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16 June 2015

Secretary General,  
Legislative Council,  
Legislative Council Complex,  
1 Legislative Council Road,  
Central, Hong Kong  
(Attn: Ms. Sophie LAU)

[Fax No.: 2978 7569]

Dear Sophie,

**Panel on Transport  
Subcommittee on Matters Relating to Railways  
List of follow-up actions**

In respect of the two follow-up items under item 6 of the list of follow-up actions (i.e. proposed creation of two directorate posts in the Railways Branch of Electrical and Mechanical Services Department to enhance monitoring of railway safety) of the Subcommittee on Matters Relating to Railways (LC Paper No. CB(4)954/14-15(02)), this Bureau has provided the requested supplementary information in the paper submitted to the Establishment Subcommittee earlier this month. The supplementary information on item (a) is included in paragraphs 4, 6-10, 14 and 18, whilst supplementary information on item (b) is included in enclosure 1 to the paper. Attached please find the paper submitted by the Administration to the Establishment Subcommittee for members' reference.

A handwritten signature in black ink, appearing to be 'Donald LAM', written over a horizontal line.

(Donald LAM)

for Secretary for Transport and Housing

c.c.

Electrical and Mechanical Services Department (Attn: Dr KM LEUNG)

## **ITEM FOR ESTABLISHMENT SUBCOMMITTEE OF FINANCE COMMITTEE**

### **HEAD 42 – ELECTRICAL AND MECHANICAL SERVICES DEPARTMENT**

#### **Subhead 000 Operational expenses**

Members are invited to recommend to Finance Committee the creation of the following permanent posts in the Electrical and Mechanical Services Department with immediate effect upon approval of the Finance Committee –

1 Chief Electrical and Mechanical Engineer  
(D1) (\$121,900 - \$133,300)

1 Chief Electronics Engineer  
(D1) (\$121,900 - \$133,300)

### **PROBLEM**

The Electrical and Mechanical Services Department (EMSD) needs dedicated staffing support at the directorate level to co-ordinate and steer the work of its Railways Branch so as to enhance the safety inspection and monitoring of existing railway service and new railway projects.

### **PROPOSAL**

2. We propose to create the following two permanent posts in the Railways Branch of EMSD with immediate effect upon approval of the Finance Committee (FC) so as to enhance the safety inspection and monitoring of existing railway service and new railway projects –

/(a) .....

- (a) one Chief Electrical and Mechanical Engineer (CEME) (D1); and
- (b) one Chief Electronics Engineer (CEE) (D1).

## JUSTIFICATION

### Need for the creation of two permanent directorate posts

#### *Existing establishment*

3. EMSD is the statutory regulatory authority on railway safety. Currently, the Railways Branch of EMSD is led by the Assistant Director/Railways (AD/R) (ranked at Government Electrical and Mechanical Engineer at D2 level). Apart from regulating and monitoring the safe operation of the MTR system, the Railways Branch is also responsible for regulating and monitoring the operation of trams, the Peak Tramway, and the Automated People Mover at the Hong Kong International Airport. The workload is heavy. In respect of regulating and monitoring the safe operation of the MTR system, as the only directorate officer in the Railways Branch, AD/R is responsible for monitoring railway safety from a holistic and macro perspective and supervising the MTR Corporation Limited (MTRCL) in enhancing its precaution safety measures; handling inter-departmental work in vetting new railway projects and major modification works for existing railway system so as to ensure the railway operator's compliance with all safety requirements, and co-ordinating with relevant departments in enhancing the efficiency of the vetting process; and maintaining close liaison with overseas railway safety regulators to observe best practices and safety standards of other countries so as to ensure that the regulatory regime of Hong Kong meets international standards.

#### *Increased train frequency and expanded railway network*

4. The MTR train service has been ranked high consistently in terms of safety and reliability amongst major metro systems around the world in the Community of Metros. Details of such are at Enclosure 1 and background information on safety and reliability of the MTR service is at Enclosure 2. Nevertheless, due to the increase in train frequency and expansion of the railway network, the volume of the monitoring work of the Railways Branch has been increasing.

Encl. 1

Encl. 2

*/New .....*

*New railway projects*

5. Currently, there are four new railway projects being implemented in the territory, including the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL), the Shatin-to-Central Link (SCL), the South Island Line (East) (SIL(E)) and the Kwun Tong Line Extension (KTE) and they will be commissioned one after the other within the coming five to six years. The monitoring work of the Railways Branch for these new railway projects is instrumental in ensuring their full compliance with the safety standards upon commissioning. The major responsibilities of the Railways Branch include working in collaboration with other relevant departments (including the Buildings Department, Fire Services Department, Hong Kong Police Force and Highways Department) in vetting the proposals and plans of these new railway projects submitted by MTRCL, as well as undertaking on-site tests and granting approval for various new systems (including signalling systems, trains, tracks, overhead lines, station facilities and control systems, communication equipment and other contingency systems) which are related to railway safety. The Railways Branch also scrutinises the contingency plans for emergencies prepared by MTRCL and monitors the drills for simulated emergency incidents. As these new railway projects will enter into the testing and commissioning stage successively, the monitoring authorities will need to undertake a large volume of safety vetting and on-site tests. In addition, the Railways Branch will provide professional advice on the safety-related issues of the railway schemes recommended in the Railway Development Strategy 2014 to the Transport and Housing Bureau and relevant departments.

*New elements to strengthen the regulatory regime*

6. The Railways Branch plans to introduce new elements to its regulatory regime for a more comprehensive monitoring of the safety performance of MTRCL's train service. To ensure that MTRCL strictly follows and implements established safety mechanisms in practice, the Railways Branch will conduct supervisory audits on these mechanisms. The tasks include deploying professional officers (including electrical and mechanical engineers and electronics engineers) to conduct random checks on the working documentation and records of MTRCL and vet whether the established safety guidelines are strictly observed. The Railways Branch will also conduct on-site checking for detailed verification where necessary. MTRCL will be required to take proper follow-up actions on identified areas for improvement. Besides, MTRCL has formulated asset management procedures for various components and equipment (including trains, signalling systems, tracks and overhead lines) of the railway system, covering maintenance works, assessments of functions and conditions as well as asset renewal. The Railways Branch will regularly audit these asset management procedures to ensure

/that .....

that various railway components and equipment are properly maintained and timely renewed. On-site checking (such as entering the depots of MTRCL with a view to assessing whether MTRCL strictly complies with established asset management procedures and guidelines in managing the components and equipment of the railway system) will be conducted where necessary to further ensure railway safety.

