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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.

Hi, I'm Matt Breidert, senior portfolio manager at the Ecofin Platform of Tortoise covering energy transition strategies from our London office.

One of the most important things we can do as investment managers is to have a framework understanding on how sudden economic disruption risk might impact our core areas of investment focus. To remain clear-eyed in the face of mounting risks and cascading price dislocations is never easy, and this event has certainly proved no different.

As regards renewables and utilities—which continue to be a core investment area and allocation across Ecofin platform strategies—we have seen fairly modest overall impacts to either fundamentals or valuations. The sector has remained highly defensive while maintaining its overall growth outlook.

In terms of short-term impact across regions, the primary issue is most likely related to the short-term but intense disruptions from 'stay in place' policies. Europe has proved to be the most impacted, with short-run electricity demand falling -5% to -20% vs last year, which relates to a more significant short-term disruption in manufacturing and industrial activity vs. other regions. We would expect these declines to recover sharply over the next few months, consistent with a gradual relaxation of lockdowns, which will favor essential business activities.

In the U.S. we have seen far more limited impacts, with electricity demand flat to down -5% broadly year/year, in part because U.S. industrial and commercial activity has been less disrupted.

In China, as they are experiencing an earlier disruption and recovery cycle (and have evidently managed to suppress further community transmission risks thus far), we are seeing signs of not only full power demand recovery but the potential for annualised power demand to continue to be higher year/year for the rest of 2020.

Unsurprisingly, residential usage appears up vs. last year, almost everywhere. "Stay in place" has fuelled more usage of appliances, lighting, computers and general activity in the home that relies on ever more plug-in nodes. And importantly, residential mix tends to be more profitable for utility companies.

Our views before the crisis and now well into the crisis are generally the same: we expect power demand to continue to remain relatively well underpinned, outperforming overall economic impacts during the economic downturn and to see gradual recovery as manufacturing activity bottoms and re-starts, especially in Europe.

We have seen some short-term impact on electricity prices, however, in particular in Europe which is sensitive to both carbon price fluctuations—which tend to be short-term sensitive to economic changes—as well as oil prices, via linked pricing in to natural gas. We would view these changes as transitory, as the key elements constraining carbon emission markets remain intact.

In the past week we have heard from two industry bell-weather, Nextera Energy and Iberdrola SA who are both leading 'utilities in transition' with large renewable development platforms in the U.S. and Europe, respectively. Both companies have maintained their original 2020 earnings guidance and reported Q1 earnings results well within ranges of expectations, which had not deviated from before COVID-19 crisis started. Indeed both companies have also reported limited to no impacts to their renewable project construction plans and continue to book new business backlog on pace with expectations. Demand for renewable power continues to grow among commercial customers, who increasingly are attracted to the resource on purely economic grounds. Performance YTD for these names are +/- 3% each, far surpassing overall market conditions.

One area that does appear to be seeing some modest impacts relates to capex spending. Some utilities appear to be slowing down or spreading out some aspects of traditional capex, in part as they expect slightly lower cash flow in the near term from reduced usage and potentially some delayed customer payments. Also, with falling steel and aluminium costs, as

well as transport costs, its possible total capital expenditure budgets will see declines on pure cost reduction, rather than reductions in planned equipment and material purchases.

In terms of looking at equipment manufacturers of renewable technology, we did see a modest dip in production volumes of solar equipment from China during Q1 (which has since recovered significantly), but no impact to volumes of wind equipment globally during that time frame. Looking at the second quarter, there are expectations for some modest impacts of component availability in Europe and the U.S., driven by more logistical issues on cargo shipments than actual physical shortages, but they should remain highly manageable. We expect little in the way of pricing adjustments from these transitory impacts, save for changes in raw material costs that may in part be passed through to end customers.

In terms of the potential for logistical shifts in production as a result of COVID-19, we would not anticipate meaningful impacts on a structural basis for the renewables industry. However, we do continue to believe that carbon footprinting of supply chains by customers (for ESG and impact reporting) and by governments like the EU do bear some significant risks to locational manufacturing shifts ahead.

Within the rest of the Energy Transition landscape, we continue to see our major investment themes intact from a structural perspective, particularly relating to the need to continuously decarbonize all facets of the economy and develop and build technologies to address those challenges. Angela Merkel has yesterday re-confirmed Germany's support of the EU Green Deal initiatives and suggested any financial stimulus packages consider climate change and further emission reduction initiatives for industry, particularly around renewable energy and efficiency technologies.

