

Magellan – In The Know: Episode 27

Energy boost — A new “industrial revolution” for investors

Announcement ([00:00](#)):

The information contained in this podcast is for general information purposes and does not constitute investment advice. You should seek investment advice tailored to your circumstances before making an investment decision.

Host ([00:14](#)):

This is In The Know, a monthly investment podcast brought to you by Magellan Asset Management experts in global investing. We bring you timely, unique, and thought-provoking insights to help you make sense of today's investment landscape.

David Costello ([00:29](#)):

I'd suggest that the energy transition will almost invariably be the most influential investment thematic of the next 30 years. John Kerry, the U.S. Special Envoy on climate and, of course, former presidential candidate has described the energy transition as the greatest economic opportunity since the Industrial Revolution. Now, that's a pretty extraordinary statement, but I don't think it's an exaggeration. The energy transition will fundamentally transform almost every sector of our economy.

Host ([01:00](#)):

That's David Costello, a portfolio manager here at Magellan Asset Management, talking about the huge impact to change energy markets will have overcoming decades. Welcome to Magellan In The Know. In this episode, David Costello joins Magellan's Head of Macro and Portfolio Manager, Arvid Streimann, to look at the current energy crisis, its causes, and how it will inevitably force a more rapid transition to renewable energy sources. They speak with key account manager, Emma Cook, about how businesses and investors will benefit from something they say is more than a mega trend. But first, a warm welcome from Emma Cook.

Emma Cook ([01:46](#)):

Welcome to our podcast, Magellan In The Know. I'm **Emma Cook**, a key account manager here at Magellan. Today, I'm joined by Magellan's Head of Macro and Portfolio Manager of the Global Strategy, **Arvid Streimann**, and **David Costello**, a Portfolio Manager in the Magellan infrastructure team. Thanks to you both for making the time today.

Arvid Streimann ([02:05](#)):

Great to be here, Emma.

David Costello ([02:06](#)):

Yeah, thanks Emma. Great to be here.



Emma Cook ([02:08](#)):

In last month's podcast, we heard from the executive chairman of WEC Energy, one of America's largest power generation and gas distribution firms, and he spoke about how they're dealing with the green energy revolution and ensuring affordable, reliable, and clean energy to their 4.6 million customer base. Following on from the resounding interest that came from this podcast and the topical issue that is obviously energy, reliability, and affordability, we thought we'd continue the conversation around energy today. The global disruptions obviously being felt widely now as nations attempt to guide towards net zero targets and grapple with the immediacy of soaring energy prices, and I think Gail Clapper summarized it really well when he said, "Energy is at the intersection of a functioning economy, public policy and technological change. We obviously all need it.

[\(03:04\)](#):

We're heavily reliant on public policy to help manage and incentivize its supply and reliability. If we're truly to ensure its reliability and transition from carbon intensive resources, we need to quickly embrace newer, cleaner and renewable forms of its supply." This movement's obviously been building for years and seems to have been spurred on in particular over the past few years with COVID impacting energy demand and supply. Then the actual supply of energy being threatened by war, obviously in Russia and other geopolitical tensions. Energy prices of skyrocketed, contributing to the inflationary pressures most of us can now relate to. It really looks to be a long, cold winter ahead for Europe, but what is the impact on longer time horizons and importantly for investors, what are the considerations as they navigate the consequences of all of this? Arvid, perhaps you can begin by walking us through what this energy crisis is all about and how did we end up here?

Arvid Streimann ([04:07](#)):

Sure thing, Emma. When I think about things like this, I always take it back to the basics and think about supply and demand, so this is really an economics 101. Maybe if we take Europe as an example here, it really is the epicenter of this energy crisis. I think really what's happened here is a negative supply shock in the energy market and it's happened on a few different vectors. The first I would say is in natural gas, or let's just call it gas Nord Stream 1, which is a big pipeline which was flowing from Russia to Europe. That was first closed for maintenance and then the flows were stopped by the Russians, and then most recently, that pipeline was actually sabotaged. I think that Russia's been weaponizing its energy, but I'm not sure who did that sabotage, but still on the gas, there's actually another pipeline called Nord Stream 2 that wasn't actually working because it hadn't actually been commissioned or finalized, but that was also sabotaged.

