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Electric Vehicles: Infrastructure is one of the biggest problems to solve

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Abstracts

Electric Vehicles: Infrastructure is one of the biggest problems to solve

SUMMARY

Almost conclusively now, electric vehicles appear to have won the power train argument in the automotive industry and car manufacturers from all over the world have made significant promises to deliver only hybrid and electric vehicles in the future. From automotive shows to the world's cities, new models and ideas are being tested and the general public whilst being broadly reticent at first is now beginning to accept the idea of battery powered chargeable vehicles.
Whilst the industry waits for consumer adoption levels to really boom, manufacturers are gearing up for a serious fight to establish a position in what will undoubtedly become the main automotive market. The leaders of a few years ago now have significant new challengers and are having to fight harder for sales than ever before. Huge new challenges are becoming obvious as the world tries to establish exactly how it will power and build all these new vehicles.
There is a new heavy demand for the rare earth materials that electric vehicles need and some concerns about the environmental implications of replacing the global fleet with this technology. One country that is not being overly cautious about this change is China and it has ploughed ahead to the point where its manufacturers are now dominant in the electric vehicle industry. Within the next decade a point will arrive where electric vehicles will outsell traditional combustion engine vehicles, but in order for that to happen and it not be a charging and technical disaster many things must change.

KEY HIGHLIGHTS

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Charging millions of vehicles in cities that are pushed for space and already clogged with vehicles is going to be one of the most significant challenges for the next couple of decades and there is no one solution or technology which will fix the problem on its own. The particular issue for electric vehicles is that even if battery technology and charging improves exponentially, it will still require some time to charge batteries where vehicles are stationary and parked somewhere for a set period of time. Each place that a vehicle might stop and need to charge has its own set of challenges. At home or at work there may not be places to build charging points that fit into the local street furniture and many homes in Europe for instance have no off-road parking where charging could be installed. An even more significant problem is that of where to charge when on the move.

Very little planning has been done to arrange the kind of infrastructure that will be needed to support a much greater EV fleet in the UK. The UK lags very much behind its European neighbors in terms of charging networks and newer vehicles with very large battery packs need a significant amount of charging from advance fast chargers. With one of the most recently announced electric vehicles, such as Jaguar Land Rover’s I-Pace, you'll get the battery up to 80% after 45 minutes when connected to a 100kW DC Rapid Charger.

Currently the number of electric vehicles on the road globally, can be managed through a combination of service station charging points and home chargers. However, when global fleets start to number millions, there will be major issues charging all these batteries at the right time ready for when they are needed and in convenient places. This is important because it looks unlikely that current battery technology is going to improve to the point where it can provide similar or more energy density as gasoline in the immediate future so vehicles will always need to be charged regularly and part way through journeys

SCOPE

Examine who the main players are in the EV industry and who are the emerging new players

Look at the challenges faced by the industry and how likely these are to be overcome

See the countries that are really pushing ahead with the technology and why

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Analyze the future of the industry, who the winners and losers are and what the competition looks like

REASONS TO BUY

What are the most important EV models on sale?

What companies are going to become dominant?

Why are hybrids so important in EV tech?

What does the future of the industry look like?

What do governments need to do to encourage growth?

How far away are we from the expected EV boom?

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Contents

Overview
Catalyst
Summary
Electric vehicles: Infrastructure is one of the biggest problems to solve
Implementing a global infrastructure is going to be very difficult
Infrastructure is going to be a huge problem in the UK
Each country's charging needs are different and there is no one solution
Ubitricity's lamp post charging idea might really help in dense European cities
Battery Swapping is a technology that has been explored but recently fallen away
Petrol service stations have been identified as a key way that EV fleets could be charged
Inductive road charging is likely an extremely expensive option
Smart Grids will need to be implemented quickly and on a huge scale
Conclusions
There are some inherent flaws in the way EV's need to charge
Appendix
Further Reading
Ask the analyst
About MarketLine
Disclaimer

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List Of Figures

LIST OF FIGURES

Figure 1: Average number of chargers in the top five European EV markets
Figure 2: Charging infrastructure in the UK 2011-2017
Figure 3: EV infrastructure UK drivers using public networks
Figure 4: Ubitricity’s lamp post charging station
Figure 5: Now defunct Better Place battery swap station
Figure 6: Shell Recharge located at a gasoline refueling station
Figure 7: Imagined UK charge lane for EVs

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