7. We consider that there is an urgent need to strengthen the manpower at management level of the Railways Branch to share the supervisory duties of AD/R and provide professional advice from a holistic and macro perspective with regard to the monitoring of railway safety, including supervising the daily work of other professional and technical supporting staff, reviewing the mechanism of the Railways Branch on monitoring the safety performance of railway service and new railway projects of MTRCL from a macro and strategic perspective, as well as explaining the Government's regulatory regime and specific work undertaken to the Legislative Council (LegCo), the media and the public where necessary. In view of the importance and complexity of the railway system, as well as the public concern and expectation on the safety and reliability of railway service, we have to ensure that such high-level duties are undertaken by full-time directorate officers with excellent professional knowledge, experience on public administration and leadership. We propose one permanent CEME (D1) post and one permanent CEE (D1) post be created in the Railways Branch to assume the posts of Chief Engineer/Railways 1 (CE/R1) and Chief Engineer/Railways 2 (CE/R2) respectively. In view of the equal importance of the safety performance of existing railway system and new railway projects, we propose that the two Chief Engineers should supervise the work of the Railways Branch in these two areas respectively.

#### *Chief Engineer/Railways 1*

8. Pitched at the CEME rank, CE/R1 will be responsible for assisting AD/R in overseeing the safety performance of the existing railway system, including the implementation of the regulatory regime with new elements added. His/her major duties include supervising and vetting the safety measures adopted by MTRCL in its daily operation of its railway system, supervising the Railways Branch's supervisory audits on MTRCL's safety management and asset management work, assisting in the co-ordination and chairing inter-departmental meetings to vet the proposals and plans submitted by MTRCL which are relevant to railway safety, and attending the meetings of the LegCo Panel on Transport or its Subcommittee on Matters Relating to Railways where necessary.

9. The patronage and train frequency of the MTR system have been increasing. It is estimated that the average daily passenger trips will be over 5.6 million after the opening of SCL in 2021, which will be an increase of 12% as

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compared with 2014. The commissioning of new railway lines will introduce extra loading to the railway network as a whole (including existing railway lines). The Government needs a more stringent monitoring mechanism to ensure the safety and reliability of railway service. In this regard, CE/R1 will play an important supervisory role on the existing railway system (including nine heavy rail lines, Airport Express and Light Rail). His/her duties include leading professional and technical staff to conduct more inspections and examinations of various railway facilities and components, providing professional advice to MTRCL with regard to the safety performance of its service and supervising the implementation of relevant measures, vetting the increasing number of modification works of railway facilities so as to ensure the safe operation of the MTR system notwithstanding the increased loading.

10. Besides, MTRCL will implement a number of major works in the existing railway system. These include the replacement of signalling system of the ex-MTR network with more advanced communication-based train control system from 2015 to 2026. The works, covering the Island Line, Kwun Tong Line, Tsuen Wan Line, Tseung Kwan O Line, Airport Express, Tung Chung Line and Disneyland Resort Line, are complex and extensive and are major investments by MTRCL in renewing and enhancing its railway asset (according to MTRCL, the contract sum of the works is \$3.3 billion). Also, MTRCL will replace 78 oldest trains currently running along the Urban Lines (including the Kwun Tong Line, Tsuen Wan Line, Island Line and Tseung Kwan O Line) before 2022. In addition, during the transition period before full commissioning of SCL, the 12-car trains running along the East Rail Line (which will be the northern section of the future “North-South Corridor”) will gradually be replaced with 9-car trains, while the 4-car and 7-car trains running along the Ma On Shan Line and West Rail Line (which will be part of the future “East-West Corridor”) respectively will gradually be replaced by 8-car trains. As such, there will be different types of trains providing service at the same time along these railway lines during this period. Besides, the existing signalling system of the East Rail Line will be upgraded, involving complex works and train operation. CE/R1 will be responsible for supervising the Railways Branch in vetting these works, including processing numerous proposals and plans, analysing in detail whether MTRCL’s proposals can meet established safety standards, leading professional and technical staff to conduct extensive on-site inspections, granting safety permits and monitoring the safety performance of the railway system during the transition from old to new systems and trains so as to ensure that the safe operation of railway system will not be affected. Given that these tasks are important, complex and heavy, as well as involving the safety and stability of the existing railway system in Hong Kong, they should be supervised and directly participated by a directorate officer who will monitor the work of MTRCL from a high-level and macro perspective.

*/Chief .....*

*Chief Engineer/Railways 2*

11. Pitched at the CEE rank, CE/R2 will be responsible for assisting AD/R in overseeing the safety performance of new railway projects (including XRL, SCL, KTE, SIL(E)). His/her major duties include supervising the safety inspection, testing and commissioning of new railway projects during their construction, as well as their safe operation upon commencement of service, chairing the inter-departmental working group on safety of the new projects, monitoring the interface works between the new railway projects and the existing railway system, and attending the meetings of the LegCo Panel on Transport or its Subcommittee on Matters Relating to Railways where necessary. When the new railway projects commence operation, CE/R2 will continue to monitor their safety performance in the daily operation. Among these new railway projects, XRL will be of significant difference as compared with other existing MTR railway lines in terms of the technology applied and daily operation, not to mention that the running speed of XRL trains reaches 200 km per hour. As it is a cross-border railway, close co-ordination with the control centres in the Mainland will be required during its daily operation. In this regard, apart from the works, monitoring of the safety performance (including operation safety management, maintenance of new trains, and training and regulation of operators) of XRL upon its commissioning is also an important duty of CE/R2. Hence, it is necessary to retain the post. Besides, CE/R2 will provide professional advice on the safety-related issues of the railway schemes recommended in the Railway Development Strategy 2014 to the Transport and Housing Bureau and relevant departments and supervise the safety vetting during their construction. Upon commissioning, the Railways Branch will also need to monitor their daily operation. As CE/R1 has already undertaken the monitoring work of nine existing heavy rail lines, Airport Express and Light Rail, with a total route length of about 220 km, he/she cannot take up any more tasks. As such, the daily monitoring of the new railway lines will be undertaken by CE/R2 upon their commissioning. It is therefore necessary for this post to be permanent instead of time-limited.