[\(04:59\)](#):

When people are thinking about gas supplies into Europe, that was not as a rosy a picture as it has been before, but it's not just gas, and I think this is important, hydro power generation has also been impacted. There's a big drought in Europe and that's reducing river flows. In the nuclear space, there's a lot of plants, nuclear power plants in Europe. Many of the French plants are actually offline, overdue maintenance, some corrosion issues, apparently. I'm not sure how you get overdue maintenance on a nuclear power plant, but I'm glad they're doing it. Some of these plants are on lower power, they actually use a lot of water and they heat up the rivers, so if there's less water, they can't heat up the rivers too much downstream because of environmental impacts. Then, of course, there was oil. OPEC Plus reduced its oil supply by around two million barrels a day, which, of course, is weighing on that U.S.-Saudi relationship.

[\(05:49\)](#):

But the bigger picture here is that total supply has fallen of energy into Europe, and this was happening at the time when a energy transition is going on. Here I would say that there's a change in the composition of that European energy supply, and it's predominantly a shift away from high carbon sources of energy. But I would say that there's also some shift away from nuclear post what happened in Japan in the Fukushima nuclear power plant. So there's a negative supply shock, same time demands being holding up. We all know the global economies are pretty strong after COVID, and we've seen governments try to get that supply and demand balance into a more normal position with energy rationing and that sort of stuff. I think that's what's happening with the crisis, prices have gone up a lot. What I would say is that prices would be a lot higher and this energy crisis would be a lot worse in Europe if gas storage in here, I'm talking about natural gas, if gas storage wasn't as high as it is.

[\(06:44\)](#):

It's around 80% or so, which is around about a normal lever coming into winter, so lucky them, they managed to stock those gas storage facilities. Now, what's happening to Europe's having a global impact because as you'd imagine these power companies in Europe, they're scrambling for oil, they're scrambling for gas, they're scrambling for coal, and that's pushing up energy prices around the world. This is increasing investment risk. Obviously it's pushing up prices, and we all know we are in a high inflation environment already. We also know that voters don't like it when prices go up, particularly for energy, and governments are trying to shield, or at least compensate their voters or citizens. They're doing that to obviously keep their jobs and stay in government. When I look at this, I see rising political risk, rising geopolitical risk, and that's going hand-in-hand with what I think is already elevated interest rate and economic risk.

Emma Cook [\(07:36\)](#):

Yeah, it's shocking. The price increases with oil up 460% from its trough in April 2020 from \$19 to \$105 earlier this year, natural gas up 490% over that same period in time. I think what's interesting is that we knew coal was going to meet its demise, but it seems like the pace of the need to transition has still caught some by surprise.

Arvid Streimann [\(08:03\)](#):

Yeah. When I think about the energy transition, I'll give my macro view here. This is a very much a 40,000 foot view. Dave's a real expert on this stuff at the industry and the company level, so I'm interested in his thoughts as well. But when I think about energy transitions, I would say going back on time, there's been many energy transitions and very broadly, and this doesn't include all of them, but I would say very broadly, there was a transition from wood to coal, and then there was a transition from coal to oil. Maybe now we're going from a transition from oil to renewables. I think what we have to understand is why do these transitions occur? What's the fundamental reason why they occur? I think the answer here is that they do increase productivity, okay, so we do get a standard of living benefit from doing this and that keeps people happy. Okay?

[\(08:49\)](#):

That's really important, and because keeping people happy is what politicians and governments are generally trying to do, they support these energy transitions. That's really important because sometimes a energy transition needs the support of government to get the ball rolling. Okay? To understand what drives the government, I think you have to understand what is the main role of a government. I would argue that the main role of a government is to provide national security, and that is more or less keeping people safe from external threats. Now, if your country's under threat, then you're not so worried about your job or your next holiday or something like that. Now, in Australia we've been very lucky, partly

because of our location right at the bottom of the world, but we tend to take this national security risk for granted because of that. Now, people in Ukraine, I think that they're not taking that for granted.

