

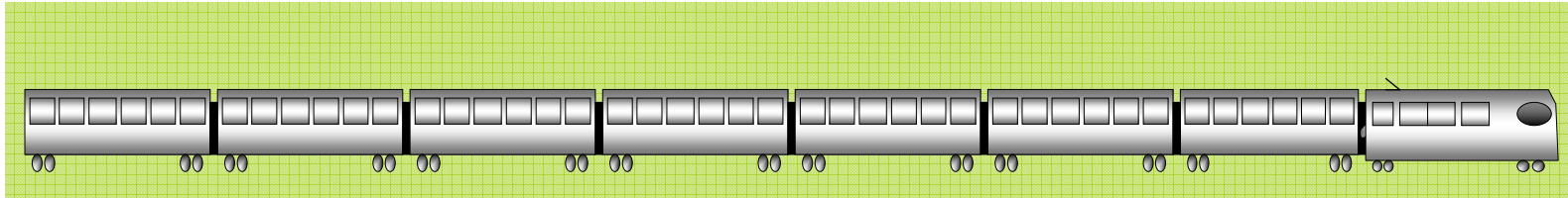


新鐵路項目的環保措施 Environmental Measures for New Railway Projects

2012年5月
May 2012

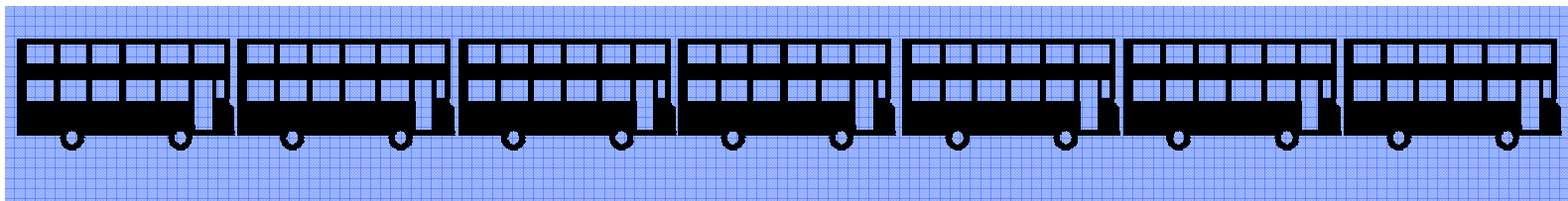
鐵路是最環保的集體運輸工具之一

Railway as One of the Most Eco-friendly Transports



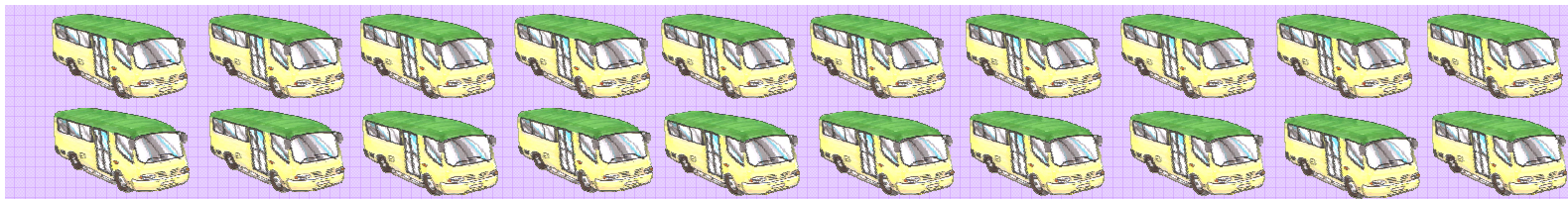
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港鐵列車
MTR train



