Economics World, Oct.-Dec. 2025, Vol. 12, No. 4, 317-324
doi: 10.17265/2328-7144/2025.04.002

Hong Kong's Financial Incentives for Electric Vehicles as a Prerequisite for Promoting Low Carbon Transition

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Overviewing the air pollution situation in Hong Kong, energy generation and transportation are part of the contribution to the carbon emissions. Electric vehicles do not have engines and no air pollutants emissions. The promotion of electric vehicles serves as an important strategy to Hong Kong's goal to achieve carbon neutrality by 2050. This paper illustrated the financial incentives the Hong Kong Government has launched, including First Registration Tax concessions, profits tax deduction, One-for-One Scheme, lower license fee, subsidy support for e-buses and e-taxis, free charging services at government car parks, EV-charging at home Subsidy Scheme, etc. By comparing the cost of purchasing and owning vehicles with the cost of purchasing and owning electric vehicles as well as the market performance of electric vehicles to examine whether the financial incentives in Hong Kong can promote electric vehicles and serve as a prerequisite to low carbon transition. The results show that under government support and promotion associated with preferential policy, electric vehicles will become the future trend in Hong Kong with the advantage of lower emissions, energy saving, and environmental protection.

Keywords: financial incentive, electric vehicle, government policy, low carbon transition

Introduction

In response to global climate change, the full electrification of transportation has gradually become a global trend. As a world city in Asia, The Hong Kong Government has determined to improve air quality and develop a livable city while achieve carbon neutrality by 2050[1]. Promoting vehicles gradually transit to zero carbon emissions by combining with low carbon transition in power supply, is an important strategy many regions adopt to achieve carbon neutrality in response to climate change. Road transport took around 20% of the greenhouse gas emissions in Hong Kong, the second largest part of carbon emissions after power generations (Council for Carbon Neutrality and Sustainable Development, 2023), which 4.2% of carbon emissions from private cars, 3.5% from medium goods vehicles, both taxis and light goods vehicles taken 1.9% of the carbon emissions, and 1.8% from franchise buses in 2018 (Environment Bureau, 2021). It's essential to promote new energy transport. Therefore, the Hong Kong Government has implemented various financial incentives to promote electric vehicles

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[1] The Chief Executive's 2020 Policy Address Homepage. (Last updated on 2020/11/25). Chief Executive's Office of the Hong Kong Special Administration Region. https://www.policyaddress.gov.hk/2020/eng/policy.html

and announced the Hong Kong Roadmap on Popularization of Electric Vehicles in 2021, and Green Transformation Roadmap of Public Buses and Taxis in 2024 to set the future direction on transformation of electric vehicles[2]. By analyzing the costs during individuals or organizations' purchase and ownership of automobiles and compare them with costs from electric vehicles to examine whether the financial incentives proposed by the Government could increase people's willingness to purchase electric vehicles. The purpose of this paper is to analyze whether the financial incentives can support the promotion of electric vehicles towards zero carbon transition.

Literature Review

Prior to the financial incentives, the Hong Kong Government has already committed to promotion of electric vehicles by establish a supervision committee led by the Financial Secretary in 2009 and Pilot Green Transport Fund in 2010 to support the green development and technology innovation of road transport (Rietmann, & Lieven, 2019; Chen, & Ni, 2014). The Hong Kong Government subsequently introduced other financial incentives included First Registration Tax concessions for private vehicles, First Registration Tax waiver and profits tax deduction for e-commercial vehicles, One-for-One Replacement Scheme, lower license fee, subsidy support for e-bus and e-taxi, free charging services at government car parks, EV-charging at home Subsidy Scheme, etc., Table 1 shows the details of current financial incentives (Environment Bureau, 2021; Environment and Ecology Bureau, 2024)[3,4,5]. Incentive measures related to electric vehicle adoption can be of different kinds and could be distinguished into purchase base and use base incentives (Sierzchula et al., 2014; Lieven, 2015). A case in fact of purchase base incentive is a tax rebate or a subsidy when purchasing an electric vehicle whereas the use base incentives included free parking, no restrictions on electric vehicles to use bus lanes, etc. As purchase base incentives decreased fixed cost of EV-use, which seems to be an effective way to increase sales of electric vehicles. However, use base incentives generate lower costs from the government compared to purchase base incentives, but rebound effects may occur as use base incentives will lower marginal costs, such as no effect on car buyers who cannot afford to purchase an electric vehicle (Langbroek, Franklin, & Susilo, 2016), but Hong Kong does not have these arrangements, and the rebound effects does not exist. Moreover, insufficient charging infrastructure, public concerns in battery waste and emissions from electricity production were also challenges of promoting electric vehicles in Hong Kong (Luo, 2025; Delang, & Cheng, 2012).