12. With a view to minimising the distance between operating trains so as to increase train frequency without affecting railway safety, the signalling system will be a critical component in the new railway projects. The new railway lines will adopt advanced electronic and information technologies, such as integrated train control system, wireless communication, data transmission, fault detection system, position and train speed detection, safety interlocking system, calculation of train separation and traction control. These involve complicated professional knowledge in electronics engineering. Thus, CE/R2 will be taken up by a CEE to provide strategic and high-level professional advice with regard to the most advanced railway electronics technology, including signalling system, automatic train operation and railway safety protection, during the planning and design stages of new railway projects, as well as keeping close liaison with the management of MTRCL and other government departments/bureau so as to minimise the occurrence of railway incidents due to faults of the signalling systems.



13. The two directorate posts will belong to two different professional streams, namely, electrical and mechanical engineering and electronics engineering, with both of them being vital to railway. Apart from undertaking the duties designated to them, these two directorate officers will also provide advice and support to each other as appropriate based on their own expertise (e.g. CE/R2, being a CEE and designated to supervise new railway projects, will provide advice and support in respect of the replacement of signalling system in the existing railway system) so as to create synergy and enhance the overall effectiveness of the regulatory work of the Railways Branch on safety performance of railway service.

14. Upon creation of the two permanent directorate posts and the non-directorate posts set out in paragraph 17 below, the Railways Branch will enhance its daily regulatory work at the three levels of “point”, “line” and “plane”: the Railways Branch has all along been conducting regular safety inspections specifically focusing on MTRCL’s maintenance work for the safety critical components of the railway system, as well as carrying out purposeful investigation when incidents occur. This is the regulatory work at the level of “point”. By strengthening the existing establishment, the Railways Branch will increase the frequency and depth of its various inspections so as to extend its inspection work from specific points to the system level. The Railways Branch will proactively look into the workflow of MTRCL on its maintenance of various electrical and mechanical safety systems, such as rail welding procedures and maintenance process of turnout, in order to enhance the maintenance quality. This is the regulatory work at the level of “line”. Specifically, the number of inspections by the Railways Branch on railway systems and facilities (including existing and new railway lines) will gradually be increased from 168 in 2014 to around 280 in 2020. At the same time, the Railways Branch will also review and adjust its safety regulatory mechanism on MTRCL from a macro and strategic perspective, including vetting the whole set of safety management and asset management work (such as asset examination, maintenance and renewal) so as to monitor the quality of MTRCL’s safety management and asset management work in a more comprehensive and detailed manner. This is the regulatory work at the level of “plane”. These new measures, together with the existing regulatory mechanism, will enhance the effectiveness of the monitoring work on railway safety and the internal management of MTRCL.

15. In addition, upon the creation of the two directorate posts, AD/R, as the head of the Railways Branch, will continue to be responsible for overall supervisory work. He will have more capacity to monitor the safety performance of railway, trams, the Peak Tramway, and the Automated People Mover at the Hong Kong International Airport from a macro and strategic perspective, as well as maintaining close liaison with the management of MTRCL, directorate officers of the Mainland and overseas railway regulators so as to ensure that the Government’s monitoring work can be effectively carried out and our regulatory regime is maintained at international standards.

Encls. 3 & 4 16. The job descriptions of the two proposed directorate posts and the proposed organisation charts of the Railways Branch are at Enclosures 3 and 4 respectively.

### Non-directorate support

17. Apart from the two directorate posts, the Government will also create nine non-directorate posts in the Railways Branch, including seven professional and technical staff and two clerical staff to strengthen our safety inspection and monitoring of both existing railway service and new railway projects.

### ALTERNATIVES CONSIDERED

Encls. 5 & 6 18. We have carefully assessed the feasibility of performing the work with the existing establishment, but we consider this not sustainable. In addition to railway, AD/R (D2) also needs to supervise the safe operation of trams, the Peak Tramway, and the Automated People Mover at the Hong Kong International Airport. In view of the increased train frequency and the expanded railway network, implementation of new railway projects and introduction of new elements to the existing regulatory regime, AD/R can hardly absorb the extra supervisory duties. We have also examined the feasibility of sharing out the duties of the two proposed Chief Engineer posts amongst the incumbents of the same rank in the EMSD's Regulatory Services arm. As the current workload covering regulatory work in respect of electrical safety, gas safety, mechanical safety and energy efficiency taking up by these officers is very heavy, they do not have any spare capacity to further absorb the additional workload of the proposed Chief Engineer posts. The proposed organisation chart of the EMSD's Regulatory Services arm and the duties of its Chief Engineers are at Enclosures 5 and 6 respectively.

### FINANCIAL IMPLICATIONS

19. The proposed one permanent CEME post and one permanent CEE post will bring about an additional notional annual salary cost at mid-point of \$3,105,600, with details as follows –

<b>Rank</b>	<b>Notional annual salary cost at mid-point \$</b>	<b>No. of posts</b>
Creation of one CEME post (D1)	1,552,800	1
Creation of one CEE post (D1)	1,552,800	1
<b>Total</b>	3,105,600	2

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The additional full annual average staff cost, including salaries and staff on-cost, is around \$4,313,000.

