New Energy Transport Fund

Interim Report
On
Trial of Electric Light Goods Vehicle
for Retailing Industry
(Talent Scout Management Limited)

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(Trial Period: 1 October 2022 – 31 March 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. Talent Scout International Limited (Talent Scout) 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, Talent Scout procured a Nissan e-NV200 electric light goods vehicle (EV) for trial.

1.2 Hong Kong Productivity Council has been engaged by the Environmental Protection Department [1] as an independent third-party assessor to monitor the trial and evaluate the performance of the trial vehicle. Talent Scout 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, Nissan e-NV200 electric light goods vehicle, has a gross vehicle weight (GVW) of 2,250 kg capable of carrying a driver with 4 passengers and goods. It has a 40 kWh lithium-ion battery pack and the driving range is 317 km with air-conditioning off. The DV, Ssangyong Stavic diesel light goods vehicle with a GVW of 2,750 kg and a cylinder capacity of 1,998 c.c., was used as the conventional counterpart for comparison in this trial. There are two designated drivers assigned to drive both the EV and the DV. Both the EV and the DV provide the same services for delivering mobile phones and telecommunication products to retail stores in Hong Kong.

[1] 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.

2.2 Talent Scout has installed a designated 7.4 kW single phase AC 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 October 2022 and would last for 12 months. Talent Scout 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. 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 October 2022 – 31 March 2023)

		EV	**DV**
Total distance travelled (km)		5,845	27,080
Average daily distance travelled (km/working day)		40	184
Average fuel economy	(km/kWh)	5.28	-
	(km/litre)	-	8.76
	(km/MJ)	1.47	0.24 [1]
Average fuel cost (HK$/km)		0.28 [2]	2.40 [3]
Average total operating cost (HK$/km)		0.28	2.51
Downtime (working day) [4][5]		0.5	1

[1] Assuming lower heating value of 36.13 MJ/litre for diesel fuel.

[2] The electricity cost was calculated using average electricity tariff rates of HK$1.289/kWh (Oct 2022); HK$1.451/kWh (Nov 2022 – Dec 2022); HK$1.544/kWh (Jan 2023 – Feb 2023); and HK$1.552/kWh (Mar 2023) as claimed by CLP.

[3] The market fuel price was used for calculation.

[4] 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.

[5] In the first month of the trial period, the EV charging facility could not charge the EV due to the malfunction of the equipped RFID cards. However, the drivers were still able to charge the EV at other locations. Thus, the operation of the EV was not affected.

4.2. During the six months of the trial, there were 148 working days. The total distance travelled and the average daily distance travelled of the EV were 5,845 km and 40 km/day, respectively while those of the DV were 27,080 km and 184 km/day, respectively. The average fuel cost of the EV was HK$2.12/km (about 88%) 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 HK$2.23/km (about 89%) lower than that of the DV.

4.3 The EV had one scheduled maintenance while the DV had two scheduled maintenance in the first six months of the trial period. During the reporting period, the EV had 0.5 days of downtime while the DV had 1 day of downtime. Therefore, the utilisation rates of the EV and the DV were 99.7% and 99.3%, respectively.

4.4 The drivers of the EV had no problem in operating the vehicle and were 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 40 km, while that of the DV was 184 km.

5.2 The average fuel cost of the EV was HK$2.12/km (about 88%) lower than those of the DV. The average total operating cost of the EV was HK$2.23/km (about 89%) lower than that of the DV, taking the maintenance cost for both the EV and the DV into account.

5.3 The utilisation rates of the EV and the DV were 99.7% and 99.3%, respectively.

5.4 The drivers of the EV had no problem in operating the vehicle and were 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

Registration mark:	**YC3929**
Make:	Nissan
Model:	e-NV200 Half Panel Van
Class:	Light goods vehicle
Gross vehicle weight:	2,250 kg
Payload:	658 kg
Seating capacity:	Driver + 4 passengers
Rated power:	80 kW
Travel range:	317 km (air conditioning off)
Battery material:	Lithium-ion
Battery capacity:	40 kWh
Year of manufacture:	2020

(b) EV Charging Facility

Make:	Sinexcel Electric
Model:	Interstellar EV AC Charger
Power:	7.4 kW, 220V AC / max. 32A
Charging standard:	IEC 62196-2 Type 2

2. DV Used for Comparison

Registration mark:	**STYLEBUY**
Make:	Ssangyong
Model:	Stavic
Class:	Light goods vehicle
Gross vehicle weight:	2,750 kg
Payload	591 kg
Seating capacity:	Driver + 4 passengers
Cylinder capacity:	1,998 c.c.
Year of manufacture:	2017

Appendix 2: Photos of Vehicles and Charging Facility

1. Trial EV and Charging Facility

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<tr><td>Front view of EV</td><td>Rear view of EV</td></tr>
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<tr><td>Left side view of EV</td><td>Right side view of EV</td></tr>
<tr><td>  </td><td></td></tr>
<tr><td>Charging facility – 7.4 kW single phase AC charger</td><td></td></tr>
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2. DV Used for Comparison

	
Front view of DV	Rear view of DV
	
Left side view of DV	Right side view of DV