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[2] Promotion of Electric Vehicles Webpage. (Last updated on 2025/02/26). Environmental Protection Department of the Government of the Hong Kong Special Administration Region. https://www.epd.gov.hk/epd/english/environmentinhk/air/promotion_ev/promotion_ev.html

[3] First Registration Tax Concessions for Electric Vehicles Webpage. (Last updated on 2025/02/18). Transport Department of the Government of the Hong Kong Special Administration Region. https://www.td.gov.hk/en/public_services/licences_and_permits/vehicle_first_registration/new_frt_concessions_for_electric_vehicles_2018/index.html

[4] Profits Tax Deduction for Capital Expenditure on Environment-friendly Vehicles Webpage. (Last updated on 2024/03/31). Environmental Protection Department of the Government of the Hong Kong Special Administration Region. https://www.epd.gov.hk/epd/english/environmentinhk/air/prob_solutions/Profits_Tax_Deduction_EFV_Models.html

[5] New Energy Transport Fund (previously named Pilot Green Transport Fund) Webpage. (Last revision date: 2024/12/19). Environment and Ecology Bureau of the Government of the Hong Kong Special Administration Region. https://www.eeb.gov.hk/en/new-energy-transport-fund/new-energy-transport-fund.html

Table 1

Financial Incentive Policies

Arrangements	Details
First Registration Tax (FRT) Concessions	Eligible electric private car owners (except One-for-One Scheme eligible car owners), the FRT concession cap is HK$58,500. Car prices over HK$500,000 cannot apply. Full FRT waiver for electric commercial vehicle.
One-for-One (OfO) Replacement Scheme	Eligible private car owners can arrange to scrap and de-register their old cars and first register a replacement electric private car. The FRT concession cap is $172,500 for OfO car owners.
Lower License Fee	License fees for electric vehicles, minimum HK$572.
Free Charging	Free electric vehicle charging service at government car parks.
Profits Tax Deduction	Businesses that purchase electric commercial vehicles may deduct capital expenditure under profits tax.
New Energy Transport Fund	HK$1.1 billion to support trial and green innovative technologies.
EV-charging at home Subsidy Scheme	HK$2 billion to subsidize existing buildings to install charging infrastructure over 60,000 car parks in existing private residential buildings.
Fund for government car parks	Allocated HK$120 million fund to add 1000+ medium chargers at existing government car parks.
Subsidy Support for Franchise Bus Operators	A HK$470 million subsidy scheme to support franchise bus operators to purchase 600 e-buses by 2027 and registration completed by 2029.
Subsidy Support for Taxi Owners	A HK$135 million subsidy scheme to support taxi owners to purchase 3000 e-taxis.

Source: Hong Kong Transport Department, Environmental Protection Department, Environment and Ecology Bureau.

Methodology

The data shown in this article mainly from policy statements from related departments of the Hong Kong Government, including Chief Executive's Office, Environmental Protection Department, Council for Carbon Neutrality and Sustainable Development, Environmental and Ecology Bureau, and Transport Department, as well as existing literatures. Mathematical methods are used to calculate related costs of purchasing and owning electric vehicles and fuel vehicles. A comparison method and a comparative analysis method are used to compare benefits of purchasing electric vehicles.

Table 2

First Registration Tax Rates on Vehicles in Hong Kong

Vehicle Type / Taxable Value	Tax Rate
1. Private Cars	
(a) first HK$150,000	46%
(b) next HK$150,000	86%
(c) next HK$200,000	115%
(d) remaining taxable value	132%
2. Motorcycles, motor tricycles	35%
3. (a) Goods vehicles (except van-type light goods vehicles)	15%
(b) Van-type light goods vehicles below 1.9 tons permitted gross vehicle weight	
(1) first HK$150,000	35%
(2) next HK$150,000	65%
(3) remaining taxable value	85%
(c) Van-type light goods vehicles over 1.9 tons permitted gross vehicle weight	17%
4. Taxis, Light buses, Buses, Special purpose vehicles	3.7%

Source: Hong Kong Transport Department.

