

**New Energy Transport Fund**

**Interim Report**  
**On**  
**Trial of Electric Light Goods Vehicle for**  
**Gardening Service**  
**(Wholesome Company)**

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The Monitoring and Evaluation Team's views expressed in this report do not necessarily reflect the views of the Environment and Ecology Bureau (Environment Branch), HKSAR.

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**New Energy Transport Fund  
Trial of Electric Light Goods Vehicle for Gardening Service  
(Wholesome Company)**

**Interim Report  
(Trial Period: 1 January 2023 – 30 June 2023)**

**Executive Summary**

**1. Introduction**

1.1 The New Energy Transport Fund (the Fund) is set up to encourage transport operators to try out green innovative transport technologies, contributing to better air quality and public health for Hong Kong. Wholesome Company (Wholesome) was approved under the Fund for trial of one electric light goods vehicle. Through the tendering procedures stipulated in the Subsidy Agreement entered into with the Government, Wholesome procured a Joylong EW5 electric light goods vehicle (EV) for trial.

1.2 Hong Kong Productivity Council has been engaged by the Environmental Protection Department<sup>1</sup> as an independent third-party assessor to monitor the trial and evaluate the performance of the trial vehicle. Wholesome assigned a diesel light goods vehicle (DV) providing same services as the conventional counterpart for comparison.

1.3 This Interim Report summarises the performance of the EV in the first six months of the trial as compared with its conventional counterpart.

**2. Trial and Conventional Vehicles**

2.1 The trial EV, Joylong EW5 electric light goods vehicle, has a gross vehicle weight (GVW) of 4,300 kg capable of carrying a driver with 4 passengers and goods. It has a 73.4 kWh Lithium-ion battery pack and the driving range is 330 km with air-conditioning off. There is a designated driver assigned to drive the EV. The EV was used mainly for delivering plants and gardening materials to clients in Hong Kong.

2.2 The DV, Hyundai H1 Van Standard diesel light goods vehicle with a GVW of 3,230 kg and a cylinder capacity of 2,497 c.c., was used as the conventional counterpart for comparison in this trial. Since the start of operation of the EV, the duty of the DV was replaced by the EV. Hence, the historical data of the DV were used for comparison in this report.

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<sup>1</sup> The Administration of the New Energy Transport Fund was migrated to the Environment Branch of the Environment and Ecology Bureau [EEB (Environment Branch)] since 1 January 2023 after internal re-organisation of EEB (Environment Branch) and EPD.

2.3 Wholesome has installed a designated 30 kW DC charging facility for charging the EV. Key features of the EV and the DV as well as the EV charging facility are presented in Appendix 1. The photos of vehicles and the EV charging facility are shown in Appendix 2.

### 3. Trial Information

3.1 The trial commenced on 1 January 2023 and would last for 12 months. Wholesome was required to collect and provide trial information including the EV's mileage reading before charging, amount of electricity consumed in each charging, time taken for charging, operation downtime due to charging, cost and downtime associated with scheduled and unscheduled maintenances of the EV and the charging facility. Similar data of the DV were also required. In addition to the cost information, reports on maintenance work, operational difficulties and opinions of the drivers were collected and provided to reflect any problems of the EV.

### 4. Findings of Trial

4.1 Table 1 summarises the statistical data of the EV and the DV in the first six months of the trial period.

Table 1: Key operation statistics of each vehicle (1 January 2023 – 30 June 2023)

		EV	DV (historical data) <sup>[1]</sup>
Total distance travelled (km)		6,252	6,443
Average daily distance travelled (km/working day)		35	36
Average fuel economy	(km/kWh)	3.61	-
	(km/litre)	-	11.26
	(km/MJ)	1.00	0.31 <sup>[2]</sup>
Average fuel cost (HK\$/km)		0.43 <sup>[3]</sup>	1.85 <sup>[4]</sup>
Average total operating cost (HK\$/km)		0.43	1.85
Downtime (working day) <sup>[5]</sup>		0	0

<sup>[1]</sup> Based on the historical data from 1 November 2021 to 30 April 2022.

<sup>[2]</sup> Assuming lower heating value of 36.13 MJ/litre for diesel fuel.

<sup>[3]</sup> The electricity cost was calculated using average electricity tariff rates of HK\$1.544/kWh (January 2023 – February 2023); HK\$1.552/kWh (March 2023 – April 2023); HK\$1.565/kWh (May 2023); and HK\$1.559/kWh (June 2023) as claimed by CLP.

<sup>[4]</sup> The market fuel prices from 1 January 2023 to 30 June 2023 were used for calculation.

<sup>[5]</sup> Downtime refers to the working days that the vehicle is not in operation due to charging or maintenance, counting from the first day it stops operation till the day it is returned to the operator.

4.2. During the six months of the trial, there were 181 working days. The total distance travelled and the average daily distance travelled of the EV were 6,252 km and 35 km/day, respectively while those of the DV were 6,443 km and 36 km/day, respectively. The average fuel cost of the EV was HK\$1.42/km (about 77%) lower than that of the DV. Taking the maintenance fee for both the EV and the DV into account, the average total operating cost of the EV was the same as the average fuel cost.

4.3 In the first six months of the trial period, the EV did not have any maintenance while the DV had a scheduled maintenance for the government annual vehicle inspection. The scheduled maintenance of the DV did not induce downtime. Therefore, the utilisation rates of both the EV and the DV were 100%.

4.4 The driver of the EV had no problem in operating the vehicle and was satisfied with the performance of the EV.

## **5. Summary**

5.1 In the first six months of the trial, the average daily distance travelled of the EV was 35 km, while that of the DV was 36 km.

5.2 Both the average fuel cost and the average total operating cost of the EV were HK\$1.42/km (about 77%) lower than those of the DV.

5.3 The utilisation rates of both the EV and the DV were 100%.

5.4 The driver of the EV had no problem in operating the vehicle and was satisfied with the performance of the EV.

5.3 The findings only reflect the performance of the EV in the first 6 months of the trial. The performance and reliability of the EV will be continuously monitored in the 12 months of the trial.

## **Appendix 1: Key Features of Vehicles and Charging Facility**

### **1. Trial EV and Charging Facility**

#### **(a) EV**

<b>Registration mark:</b>	<b>YE6759</b>
Make:	Joylong
Model:	EW5
Class:	Light goods vehicle
Gross vehicle weight:	4,300 kg
Payload:	1,300 kg
Seating capacity:	Driver + 4 passengers
Rated power:	100 kW
Travel range:	330 km (air conditioning off)
Battery material:	Lithium-ion
Battery capacity:	73.4 kWh
Year of manufacture:	2022

#### **(b) EV Charging Facility**

Make:	Only Power Supply
Model:	ANDC5-500V/60A-1
Power:	30 kW, 500V DC / max. 60A
Charging standard:	GB mode

### **2. DV Used for Comparison**

<b>Registration mark:</b>	<b>NP4266</b>
Make:	Hyundai
Model:	H1 Van Standard
Class:	Light goods vehicle
Gross vehicle weight:	3,230 kg
Payload	1,150 kg
Seating capacity:	Driver + 5 passengers
Cylinder capacity:	2,497 c.c.
Year of manufacture:	2008

## Appendix 2: Photos of Vehicles and Charging Facility

### 1. Trial EV and Charging Facility

	
Front view of EV	Rear view of EV
	
Left side view of EV	Right side view of EV
	
Charging facility – 30 kW DC charger	

## 2. DV Used for Comparison



Front view of DV



Rear view of DV



Left side view of DV



Right side view of DV