20. As for the creation of the nine non-directorate posts set out in paragraph 17 above, the additional notional annual salary cost at mid-point will not exceed \$5,521,020. The full annual average staff cost, including salaries and staff on-cost, is around \$9,025,000. We have included the necessary provision in the approved Estimates of 2015-16 to meet the staff cost upon FC's approval of the proposal and will reflect the resources required in the Estimates of subsequent years.

## **PUBLIC CONSULTATION**

21. We consulted the Subcommittee on Matters Relating to Railways of the LegCo Panel on Transport on 6 March 2015 on the above staffing proposal. The Subcommittee generally supported the proposal. At that meeting, some Members enquired the reasons for creation of posts on a permanent basis, and the responsibilities of the two posts. These have been addressed in paragraphs 8 to 16 above.

## **BACKGROUND**

22. Railway is the backbone of Hong Kong's public transport system, the safety of which is of paramount importance. In Hong Kong, the statutory regulatory authority on railway safety is EMSD. The Railways Branch of EMSD regulates and oversees the safe operation of the MTR system in accordance with the Mass Transit Railway Ordinance (Cap. 556) and the Mass Transit Railway Regulations (Cap. 556A). Major functions of the Railways Branch include ensuring the adoption of appropriate safety measures by MTRCL; assessing and vetting new railway projects and major modifications of existing railway facilities; assessing and following up with MTRCL on improvement measures in respect of railway safety; and investigating railway incidents.

23. In his 2015 Policy Address, the Chief Executive stated that the Government will continue to proactively carry out its duty as the majority shareholder of MTRCL in monitoring MTRCL and requiring the Corporation to strengthen its management to ensure proper delivery of the planning and construction of new railway projects, as well as the daily operation of existing service. In the Policy Briefing for the Panel on Transport held on 16 January 2015, the Secretary for Transport and Housing also stated that the Government will strengthen the manpower of EMSD to maintain effective monitoring.

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**ESTABLISHMENT CHANGES**

24. The establishment changes in EMSD's Regulatory Services arm in the past two years are as follows –

Establishment (Note)	Number of Posts			
	Existing (As at 1 June 2015)	As at 1 April 2015	As at 1 April 2014	As at 1 April 2013
A	13 <sup>#</sup>	13	13	13
B	155	152	137	133
C	252	249	232	231
<b>Total</b>	<b>420</b>	<b>414</b>	<b>382</b>	<b>377</b>

Note:

- A – ranks in the directorate pay scale or equivalent
- B – non-directorate ranks, the maximum pay point of which is above MPS point 33 or equivalent
- C – non-directorate ranks, the maximum pay point of which is at or below MPS point 33 or equivalent
- # – as at 1 June 2015, there was no unfilled directorate post in EMSD's Regulatory Services

**CIVIL SERVICE BUREAU COMMENTS**

25. The Civil Service Bureau supports the proposed creation of the two permanent directorate posts to enhance the safety inspection and monitoring of existing railway service and new railway projects. The grading and ranking of the posts are considered appropriate having regard to the level and scope of responsibilities, as well as the professional work to be undertaken by the post holders.

**ADVICE OF THE STANDING COMMITTEE ON DIRECTORATE SALARIES AND CONDITIONS OF SERVICE**

26. The Standing Committee on Directorate Salaries and Conditions of Service considers that the proposal of creating the two permanent directorate posts is appropriate.

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Transport and Housing Bureau  
June 2015

**Comparison of performance between  
MTR Corporation Limited (MTRCL) and other railway operators**

The MTRCL's train service has been ranked high consistently in terms of operational safety and train reliability amongst railway systems around the world. In 2013, MTRCL performed very well in these two aspects and achieved a high ranking in the benchmark comparison of the Community of Metros (CoMET).

2. Currently, members of the CoMET are the operators of the 16 major metro systems, including the Beijing Subway, Berlin U-Bahn, Delhi Metro<sup>1</sup>, Guangzhou Metro, Hong Kong MTR, London Underground, Mexico City Metro, Metro de Madrid, Moscow Metro, New York City Subway, Paris Métro and Paris RER, Metro de Santiago, Singapore MRT, Shanghai Metro, Metro São Paulo and Taipei Metro. The average annual passenger trips of each of these metros exceed 500 million.

3. The following benchmark comparison is adopted by the CoMET –

**Operational safety**

The CoMET measures operational safety of metros by the 10-year average figure of fatalities per billion passenger trips, including suicides, accidents and illegal activities. In 2013, the 10-year average number of fatalities (i.e. from 2004 to 2013) in the MTR network was 2.64 per billion passenger trips, and was within top three amongst the metros in the CoMET.

**Train reliability**

The CoMET measures train reliability by the number of incidents that lead to service disruption of five minutes or above per every million revenue car-km. In 2013, the number of such incidents occurred in the MTR network was 0.42 per every million revenue car-km, and was within top three amongst the metros in the CoMET.

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<sup>1</sup> Delhi Metro joined the CoMET in 2014 and it was thus not included in the 2013 ranking.

**Safety and reliability of MTR service**

Railway is the backbone of Hong Kong's public transport system, the safety of which is of paramount importance. Currently, the MTR system carries more than five million passenger trips per day on average, accounting for about 40% of all public transport passenger trips.

2. Railway is basically a set of enormous and complicated machinery driven by electricity, which comprises hundreds of thousands of various components. The major components include trains, tracks, power supply systems, signalling systems, communication systems and control centre. These components are subject to wear and tear in daily operation. To ensure railway safety, the main focus would be on proper maintenance as a preventive measure to reduce the probability of incidents. When an incident occurs, the first priority is to ensure safety and undertake proper and timely repair. Afterwards, lesson(s) should be drawn and the cause(s) of the incident should be identified to minimise the recurrence of similar incidents. Whether the above work can be properly carried out is largely determined by the implementation of stringent safety management and asset management for railway system by the operator; regular and appropriate inspection, maintenance and timely renewal of the components of the railway system; and prompt follow-up in response to railway incidents. On the other hand, a proper regulatory regime for railway safety is also essential to the monitoring of safe operation of railway service. The service of a railway system will naturally be more reliable if it is safe.