Research Results

Cost of Purchasing and Owning Automobiles

Due to geographical reasons, every vehicle in Hong Kong was import from other regions, when car owners applying the first registration of their imported vehicles in Hong Kong, several costs would be incurred, including first registration tax and registration fee, as well as vehicle license fee and Traffic Accident Victim Assistance Fund[6]. Tables 2 and 3 show the first registration tax rates and license fee for different vehicles in Hong Kong (Transport Department, 2021)[7]. With reference to the table, if an individual or organization purchases a fuel vehicle, the amount of cost other than the car price sometimes may exceed the original car price. In addition, when individuals and organizations owned fuel vehicles, the cost of fuel also will increase the burden of owning a vehicle as the net price of petrol and diesel with walk-in discount in Hong Kong[8] ranges from HK$19.14 to HK$23.85[9], approximately HK$1,000 in average to refuel a vehicle. However, if an individual or organization purchases an electric vehicle instead of a fuel vehicle, electric car owners can benefit from various financial incentives introduced by the Government, and the cost of recharging an electric vehicle ranges from HK$40 to HK$280[10], which will also lower the burden for car owners.

Table 3

Hong Kong Vehicle License Fee

Vehicle Class	**Annual Fee**	**4-month Fee**
Private Petrol Car Engine Cylinder Capacity:		
(a) below 1,500c.c.	HK$ 5,074	HK$ 1,804
(b) over 1,500c.c. but below 2,500c.c.	HK$7,498	HK$2,653
(c) over 2,500c.c. but below 3,500c.c.	HK$9,929	HK$3,504
(d) over 3,500c.c. but below 4,500c.c.	HK$12,360	HK$4,355
(e) over 4,500c.c.	HK$14,694	HK$5,171
Light Diesel Private Car Engine Cylinder Capacity:		
(a) below 1,500c.c.	HK$6,972	HK$2,469
(b) over 1,500c.c. below 2,500c.c.	HK$9,396	HK$3,317
(c) over 2,500c.c. below 3,500c.c.	HK$11,827	HK$4,168
(d) over 3,500c.c. below 4,500c.c.	HK$14,258	HK$5,019
(e) over 4,500c.c.	HK$16,592	HK$5,836
Goods Vehicle & Special Purpose Vehicle Permitted Gross Vehicle Weight:		
(except Van-Type Light Goods Vehicle)		
(a) below 1.9 tons	HK$1,289	HK$480
(b) over 1.9 tons but below 5.5 tons	HK$2,404	HK$870
(c) over 5.5 tons	HK$4,694	HK$1,671

[6] Traffic Accident Victim Assistance Fund Levy included in vehicle license fee.

[7] Guidelines for Importation and Registration of Motor Vehicle Webpage. (Last updated on 2024/11/21). Transport Department of the Government of the Hong Kong Special Administration Region. https://www.td.gov.hk/en/public_services/licences_and_permits/vehicle_first_registration/guidelines_for_importation_and_registration_of_mot/index.html

[8] Price on 4 March 2025.

[9] Consumer Council Oil Price Watch Homepage. (Last updated on 2025/03/04). The Consumer Council of the Hong Kong Special Administration Region. https://oil-price.consumer.org.hk/en

[10] Shell Recharge Hassle-free pricing scheme Webpage. (Last updated on 2024/11/18). Shell Hong Kong Limited. https://www.shell.com.hk/en_hk/motorists/hassle-free-pricing-scheme.html

To be continued

Van-Type Light Goods Vehicle Permitted Gross Vehicle Weight:		
(a) below 1.9 tons	HK$2,289	HK$809
(b) over 1.9 tons	HK$4,524	HK$1,517
Public Bus		
(a) driver; and	HK$25	HK$30+35% Annual Fee
(b) additional fee for each seat for a passenger	HK$30	
Private Bus		
(a) driver; and	HK$25	HK$30+35% Annual Fee
(b) additional fee for each seat for a passenger	HK$45	
Taxi	HK$3,159	HK$1,134
Motorcycle and Tricycle	HK$1,314	HK$488
Public Light Bus	HK$8,429	HK$2,979
Private Light Bus	HK$2,749	HK$991
Electric Passenger Vehicle		
(a) below 1-ton unladen weight; and	HK$572	HK$30+35% Annual Fee
(b) additional fee for each 250kg unladen weight or part thereof	HK$124	

Source: Hong Kong Transport Department.

