

Electrification: The Key to a Connected World

Electrification is essential for power systems for devices and technologies that we rely on every day, from lighting to running our businesses.

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/EINPresswire.com/ -- As our world becomes more interconnected, [electrification](#) will become increasingly important and [Boron](#) has a role to play.



Electrification

Over the last few decades, there has been a rising trend to electrify economic sectors to minimize CO2 emissions caused by climate change. Electrification is the method of replacing techniques of using fossil fuels (coal, oil, and natural gas) with techniques that use electricity as an energy source.

Electrification lowers CO2 emissions from transportation, building, and industrial sectors, contributing to 65 percent of total US greenhouse gas emissions, based on the resources used to generate electricity. It also can lower energy costs over time as technologies become more efficient and widespread.

Current Electrification Levels

According to the World Bank, approximately 840 million people (majority in Africa) globally did not have electricity access in 2017, a significant reduction from 1.2 billion in 2010.

Electrification progressed quickly between the 1950s and the 1980s, with considerable gains in the 1970s and 1980s. The proportion of the global population with access to electricity increased from 49% in 1970 to 76% in 1990. Recent progress has been more modest; by the early 2010s, 81 to 83% of the global population had access to electricity.

Electrification Reducing Carbon Emissions

The electrification of the transportation sector is a key step in reducing emissions and addressing climate change. Transportation is responsible for a significant portion of global emissions, and the switch to electric vehicles (EVs) can help to significantly reduce these emissions.

Electrification of Transportation

It is easier to produce electricity sustainably than to produce liquid fuels sustainably. As a result, adopting electric vehicles is a way to make transportation more sustainable. Larger vehicles that have not yet been widely electrified may benefit from hydrogen vehicles, such as long-distance lorries. Many of the techniques required to reduce emissions from shipping and aviation are still in the early stages of development.

Electric Vehicles: Sustainable Transportation Mode

Electric vehicles have been around for over a century, but they've only recently begun to gain popularity as an environmentally-friendly and sustainable mode of transportation. EVs are powered by electricity from batteries, solar panels, or fuel cells and produce zero emissions, making them a cleaner option than gas-powered cars.

Governments worldwide have also introduced incentives to encourage the adoption of electric vehicles in recent years. These measures, coupled with increasing public awareness of the benefits of electric vehicles, are expected to lead to a significant increase in the market, with up to 30% of the global market share by 2030. This expansion is highly predicted in North America, Europe, and China.

The COVID-19 pandemic also impacted the electric vehicle market, with lockdowns reducing emissions from gasoline and diesel vehicles. The International Energy Agency has said that governments need to do more to reach carbon neutrality, including policies for heavy electric vehicles.

According to a 2020 literature review, growth in electric 4-wheeled vehicles seems economically unlikely in developing countries, but an increase in electric 2-wheeled vehicles looks likely. Electric vehicles with two and three wheels outnumber all other types.

Electric Vehicles Needs Boron

The electric vehicle is the future of automotive transportation, and boron will play an important role in making this happen. Boron is a crucial component in producing lithium-ion batteries, which are essential for electric vehicles.

Lithium-ion batteries are much more energy-dense than traditional lead-acid batteries, meaning that they can store more energy per unit of weight. This is crucial for electric vehicles, which must be as light as possible to maximize range and efficiency.

In all modern cars, boron is also used in steel chassis, airbag firing systems, ceramic brake pads, acoustic insulation, windscreens, touchscreens, and cleaning detergents.

Boron – FEAM is the Key to a Better Future

Boron is a critical mineral used in various industries, including electrification, decarbonization,

and food production. The US government has identified the need to source critical minerals from local sources, and 5E Advanced Materials, Inc. (FEAM) is perfectly positioned to meet this demand. Because of their revised boric acid pricing assumptions, they have expanded their capitalization to A\$4.94/share (from A\$3.40 previously).

They believe that the completion of major economic review advancements continues to add to their valuation, while EV/EBITDA comparable multiples indicate a potential turnaround from a US listing. The main risks are postponed in the economic review, which is due in 2QCY22. The Small Scale Boron Facility (SSBF) at 5E Advanced Materials, Inc. will focus on a high-margin specialty borate facility scheduled to begin production in 2HCY2022.

5E Advanced Materials is committed to expanding its 100%-owned Fort Cady integrated boron facility in Southern California, USA, by monetizing boric acid, which is used in various applications influenced by decarbonization progressions. The company's goal is to become a significant global supplier of advanced boron materials and other specialty products.

Benefits of Electrification in the Transportation Sector

Electric vehicles (EVs) offer many potential benefits compared to gasoline- or diesel-powered vehicles.

They produce significantly less pollution, including greenhouse gases, which contribute to climate change.

EVs have the potential to improve air quality, as they do not produce emissions like nitrogen oxides and particulate matter that can cause respiratory problems.

In addition, electric vehicles are much quieter than traditional internal combustion engine (ICE) vehicles, which reduces noise pollution in urban areas.

Switching to EVs can provide significant benefits for the electric grid. EVs can be powered by renewable energy sources like solar and wind, which can help increase the share of renewable energy on the grid.

EVs act as mobile storage devices for excess renewable energy that would otherwise be wasted.

EVs can also provide grid stability services when plugged in, such as frequency regulation and demand response.

The widespread adoption of EVs would create new jobs in various industries. Manufacturing jobs would be created to build EVs and their components, while jobs would also be created in installing and maintaining EV charging infrastructure. In addition, there would be a need for more workers in the electric utility sector to manage the increased demand for electricity from EVs.

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