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Decarbonisation in the Transportation Sector & the Quest for Net Zero

The transition to net-zero emissions in the transportation sector has many implications for the players and stakeholders within the ecosystem. Mobility and transportation-related industries are the engines of the global economy, enabling trillions of dollars of trade every year.

What is the significance of these net zero targets and how would the shift impact the opportunities and risks for the mobility sector around the world?

Transportation is also among the most significant sources of greenhouse-gas (GHG) emissions, accounting for approx. 20 percent of them. In 2020, the global transport industry was responsible for approximately 7.3 billion metric tons (Statista, 2021) of carbon dioxide (CO²) emissions.

Across the mobility system, by far the biggest GHG producer is road transportation. Tailpipe emissions from cars, trucks, and other vehicles make up 75 per cent of all emissions from transportation activity, compared with 13 per cent from aviation, 11 per cent from maritime transport, and 1 per cent from rail transport.

However, the good news is that with climate technologies such as batteries, fuel cells and biofuels, vehicles could emit little or no GHGs. However, decarbonising mobility or transportation would involve major changes, including a shift in the mix of vehicles being manufactured and an increase in upfront capital costs for consumers and organisations as they switch to electric vehicles (EVs) and other low-emission transport alternatives.

Because of these changes, companies throughout the mobility system—including OEMs and their suppliers, plus manufacturers and operators of infrastructure—will have opportunities to tap the growing demand for vehicles that produce minimal or no GHGs.

Within the automotive industry, a move toward a net-zero economy and a new future for mobility is well underway: manufacturers are accelerating the development of electric, connected, autonomous, and shared mobility. The industry has attracted more than \$400 billion in investment (McKinsey & Company, 2021) over the past decade—and around \$100 billion since the beginning of 2020.



At the same time, governments and cities have introduced regulations and incentives to support the decarbonisation of road transport. The European Commission, for example, has proposed a target to cut average CO₂ emissions from new cars by 55 per cent no later than 2030, and the US federal government has called for zero-emission vehicles to make up half of all new passenger car and light-truck sales by that year. In Southeast Asia, Singapore is leading the adoption of EV (of 3% of total passenger cars) but in other countries (with have much bigger fleet), there is still very low adoption, of less than 1 per cent.

For Singapore, the aim is to phase out all Internal Combustion Engine (ICE) vehicles and have entire road transportation run on cleaner energy by 2040. Under the Singapore Green Plan 2030 (SGP30), a comprehensive EV Roadmap was developed to accelerate the adoption of EV on the roads, for both private and public sectors. Taking the lead is the public transport sector, where the Land Transport Authority (LTA) has committed to having a 100 per cent cleaner energy fleet by 2040, purchasing only cleaner energy buses moving forward.

In the area of air transportation, the Civil Aviation Authority of Singapore (CAAS), Singapore Airlines (SIA) and Temasek will launch the sale of Sustainable Aviation Fuel (SAF) credits in July 2022. The sale of the SAF credits is part of a CAAS-SIA-Temasek pilot announced in November 2021 to advance the use of SAF in Singapore. A total of 1,000 SAF credits will be available for sale. These are generated from the 1,000 tonnes of neat SAF which are blended, delivered, and uplifted from Changi Airport and are expected to cut carbon dioxide emission by 2,500 tonnes. Every credit purchased will help to reduce 2.5 tonnes of carbon dioxide emissions. The SAF credits will be registered within the Roundtable on Sustainable Biomaterials (RSB) Book & Claim System to ensure that the SAF credit transactions are conducted in a trusted and transparent manner, with no double counting of credits.

For the maritime industry, Singapore has the **Maritime Singapore Decarbonisation Blueprint: Working Towards 2050** which charts ambitious and concrete long-term strategies to build a sustainable Maritime Singapore. Developed by MPA in consultation with industry partners, the Blueprint will contribute to Singapore's commitments under the United Nations' 2030 Sustainable Development Agenda, Paris Agreement and the Initial IMO Strategy. The Blueprint outlines seven focus areas, which MPA will focus on to support the decarbonisation of the maritime industry:

- i. Port terminals;
- ii. Domestic harbour craft;
- iii. Future marine fuels, bunkering standards and infrastructure;
- iv. Singapore Registry of Ships;
- v. Efforts at IMO and other international platforms;
- vi. Research & Development and Talent;
- vii. Carbon awareness, carbon accounting and green financing.



Singapore's commitment and international cooperation efforts reinforced the COP26 declaration on accelerating the transition to 100 per cent zero emission cars and vans where international private and public stakeholders have also signed a declaration of commitments to attain 100 per cent of all vehicle sales being zero emission by 2040 or earlier. The declaration, which was led by the UK COP Presidency and RouteZero partners, marks both a hopeful inflection point for the automotive and mobility industries with its signatories; and it also speaks of the urgency in drastically reducing the carbon (CO²) emissions produced by this sector.

While the declaration and many other national or corporate initiatives are certainly a move in the right direction, the world will have to wait and see whether the necessary change will transpire as there is, so often, a formidable gap between talk and action, and we are undoubtedly aware of the challenges in this global goal of net-zero emissions in transport. As such, policy initiatives at the global and national levels must be matched with financing and private sector ambition.

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Philip is Director and Principal Consultant at RHT Green. Philip has more than 22 years of experience in the energy industry. He worked for Chevron from 1998 to October 2020 in Singapore, London, Hong Kong and Shanghai across M&As, corporate business development, strategy, and sustainability. Philip also served as a start-up founder for Chevron's digital venture in China in 2015 where he built up an B2C ecosystem for fuel and lubricants solutions leveraging eCommerce and technology. In the course of his career, Philip has led the origination and evaluation of investment opportunities, secured strategic partnerships, directed deal teams in due diligence, financial and commercial analysis, complex negotiations and contracting in the energy space.

About RHT Green

RHT Green is a Singapore-based sustainability consultancy that provides thought leadership and sustainable transformations especially in the areas of carbon emissions and sustainable finance. With our team of dedicated sustainability consultants and vast capabilities of multi-disciplinary leaders in the ONERHT network, we help our clients derive purposeful growth and business value from strategy through to execution.



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