The biggest threats may arise from secondary effects of COVID-19. For example, with the almost immediate need for work-from-home (WFM) protocols for numerous industries, it's clear the world has had to get comfortable—quickly—with videoconferencing technology and remote sharing of work products. That has introduced a lot of creative solutions, and we would anticipate some of those become entrenched, more structural. This may have a lingering effect on aspects of transportation that weren't previously contemplated, in particular impacting previously expected high-value business travel. On the other hand, this shift might help regular employees work in a more locationally flexible manner. Will we see more extended distance-travel holidays that include acceptable periods of 'work-aways'? Will greater flexibility in physical meeting requirements actually increase recreational travel? Clearly infrastructure readiness for infectious outbreak is inadequate and there will be significant changes to testing and monitoring and emergency planning across all infrastructure channels. It is likely this puts some increased pressure on semiconductor content needed on a per passenger basis.

Within the transportation sector, particularly automotive, we have seen an abrupt and deep reduction in both sales and manufacturing, related to the pandemic. This reflects the strong economically sensitive nature of the industry rather than a specific infection-risk aspect, and the industry is working to adjust to this shock with furloughs, inventory/working capital management, while maintaining its commitment to migrating to lower- and no-emissions technologies and models. The question comes up often how low oil prices might affect penetration rates for EV's or commitment by automakers in making lower emission models. Our investment thesis has always been that regulatory requirements and technology innovation preferences are driving the majority of transition momentum towards EV's in particular. In a falling economic and tightening capex cycle, we would surmise that growth initiatives related to manufacturing model transitions away from incumbent internal combustion engine lines would be among the last areas of relative contraction. Tesla continues to report robust consumer demand and sales, particularly due to the technology and design-leading attributes and continues to take market share through this cycle as it expands its capacities globally. We don't believe most consumers are taking a 'total cost of ownership' calculation in considering mid-range premium purchase decisions either (where most EV models in 2020 sit). While we will have to trim overall unit sales expectations for 2020-2021, it's unclear there would be any negative mix shift risk within those changes and thus we should continue to see overall nominal growth of fuel-efficient model sales vs. traditional internal combustion engines from 2019-2022 period.

Another knock-on impact of this pandemic regards generally manufacturing, where we believe we may be seeing early evidence of accelerating penetration of some aspects of factory automation, based on preliminary orders, largely in China as they exit restrictive work conditions. Between a heightened need to depopulate production lines to improve native social distancing, as well as improving overall efficiency and cost downs/productivity ups to match a competitive pricing landscape, its probable COVID-19 will have a structurally beneficial impact to these areas. It is likely a host of new risk questions will regularly come up within ESG frameworks to industrial process-related companies about infection-readiness and increasing concentrations of machinery natively reduces those risks.

One potential larger impact of the COVID-19 pandemic is likely to be changing winds in politics, particularly in the west. Incumbents tend to see more vulnerability when sharp recessions precede or overlap with election cycles. We have numerous ones occurring across Europe and the U.S., though none loom larger than the American Presidential elections in late 2020. President Trump's handling of the physical crisis has been widely criticized (despite by most measures a positive coordinated economic response from Congress and the White House and the U.S. Fed). Healthcare was already polling as the biggest issue for voters prior to the crisis and these issues have become even more urgent. Equally with 26 million new unemployment claims and rising, almost no incumbent President running for re-election has faced such a mountain of on-the-ground bad news.

We will be running a variety of scenarios for political outcomes in the U.S. that were not as contemplated just 2 months ago. While markets seemed positively inclined with a Biden nomination (vs. Sanders) leading some to believe 'either side' winning might be reasonable for corporate outlooks, the new prospect of a 2008-styled sweep focused on urgent healthcare and economic issues could introduce significantly more risks to markets, particularly regarding aspects of corporate and wealth tax measures. On the other hand, they could accelerate a host of pro-Energy Transition initiatives, most likely focused on accelerating technology innovation for lower emission transportation, greater efficiency standards for industrial energy users and a more robust acceleration of certain renewable technology deployments. These would likely only be additive to our overall base case framework.

Also related to COVID-19 and politics frankly is a far more elevated period of unforeseen 'black swan' type risks. President Trump has ordered an investigation by national intelligence agencies into the particulars of the original COVID-19 outbreak in China and their response together with the WHO. Should some tangible evidence emerge not currently anticipated, how would the world and an embattled President react? With oil prices at exceptionally low levels, could we not still see distress emerge anywhere around major oil producers, across Middle East North Africa and Russia, the radiating risks of sovereign debt, banking systems, currencies, even political stability are certainly less clear than they were 6 months ago. And how will all the small businesses fare across the world in a slow but uncertain path of re-start? If we end up with a re-infection cycle quickly after lockdowns end, what types of responses might we see? Employment losses and the attendant thrift reactions have a way of creating more entrenched weakness in productivity.

In summary, we see most of the investment themes within Energy Transition remaining well intact and will use periods of transitory short-term weakness to increase our exposure to exceptionally well placed and managed companies addressing these long-term opportunities. We do believe however that a substantially elevated risk framework is appropriate this year, regarding several variables which may conspire to create additional uncertainty beyond the original COVID-19 impact.

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.

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