

**Insights**

## **THE TIMES THEY ARE A-CHANGIN' – CAN GLOBAL INVESTORS HELP DRIVE THE TRANSITION TO E-MOBILITY?**

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Transitions are hard, just ask Bob Dylan when he moved from his trusted acoustic guitar to an electric one – there were famously some very unhappy fans in Manchester, England's Free Trade Hall and those at Newport Folk Festival in 1963.

As the 44th president of the United States, Barack Obama reminded himself on a plaque on his desk, "*Hard things are hard*", so too will be the transition from internal combustion engine (ICE) vehicles to zero emission vehicles (EVs).

As Ben Horowitz wrote in his 2014 book, "The Hard Thing About Hard Things":

*...[h]ard things are hard because there are no easy answers or recipes. They are hard because your emotions are at odds with your logic. They are hard because you don't know the answer and you cannot ask for help without showing weakness ...*

Anyone who tells you they have the silver bullet, the unifying theory or "THE" answer to how to successfully transition the global economy from ICE to EVs is, I submit, peddling a non-existent easy answer and is too scared to ask for help or admit there is no such answer.

So if we agree this isn't easy, how can stakeholders (i.e. industry, Governments and citizens) benefit from this once in a generation opportunity to secure a transition away from ICE vehicles to more sustainable cleaner EVs?

### **Like a Rolling Stone...**

I would argue to really turbo-charge (not the best term for EVs...) the transition from ICE and EVs you need a variety of measures across the industry. These measures can come in part from Government / public sector - they can play a crucial role at the start of the transition. Governments across the globe have announced massive stimulus packages following the COVID-19 pandemic. It is likely that governments / municipalities will place a significantly important role in the delivery and commissioning of key pieces of infrastructure, this could well include charging infrastructure.

When coupled with targeted incentive packages to encourage FDI in battery manufacturing regimes, tax incentives to “nudge” consumers and business towards EVs, this could create the all-important early stage momentum to drive EVs towards price parity with ICE vehicles making the decision to switch from ICE to EVs much simpler.

Based on recent announcements in the UK, Germany, France and some States in the US, there is clearly a great deal Governments are doing to help accelerate the transition towards EVs. But Governments alone will not have the available capital to tackle the scale of this transition.

But in order to attract investors, you need to paint a picture of the scale of the opportunity to ensure investors focus and deploy capital to accelerate the transition. Aside from scale, which we highlight below, there are very few sectors in the global economy enjoying double digit growth. Whilst only a single data point, the 300%+ increase in the stock price in Tesla Inc. (TSLA - NASDAQ) over the past six months provides encouragement for the investor community.

The scale of the transition opportunity (and challenge) is enormous and the time frame is certainly not overnight, we are comfortably looking at a 15 to 20 year time horizon. To put this scale into context, Bloomberg New Energy Finance (BNEF) – Long-Term Electric Vehicle Outlook 2020 is forecasting 500 million passenger EVs on the road (in 2040) of a total passenger vehicle fleet of 1.6 billion, so around 32% of global passenger cars will be EVs. So with current passenger EVs at around 7 million, we are looking at around 493 million passenger EVs to build and sell over the next 20 years, around 25 million per year!

Passenger EVs are just one market segment, there are also opportunities for light commercial vehicles/ vans, two wheelers and municipal buses, with these sub-categories seen as particularly important in the urban context where cities are looking to enhance citizen’s lives through clean/ low emission air zone policies. Heavy truck manufacturers and start-ups also look to find ways to solve the market need for heavy-duty long-haul commercial vehicles, where it is likely the battery will face a challenge from hydrogen fuel-cell technology.

Increasing levels of urbanisation, demands for cleaner air, the use of shared mobility solutions and e-commerce are all to some degree likely to drive the need for last mile mobility and delivery solutions. The long-term impact of the COVID-19 pandemic is yet to be assessed, but short-term we see increasing interest in micro-mobility sector, not just limited to e-scooters, but purchase of personal e-bikes for commuting and the creation of e-cargo bike platforms such as initiative start-ups such as UK based EAV Cargo.

## **No Direction Home?**

So there is clearly a landscape of opportunities and inevitable accompanying challenges, more of those below. For our investor clients deploying capital is about risk, assessing that risk and seeking returns that reflect the level of risk they are willing to accept. But when we speak to our investor clients the landscape for EVs is understandably daunting – there are investors who run and

manage large infrastructure and real asset funds, their focus is likely to be on charging infrastructure and associated services, especially those opportunities with municipal income streams.

