THE ROAD TO ZERO EMISSIONS - AN INTERVIEW WITH TIM MURRAY

It's no secret that the trucking industry is under pressure to reduce its emissions. In order to meet ever-tightening regulations, many fleets are turning to renewable fuel sources like biodiesel and electric vehicles. We recently had the opportunity to speak with Tim Murray, Vice President of Commercial Road Transport Business, North America for Shell Corporation, about the future of renewables and their impact on the trucking industry. Here are four key takeaways from that conversation.

Demand Is Being Driven by More Than Regulations

In recent years, there has been a growing push toward tighter regulations on the trucking industry. This shift is driven by concerns over the environmental impacts of fossil fuel-based transportation and a desire to promote the use of clean, sustainable energy sources. As a result, many trucking companies are now faced with the challenge of how they will decarbonize their transportation operations and adapt to this changing landscape. California is a national leader in environmental policy, and the state's commitment to reducing emissions and cutting down on carbon pollution is evident in its recent establishment of CARB (California Air Resources Board) rules for fleets over a certain size. These rules require fleets to convert their entire fleet to zero emissions by 2035 if they wish to operate their fleet within the state. Needless to say, this is a huge undertaking and represents an extremely ambitious goal. However, outside of California, much of the demand for renewable fuel sources is voluntary. In recent years, a growing number of companies, including 70% of Fortune 5000 businesses, have been establishing ESG targets as a way to meet the rising expectations of their customers, employees, and other stakeholders. These goals set benchmarks that companies must meet regarding their environmental impacts, social responsibilities, and governance practices. The driving force behind these targets is often rooted in the rapidly shifting attitudes towards corporate sustainability in today's society. Customers are becoming increasingly concerned about the social and environmental impacts of the products they purchase, while employees are similarly focused on these issues as they relate to the workplace. Moreover, end users have also begun demanding more sustainable options from businesses, forcing many companies to adapt in order to remain competitive. As a result, most businesses now consider it essential to set meaningful ESG targets in order to stay ahead of these trends and maintain long-term success. One potential strategy that many trucking companies are considering is overhauling their fleet to include more electric or hybrid trucks. Such vehicles offer several benefits, including reduced emissions and increased efficiency, as well as lower maintenance costs due to fewer moving parts. However, transitioning to an all-electric or hybrid fleet is a significant undertaking that involves remarkable investments in new technology and infrastructure. Thus, any trucking company that decides to make this switch must carefully weigh the costs vs. the benefits and ensure that it has the resources necessary to carry out such a major transition successfully.

There Is Not a Single Renewable Fuel That Solves Everything at This Point

In the next ten years, we can expect significant shifts in which renewable fuel solutions are most widely adopted by fleets due to a variety of factors. When it comes to transitioning from fossil fuels to alternative energy sources, there are many considerations that businesses must take into account. For example, some alternative fuels might require drastic changes to existing systems or vehicles, making the transition a costly and time-consuming process.

Biodiesel

The first shift has been to biodiesel because it does not require any significant changes to trucks or fueling infrastructure. Instead, biodiesel simply replaces traditional diesel fuel in your fleet and can be used in your existing tanks without requiring any major modifications. As such, it is the ideal choice for companies looking to make the shift to green fuels while minimizing downtime and maintenance costs. While biodiesel is currently the most easily transitional option, it will be outstripped by renewable diesel in terms of growth over time.

Renewable Diesel

Renewable diesel is a growing trend in the alternative energy sector, and experts predict that within the next three years it will become an important form of renewable fuel for the trucking industry. This shift is due to a number of recent investments and projects at hydrocarbon refineries, which are being converted into renewable diesel facilities to take advantage of the many benefits that renewable diesel offers. That being said, many experts believe that renewable diesel will only be able to fill a small portion of the market for fuel in the transportation industry. Due to the limited availability of feedstock for this type of fuel, it is believed that there is only enough available supply to meet around 3 billion gallons of demand per year. While this may seem like a relatively modest amount, it is important to keep in mind that this represents only a small fraction of the total fuel needs in the transportation sector. Therefore, while it is certainly encouraging to see more viable options being developed for sustainable fuel sources, these fuels are likely to play only a minor role in meeting our overall energy needs moving forward.

Compressed Natural Gas

Natural gas and its subsequent renewable counterpart, RNG (renewable natural gas), are set to experience rapid growth as well. The trucking industry has recently seen a shift towards more environmentally-friendly fuel sources, with the rise of compressed natural gas (CNG) and renewable natural gas (RNG). Compared to conventional diesel, these alternative fuels have lower carbon emissions and produce fewer harmful byproducts. And while CNG and RNG are currently more expensive than diesel, experts predict that this gap will narrow in the coming years as the market for these fuels continues to grow. At present, some trucking companies have already made the switch to CNG or RNG. However, despite their promising environmental benefits and cost savings over time, these new fuel sources do come with certain constraints. Most notably, they can only be used in trucks that were specifically designed for them; retrofitting existing trucks is not typically feasible. Additionally, the vehicles themselves

are a significant investment. Nevertheless, it is clear that CNG and RNG are set to play a key role in the future of the trucking industry. As manufacturers continue to develop more efficient and affordable technologies for these fuel sources over the next five to seven years, we expect CNG and RNG to grow at a rapid pace.