[\(09:39\)](#):

I think the other people in Europe have certainly noticed, and you've seen an increase in defense spending, and you've also seen applications to NATO in Northern Europe. Now, national security, which I would argue is the main role of government, that doesn't just provide physical safety, and this is important because it also means that there's less threat to the economy because people aren't distracting from doing their normal day jobs. Let's just say that national security also contributes to something called economic security. Economic security not only means that governments have the money to pay for national security, but it also means they've got the money to pay for things like social programs. These social programs are really important for things like reducing poverty and also providing things like healthcare services. So I guess the point is that governments are looking at the risks to both national security and economic security.

[\(10:27\)](#):

The energy transition from my Macro perspective is dealing with, I would say, two risks. The first is the environmental risk. I think it's fairly obvious that global warming and changing weather patterns is going to have an economic impact that's permanent to the extent that these things are permanent changes to weather patterns. I guess in other words what I'm trying to tell you is that climate change is threatening economic security, and as I just said this then threatens national security. For instance, if you want to think about it this way, if the government has to keep rebuilding bridges after a flooding, there's going to be less commerce because there's less trucks going over those bridges. That means less taxes to the government and less money to spend for the government on social programs and defense. I think the energy transition to the extent that it's changing the pace of global warming, then it's dealing with those threats to national security and economic security.

Emma Cook [\(11:21\)](#):

How about energy security?

Arvid Streimann [\(11:23\)](#):

Well, as you know, energy's so important to the economic outlook, and if you are reliant on another country for your energy needs, then that's obviously not ideal. Having that external reliance is never as good as having your own supply, even if that country that you're relying on is a friend or ally, and this is exactly what the Europeans are finding out right now. They were reliant on cheap Russian gas, not only the households to heat the houses, but also the manufacturers for their energy requirements. So Europe will transition away from cheap Russian gas because that is a threat to their economic security and therefore, it's a threat to their national security at the same time that national security risks have risen in Europe because of what Russia's doing.

[\(12:11\)](#):

By the way, I would say that energy security that you mentioned, Emma, has been an issue for many years. I'd say it's one of the main reasons that the U.S. Has had a very large presence in the Middle East for so long is to make sure that they do have energy security. So in addition to the environmental issue that I just talked about, I think you're right, there is an energy security reason to transition away from oil and gas from the Middle East.

Emma Cook [\(12:34\)](#):

Does this mean we have Putin to thank for motivating the energy transition process, or is him sending the Europeans back to their coal fired power stations delaying this transition in energy sources? Dave, perhaps?

David Costello ([12:50](#)):

Yeah, certainly Putin's actions have caused something of a setback to the energy transition in the short term. The withdrawal of Russian gas supplies have meant that the Europeans have had to burn more coal in the short term, and that's been accentuated by the coincidence of a period of severe drought that's impacted hydro production and a season of relatively low wind speeds that have impacted offshore and onshore wind production. But notwithstanding that short term setback, we think that Putin's actions might actually be the catalyst for the world to realize the potential of the energy transition. Shortly after the Russian invasion of Ukraine, we saw the European commission release their REpower EU raft of policy proposals, for instance. Those measures are really aimed to weaning the continent off Russian fossil fuels by 2030 and securing European energy security.

([13:46](#)):

Amongst the proposals that that plan advances are a plan, for instance, to increase EU's binding energy efficiency target from 9% to 13% over the next decade, to double the level of solar PV generating capacity by 2025 and increase it nearly fourfold by 2030 to take the existing target for 10 million tons per annum of renewable hydrogen production by 2030 and supplement that with a further 10 million tons per annum of imported clean hydrogen production. But perhaps most significantly, the European Commission and member states, it's prompted them to address permitting of renewable energy. This has been the most significant impediment to the rollout of renewables across Europe for the last decade. While European member states are dealing with the complexities of securing energy security and affordability at the moment, to the extent that they finally address this permitting problem, we could really see accelerating progress from here.