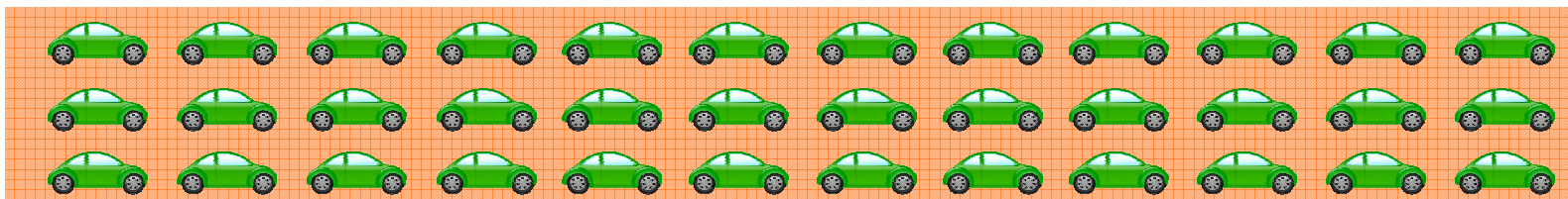
25

巴士
Buses



150

小巴
Mini-buses



1,500

私家車
Cars

建造階段的环境紓緩措施
Environmental Mitigation Measures
During Construction Stage

減低塵埃

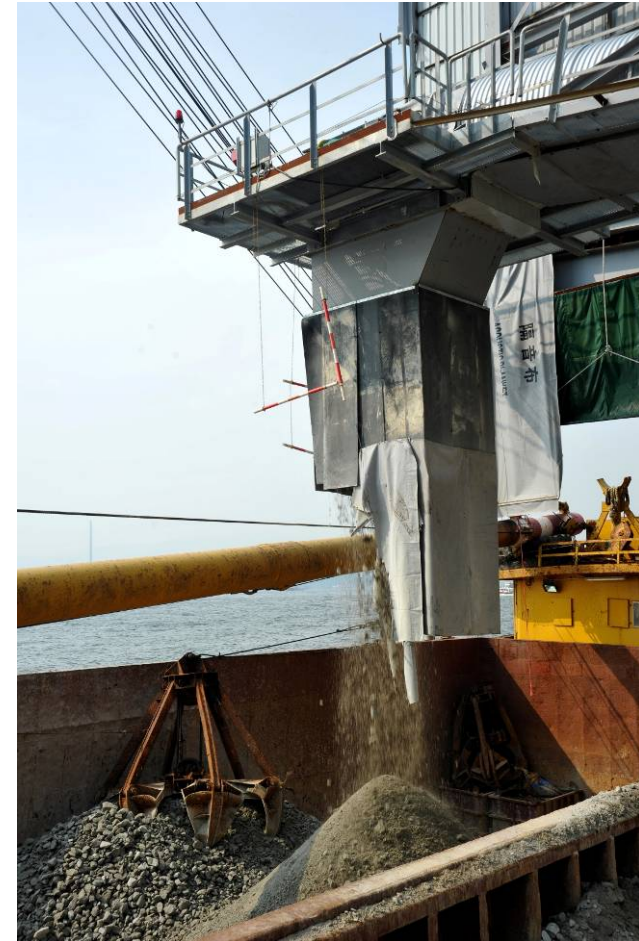
Reduction in Dust



車輛離開工地前會用水清洗輪胎，避免將泥塵帶出路面
Vehicle wheels are washed before leaving construction site to
suppress spreading of dust

減低塵埃

Reduction in Dust



躉船轉運站的卸泥區採用全密封式輸送帶，避免塵土飛揚
Loading areas of barging point are fully enclosed to prevent dust from spreading around

減低噪音

Reduction in Noise



隔音設施有助減低工程產生的聲響
Noise mitigation measures help reduce noise generated during construction



西港島綫－香港佐治五世公園的豎井挖掘工程，以水作為爆破緩衝，有效減低噪音
West Island Line - water was used as blast ballast in excavation of construction adit at King George V Memorial Park to reduce noise

保護樹木

Tree Conservation

鐵路規劃及設計階段

During planning and design stage



記錄受影響樹木資料
Carrying out tree survey

制訂樹木保育計劃，減低對環境的影響
Tree protection plans are formulated to minimize
impact on the environment



確認具保育及康樂價值的樹木
Identifying trees with high
conservation & amenity value

保護樹木

Tree Conservation



西港島綫－保留科士街樹牆
West Island Line – Retention of tree wall
at Forbes Street

南港島綫（東段）－將工地設於遠離法院道的古樹位置

South Island Line (East) – Locating works areas away from an old & valuable tree at Supreme Court Road



