typical utility in Europe would have about 80% of its operating profits stemming from either regulated networks or contracted renewables projects. So definitely cash flows have become much more predictable and therefore also dividends much more sustainable

**Brian Sulley:** So you mentioned renewable energy and how that's becoming an important part of the electrification trend. How do we invest in renewable energy and what are the characteristics of the renewables that are the right fit for this strategy?

**Jean-Hugues de Lamaze:** Well we do invest in renewable energy, mostly by our global players, first of all, and very diversified developers. By doing that, we limit the risk of being exposed to one specific regulatory framework or one specific technology. So that's a critical part of our investment strategy. It's very much diversification of the risk profile. By doing so, we get exposure to significant volume growth trends, without we think, the risk which may be attached to individual projects.

**Brian Sulley:** Thanks Jean-Hugues. Closer to home here in the U.S., we're also investing in companies that are helping to facilitate the growth of U.S. exports. Not only has U.S. oil and gas production risen to record levels, but since 2005 we've also been able to decrease our CO2 output by nearly 30%. The growth of wind and solar power has been part of that, but the biggest contribution has been those record levels of natural gas production and its replacement of coal as the largest source of power generation in the U.S. Taking coal's share of U.S. power gen from around 50% a decade ago down to about 30%. Now, with energy exports we have a way to take that model of replacing coal and decreasing CO2 emissions to the rest of the world.

These three themes: electrification driving global energy demand growth, carbon dioxide emissions reductions, and U.S. exports being a key component to a global solution should be tremendous catalysts for the global energy sector in the coming years. Thank you for joining us today and we look forward to speaking with you again about the themes and the opportunities they're creating for investment.

**Jean-Hugues de Lamaze:** Thank you.

**Thank you for joining us. And stay tuned for our next cast. Have topics you want covered or other feedback to share? Write us at info@tortoiseadvisors.com.**

*does stand to beneficially profit from any rise in value from many of the companies mentioned herein including companies within the investment sectors broadly discussed.*