MOTAC

Ministry of Transport Awards Ceremony 2025/26

MINISTER'S VALUE-FOR-MONEY ACHIEVEMENT AWARD

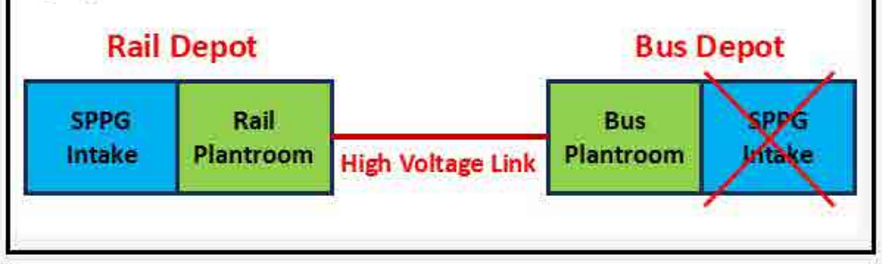
Land Transport Authority
We Keep Your World Moving

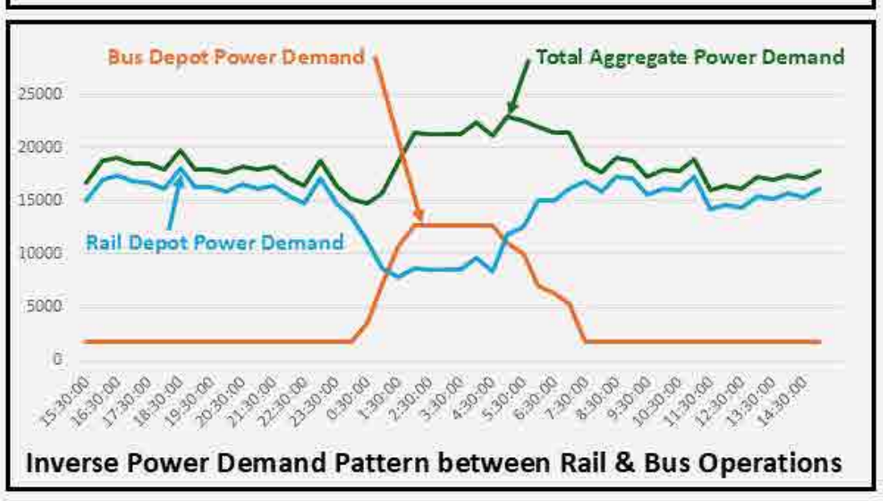
MERIT AWARD

INTEGRATED POWER DISTRIBUTION SCHEME FOR RAIL-BUS DEPOT

Integrated Power Distribution Scheme for Rail-Bus Depot (KCDe)

Integrated Power Distribution Scheme





Inverse Power Demand Pattern between Rail & Bus Operations

- ✓ Singapore's First Integrated Power Distribution Project
- ✓ Estimated LCC savings about $70 million per depot
- ✓ Reduced reliance on external power grid
- ✓ Collaboration with multiple stakeholders to overcome regulatory restrictions
- ✓ Scalable solution for other integrated depots

Bus Plantroom

PROJECT TEAM

Jia Ru	Team Leader
Vengadasalam Ramasamy	Member
Ong Shun Jie	Member
Ng Ngin Khwang	Member
Yap Yongbin	Member
Oh Geok Kuan	Member
Yong Chuan Kian	Member
Justin Goh	Member
Muhammad Aizat Bin Rahim	Member

MOTAC

Ministry of Transport Awards Ceremony 2025/26

MINISTER'S VALUE-FOR-MONEY ACHIEVEMENT AWARD

Land Transport Authority
We Keep Your World Moving

MERIT AWARD

INTEGRATED POWER DISTRIBUTION SCHEME FOR RAIL-BUS DEPOT

NEED FOR PROJECT

- There was surging electricity demand due to growth of electricity-intensive sectors had strained SPPG's existing network capacity.
- There were difficulties securing new substations from SP Powergrid (SPPG) due to peak demand constraints.

- LTA's commitment to greening land transport: Transition to 50% electric buses by 2030 and full cleaner energy by 2040 required substantial power supply capacity for bus depot operations.

PROBLEM STATEMENT

Need to overcome SPPG's capacity constraints by making use of available rail depot power capacity through integrated distribution systems to support bus depot charging requirements.

MOTAC

Ministry of Transport Awards Ceremony 2025/26

MINISTER'S VALUE-FOR-MONEY ACHIEVEMENT AWARD

Land Transport Authority
We Keep Your World Moving

MERIT AWARD

INTEGRATED POWER DISTRIBUTION SCHEME FOR RAIL-BUS DEPOT

SOLUTION

- Bus depot to draw power from rail depot high tension network as a more practical approach given site proximity.
- Used rail depot capacity, via the inverse power demand pattern, to meet the bus depot's peak power demand.
- Secured EMA's in-principle agreement for an Integrated Power Distribution Scheme through multiple technical and policy engagements. This would overcome the Electricity Act constraint prohibiting power infrastructure sharing across different addresses.
- Conducted detailed study at Kim Chuan Depot Extension (KCDe) Rail and Bus Depot to serve as the trial project to validate the integrated power distribution concept, demonstrating technical feasibility and establishing the foundation for future rollout across LTA's depot network.

SOLUTION STATEMENT

Pioneered Singapore's first integrated rail-bus power distribution system by securing regulatory approval with EMA and successfully validating the solution at KCDe.

MOTAC

Ministry of Transport Awards Ceremony 2025/26

MINISTER'S VALUE-FOR-MONEY ACHIEVEMENT AWARD

Land Transport Authority
We Keep Your World Moving

MERIT AWARD

INTEGRATED POWER DISTRIBUTION SCHEME FOR RAIL-BUS DEPOT

IMPACT

- Singapore's first LTA project to share power across different electrical installations.
- Reduced reliance on SPPG for bus depot electricity needs.

- Close collaboration with multiple stakeholders to overcome regulatory restrictions.
- Solution applicable to existing depots (MDD, ECID) and future projects (JRL Depot, CRL Depot etc.).
- Life Cycle Cost savings: $70mil per depot.

OUTCOME STATEMENT

The integrated power distribution system successfully delivered Singapore's first rail-bus depot power integration at KCDe, establishing a proven model for existing and future depot projects.