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22 June 2012

Mr Derek LO
Clerk to Panel on Economic Development
Legislative Council Secretariat
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong

Dear Mr LO,

Panel on Economic Development

Follow-up to the meeting on 23 April 2012
"Follow-up to the Ngong Ping 360 ropeway incidents and update on its resumption of service"

As requested by Members during the captioned meeting, we provide the following supplementary information for the Panel's reference :

(a) a note on "Viability of Ngong Ping 360 Limited to claim damages from the bearing manufacturer and comparing similar cable car systems overseas with Ngong Ping ropeway" provided by the Ngong Ping 360 Limited at Annex 1.

(b) A note on "Electrical and Mechanical Services Department's investigations into the previous service disruption incidents of

Ngong Ping ropeway" provided by the Electrical and Mechanical Services Department at Annex 2.

Yours sincerely,

(Mrs Miranda YIM)
for Secretary for Commerce and Economic Development

c.c.

PSCIT
DEMS (Attn: Mr Harry Lai, Assistant Director/Gas & Gen Legislation)
AA/SCED
Press Secy/SCED
SEO(POO)
PIO(CIT)

Mr Wilson Shao, Managing Director, Ngong Ping 360 Ltd.

Annex 1

Viability of Ngong Ping 360 Limited to claim damages from the bearing manufacturer and comparing similar cable car systems overseas with Ngong Ping ropeway

Viability of NP360 to claim damages from the bearing manufacturer

The Ngong Ping 360 Limited (NP360) has identified and implemented a series of enhancement and follow-up actions following the investigation of the 25 January 2012 incident conducted by NP360 and the Electrical and Mechanical Services Department. The investigation found that the spalling of the bullwheel bearing was caused by ineffective lubrication, arising from high water content in the grease leading to degraded lubricating effectiveness. In view of this finding, NP360 has enhanced the storage of the grease and enhanced monitoring of its water content. In addition to the use of a more water-resistant grease, it has also adopted other improvement measures and suggestions.

The manufacturer's maintenance manual and guidelines only provide general basic information on maintenance. The operator should adjust these guidelines in the light of the actual operating condition and experience gained. Besides, the investigation result has not found any sub-standard materials in the bearings provided by the manufacturer or supplier. NP360 has sought legal advice on the grounds for seeking claims from the manufacturer. The conclusion is that there is no legal basis for bringing a claim against the manufacturer. Hence, NP360 considered that claiming the manufacturer for the indemnity of the 25 January 2012 incident is not appropriate.

Comparing similar cable car systems overseas with Ngong Ping ropeway

Generally speaking, cable car systems have two stations, i.e. one station at the high level and the other at the lower level. According to the International Technical Surveillance Boards of Ropeway and other related information, there are about 30 bi-cable systems in the world, mainly located in Europe with a few in Japan and Korea. The bi-cable systems in Europe, Japan and Korea operate in a relatively drier climate. The design of the Ngong Ping ropeway is unique in that a 5.7km long ropeway is provided with two

intermediate angle stations, which requires more bullwheels in comparison with other ropeway systems. Coupled with its unique operating environment, including its long span across the Tung Chung Bay, proximity to the seashore and humid environment, it is difficult to make direct comparison with the other bi-cable systems in the world.

The Ngong Ping ropeway was designed according to international standards and due regard had been given to the weather conditions in Hong Kong. The system was comprehensively tested and approved to be fit for safe operations. That said, it is a normal practice for the cable car operator to suitably review and introduce enhancement measures to improve the quality of its repair and maintenance system after it has accumulated actual experience from operating the system in the prevailing external environment.

To cater for the local humid environment, NP360 has already used a water-resistant grease as recommended by the manufacturer to lubricate the bullwheel bearings since the commencement of operation. In the light of the experience of the 25 January incident where higher than normal water content was found in the grease in the bearings, NP360 has implemented further improvement measures to enhance the usage, storage and monitoring of the grease having regard to the unique operating environment in Hong Kong.

Ngong Ping 360 Limited
June 2012

Annex 2

Electrical and Mechanical Services Department's investigations into the previous service disruption incidents of Ngong Ping ropeway

The Electrical and Mechanical Services Department (EMSD) regulates the Ngong Ping ropeway in accordance with the Aerial Ropeways (Safety) Ordinance ("Ordinance"). The EMSD has established a regulatory mechanism under the powers given by the Ordinance to monitor the design, construction, installation, testing, examination, operation and maintenance of the Ngong Ping ropeway to ensure public safety. In accordance with the established reporting mechanism, the Ngong Ping 360 Limited (NP360) is required to notify, within 30 minutes of occurrence, the relevant government departments including the EMSD of suspension of cable car service that is expected to last for 30 minutes or more.

2. After the reopening of the Ngong Ping ropeway on 31 December 2007, there were altogether 12 reportable incidents caused by technical problems. Most of them involved the adjustment and repair of non-safety components. Amongst these incidents, seven were related to the cabin transportation system at stations, two involved the lining and bearings of haul rope sheaves, another two involved the electronic components of monitoring system, and the remaining one was associated with the setting of haul rope tension. In all cases, the ropeway safety protection system functioned properly and stopped the cable car operation immediately and safely.

3. Although the above incidents were not related to ropeway safety, the EMSD had carried out investigation and technical evaluation for each and every incident. Apart from the comprehensive checking of components of the same type as those involved in the incidents, improvement measures were also established with NP360 to eliminate any potential risks of breakdown and enhance the service reliability of the ropeway (e.g. addition of guide rollers for the conveying belts at stations, so as to prevent the dislocation of belts during operation). In addition, the EMSD examined the qualities and frequencies of maintenance works associated with the incidents, the stock level of spare parts, and oversee the implementation of the improvement measures concluded from the examination.

4. Regarding the four incidents occurred in December 2011 and January 2012 among the above service disruption incidents, the main focus of the investigations conducted by the EMSD are :

(i) inspection, checking and analysis of the ropeway components involved in the incidents, including haul rope sheaves and associated bearings & linings, cabin transportation system and cabin spacer, etc.;

(ii) for the incident of 25 January 2012, independent expert was engaged to examine the haul rope sheave bearings and perform grease analysis;

(iii) inspection and analysis of various documents of the ropeway system, including operation log, fault records, monitoring reports on the condition of haul rope sheave bearings, maintenance records of components relating to the incidents, maintenance manuals, maintenance procedures and duty roster, etc., so as to verify the compliance of various operation, maintenance and repair works;

(iv) conducting on-site checking of critical maintenance works performed by NP360 so as to ascertain their compliance with the operation and maintenance manuals of the ropeway system; and

(v) conducting interview with the NP360 staff concerning the details and sequence of events before and after the incidents, and the maintenance works of related components.

5. The EMSD's investigations found that the types and locations of the components involved in the above four incidents were different, and therefore these four incidents were unrelated to each other. Besides, the maintenance works conducted by NP360 were found in compliance with the requirements of the operation and maintenance manuals. Notwithstanding this, there was room for improvement in the management, operation and maintenance of the ropeway system. To enhance the service reliability of the system, EMSD had urged NP360 to implement a series of rectification and improvement measures based on the root causes of incidents identified during the investigations, which were detailed in the investigation report submitted to the Panel on 5 April 2012.

Electrical and Mechanical Services Department
June 2012