Emma Cook ([14:50](#)):

Magellan always likes to find tailwinds of growth and obviously we like to invest in these tailwinds. Would you call the energy transition a tailwind or be so bold as to even call it a mega trend?

David Costello ([15:02](#)):

Emma, I'd go much further. I'd suggest that the energy transition will almost invariably be the most influential investment thematic of the next 30 years. John Kerry, the U.S. Special Envoy on Climate and, of course, former presidential candidate has described the energy transition as the greatest economic opportunity since the Industrial Revolution. Now that's a pretty extraordinary statement, but I don't think it's an exaggeration. The energy transition will fundamentally transform almost every sector of our economy, and I'd suggest it will present thoughtful investors with an opportunity to compound highly attractive rates of return over a multi-decade horizon.

Emma Cook ([15:45](#)):

It sounds like a great opportunity. Will it be a headwind for some, though?

David Costello ([15:49](#)):

Undoubtedly. Just as lots of money will be made by thoughtful investors who leverage themselves to this thematic, it will present a trove of risks. Most prominently, perhaps there will be legacy fossil fueled infrastructure and resources that are likely to be stranded. So IRENA, the International Renewable Energy Agency, estimates that those costs could amount to somewhere in the region of 12 to \$20 trillion

depending upon how swiftly the world acts on policy in this area, but there are other risks for investors to navigate. Some of the companies that will be leveraged this thematic sell highly- commoditized products, poly silicon modules that go into solar panels, for instance. Now those companies tend not to be high quality, and so while they might grow significantly, they might not generate a lot of earnings. Finally, we'd note that some of the technologies in this area are quite speculative in nature because the markets are so nascent. Again, while there might be meaningful market growth, it's not clear that some of these companies will benefit their shareholders.

Emma Cook (16:51):

I guess that brings us to think about the costs associated with this transitioning piece. How will consumers bear the costs? Even more importantly, is there a cost to not transitioning?

David Costello (17:07):

Yeah, suddenly. There's a few strands to pull on. With regards to the costs the headline estimates are staggering. So IRENA the International Renewable Energy Agency estimates that the cost to achieve a net zero economy globally by 2050 is somewhere in the region of 115 trillion U.S. dollars. So to put that number in context, that's around maybe slightly ahead of global GDP last year. Now for context, the world spent around 1.2 trillion U.S. dollars on energy transition-related investments last year. We're about 1% of global GDP. So to achieve net zero by 2050, given that total investment requirement of about \$115 trillion, we need to get to about 3 trillion per year of investment by 2030 and increase investment to 4 trillion per year, nearly three-and-a-half times the current level of investment by 2050. It's an extraordinary level and acceleration of investment that's required.

Emma Cook (18:12):

Wow, that's a staggering sum. How will consumers bear these costs?

David Costello (18:16):

It's counterintuitive, but the analysis from the economists that the International Energy Agency projects that total direct spending on energy by consumers will actually fall as a share of disposable income over the periods 2050 from about 8% today to approximately 6% in 2050. For consumers in advanced economies, that implies an energy bill that goes from about 2,800 U.S. dollars today to a total bill of around \$2,300 in 2030. Now, those savings reflect the inherent energy efficiency improvements of an electrified economy. If you take electric vehicles for instance, they're around three times as energy efficient as an internal combustion engine vehicle. So about 60% of the power from the grid gets converted to power at the wheels of an electric vehicle. By contrast, in an internal combustion engine, only about 20% of the fuel energy goes to the power at the wheels.

Arvid Streimann (19:21):

Yeah. I'll just add another thing here is we're talking about how much consumers are going to pay here, and we are discussing whether it's more than before or less than before, I would say there's also a cost which households and citizens didn't see before, which was all of those American warships and soldiers that were in the Middle East, they weren't free. To the extent that America doesn't have to do that as much, then that's less money that U.S. consumers ultimately have to pay for, let's call it, energy security.

Emma Cook (19:51):

What do you think will be the cost of not transitioning? Would that be significant too?