3. Worldwide, the essential elements of a regulatory regime for railway safety are (i) conducting regular and surprise safety inspections and supervisory audits; (ii) vetting new railway projects and modifications of major facilities and components (e.g. station facilities) of existing railways to ensure compliance with safety standards; and (iii) investigating railway incidents and following up with railway operators on improvement measures.

4. The patronage of the MTR system has been rising. The daily average passenger trips have increased from about 4 million in 2008 to over 5 million in 2014. In view of the rising patronage, MTR Corporation Limited (MTRCL) has increased its train frequency from time to time since 2008 to cope with the passenger demand. The total number of train trips of its heavy rail system has increased from around 1.69 million in 2008 to 1.86 million in 2014, an increase of about 10%. Taking Tsuen Wan Line in the urban area as an example, the train frequency during morning peak hours has increased from 28 trains per hour per direction in January 2008 to 30 trains in December 2014. The headway is thus reduced from 2.1 minutes to 2 minutes. As for its service in the New Territories, the

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train frequency of West Rail Line during morning peak hours has increased from 15 trains per hour per direction in January 2008 to 21 trains in December 2014. The headway is thus reduced from 4 minutes to 2.9 minutes. MTRCL has also suitably increased the train frequency during non-peak hours to enhance its service and to cope with the demand of different passengers. As for Light Rail, the total number of vehicle trips has also increased from about 1 million in 2008 to about 1.06 million in 2014, an increase of about 6%.

5. Apart from the increase in train frequency, the MTR network is also expanding and the total route length has increased from about 211 km in January 2008 to about 220 km in December 2014. This includes the commissioning of LOHAS Park Station of Tseung Kwan O Line in July 2009, the Kowloon Southern Link (i.e. the extension of West Rail Line from Nam Cheong Station to Hung Hom Station) in August 2009, and a westward extension of Island Line to Kennedy Town Station in December 2014.

6. The reliability and safety of the MTR service has been maintained at an internationally-recognised high standard. Despite the increase in train frequency and the expansion of railway network, the number of service disruptions due to equipment failure of the railway system has remained stable for the past few years. From 2008 to 2014, the number of incidents in the MTR network (including heavy rail and Light Rail) caused by equipment failure and resulting in service disruption of 8 minutes or above is set out below –

<b>Year</b>	<b>Service disruptions of 8 minutes or above due to equipment failure (Number of cases)</b>	<b>Service disruptions of 8 minutes or above due to equipment failure (Every million revenue car-km<sup>2</sup>)</b>
2008	141	0.51
2009	133	0.48
2010	153	0.54
2011	169	0.59
2012	129	0.44
2013	123	0.41
2014	140	0.45

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<sup>2</sup> As mentioned in paragraphs 4 and 5 above, due to the expansion of the MTR network and the continuous growth in patronage, train frequency has significantly increased as compared with several years ago, and the total distance travelled by trains has also been increasing. As a result, the risk of railway incidents inevitably increases. An accurate comparison cannot be made of MTRCL's service performance in different years by simply judging from the total number of railway incidents without considering the above factors. "Revenue car-km" is a common concept adopted by railway industry internationally, referring to the total distance travelled by train cars while carrying passengers (for example, if a train with 8 cars travels 100 km while carrying passengers, the total revenue car-km are 800 km). Every million km are equivalent to going around the Earth (along the equator) for about 25 times. Taking 2008 as an example, there was 0.51 incident of service disruption of 8 minutes or above for every million revenue car-km, meaning there was only one such incident after a train car travelled for a distance equivalent to going around the Earth for 50 times. The advantage of using the concept of "revenue car-km" is that a more objective comparison can be made by measuring the number of incidents with the same unit (i.e. revenue car-km) even if the train service volume of the railway network varies in different years.

7. While the overall statistics do not show that the safety performance of the MTR service has deteriorated, the Government understands that members of the public have high expectation of the MTR service. In this regard, MTRCL should continue to enhance its inspection, maintenance and renewal of various parts of the railway system (particularly the safety critical and service critical components). As the statutory regulatory authority on railway safety, the Railways Branch of Electrical and Mechanical Services Department will also enhance safety inspection and monitoring so as to ensure safe and reliable railway service.

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**Proposed Job Description for  
Chief Electrical and Mechanical Engineer  
Railways Branch, Electrical and Mechanical Services Department**

**Post Title** : Chief Engineer/Railways 1  
**Rank** : Chief Electrical and Mechanical Engineer (D1)  
**Responsible to** : Assistant Director/Railways

**Aim of the Post –**

To lead the teams under the Railways Branch in ensuring the safe operation of the existing railway system, and assist Assistant Director/Railways in developing policies and strategies with regard to railway safety.

**Main Duties and Responsibilities –**

1. To oversee the safe operation of existing railway lines (including Island Line, Kwun Tong Line, Tseung Kwan O Line, Tsuen Wan Line, West Rail Line, East Rail Line, Ma On Shan Line, Airport Express, Tung Chung Line, Disneyland Resort Line and Light Rail), the Automated People Mover at the Hong Kong International Airport, trams and Peak Tramway.
2. To lead the Railways Branch in executing the regulatory functions in accordance with the relevant Ordinances, Regulations and Operating Agreement.
3. To oversee investigations of railway incidents and the improvement measures of the railway operator.
4. To supervise the safety preventive measures on railway operation by MTR Corporation Limited (MTRCL) and vet the major works on the existing railway system.
5. To supervise the supervisory audits conducted by the Railways Branch on MTRCL's safety management and asset management work for the existing railway system.

6. To maintain close liaison with the railway operator's management to give guidance and advice on railway safety matters and major modifications on all existing railway lines.
7. To assist with the inter-departmental co-ordination work with regard to railway safety and security.
8. To provide the Transport and Housing Bureau with professional advice and technical support in respect of railway safety matters.
9. To attend meetings of the Panel on Transport of the Legislative Council or its Subcommittee on Matters Relating to Railways in respect of safety matters of existing railway system.

