# SHENZHEN IN CHINA IS THE FIRST CITY IN THE WORLD TO HAVE PUBLIC TRANSPORTATION ALL ELECTRIC

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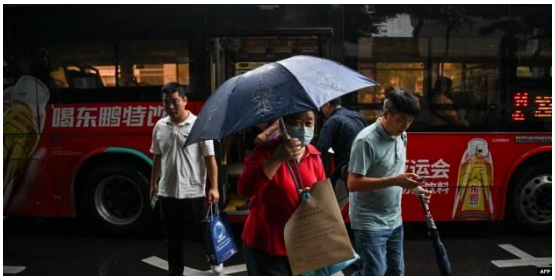
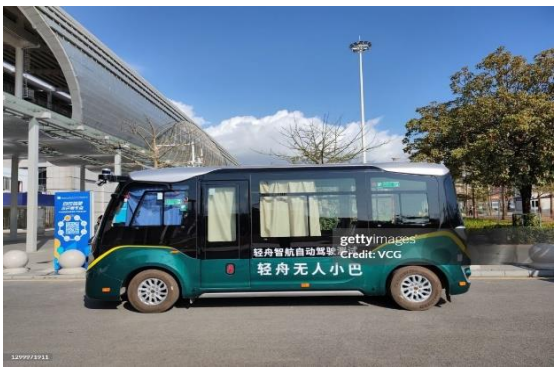
According to the IAA Mobility 2025 website, The Chinese city of Shenzhen is a prime instance of development from a rural region to a leading city in the field of electric mobility. Since 2017, Shenzhen has relied entirely on electric buses for public transportation. In the following years, more than 20,000 taxis, ride-hailing services and ambulances were converted to electric propulsion, too. Consequently, Shenzhen is the first city in the world to have all-electric public transportation.

Pollution in Chinese cities was a major factor pushing the central government to prioritize the switch in public transport and in 2009, China launched the *Ten Cities, One Thousand Buses* project with the aim of gradually increasing the use of vehicles that could run on renewable energy through the provision of annual subsidies for the introduction of electric buses in ten cities. Shenzhen was one of the first cities selected to join other major cities, such as Beijing and Shanghai, on the road to sustainable mobility. In 2018, electric buses were introduced to meet the requirements and unified specifications for use, and well over 1,800 charging stations were installed across the city. BYD, a world-renowned electric vehicle manufacturer based in Shenzhen, was selected by the Government as the supplier of the electric buses, and charging equipment. With approximately 16,000 electric buses, Shenzhen was the first city in China that replaced all diesel buses in 2017 with electric buses. Shortly thereafter, taxis and other ride services were converted to electric drives, too.





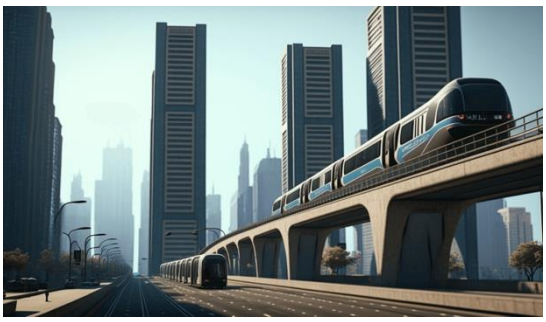

By the end of 2021, Shenzhen boasted 20,000 electric buses, 24,000 electric taxis, and over 60,000 privately owned electric vehicles. In fact, electric vehicles made up 25 percent of the total private vehicles, with more than 250,000 on the roads. This number is projected to rise to 750,000 by 2025. Nonetheless, accompanying this impressive growth are challenges related to enhancing sustainable energy supplies and storage technologies, recycling end-of-life batteries, ensuring the reliability of charging infrastructure, and effectively integrating the widespread power grid. Electric mobility is now well established in Shenzhen. In total, there are more than 5,000 charging stations and over 80,000 charging hubs. These cover a wide range of charging capacities and vehicle requirements.

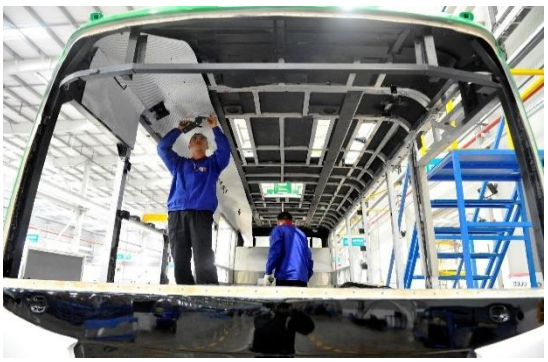
Furthermore, at the end of December 2022, the first SkyRail in Shenzhen, the *Pingshan Cloud Bus Line1*, was officially launched, as the driverless magnetic levitation train powered by