David Costello ([19:56](#)):

Yeah, it certainly will, Emma. Under current policy settings, the intergovernmental panel on climate change thinks that median global warming will reach approximately 2.4 to three-and-a half degrees Celsius by the year 2100. Climate scientists warn that such an outcome would yield increasingly severe droughts. It would render parts of the equatorial world uninhabitable by virtue of wet bulb temperatures that are incompatible with human life at high temperatures and sea level rises that could displace millions, and that world starts to get a pretty dark-looking place. It resembles in some respects what the philosopher Thomas Hobbs described as the state of nature where life's nasty brutish and short with economists predicting that crop failures in major population centers would undermine food security and create conflicts over those resources.

Emma Cook ([20:50](#)):

Wow, that's a world we don't want to have to imagine.

David Costello ([20:53](#)):

Very much.

Emma Cook ([20:54](#)):

Avid, just back on, you mentioned the military spending that has occurred for countries trying to protect the supply of energy to them. How do you think a shift in energy sources changes the geopolitical class of economies who've essentially had the upper hand with big fossil fuel reserves?

Arvid Streimann ([21:11](#)):

Well, as you'd imagine it's not so good for them. I guess using the framework I was mentioning earlier, their economic security of those fossil fuel exporting countries is being reduced, okay, because they're getting less money in the door essentially. That means that their national security is also becoming tougher. For instance, they won't have as much money to spend on their defense budget. Now, at the same time, their social programs won't be getting as much money, which ultimately means that their people or citizens will not be as happy, and that means that their political risk rises domestically. In other words, citizens may decide that they want someone else running the country. Now, if there is a change in government or maybe even a revolution, then the new leaders will decide what they are going to change, and they may decide that there's some countries that they don't want to trade with anymore. I guess this energy transition doesn't just affect the fossil fuel exporting countries, it can also affect the countries which trade with them before or after that event.

Emma Cook ([22:14](#)):

Now, among the myriad of risks that businesses have to deal with, be that geopolitical, as you've just mentioned, regulation, inflation, cyber risk, it seems that energy and its reliability and its cost as well as the policies that are driving carbon emission reductions, that surely becomes a key risk for many businesses. I wondered if you could talk about how we think about this in the context of our investee companies and when we're trying to evaluate their investment thesis.

Arvid Streimann ([22:43](#)):

Yeah, sure thing. I think you're absolutely right that this is a key risk. Let me just break it down. You mentioned two things, energy volatility and the energy transition. Without energy volatility, we are structurally underexposed to the commodity price of volatility. We don't invest in energy companies and that's because we don't think these companies have what we would call strong pricing power. That's

important to us because for us, that's an important indicator of business quality. If we take the example of oil, I'd say it's OPEC, not the energy companies which have the pricing power. But on the energy transition piece, this is something that we, and I suspect Dave especially has been thinking about for a long time, and as I explained earlier, there's many reasons that are driving this transition. I think that we'd like to be on the right side of a mega trend.

[\(23:30\)](#):

Dave was talking about that this maybe isn't more than a mega trend, and I'd like to say to people that it's always easier to swim with the current than against it. If Dave's right then this is more than a mega trend, maybe what I should be saying is that it's almost impossible to swim up a waterfall anyway. For instance, we look at the companies that are on the right side of this mega trend or on the wrong side of the mega trend, and I think Europe's an easy place to find companies that are on the wrong side. The manufacturers who relied on cheap Russian gas are obviously having a tough time right now. I'd say there's going to be a time when they get their energy supply costs back to where Russia was maybe even cheaper with renewables. But in the meantime, it's pretty tough for them, and it's introduced the level of uncertainty. Of course, whether you invest in that company, of course, depends on its price.

[\(24:17\)](#):

Another thing I'd say here is that economies are slowing. We often say that companies that maintain their investment programs through a say, an economic downturn, they often come out the other side in a much stronger position. That's because, for instance, they've got better factories when demand starts picking up against, maybe they've invested in machinery when other people didn't. So that means that they can crank those machines a lot better at a lower cost once they need to, and maybe they've also invested in their customer relationships, things like sales and marketing. So their customer relationships have not fallen during that period of a downturn. This is important because many companies right now, they might want to reduce their investment in, let's call it carbon reduction programs as the economy slows. I think that that would be the wrong thing to do over the medium to longer term, especially if consumers right now are placing an even higher or greater emphasis on carbon reduction. There is some evidence that consumers have actually begun reacting this way to the energy crisis and the higher prices which they're seeing now.