Electric Vehicles (EV)

As the transition away from traditional fuel sources continues, many experts believe that electric vehicles will become an increasingly important part of the transportation landscape. Already, there are a number of pilot programs and research initiatives aimed at bringing the cost of electric trucks more in line with other types of vehicles, and there is evidence that these efforts may be bearing fruit. Additionally, with the development of new charging infrastructure and an increased focus on renewable energy sources, it seems clear that electric trucks are poised to play an increasingly important role in our overall transportation strategy. While electric trucks are still expensive compared to conventional diesel trucks, they offer significant benefits that cannot be ignored. For one thing, the cost of powering an electric truck is much lower than running a traditional diesel truck, due to the lower price of electricity. Although charging stations have started popping up across the nation, the time it takes to charge an EV can be anywhere from 45 minutes to an hour. In order to achieve the same "fill time" as it would take to fill a diesel truck, a 1-megawatt charger would be necessary. The charging equipment that is emerging today is typically only 350 kilowatts. Moreover, an EVs run time is going to be greatly impacted by its payload and difference in temperature.

Hydrogen Power

Although hydrogen-powered vehicles have seen some recent advancements in their design and production, they are unlikely to surpass other fuel options as the primary means of transportation within the next decade. For many years, hydrogen-powered vehicles have been touted as the fuel of the future. These vehicles use hydrogen to produce electricity that powers the vehicle, and their theoretical advantages over conventional vehicles are numerous. In particular, they offer a greater range and faster refueling times than traditional vehicles, making them ideal for long-distance travel. Despite this potential, hydrogen-powered vehicles have struggled to gain widespread popularity due to high costs. Compared to conventional trucks, these vehicles are significantly more expensive, partly because of the technology required to produce and store hydrogen fuel. Despite these challenges, many players in the transportation industry continue to invest heavily in this technology. Both OEMs and energy suppliers are working to reduce costs through technological innovations and new business models, such as on-demand fueling networks. Given these efforts, it is likely that we will start to see increased adoption of hydrogen-powered vehicles in the next decade or so. While these vehicles may not be suitable for all types of driving, they could play an important role on longer cross-country routes where high performance and efficiency are essential. As such, it is clear that this emerging technology still has a lot of potential in the years ahead. Overall, we can expect major shifts in the landscape of renewable fuels over the next decade as new technologies and materials emerge and existing solutions reach their maximum potential.

Cost Parity Plays A Major Role In Making The Switch Toward Renewable Energy

One of the main barriers to the widespread adoption of renewable energy solutions is cost. In order for many businesses to make the switch from traditional fossil fuels to cleaner alternatives, the cost must be comparable. Electric vehicles, for example, are still more expensive than their diesel counterparts, despite recent advancements in technology that have helped to reduce costs. One way to overcome this challenge is through government incentives. Incentives can help to offset the upfront costs associated with making the switch to cleaner energy solutions. For example, the US federal government offers a tax credit of up to $7,500 for businesses that purchase electric vehicles. This type of incentive can be critical in helping businesses justify the switch to cleaner energy solutions. In addition to cost, another major challenge that must be overcome is infrastructure. In order for electric vehicles to become widely adopted, there must be a sufficient number of charging stations available. The same is true for hydrogen-powered vehicles, which require access to fueling stations. The lack of infrastructure is one of the main reasons why these technologies have not been more widely adopted to date. Despite the challenges, renewable energy solutions are becoming more and more viable each day. As costs continue to decline and infrastructure improves, we can expect to see increased adoption of these technologies in the years ahead.

It's Going To Be A Joint Effort To Achieve Zero Emissions

Establishing a robust renewable fuel infrastructure is vital for efforts to transition away from fossil fuels and mitigate the effects of climate change. While there are many government incentives and subsidies available to support these efforts, the cost of updating existing truck stops across the country is considerable. With over 180,000 such facilities in the United States alone, the total investment required to make all of them renewables-ready would be in the trillions. Fortunately, many companies are working on developing new types of renewable fuel infrastructure. Given the significant investment required to update existing infrastructure, the private sector will play a major role in the transition to renewable energy. "It's going to take a few decades to put the infrastructure in place," stated Tim Murray, "but it is clear that the train has left the station and it's not coming back."