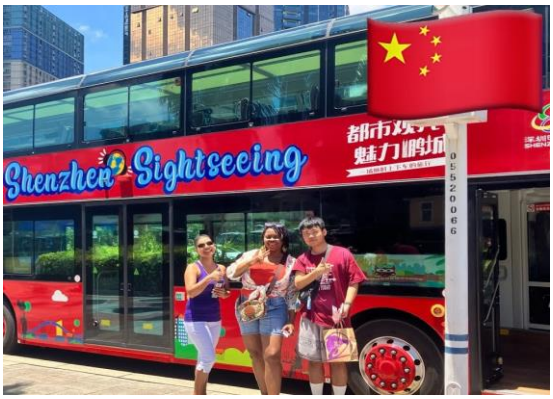
renewable energy. Along the 5.3-miles route, featuring 11 stations, SkyRail reaches a top speed of 50 mph and can accommodate approximately 3,000 passengers per hour. It passes through Shenzhen's main industrial and business districts, as well as art and cultural centers. Moreover, SkyRail seamlessly integrates with other public transit and long-distance services, ensuring exceptional system connectivity. The train employs a variety of cutting-edge technologies, and notably does not require additional ground space. This efficient utilization of the city's vertical space enhances the urban infrastructure within densely populated areas.

The Shenzhen experience has been highlighted by countless articles from specialized institutions and international journals that are competent in the field of mobility and transportation as an example of great success in the construction of an electric public mobility system to combat air pollution by providing citizens with efficient transportation services. In addition to highlighting the great speed of the works for the implementation of complex service transformations and projects execution of the works that have been carried out, the articles highlight how the Shenzhen experience has managed all the aspects that have made possible for the new system of services to function effectively and efficiently, including for example the electric charging stations and the adaptation and provision of new technologies to respond to the needs of private transportation facilities also, building a coherent system of services for citizens.

According to the IAA Mobility website, for the sustainable development of E-Mobility City, the Shenzhen city government has already set the following goals: “by 2025, the proportion of renewable energy driven vehicles among newly registered vehicles in the city should reach 60%, with a total fleet of about 1 million. The cumulative number of HPC charging stations in the public and special networks should be around 43,000, and the amount of regular charging stations in the basic network is expected to reach 790,000. The charging infrastructure should be further expanded and standardized, with an average radius of less than 0.6 miles within the city. The intercity highway infrastructure will be integrated to create a functional, stable, intelligent, and safe system for electric vehicles. Indeed, Shenzhen has held the title for the city with the most registered electric vehicles for six consecutive years since 2014, making its continued success in this arena quite foreseeable. Transforming from a rural region to a world-class city, Shenzhen's electric mobility achievements are unparalleled. The city's ability to capitalize on its strategic location and incentives, coupled with its responsiveness to market demands and robust R&D capabilities, have allowed to consistently establish new industries while maintaining a steady growth. BYD has applied for 38,000 patents worldwide and has been granted 26,000. The company has produced more than 65,000 electric buses and 600,000 electric cars worldwide. Electric vehicles have become an irresistible trend, garnering significant interest from investors. Alongside BYD, numerous Chinese brands like NIO and MG have joined the e-mobility movement. Shenzhen-based industries such as Tencent and Huawei have also invested in the development of electric vehicles and intelligent software systems for e-mobility. Collectively, they have the potential to shape the future. Bolstered by its products, technologies, and years of experience, Shenzhen's economic prowess is poised to be immense. This innovative city is set to lead the charge in e-mobility, paving the way for a sustainable and prosperous future”.








Electrification is one of the most important strategies" for reaching net-zero carbon emissions by 2050, according to the International Energy Agency, IEA, with bus decarbonization representing around 5% of cumulative emissions reductions in transport". China's huge investment in electric transport comes with a wider drive to reduce smog. Air quality in big Chinese cities often reaches hazardous levels and in 2014, the country "declared war" on pollution, investing heavily in renewable energy as well as green technology. By introducing electric mobility, local researchers estimate Shenzhen's electric buses can reduce 48 percent of $CO_2$ emissions, compared to diesel buses, and up to 100 percent of other local pollutants.

Today, the international community acknowledges that improving air quality can enhance climate change mitigation and that climate change mitigation efforts can improve air quality. Encouraged by the increasing interest of the international community in clean air, and emphasizing the need to make further efforts to improve air quality, including reducing air pollution, to protect human health, the General Assembly decided to designate 7 September as the International Day of Clean Air for blue skies.

In 2024 China was celebrating this International Day with some extraordinary pictures of blue skies presented by the China Meteorological Administration, showing skies clear of pollution clouds.

**To know more**

Article in iaa-mobility.com

Article in weforum.org

Report by Energy Foundation China 2020

Report in efChina.org

Electrification of public transport. A Case Study of the Shenzhen Bus Group Published by the World Bank in 2018

Article in voaafrica.com

Article in progressplaybook.com

Article in un.org-clean-air-day

International Day of Clean Air for Blue Skies in cma.gov.cn