Emma Cook [\(25:22\)](#):

Now, of course, what poses a risk for some also tends to represent an opportunity somewhere. Let's discuss the businesses that are set to benefit from this energy transition. David, you mentioned the comment made by John Kerry, I think, that this could be the greatest economic opportunity since the industrial revolution. Can you talk us through what is this opportunity to invest in the energy transition?

David Costello [\(25:46\)](#):

Certainly. In the infrastructure fund, we've been excited by the opportunity that the energy transition presents our regulated electric utilities for some time. We'd point out that we expect the energy transition to sustain high rates of investment and attractive rates of growth for our regulated electric utilities for the next 30 years. Importantly, under the regulatory construct, every dollar that these companies invest in augmenting their networks, in connecting new renewables or in building new renewable generating plants earns the authorized rate of return. That enormous need for investment catalyzed by the energy transition creates an enormous opportunity for investors. When we think about this opportunity, our conviction that it will be realized reflects the critical role that our electric utilities play in unlocking the path to a net zero economy. When you consider the world's plans to get to net zero two elements invariably assume central importance.

[\(26:48\)](#):

Firstly, policy makers recognize the need to replace carbon-intensive thermal generation, principally gas and coal, with renewable or sustainable sources of generation. That will predominantly be wind and solar supported by things like nuclear hydropower in the future, perhaps green hydrogen. But then secondly, policy makers seek to leverage that clean power electrifying as much of the economy as possible to drive emissions out of the broader ecosystem. Now, of course, that's something of a simplification. There'll be parts of the economy that proved difficult to electrify, whether it's heavy-duty transportation, maybe parts of heavy industry. Even there, the most promising solution appears to be green hydrogen produced by splitting water molecules in electrolysis powered with clean energy. Again, our electric utilities provide the answer ultimately. It really is the case that the world's plans to decarbonize hang on the investments being undertaken by our electric utilities. These businesses really are the cornerstone on which the energy transition will be built.

Emma Cook (27:53):

Are the utilities already investing in the energy transition?

David Costello (27:57):

Absolutely, Emma. They have been for some time, and when you consider what the electric utilities have already achieved through their investments in replacing thermal generation with renewables in connecting new renewables, many of these businesses have already been able to reduce their emissions by somewhere in the region of 40 to 50% since the turn of the century. Almost invariably, they have ambitious plans to achieve net zero emissions by 2050 or even earlier. Those plans are supporting billions of dollars of investment that are driving the earnings growth of these businesses. Almost universally, our electric utilities are guiding to earnings growth in the region of five to seven, or perhaps six to 8% per annum. Now, these businesses typically offer dividend yields in the region of two to 3%, so you're looking at a total prospective shareholder return of somewhere in the region of seven to 10%. Now, we'd acknowledge these are hardly venture capital style returns, but when you compound seven to 10% for 30 years as we're confident in investors can here, you really get the snowball rolling.

Emma Cook (29:02):

Okay. How about in opportunities beyond the infrastructure sector?

David Costello (29:07):

Yeah, Emma, we expect the energy transition to present thoughtful investors with the opportunity to compound attractive risk-adjusted investment returns over a multi-decade horizon. Two key inferences really underpin our thesis for the energy transition. The first is that the energy transition will confer businesses with positive environmental impact, sustained growth at a multiple of global GDP. Then secondly, and this point might be underappreciated, but a thematic exposure to the energy transition, we believe, mitigates prominent business and market risks.

Emma Cook (29:44):

What are the growth opportunities that you see? Can you perhaps give us a few examples?