Market Performance of Electric Vehicles

Under the implementation of financial incentives, the registration of electric private cars increased year by year, Table 4 shows the annual registered and licensed number of private cars from 2018 to 2024 (Li et al., 2023)[11]. Since 2022, the registration of electric private cars has exceeded the registration of fuel propelled private cars. Among the new registered electric private cars, 90% were opted from the One-for-One Scheme from its launched in 2018 to the end of 2020 (Environment Bureau, 2021), which has proven the tax concessions and this scheme to be effective.

Table 4

Number of First Registration Private Cars by Fuel Types[12]

Year	Fuel-propelled	Electric
2018	41,816	471
2019	35,886	2,423
2020	32,441	4,595
2021	29,726	9,583
2022	17,683	19,795
2023	15,628	28,541
2024	13,503	33,206

Source: Hong Kong Transport Department.

[11] Transport Department. (Last updated on 2025/02/20). Vehicles Registration & Licensing Webpage. The Government of the Hong Kong Special Administrative Region. https://www.td.gov.hk/en/transport_in_hong_kong/transport_figures/vehicle_registration_and_licensing/index.html

[12] Cars that cannot classified fuel types were not included.

However, the market performance of electric commercial vehicles is significantly worse than electric private cars. Table 5 shows the comparison of private cars and commercial vehicles currently registered[13]. The electric private cars showed a significant increase, but the growth rate of electric commercial vehicles was still low. Table 6 shows the registered electric commercial vehicles by type, the commercial vehicle market were mainly goods vehicles[13], which has proven that first registration tax concessions and profits tax reduction on electric commercial vehicles to be effective in goods vehicle market. Electric franchised buses also contributed to the electric commercial vehicle market, but the growth rate is slower than goods vehicles, and the impact from subsidy support to franchise bus operators remains to be seen. In addition, the growth rate of electric taxis suddenly increased by the end of 2024, which has proven that the subsidy support to taxi owners has created some positive impact.

Table 5

Registered Private Cars and Commercial Vehicles[14] by Fuel Types[15]

Time	**Private Cars**		**Commercial Vehicles**	
	Electric	Other Fuel Types	Electric	Other Fuel Types
2018/12	11,080	606,603	128	147,853
2019/12	13,447	614,783	159	146,066
2020/12	17,998	633,360	194	147,651
2021/12	27,358	629,615	247	148,475
2022/12	46,565	602,975	340	148,996
2023/12	74,896	570,455	681	147,963
2024/12	107,762	522,949	1,070	143,421

Source: Hong Kong Transport Department.

Table 6

Registered Electric Commercial Vehicles by Type

Time	**Taxis**	**Franchised Buses**	**Public Light Buses**	**Goods Vehicles**
2018/12	0	33	0	95
2019/12	0	34	0	125
2020/12	0	34	0	160
2021/12	0	34	0	213
2022/12	1	51	0	288
2023/12	18	70	1	592
2024/12	139	88	4	839

Source: Hong Kong Transport Department.

Current Status of Public Charging Infrastructure

As one of the financial incentives included allocated funds to install charging infrastructure at car parks in residential buildings and government properties. Figure 1 shows the number of public chargers in Hong Kong. However, most of the public charging infrastructure located in government car parks, public housing, shopping

[13] Transport Department. (Last updated on 2025/02/20). Monthly Traffic and Transport Digest Webpage. The Government of the Hong Kong Special Administrative Region. https://www.td.gov.hk/en/transport_in_hong_kong/transport_figures/monthly_traffic_and_transport_digest/index.html

[14] Taxis, franchise buses, public light buses, goods vehicles.

[15] Other fuel types refer to fuel types except pure electric, included hybrid electric vehicles but exclude hydrogen vehicles.

malls, etc., making overnight charging impractical. Additionally, international unified quick charging standards have not yet been formulated and the medium chargers with IEC Type 2 standard mainly used for European-produced electric vehicles. Although electric vehicles produced from US, Japan, or Mainland China can use such chargers through a conversion cable, but remains a challenge (Mo et al., 2022)[16]. Although the growth rate of public charge stations increased after 2022 and the fund support to public chargers has indeed resulted in a certain positive impact on government car parks, the financial incentive to install charging infrastructure at car parks in residential buildings remains to be seen.

