

**For discussion on
24 March 2014**

**LEGISLATIVE COUNCIL
PANEL ON ENVIRONMENTAL AFFAIRS**

Progress of the Pilot Green Transport Fund

PURPOSE

This paper updates Members of the operation of the Pilot Green Transport Fund (the Fund).

BACKGROUND

2. The local transport sector, including road and marine transport, is the largest local emission source¹ for nitrogen oxides and respirable suspended particulates. Promoting the wider use of green transport technologies could help improve roadside air quality, better protect public health as well as combat climate change. To this end, the \$300 million Fund was set up in March 2011 to encourage the public transport sector and non-profit organizations providing services to their clients to test out green and innovative technologies. The Fund is applicable to ferries, taxis, public light buses, franchised buses and non-franchised public buses, and goods vehicles.

3. Broadly speaking, the green and innovative technologies to be supported under the Fund may involve one or more of the following products –

- (a) alternative-fueled vehicles such as electric vehicles, hybrid vehicles, plug-in hybrid vehicles, etc.;

¹ Based on the 2012 Hong Kong air pollutants emission inventory published in March 2014.

- (b) after-treatment emission reduction devices such as diesel particulate filters, selective catalytic reduction devices, exhaust gas recirculation systems, wet scrubbers, etc.;
- (c) fuel saving devices; or
- (d) conversion of in-use conventional vehicles to alternative-fueled vehicles.

Details of the eligibility criteria and subsidy levels of the Fund are set out at **Annexes I and II** respectively.

4. The Fund is administered by the Environmental Protection Department (EPD). Given the diversity and continuous evolvement of technologies, a steering committee has been set up to advise the Government on the approval of funding for each application. The steering committee is currently chaired by Prof. Timothy Tong and includes members drawn from academic institutions, transport trades and the relevant government departments. The membership list of the steering committee is at **Annex III**.

PROGRESS

5. As at end of February 2014, the Fund approved 73 projects involving the trials of 24 electric taxis, two electric light buses, 11 electric buses, 35 electric goods vehicles, 41 hybrid goods vehicles, 12 hybrid light buses, the retrofitting of four bus engines and the trial of one solar air-conditioning system. The total subsidy involved is about \$93 million.

6. Once approved by the Fund, the successful applicant would arrange for procurement of the new vehicle / technology, installation of ancillary facilities and in some cases staff training to prepare for the start of trial. At present, one hybrid public light bus, one electric taxi, four electric buses, 16 electric goods vehicles and 24 hybrid goods vehicles subsidized by the Fund are on trial by various transport operators. All these projects will go through a trial period of two years. One electric light goods vehicle has just completed the two-year trial and its final trial report is in preparation. Details of the trials are set out

at **Annex IV**.

7. To monitor and evaluate the operational performance of the green technologies under trial as compared with their conventional counterparts, EPD has engaged an independent third-party assessor. The assessor regularly visits the Fund recipients and interviews end-users to collect the required trial data (such as performance, reliability and operational difficulties) for preparing trial reports. Interim reports will be prepared after the first six months and 12 months while a final report will be prepared at the end of the two-year trial. All these reports will be uploaded to EPD's webpage² for public reference. So far, six interim reports involving the trial of six electric vans and five hybrid light goods vehicles have been uploaded. A summary of these interim reports is at **Annex V**.

8. The Fund has attracted a wide range of businesses to try out new green transport technologies, including companies from courier and logistics service, construction industry, passenger services operators, beverage delivery, supermarket, schools and university, taxi business, etc.

PROMOTION AND PUBLICITY

9. Since the launch of the Fund, we have been encouraging the transport trades to make use of the Fund to try out green innovative transport technologies and suppliers to introduce green transport products for trial. Information of the Fund, including application guide, sample agreement and interim reports for the trials and etc. have been uploaded on EPD's website. We also organize briefing sessions for potential applicants and green transport technology suppliers. A major promotion event was held in September 2013, in which some Fund recipients shared their experience, and technology suppliers showcased their products, including electric and hybrid vehicles.

10. With more trial reports becoming available, we are also planning to organize more briefing sessions for the relevant trades and interested parties to share experience on the trial products. We will also promote the Fund in an international conference for vehicle

² http://www.epd.gov.hk/epd/english/environmentinhk/air/prob_solutions/pilot_green_transport_fund.html

emission control technology to be held in Hong Kong in June 2014. We will continue to encourage more sectors to make use of the Fund to try out green and innovative transport technologies.