保護樹木

Tree Conservation

施工階段

During construction stage



設定樹木保護區及將樹幹包裹
Setting up tree protection zone and
wrapping up tree trunk



豎立圍欄保護樹木
Erecting protective fencing

營運階段的環保設計及措施

Eco-friendly Designs & Measures During Operational Stage

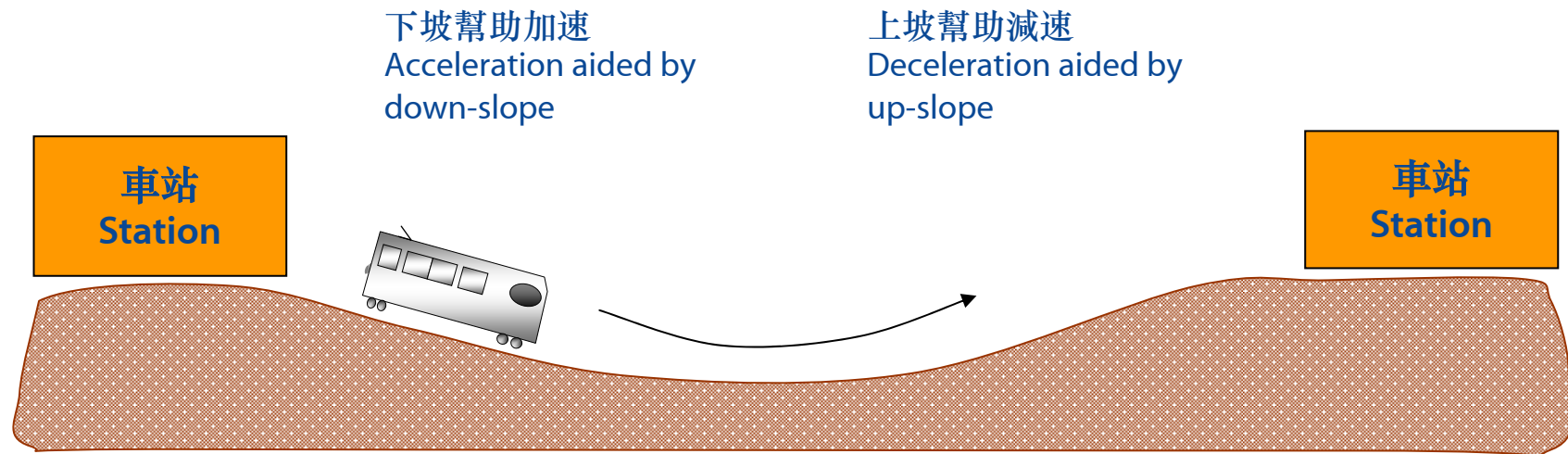
提升能源效益 Enhancement of Energy Efficiency

路軌走線設計

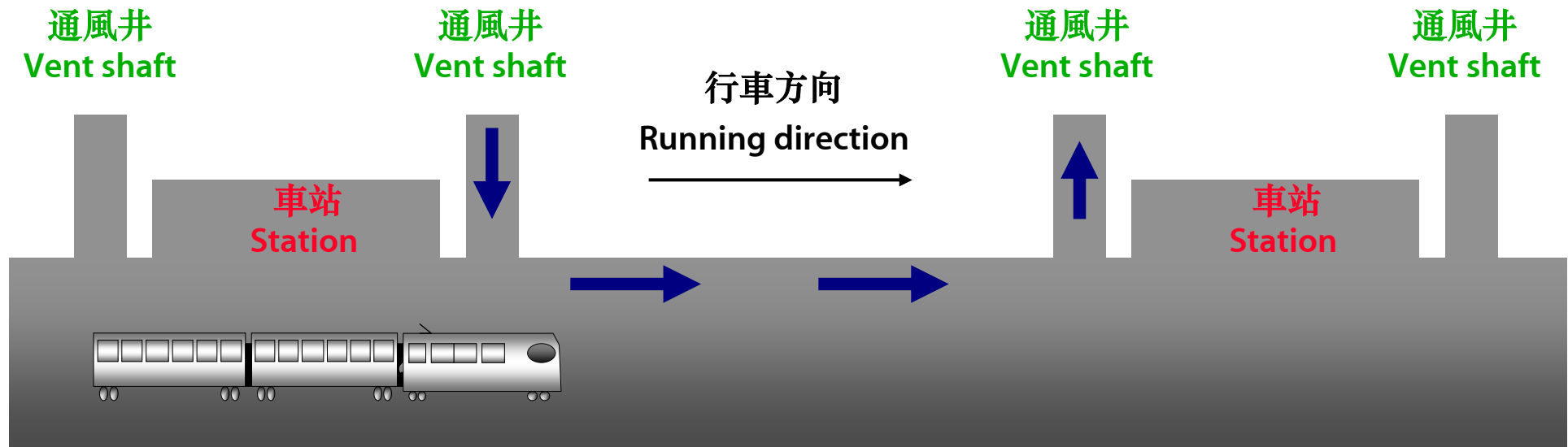
Track Alignment Optimization

車站與車站間設計成山谷型

Vertical track profile between stations is designed in the form of a valley



隧道通風 Tunnel Ventilation

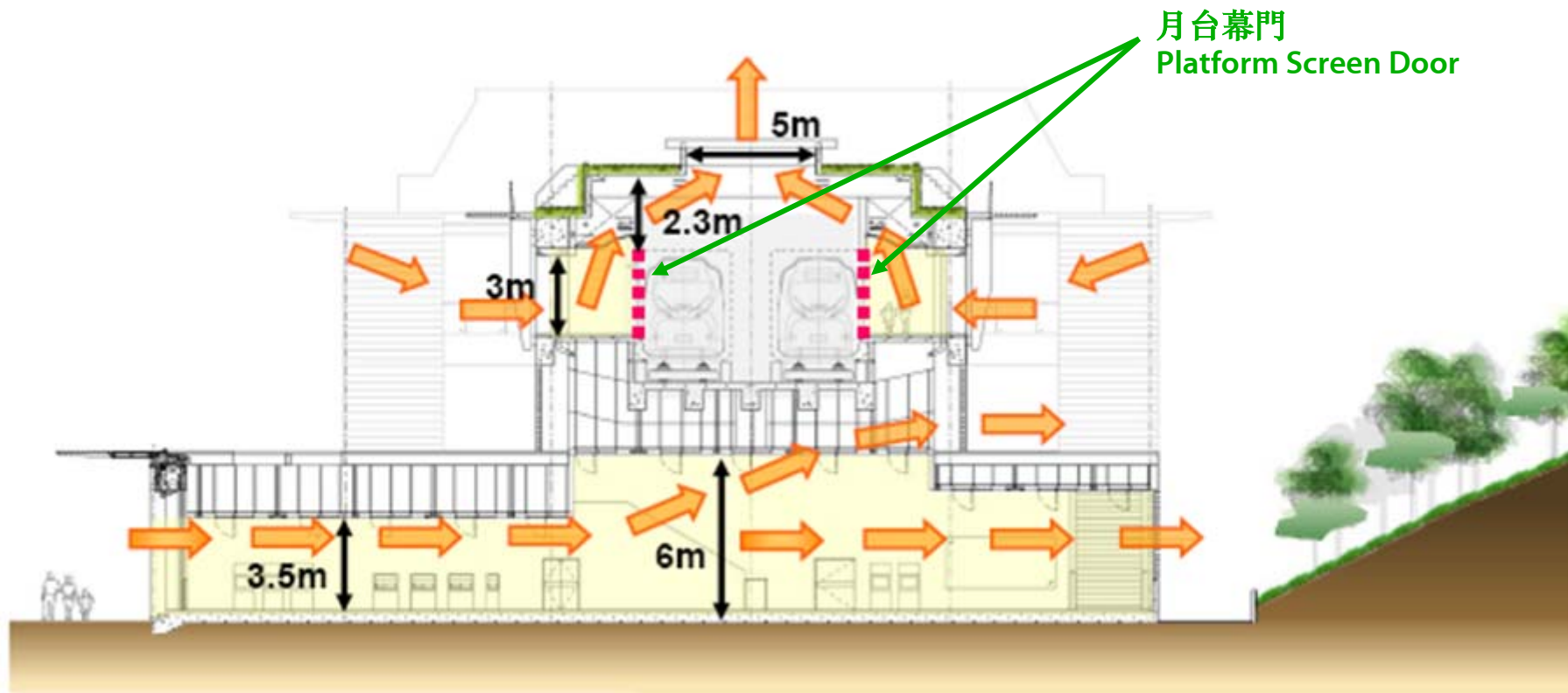


通風井將戶外的鮮風抽入鐵路隧道，確保隧道內持續通風
Vent shafts bring fresh air into railway tunnels to maintain ventilation