David Costello (29:50):

Yeah, of course. We expect that the energy transition will see vast new markets and accelerate growth through established products with positive environmental impact. So if we take some of the more nascent markets that will be accelerated by the energy transition, we'd note that annual electric vehicle sales are expected to increase by a factor of 21 times between now and 2050 supporting a compound

annual growth rate of 11% per annum for the next 30 years. Over the next five years, that growth rate looks more like 30% per annum. If we take battery storage capacity, it's expected to increase by more than 170 times between 2021 and 2050 in a net zero scenario, implying an annualized growth rate of almost 19% per annum. Public EV charging capacity is expected to increase by more than 250 times between now and 2050. That gives you an annualized growth rate of more than 20%.

[\(30:49\)](#):

Of course, clean hydrogen production, which is almost nonexistent today, it's expected to increase by more than 700 times between now and 2050, implying a sustained growth rate of almost 25% over the next 30 years. Now, of course, those examples represent more nascent markets, but they'll be established markets that benefit too. If we take electric substation, components that are made by established champion companies like ABB or Siemens, that market's expected to grow at a compound annual growth rate of five-and-a-half percent to 2050. We'd point out that our extensive reliance on fossil fuels means that investment opportunities will pervade the entire global economy. Securing system resilience and energy affordability in a deeply electrified economy that's highly reliant on variable renewable energy will require technology solutions that's going to create opportunities for companies that sell sensors, semiconductors, software and industrial internet of things components. Delivering the vast improvements in energy efficiency required in industry will require new factory automation technologies.

[\(31:57\)](#):

Of course, decarbonizing our building stock will spur growth for new heating and cooling equipment, for building materials with lower levels of embodied carbon that enhance energy efficiency, and for software that allow architects and engineers to design buildings with optimal energy efficiency characteristics. As we step back and we think about the opportunities from the energy transition, we really see six vectors of opportunity that correspond with the major sources of the world's carbon emissions today, and they are clean energy, clean transportation, clean buildings, clean industry, clean agriculture and forestry, and a final one, which is really a catchall that recognizes that we won't be able to abate all of the world's emissions, so there'll be a need for carbon removal and sequestration. In each of those six areas, we think there'll be extraordinary investment opportunities.

Emma Cook [\(32:45\)](#):

Wow, this sounds so optimistic in an environment characterized with a lot of uncertainty at the moment. My interest is how confident you can be of these projections for growth. How confident can you be that this transition's actually going to continue or accelerate at the pace that it's going?

David Costello [\(33:03\)](#):

Yeah. The realization of these opportunities is supported by three characteristics, and the first I'd point to is the rapidly improving economics of clean products. Of course the levelized cost of electricity of renewables is now by far the cheapest source of energy in most major markets. That paradigm has only been accentuated by the rising price of thermal energy. Similarly, we're expecting new technologies, things like batteries to continue to come down the cost curve. Batteries have declined by approximately 90% in cost over the last decade, and the projections are that the cost of green hydrogen, for instance, will decline by 60% over the periods 2030 and by more than 90% over the period to 2050. That's the first supporting consideration here.

[\(33:54\)](#):

The second is what is clearly a growing preference for consumers for clean products, almost independent of product economics. Then finally, the final element that we'd point to sustaining this

trend is profound regulatory and fiscal policy tailwinds that see governments underwrite a level of risk relating to things like technology adoption or market penetration. If there wasn't an imperative to solve environmental concerns, electric vehicle adoption would come down to a matter of consumer preference and relative economics. But when the Californian government imposes a mandate that they'll only be electric vehicles sold come 2035, they're inherently bearing that technological adoption and market penetration risk for investors.

Emma Cook (34:45):

Wow, there aren't many investment opportunities out there where the government underwrite your risk, so that sounds really compelling. Arvid, where do you think this is all headed in the next year? Geopolitically in economy, where do you see us in the next year or two?

Arvid Streimann (35:00):

Well, that's a very good question. I think a lot of it, given that it was driven by Russia's invasion of Ukraine depends on how that plays out. I think the Russia's goal when it's been weaponizing energy, I think there's actually two goals. The first and more obvious one is I think they're trying to scare European voters into telling their governments to stop supporting Ukraine. I think as I mentioned, that's the more obvious one, but I think there's another one that's at play here, and that's that I'm sure that Russia would be happy if they made inflation worse, which made people's inflationary expectations in the West higher because remember that these inflation expectations are very much driven by what happens at the petrol pump. Anyway, if those went up, I think the central banks would have to raise interest rates further. So essentially what I think that Russia may be doing here is saying, "Well, if you are going to crush our economy and support our military adversaries, then we're going to crush your economy."