ADVICE SOUGHT

11. Members are invited to note the progress of the Fund.

Environmental Protection Department

March 2014

Eligibility Criteria of the Pilot Green Transport Fund

Eligible Applicants

An applicant must be an existing transport operator based in Hong Kong (including cross-boundary transport) who:

1. operates ferries, taxis, public light buses, vehicles of charitable / non-profit making organizations providing services to their clients, franchised buses and non-franchised public buses, or goods vehicles (including special purpose vehicles);
2. has been in the relevant transport service for more than one year;
3. will likely remain in the service after the trial to bear fruit;
4. has the potential to put the new technology under test into wider use in its own operation upon successful trial;
5. is willing to share the findings of the test with other operators; and
6. is not receiving or has not received funding from other Government sources, public bodies or charitable organizations for the same purpose of the application, except the incentive scheme to encourage the early replacement of Euro II diesel commercial vehicles and the tax incentive scheme to encourage the use of environment-friendly commercial vehicles.

Technologies to be Supported

The Fund supports a green and innovative technology which:

1. works on sound scientific principles;
2. out performs its conventional counterpart by emitting significantly less air pollutant or greenhouse gas, or demonstrating much better fuel economy. However, regular upgrading of emission performance of conventional fossil fuel vehicles in accordance with the prevailing international standards (e.g. European standards) should not generally be qualified for application;
3. has not been commonly or widely used for day-to-day operation in the relevant transport trade locally;
4. is affordable to the transport trades in respect of capital and operation costs;

5. is likely able to cope with the local operating conditions such as hilly terrain, hot and humid climate, intensity of operation, etc.;
6. does not violate any statutory requirements such as roadworthiness, fire safety, etc. and can satisfy the approval requirements of the relevant regulatory authorities; and
7. is not for research purpose.

The products to be tested may involve:

1. alternative-fueled vehicles such as hybrid vehicles, plug-in hybrid vehicles, electric vehicles, etc.;
2. after-treatment emission reduction devices such as diesel particulate filters, selective catalytic reduction devices, exhaust gas recirculation systems, wet scrubbers, etc.;
3. fuel saving devices; or
4. conversion of in-use conventional vehicles to alternative-fueled vehicles.

Subsidy Levels of the Pilot Green Transport Fund

The Fund only subsidizes the capital cost of the hardware (including installation cost if applicable) of the green and innovative technology product proposed for trial but not the associated recurrent expenditure. Please refer to the Table for the subsidy level of various technologies for trial.

An applicant is allowed to submit more than one application to try different technologies (e.g. a public light bus operator to try both hybrid vehicles and electric vehicles) or to test products from different suppliers for the same technology under the same application to compare performance subject to the caps in the Table. A transport operator is, however, subject to an upper limit of **\$12 million** in total subsidy.

Green and innovative technology product	Subsidy level	Subsidy cap
(a) <u>Alternative-fueled vehicles</u>		
(i) Subsidy per vehicle	(i) Price premium between the alternative-fueled and the conventional vehicle or 50% of the cost of the alternative-fueled vehicle, whichever is higher	\$3 million per vehicle and \$9 million per application
(ii) Related support systems	(ii) 50% of setting up cost	

Green and innovative technology product	Subsidy level	Subsidy cap
(b) <u>Conventional vehicles</u>		
(i) After-treatment emission reduction devices;	75% of the cost of the device including installation or the vehicle conversion cost	\$1.5 million per device or vehicle conversion, and
(ii) Fuel saving devices; or		\$9 million per application
(iii) Conversion of in-use conventional vehicles to alternative-fueled vehicles		
(c) <u>Ferries</u>		
Engine retrofit or testing of alternative-fueled engine	75% of the device or engine including installation	\$3 million per engine or device, and \$9 million per application

As technology continues to develop, green and innovative technology products other than the above categories may also be available for trial by the transport trades. Such applications will be considered on a case-by-case basis. Related subsidy levels and caps are the same as above.