自然通風 Natural Ventilation

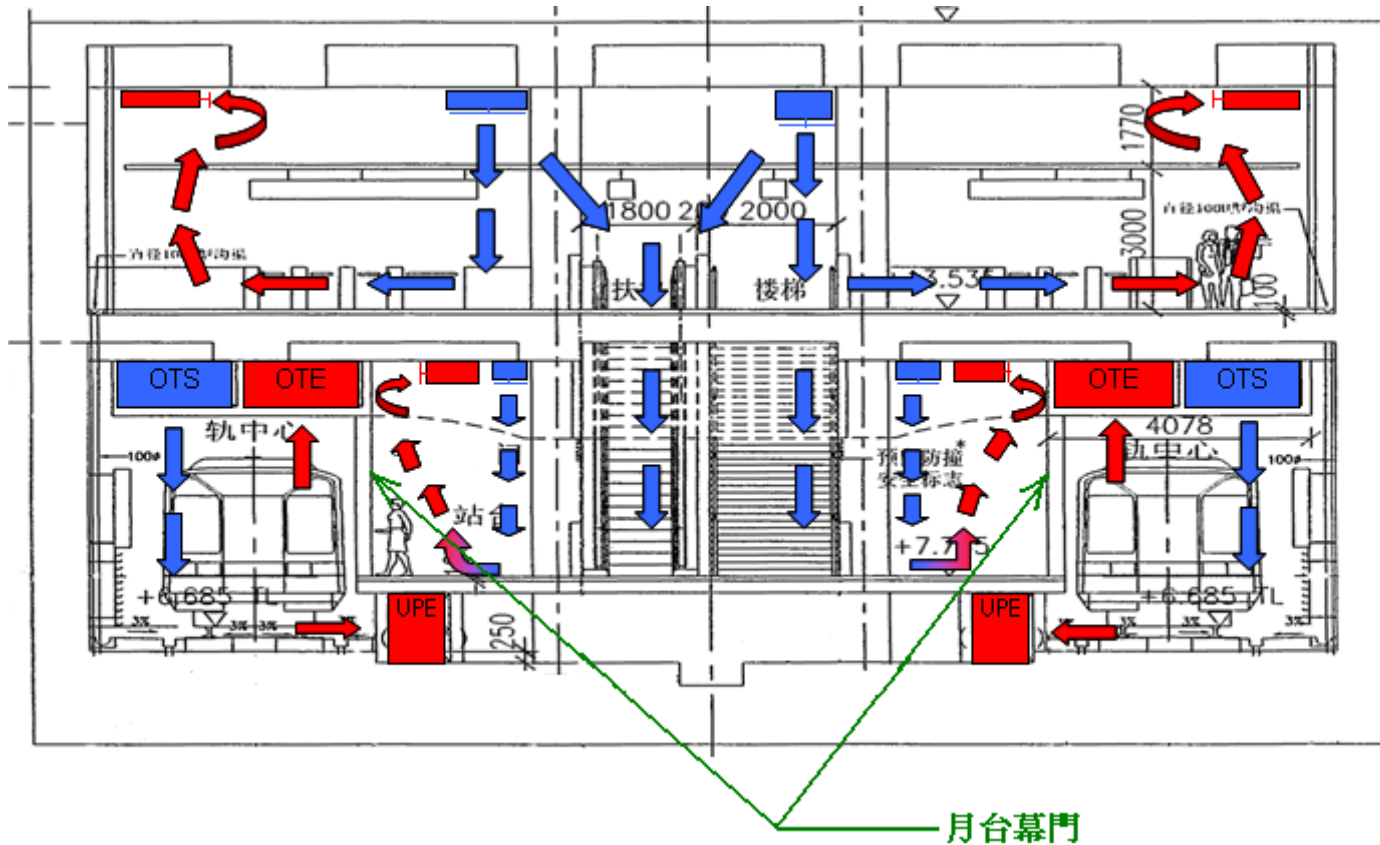
車站盡量採用自然通風

Natural ventilation is used in elevated stations



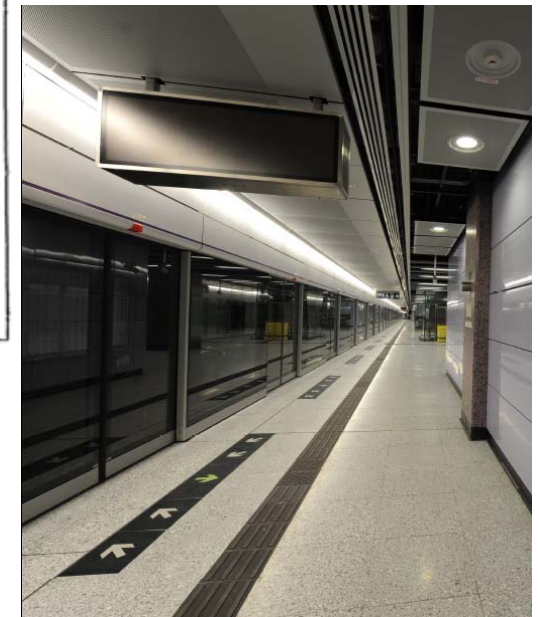
空調系統

Air-Conditioning System



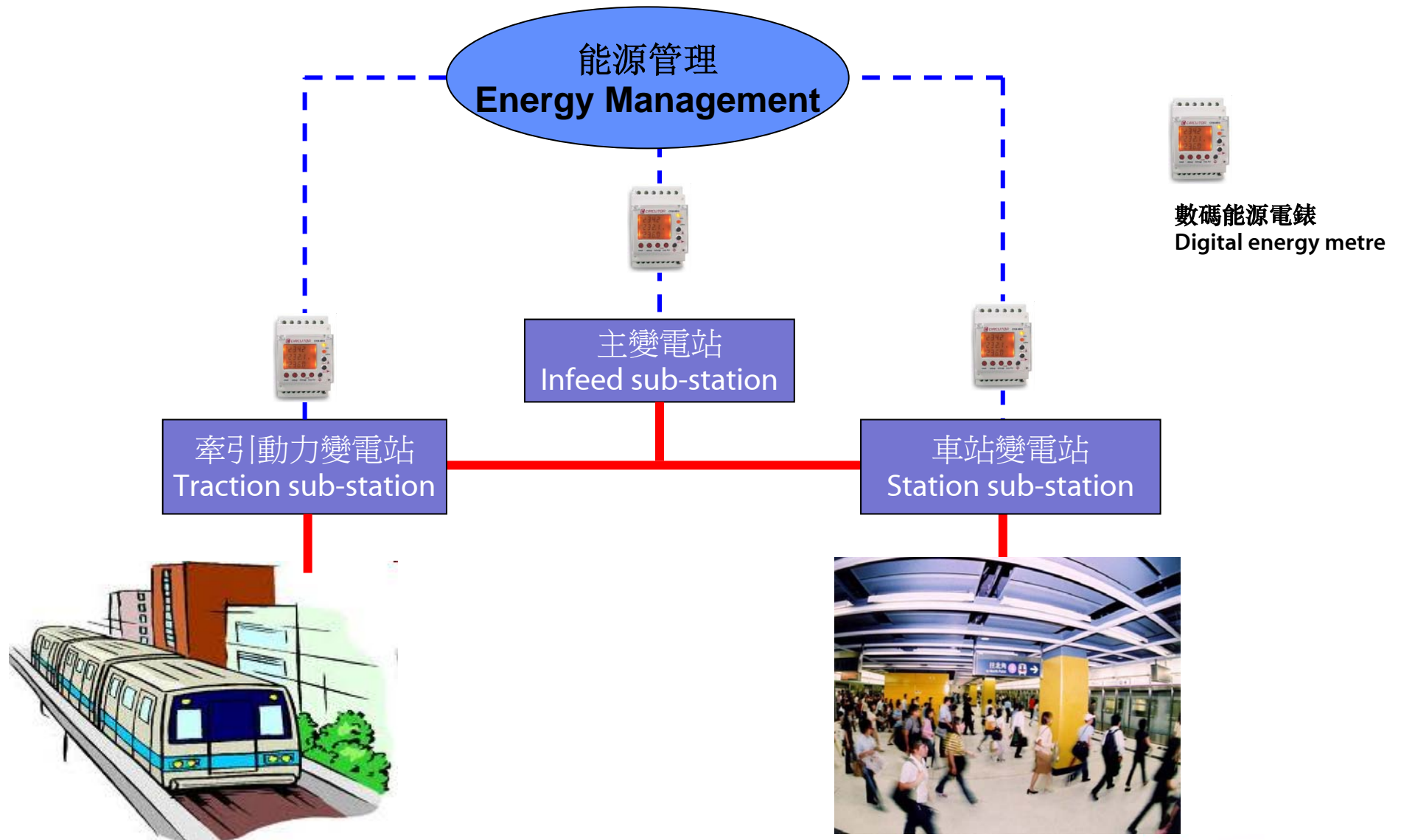
地下車站的月台幕門可防止冷氣由月台軌道流失

Platform screen doors are installed in underground stations to minimize air-conditioning loss to the trackway



綜合能源消耗監測系統

Comprehensive Energy Consumption Monitoring



高效能照明系統

High Efficiency Lighting System



新車站及列車將使用具高能源效益的照明系統（例如 T5 光管及 LED 照明）

High efficiency lighting systems (e.g. T5 and LED lamps) will be adopted in new stations and trains