**Proposed Job Description for  
Chief Electronics Engineer  
Railways Branch, Electrical and Mechanical Services Department**

**Post Title** : Chief Engineer/Railways 2  
**Rank** : Chief Electronics Engineer (D1)  
**Responsible to** : Assistant Director/Railways

**Aim of the Post –**

To lead the teams under the Railways Branch in overseeing safety related matters of the new railway projects and monitor the safety performance of these new railways after they commence operation.

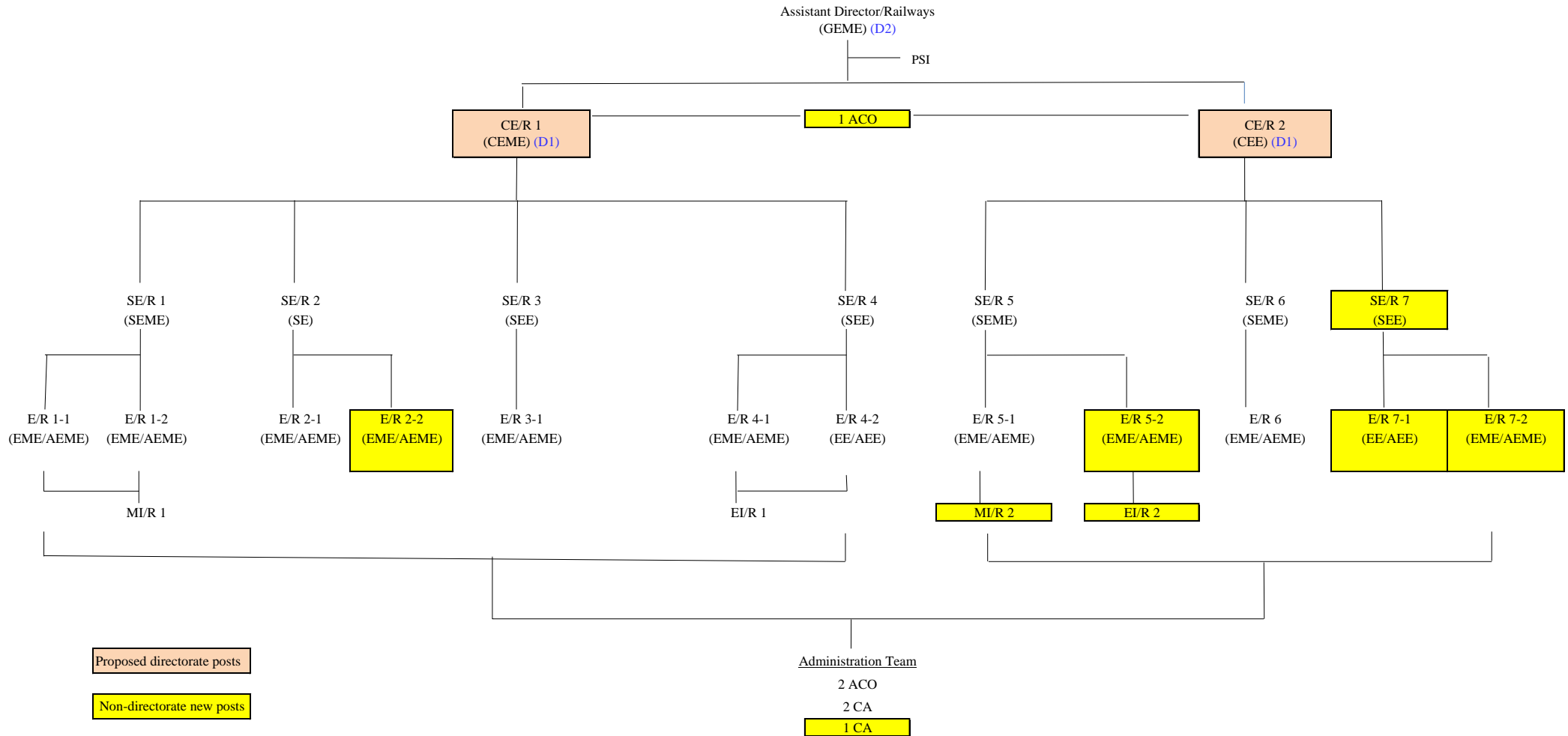
**Main Duties and Responsibilities –**

1. To oversee safety related matters of the new railway projects (including Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL), Shatin-to-Central Link, Kwun Tong Line Extension and South Island Line (East)).
2. To chair the inter-departmental working group on safety matters of new railway projects.
3. To support the various working groups of the XRL project on operation, electrical and mechanical, construction and safety matters.
4. To assist with the inter-departmental co-ordination work with regard to railway safety and security.
5. To oversee the interface between existing railway system and new railway projects and the enhancement works.
6. To oversee the safety inspections, tests and trial-runs of new railway projects (including supervising the Railways Branch's supervisory audits on the safety management and asset management of MTRCL's new railway projects).
7. To provide the Transport and Housing Bureau with professional advice and technical support in respect of new railway projects.

8. To provide the Transport and Housing Bureau and relevant departments with professional advice on the safety related issues of the railway schemes recommended in the Railway Development Strategy 2014.
9. To oversee the safety performance of new railway lines after they commence operation.
10. To attend meetings of the Panel on Transport of the Legislative Council or its Subcommittee on Matters Relating to Railways in respect of safety matters of new railway projects.