Membership of Pilot Green Transport Fund Steering Committee

Chairman	Professor Timothy W. Tong, JP
Members	Mr Chan Sam Choi Ir Daniel M Cheng, MH Dr Jackson Ho, MH Mr Kevin Koo Mrs Agnes Mak, MH, JP Mr Wilson Mok Mr Ng Kwan Sing Mr So Sai Hung Mr Matthew L P Wong Mr Michael Y K Wong Representative of Environmental Protection Department Representative of Innovation and Technology Commission Representative of Transport Department Representative of Electrical and Mechanical Services Department

Annex IV

Details of the Trials under the Pilot Green Transport Fund

No.	Fund Recipient	Project	Trial Products
1	The Chinese University of Hong Kong	Electric Shuttle Buses on Campus	2 electric buses
2	The Chinese University of Hong Kong	Electric Vans on Campus	2 electric van type light goods vehicles
3	Federal Express (Hong Kong) Limited	Electric Vans for Courier Service	3 electric van type light goods vehicles
4	TNT Express Worldwide (HK) Limited	Electric Vans for Courier Service	2 electric van type light goods vehicles
5	Chi Shing Transportation Company	Electric Van for Construction Industry	1 electric van type light goods vehicle
6	International Trademart Company Limited	Electric Buses for KITEC and MTR Kowloon Bay Station Shuttle Service	2 electric buses
7	Kwai Bon Transportation Limited	Hybrid Light Goods Vehicles for Logistics Service	3 hybrid light goods vehicles
8	A. S. Watson Group (HK) Limited	Hybrid Light Goods Vehicles for Supermarket	1 hybrid light goods vehicle
9	MTR Corporation Limited	Hybrid Light Goods Vehicles for Transportation Industry	1 hybrid light goods vehicle
10	Kerry Distribution (Hong Kong) Limited	Hybrid Medium Goods Vehicles for Logistics Service	3 hybrid medium goods vehicles
11	Hong Kong Automobile Association	Electric Van for Emergency Vehicle Rescue Service	1 electric van type light goods vehicle
12	On Mei Tak Environmental Technology Limited	Hybrid Medium Goods Vehicles for Transportation of Recycling Materials	3 hybrid medium goods vehicles
13	Swire Beverages Limited	Hybrid Light Goods Vehicles for Beverage Delivery	3 hybrid light goods vehicles
14	Swire Beverages Limited	Hybrid Medium Goods Vehicles for Beverage Delivery	3 hybrid medium goods vehicles
15	UPS Parcel Delivery Service Limited	Hybrid Light Goods Vehicles for Courier Service	2 hybrid light goods vehicles
16	Shun Hing Logistics Company Limited	Hybrid Light Goods Vehicles for Logistics Service	2 hybrid light goods vehicles
17	S.F. Express (Hong Kong) Limited	Hybrid Light Goods Vehicles for Courier Service	3 hybrid light goods vehicles
18	Kwoon Chung Motors Company Limited	Electric Vans for Servicing Passenger Transport Industry	2 electric van type light goods vehicles

No.	Fund Recipient	Project	Trial Products
19	Sunny Engineering Company	Electric New Territories Taxi	1 electric taxi
20	Hong Kong & China Transportation Consultants Limited	Hybrid Light Buses for Green Minibus Service	3 hybrid light buses (1 started trial)
21	BioCycle (Hong Kong) Limited	Electric Vans for Pest Management Service	2 electric van type light goods vehicles
22	Hong Kong International School Association Limited	Electric Van for School	1 electric van type light goods vehicle
23	Mak Hang Kei (Hong Kong) Construction Limited	Electric Vans for Construction Industry	2 electric van type light goods vehicles

Summary of Interim Trial Reports

Electric goods vehicles

1. The electric goods vehicles can support a travel distance close to the travel range specified by their manufacturers.
2. There is no sign of deterioration in their performance and batteries.
3. The drivers operate the electric goods vehicles well but one electric goods vehicle model has found to have insufficient power to go uphill of gradient over 8%.
4. They have about 50% to 80% savings in fuel costs after taking into account the electricity charging costs as compared with usage of their conventional diesel counterparts under similar utilization rates.

Hybrid goods vehicles

1. The fuel economy of the hybrid vehicle is better than their diesel counterparts.
2. There is no sign of deterioration in the performance of the vehicles.
3. The drivers have no problem in their operation but feel that they have insufficient power to go uphill.
4. They have about 10% savings in fuel costs as compared with their conventional diesel counterparts under similar utilization rates.