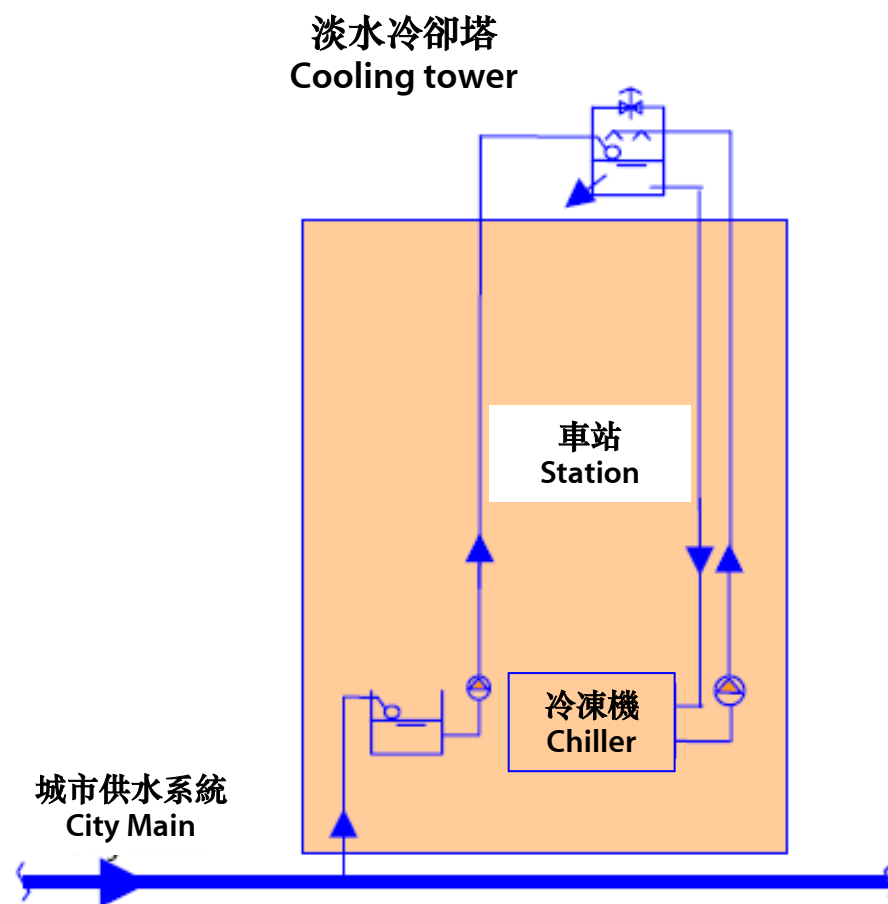


採用自然光 Use of Natural Light



高效能空調系統

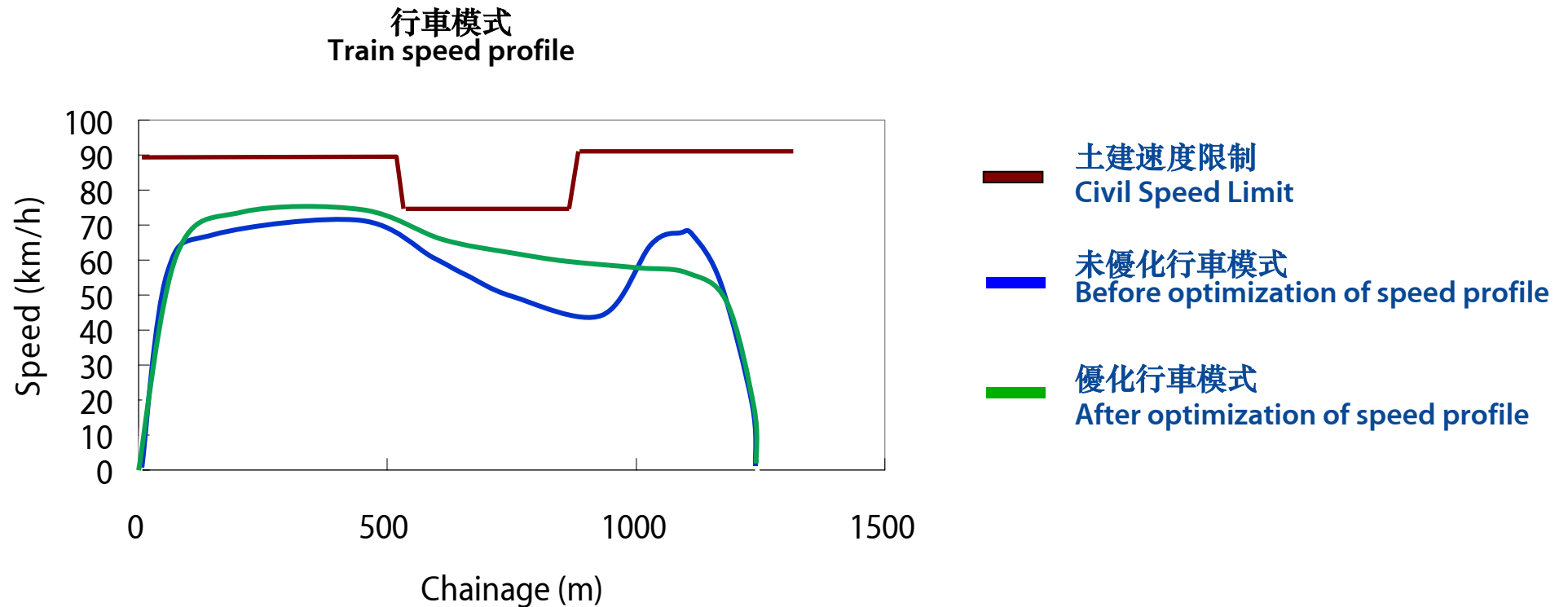
High Efficiency Air-Conditioning System



安裝水冷式空調系統
Installation of water-cooled
air-conditioning system

優化行車模式

Optimization of Speed Profile



減少不必要煞車及再次驅動

Minimization of unnecessary braking & re-motoring

減少能源損耗

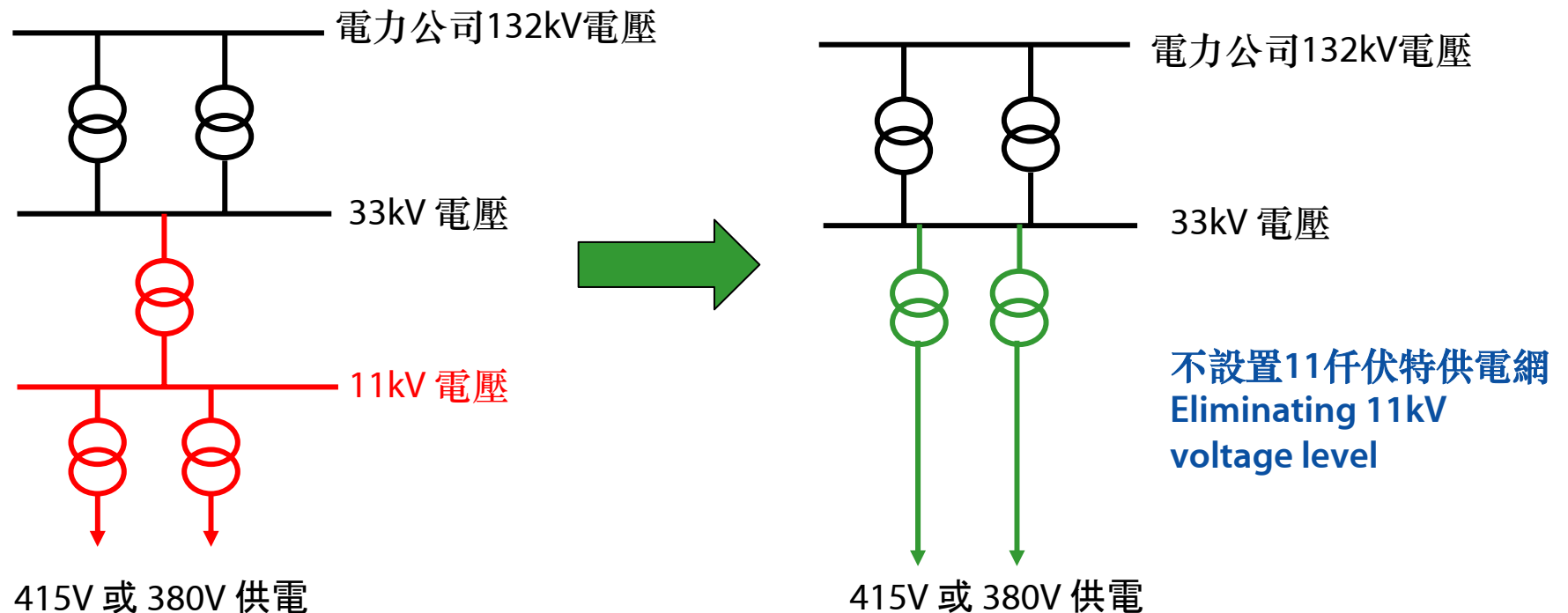
Reduction in Energy Loss

供電系統 – 電壓轉換