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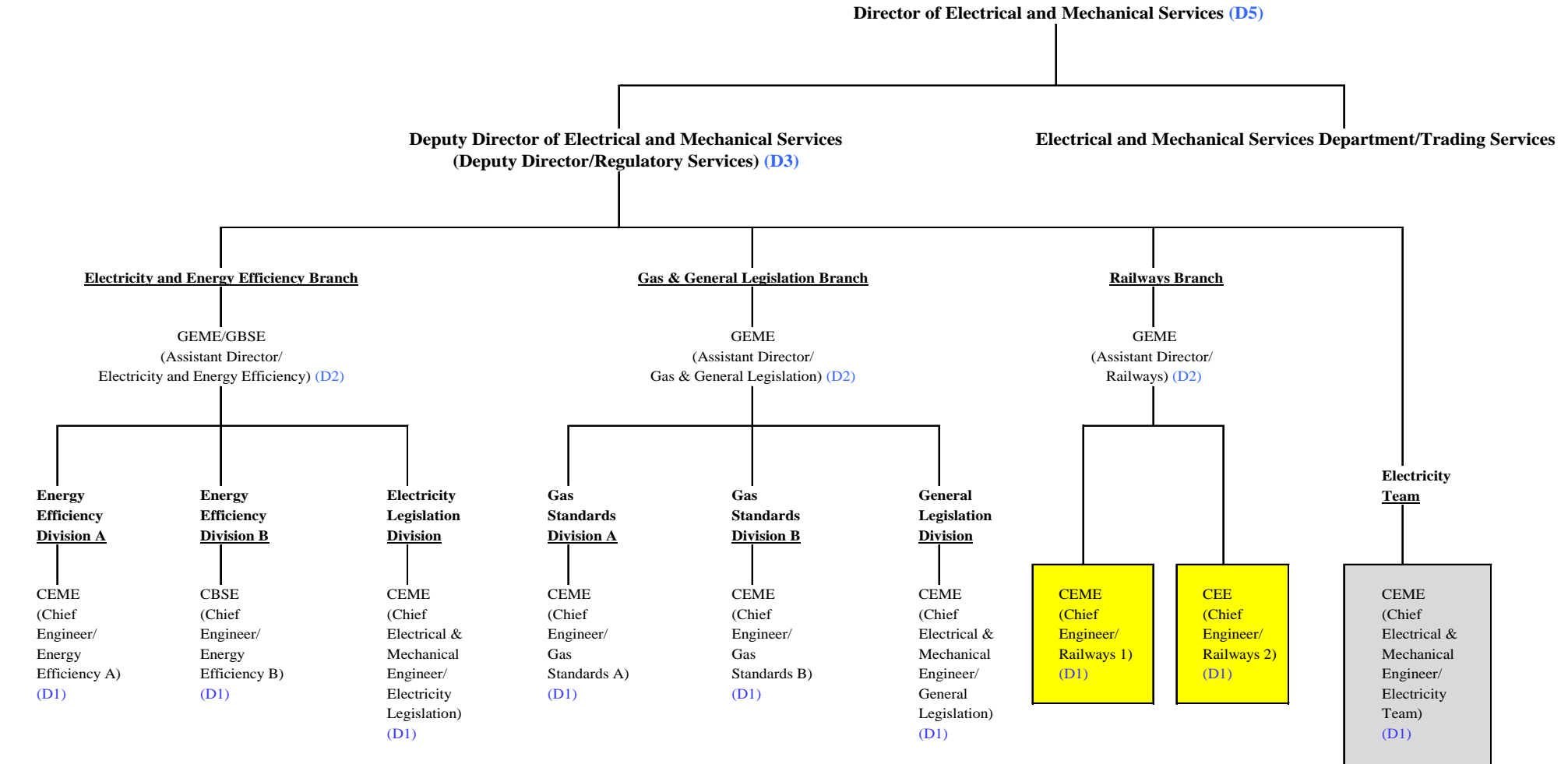
### Proposed Organisation Chart of the Railways Branch, Electrical and Mechanical Services Department



**Legend**

ACO	Assistant Clerical Officer	EI/R	Electrical Inspector/Railways	SEE	Senior Electronics Engineer
CA	Clerical Assistant	EME/AEME	Electrical and Mechanical Engineer/Assistant Electrical and Mechanical Engineer	SEME	Senior Electrical and Mechanical Engineer
CEE	Chief Electronics Engineer	E/R	Engineer/Railways	SE/R	Senior Engineer/Railway
CEME	Chief Electrical and Mechanical Engineer	GEME	Government Electrical and Mechanical Engineer	PSI	Personal Secretary I
CE/R	Chief Engineer/Railways	MI/R	Mechanical Inspector/Railways		
EE/AEE	Electronics Engineer/Assistant Electronics Engineer	SE	Senior Engineer		

## Proposed Organisation Chart of the Regulatory Services, Electrical and Mechanical Services Department



On attachment to the Environment Bureau

Proposed directorate posts

<b>Legend</b>	
CBSE – Chief Building Services Engineer	GEME – Government Electrical and Mechanical Engineer
CEE – Chief Electronics Engineer	GBSE – Government Building Services Engineer
CEME – Chief Electrical and Mechanical Engineer	

**Main Duties of the existing Chief Engineers in the Regulatory Services of the Electrical and Mechanical Services Department (EMSD) and the feasibility assessment on absorbing extra workload by these officers**

There are currently seven Chief Engineers in the Regulatory Services arm of EMSD, who have been designated with various important duties. It is operationally infeasible for them to take up extra tasks without seriously affecting their existing duties. Major duties/responsibilities of the Chief Engineers are summarised in the following paragraphs.

**Under Assistant Director/Electricity and Energy Efficiency (AD/EE)**

*Chief Engineer/Energy Efficiency Division A (CE/EEA)*

2. CE/EEA assists AD/EE in providing professional support and advice to the policy bureau on the formulation of policies, strategies and initiatives on energy efficiency and conservation and the application of renewable energy. Besides developing the Voluntary and Mandatory Energy Efficiency Labelling Scheme for electrical and gas appliances/equipment, and promote public awareness on the use of energy-efficient appliances, CE/EEA is also responsible for the administration and enforcement of the Energy Efficiency (Labelling of Products) Ordinance (Cap. 598), promotes the adoption of energy-efficient technologies, renewable energy, energy audits and the best practices in the public and private sectors as well as the application of new and emerging energy efficiency technologies. He is also responsible for co-ordinating policy bureaux, government departments and private organisations for the promotion of energy programmes promulgated by international/regional/local energy organisations such as APEC and participating in their activities.