(35:55):

I suspect that that's something that will be a big influence over what happens there, and we're obviously watching that very closely. I think that the energy crisis will continue weighing on the growth outlook while there's that source of uncertainty. One thing that may break that source of uncertainty is a positive supply shock. We've been talking a lot about negative supply shocks, and of course, these have started to happen. We've seen the Americans starting to talk to the Venezuelans. Venezuela as a country has the largest oil reserves on the face of the planet, so that's someone who the Americans would quite like to talk to. If those talks go somewhere and there is a deal, I would just caution that it takes a little bit of time for that oil to actually come out of the country. The oil infrastructure is not in the best shape. As mentioned earlier, I think the geopolitics is getting tougher. This often happens when growth slows and countries at a very basic level, they just start to fight over what growth there is. It's a little bit like the seagulls and the hot chips. So when you see slower growth, you tend to see geopolitical risk go up.

Emma Cook (37:01):

Perhaps finally, David, everyone loves a stock tip, so maybe you could give us an example of a company that we don't own that might benefit from this mega trend.

David Costello (37:11):

Of course, one of the companies we're really excited about in this space is a business called Sensata Technologies. They supply highly-engineered mission-critical sensors that precisely measure things like speed, position, pressure, or temperature, principally in automotive applications, so things like tire pressure or breaking pressure. Our thesis for that business really reflects the high-quality economic

leverage that it provides to the rapid expected growth in sales of electric vehicles recall that those sales are expected to increase at more than 30% per annum for the next five years and something like 11% over the next 30 years. Sensata exhibits just exceptional quality characteristics. It generates returns on tangible invested capital of around 20% per annum, approximately twice the company's cost of capital with operating margins in excess of 20% and a capital like business model that supports healthy free cash flow generation.

[\(38:15\)](#):

Those attractive financial characteristics are a function of the company's durable leadership in a fragmented market for automotive sensors. So the company's products are designed into auto OEM's vehicle platforms over a collaborative multi-year development cycle where the company works very closely with the design engineers at companies like Ford or General Motors or Volkswagen. The company's products undergo an extensive multi-year certification and qualification process. That means that once they're designed in, they rarely get switched during a product platform life cycle that might last five, six, seven or eight years. Their products are typically sole sourced, and their collaboration with customers mean that they've got advanced visibility of those customers' development needs and can anticipate them supporting their longevity.

[\(39:11\)](#):

Now, the growth opportunity we see here, as I said, really comes from leverage to electric vehicles while Sensata's products go into internal combustion engine vehicles today and measure things like tire and braking pressure, the uplift on electric vehicles in terms of the dollar value of their content is already about 20%. Management expects that their content on electric vehicles will increase to a level double that on internal combustion engine vehicles within five years. The company expects there are electrification revenues, which are only a subset of their business, but an important part to grow at more than 50% per annum over the next five years. That's expected to support consistent double-digit growth in earnings. Of course, recall that these businesses earn returns almost twice their cost of capital, so that growth is highly accretive to shareholder wealth and value.

Emma Cook [\(40:04\)](#):

Wow, this sounds like a really compelling investment opportunity, and it's a fascinating space that I wish we had time to talk more about, but thanks to you both for offering your time today.

Arvid Streimann [\(40:15\)](#):

Anytime, Emma.

David Costello [\(40:16\)](#):

Thanks, Emma. Anytime.

Host [\(40:17\)](#):

That was Magellan Key Account Manager, **Emma Cook**, speaking there with Portfolio Manager **David Costello**, and Magellan Head of Macro and Portfolio Manager, **Arvid Streimann**. We trust you've enjoyed this episode of Magellan In The Know. Join us in a month's time for the next episode. For more information on upcoming episodes, visit magellangroup.com.au/podcast where you can also sign up to receive our regular investment insights program. Thanks for listening.

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