However, for other investors especially looking at early stage ventures the landscape is much broader touching on software platforms, components, drivetrains, battery technology, platforms / vehicles, automakers, autonomous driving systems and MaSS. Traditional analyst sectors touched include energy, technology, mining and minerals, automotive, transport, logistics, real estate and infrastructure.

So how can you brigade this dispersed set of investors together? Frankly I don't think you can nor, I would argue, is it necessary. The venture capital funds will continue to be attracted to high-growth opportunities, whereas the real asset funds will be looking towards stabilised returns from utility-like market segments. It is important in our view for investors to consider the full picture of the drivers for the transition and the likely challenges to achieve the transition itself, including inevitable legal and regulatory risks (see below).

There is one area, however, where there could be some sector wide consensus for investors – that is the need to show that investment decisions consider and integrate environmental, social and governance (ESG) factors as part of an investors' methodology. Investments in the EV sectors do not necessary produce a green light for ESG factors, but properly structured and well researched investments considering these factors upfront are likely to, ensuring a greater pool of investor appetite seeking to achieve sustainable risk-adjusted returns.

### **Blowin' in the Wind...**

I pointed out to my 7-year-old son that our first generation Tesla Model S has around 7000 lithium-ion batteries under the floor of our car, so I told him that's about 7000 iPhone / iPad batteries to charge up. He looked at me, thought for a moment and then asked, how come it takes the same time to charge your car with 7000 batteries as it does for my iPad then? I quickly changed the subject... kids eh? The story was simply to illustrate that technology is changing rapidly and that can be risky for investors.

So as an industry, technology risk is likely to be one of the biggest risks for investors to consider. At its most extreme is the concept of stranded asset risk, a risk now facing the Oil & Gas industry could equally apply to the EV sector if an investor chooses a technology that fails to scale and get mass adoption – these are big bets, especially when investments require significant investment in R&D and capital expenditure.

Allied to technology risk is probably the most basic and existential risk for the EV sector, that is demand risk. That is likely to be the biggest uncertainty (or "known, unknown") – which at the most basic level has driven debate in the EV charging infrastructure sector – simply the "Chicken and the

Egg” riddle – do we build out an EV charging network ahead of the mass adoption of EVs passenger fleet or wait until the EV passenger fleet is built out?

Clearly the biggest demand risk issue is in sales of EVs themselves, whilst organisations such as BNEF can provide some extremely powerful and rich datasets on likely adoption rates, being even a single digit percentage out on the forecast of passenger EVs will have a massive impact on an investment case. It is important to also consider it is not simply external third-party investors making these decisions, it is also corporates such as OEMs and battery manufacturers making their own internal investment decisions on how to take the best advantage of the EV transition.

There are many other risk themes for investors to consider when assessing an investment in the EV sector including, but not limited to, energy / power price risk (especially in the context of delivering EV charging solutions), the availability and price of raw materials (particularly battery metals), the availability and pricing of battery cells / modules / packs (particular OEMs), alternative technologies, use of shared mobility / public transport vs private car ownership / usage, adoption of autonomous vehicles, global demographics, urbanisation trends, role / price of oil & gas and government incentives / taxes.

From our perspective it is legal and regulatory compliance risks that our investor clients ask us to consider and advise. There are many to consider dependent upon the particular sub-sector of the EV market that you are looking to invest, there are a number of themes to consider:

- Trade and Tariff Policy Risk
- Autonomous Vehicle (AV) Legislation
- Tax and Incentive Change
- Environmental Law and Compliance
- Health and Safety
- Emissions Target Legislation
- Urban Planning and Zoning
- Data Privacy and Protection
- Interoperability Standards / Open Access Requirements
- Anti-trust / Competition Compliance
- Product Liability / Warranties / Right to Repair

It is difficult to be prescriptive on the risks and challenges facing an investor on a particular investment, it is likely the vast majority of these factors will need to be assessed in the relevant market / jurisdiction – some of the areas referred to above are new and emerging areas of law and regulation, especially AVs, this increases the risk of legislative change but also creates opportunities for investors and industry to help shape these regulations.

## **Electric Highway 61 Revisited**

The transition of vehicles fleets from ICE to EV will not be easy, but there is a multi-trillion dollar opportunity facing many industries.

Champion race car driver Mario Andretti was asked for one tip for success in race car driving, he said to Success Magazine (Dec, 2009), “Don’t look at the wall. Your car goes where your eyes go.”

The transition from ICE to EVs feels the same, there will be many walls surrounding the transition but there is plenty of road too. I see World EV Day as expanding the highway, creating more road for the industry to focus on that horizon line.

So, I can’t resist quoting the brilliant Ben Horowitz again, “Focus on the Road, not the wall”.

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This blog was first published on the [World EV Day](#) website on 13 August 2020.

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## MEET THE TEAM



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