

For information

Legislative Council Panel on Transport

**Replacement of the High Voltage Switchboards
and Power Transformers of the Power Supply System
in the Cross-Harbour Tunnel**

PURPOSE

This paper informs Members of our proposal to replace the high voltage switchboards and power transformers of the power supply system in the Cross-Harbour Tunnel (CHT).

BACKGROUND

2. The high voltage switchboards and power transformers are the core components of an electricity supply system. The existing high voltage switchboards and power transformers in the CHT have been in use for 35 years. They have reached the end of their economic serviceable life.

PROPOSAL

3. We propose to replace the existing high voltage switchboards and power transformers in the CHT at an estimated cost of \$15.35 million.

JUSTIFICATION

4. The existing high voltage switchboards and transformers were put to use when CHT was opened in 1972. According to the Electrical and Mechanical Services Department, it has become increasingly difficult to maintain them in good condition. In addition, as these switchboards and transformers are mostly of an old design, most of their spare parts are not readily available in the market.

5. The CHT is strategically located and the busiest cross-harbour road tunnel in Hong Kong. Any failure of the electricity supply system will directly affect the normal operation of the tunnel, which will very likely result in serious traffic congestion on the road networks on both sides of the tunnel. It is necessary to replace the high voltage switchboards and

power transformers to ensure a stable and reliable power supply for safe and efficient tunnel operation.

IMPLEMENTATION PROGRAMME

6. We plan to start the replacement project in the second quarter of 2008 and complete it in about 35 months. A work programme is set out at the Annex. The first 15 months are for preparation work including detailed investigation, system design and tendering. The remaining 20 months are for equipment production, delivery, installation, testing and commissioning.

7. To minimize disruption to the tunnel operation, most of the works will be carried out in the closed tube at night when the tunnel is under one-tube-two-way operation for normal maintenance.

FINANCIAL IMPLICATIONS

8. We estimate the capital cost of the project to be \$15.35 million with breakdown as follows -

	\$ million
(a) Replacement of	12.30
(i) two high voltage switchboards	6.50
(ii) four transformers	3.00
(iii) high voltage cables	1.80
(iv) cable containment and mounting accessories	1.00
(b) Electrical and Mechanical Services Trading Fund (EMSTF) project management charges	1.85
(c) Contingency (10% of item (a))	1.20
Total	<u>15.35</u>

9. Regarding paragraphs 8(a) above, the estimated cost of \$12.30 million will cover the supply, installation, testing and commissioning of the high voltage switchboards, power transformers and the associated equipment (e.g. temporary switchgear, cable, etc.).

10. Regarding paragraph 8(b) above, the estimated cost of \$1.85 million is for meeting the charges to EMSTF for carrying out the feasibility study; preparing the specifications, design and project programme; overseeing the tendering process; undertaking site inspection; supervising the installation, testing and commissioning of the system; and monitoring the operation of the system and defect rectification work.

11. We intend to phase the expenditure as follows -

Year	\$ million
2008-2009	0.30
2009-2010	2.40
2010-2011	11.85
2011-2012	0.80
Total	15.35

12. Since this is a replacement project, there will not be any additional recurrent expenditure.

13. It is expected that the proposal will have no impact on the toll charges of the CHT.

WAY FORWARD

14. We will seek funding approval from the Finance Committee on 13 June 2008 for the replacement of high voltage switchboards and power transformers of the power supply system in the CHT.

ADVICE SOUGHT

15. Members are invited to note our proposal to replace the high voltage switchboards and power transformers of the power supply system in the CHT.

Transport and Housing Bureau
May 2008

**Work Programme for
Replacement of High Voltage Switchboards and
Power Transformers of the Power Supply System in the Cross-Harbour Tunnel**

	Work Items	Duration (months)	2008		2009		2010		2011		2012
			1-6	7-12	1-6	7-12	1-6	7-12	1-6	7-12	1-6
1	System engineering study and preliminary site survey	4	■								
2	Detailed design and preparation of tender document	6		■							
3	Tendering	5			■						
4	Equipment manufacture, installation, testing and commissioning	20				■	■	■	■		