*Chief Engineer/Energy Efficiency Division B (CE/EEB)*

3. CE/EEB assists AD/EE in providing professional support and advice to the policy bureau on the formulation of policies, strategies and initiatives on energy efficiency and conservation and the application of renewable energy. In addition to promoting wider use of Water-cooled Air Conditioning System in Hong Kong, CE/EEB is also responsible for the administration and enforcement of the Building Energy Efficiency Ordinance (Cap. 610), the implementation of the District Cooling System at the Kai Tak Development as well as providing support in the drafting of the District Cooling Services Bill and administers and enforces the

Bill after it is enacted. He is also responsible for the regulation of improperly maintained or contaminated fresh water cooling towers under the Public Health and Municipal Services Ordinance (Cap. 132).

*Chief Electrical and Mechanical Engineer/Electricity Legislation (CEME/EL)*

4. CEME/EL assists AD/EE in the management and administration of the regulatory functions related to electricity safety. Other than overseeing the enforcement of the Electricity Ordinance (Cap. 406) to ensure that proper actions are taken in respect of non-compliance and against offenders, CEME/EL introduces and implements new legislative proposals/legislative amendments and codes of practice/guidance notes for the purpose of improving safety standards of the electrical industry and enhancing electricity safety of the public. He assists AD/EE in providing support to the Director of Electrical and Mechanical Services in the Daya Bay Contingency Plan and related technical advice on nuclear power safety. He is also responsible for maintaining liaison with outside organisations/government departments for the promotion of electricity safety and new/existing legislation.

**Under Assistant Director/Gas and General Legislation (AD/GGL)**

*Chief Engineer/Gas Standards A (CE/GSA)*

5. CE/GSA assists AD/GGL in monitoring the performance of Hong Kong and China Gas Co. Ltd. to ensure that its gas production plants and notifiable gas installations are operated to the highest possible standards and that the requirements of the Gas Safety (Gas Supply) Regulations are fully complied with. In addition to taking charge of the operation of registration scheme for gas contractors and installers and manages the quality assurance of Towngas and cylinder liquefied petroleum gas (LPG) installation work in all market sectors, CE/GSA manages the investigation, preparation and processing of cases for prosecution under the Gas Safety Ordinance (Cap. 51). He is also responsible for the processing of complaints from members of the public and representative groups concerned with the safe supply and use of gas. He gives expert advice to professional agencies in both public and private sectors on the supply and use of cylinder LPG and town gas premises and coordinates activities associated with the promotion of gas safety. He is responsible for developing, introducing and monitoring new training packages for the gas industry in conjunction with training establishments in the private and public sectors.

*Chief Engineer/Gas Standards B (CE/GSB)*

6. CE/GSB assists AD/GGL in administering the Gas Safety Ordinance (Cap. 51) and subsidiary regulations on behalf of the Gas Authority and the Oil (Conservation and Control) Ordinance (Cap. 264) on behalf of the

/Director .....



Director of Oil Supplies. Other than monitoring the performance of gas supply companies to ensure that oil/LPG terminals, gas production plants and notifiable gas installations are operated to the highest standards and that the requirements of the Gas Safety (Gas Supply) Regulations are fully complied with, CE/GSB also assists AD/GGL in advising the Secretary for the Environment on aspects of gas supply on behalf of the Gas Authority. He monitors the implementation of the voluntary Code of Practice with the major oil companies and the Hong Kong and China Gas Co. Ltd. on strategic reserve of gas oil and naphtha respectively; and also represents the Gas Authority on the Coordinating Committee on Land Use Planning and Control relating to Potentially Hazardous Installations.

*Chief Electrical and Mechanical Engineer/General Legislation (CEME/GL)*

7. CEME/GL assists AD/GGL in administering the Lifts and Escalators Ordinance (Cap. 618), the Aerial Ropeways (Safety) Ordinance (Cap. 211), the Amusement Rides (Safety) Ordinance (Cap. 449) and the Builders' Lifts and Tower Working Platforms (Safety) Ordinance (Cap. 470). In addition to overseeing the enforcement of the legislations in respect of the safety of lifts and escalators, aerial ropeways, amusement rides, builder's lifts and tower working platform and other general mechanical installations and to ensure that proper actions are taken in respect of non-compliance and against offenders, CEME/GL is also responsible for the introduction and implementation of new legislative proposals/legislative amendments and codes of practice/guidance notes for the purpose of improving safety standards and enhancing public safety. He administers the registration schemes and the development of a regulatory regime for the vehicle maintenance trade. He maintains liaison with outside organisations and government departments for the promotion of mechanical safety and related new/existing legislation.

**Under Deputy Secretary for the Environment (DS(E)) and Deputy Director/Regulatory Services (DD/RS)**

*Chief Electrical and Mechanical Engineer/Electricity Team (CEME/ET)*

8. CEME/ET was created under EMSD's establishment and attached to the Environment Bureau to assist DS(E) and DD/RS in providing professional advice and proposals for the formulation of policies and strategies relating to the future development of the electricity market in Hong Kong. He co-ordinates relevant government departments, utilities and relevant parties for the formulation of the future regulatory regime. He is responsible for liaising and co-ordinating with South China regulatory agencies and electricity supply organisations on issues relating to the development of South China electricity market and supply reliability in the region. He directs the operation and management of the Electricity Team for

/monitoring .....

monitoring the performance of the power companies under the Scheme of Control Agreements (SCAs), especially in respect of Auditing Review, Tariff Review and Development Plan Assessment and provides professional advice for the regulation of the power companies under the SCAs. He attends meetings of the Legislative Council and the Energy Advisory Committee to explain about Government's objectives and proposals and attends meetings with the power companies on their activities under the SCAs. He is also responsible for managing consultancy studies on relevant issues related to electricity market development and regulation as well as the monitoring of power companies' technical performance.

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