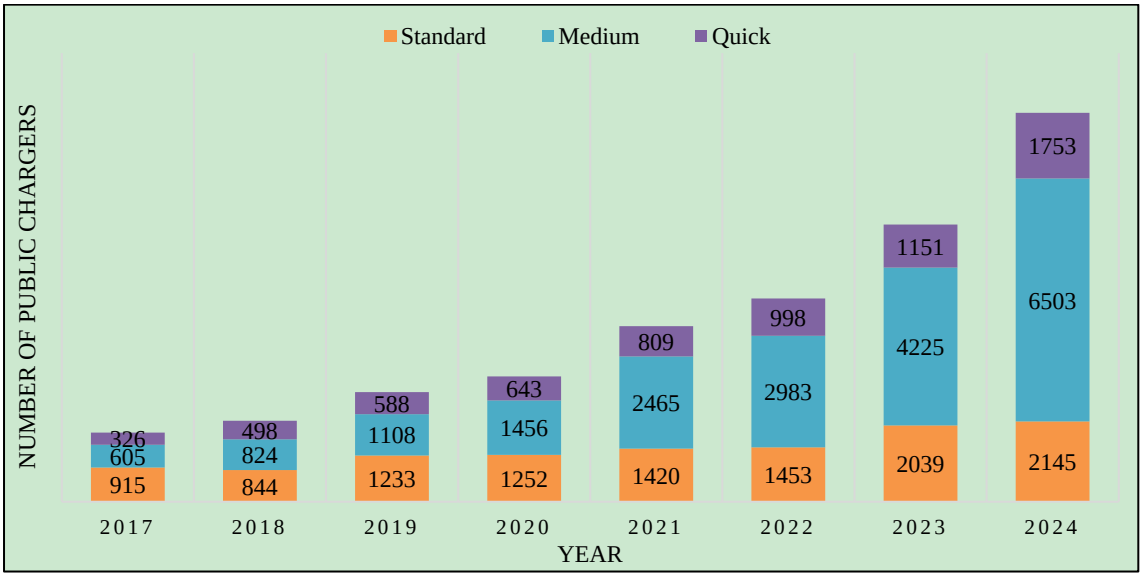

Figure 1. Number of public chargers in Hong Kong.
Source: Hong Kong Environmental Protection Department.

Limitations

Although the financial incentives have created a certain impact on the promotion of electric vehicles, these incentive policies cannot be in place forever. The existence of these policies was meant to support the startup electric vehicle market that unable to function on its own. If more people changed to electric vehicles, the installation of charging infrastructure, power generation and battery pollution still challenges. It's also important for consumers to be aware of the advantages of these incentives and how far in the future these incentives can stay. If the incentives vanished or gradually decreased, whether it's easy to change the travel behaviors again from these consumers that relied on these benefits from electric vehicles remains to be seen.

Conclusion

This paper has studied the current development of Hong Kong's electric vehicle market, the cost of purchasing and owning electric vehicles than other fuel vehicles, and challenges of promoting electric vehicles. The registration of new electric vehicles in Hong Kong is increasing, which proven that the financial incentives has create a certain positive impact and its indeed lower costs in purchasing and owning electric vehicles.

[16] Environmental Protection Department. (Last updated on 2025/01/13). Locations of EV Chargers for Public Access Webpage. The Government of the Hong Kong Special Administrative Region. https://www.epd.gov.hk/epd/english/environmentinhk/air/promotion_ev/locations_ev_chargers.html

However, the adoption of electric commercial vehicles is less than private cars. It's expected that the subsidy support for franchised buses and taxis can make a better impact, and more financial incentives can be adopted to the electric commercial vehicles. The challenges of adopting electric vehicles included insufficient chargers, pollution of power generation and batteries. The Government should continue its subsidy support to charging infrastructure, innovative technologies. Innovative technologies included intelligent systems, charging technologies, auto drive, etc. Moreover, the Government should also strive to facilitate eco-friendly decommission of batteries and electric vehicles and accelerates low carbon transition of power generation is also important as power generation served as the largest carbon emission source in Hong Kong.

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