Power System – Voltage Conversion

略過一層電壓轉換，減少電力損耗

A voltage level to be eliminated to reduce energy loss



供電系統 – 電力輸配

Power System – Power Transmission & Distribution

懸掛式剛性輸電線

Overhead rigid conductor



電阻值 Resistance:
0.0135 ohm/km

懸掛式柔性輸電線

Catenary line



電阻值 Resistance:
0.0221 ohm/km

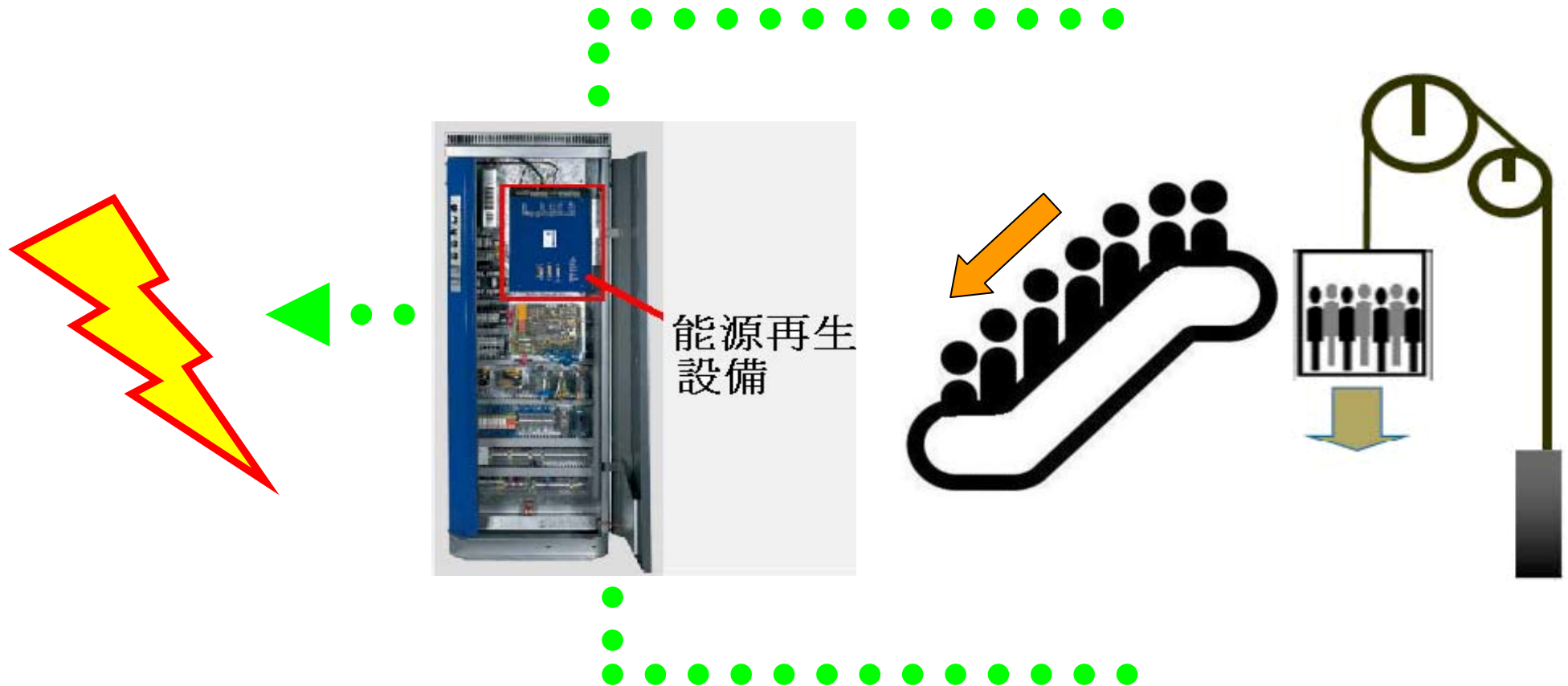
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懸掛式剛性輸電綫可減低集電弓與輸電綫間的電阻，從而減少電力輸配時造成的電力損耗

Overhead rigid conductor reduces resistance between pantograph and train conductor, which in turn reduces loss in power distribution

使用再生能源 Utilization of Regenerated Energy

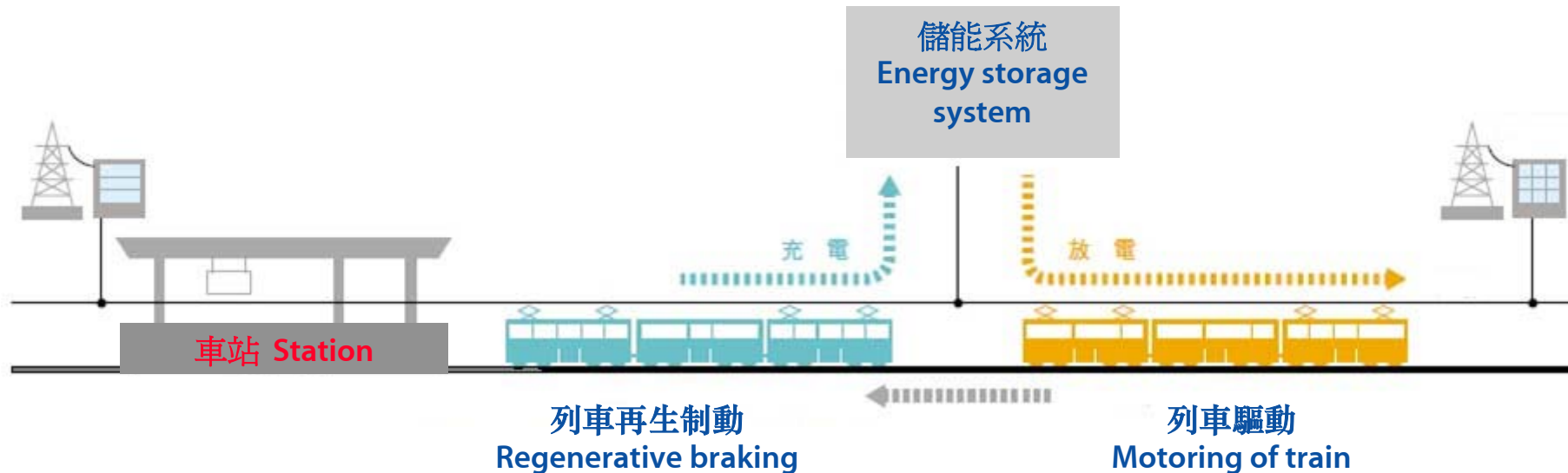
升降機及扶手電梯 Lifts & Escalators



升降機及扶手電梯下行時產生的剩餘能源，經能源再生設備可重新應用
Excessive energy generated by the downward movements of lifts and escalators, equipped with devices, will be utilized

儲能系統

Energy Storage System



部份路綫的再生制動系統產生的能量未能即時全部利用，
儲能系統能把這些能源暫時儲存，驅動後車
Energy storage system absorbs excess energy regenerated from
train for motoring of following trains

營運階段的环境紓緩措施
Environmental Mitigation Measures
During Operational Stage

減低行車噪音

Reduction in Train Noise



優化風扇形狀設計
Fan Blade Shape Design

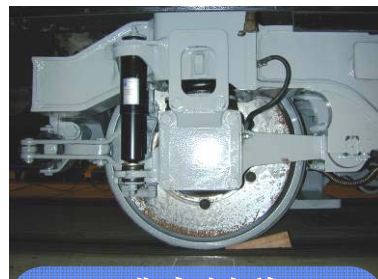


懸浮式地台
Floating Floor

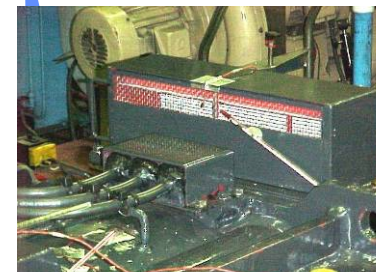


車頂吸音板
Noise Absorption
Ceiling Panel

安裝隔音板
Install side skirt
(>100km/h)



碟式制動
Disc Brake



牽引電機減音器
Traction Motor Silencer



打磨路軌與車輪
Rail Grinder &
Wheel Turning

多項列車相關設施有助減低行車噪音

Multiple mitigation measures help reduce noise generated during train operation

景觀及綠化 Visual Impact & Greening

景觀及綠化

Visual Impact & Greening



垂直綠化 Vertical greening



屋頂綠化 Green Roof



景觀及綠化 Visual Impact & Greening

高鐵西九龍總站
West Kowloon Terminus of
Express Rail Link



何文田站
Ho Man Tin Station

金鐘站
Admiralty Station



顯徑站
Hin Keng Station





謝謝
Thank You