

Honorable Mentions

COMPANY

CLP Power Hong Kong Limited

PROJECT

BIM NORMALCY

LOCATION

CLP Hoi Bun Road Substation, New Kowloon
Inland Lot. No. 6118

TYPE

Alterations and Additions (A&A) Works in a
“Live” Substation

SCHEDULED TIME OF COMPLETION

2022 Q2

BIM Enhances the Alterations and Additions Works inside a Live Substation



About CLP Power Hong Kong Limited

CLP Power Hong Kong Limited (CLP Power) is committed to supporting Hong Kong's long-term development as a world-class smart city. Being the largest electricity provider in the city, CLP Power develops electricity supply infrastructure continuously to provide a reliable and adequate power supply to over 6.2 million customers. The company has striven to provide the best services to customers and develop smart substations through innovations and adoption of emerging technologies.

BIM PARTNERS

David S.K. Au & Associates Limited

Beria Consultant Limited

isBIM Limited

B BIM Creation Limited

Hip Hing Construction Company Limited

AUTODESK PRODUCTS USED

Autodesk® A360

Autodesk® AutoCAD®

Autodesk® BIM 360®

Autodesk® Build®

Autodesk® Dynamo

Autodesk® Navisworks® Freedom

Autodesk® Navisworks® Manage

Autodesk® Revit®

Autodesk® Viewer

Project Description

Hoi Bun Road Substation (HBR) is a 132kV transmission substation in Kowloon Bay and has been supplying electricity to the local community for nearly 30 years. To meet the need for the transformation of commercial business area in Kwun Tong District, HBR is targeted for plant and equipment upgrading in order to provide a reliable power supply to support the district transformation.

Project Challenges

CLP Power attaches high importance to safety. As HBR is a live substation, construction activities inside must be carefully planned to ensure safety and avoid risk of interference to the in-service plant facilities. The planning of HBR shall be flexible enough to cater for future electricity demand and substation development. The project work shall be cost effective and environmentally friendly. Impact to neighbourhood must be mitigated.

Solutions for challenges

Safety in construction activities and future operations within HBR is carefully planned since the early project planning stage. The construction team therefore can fully understand the site condition and pay special attention to area which requires extra safety awareness and avoids unnecessary accident or injury.

With the collaborative effort of different subject experts, the redevelopment plan of HBR can cater the current and future requirements with good design quality.

Sustainable and green practices are adopted in the design and construction stage to improve the project's overall environmental performance. Site works are well coordinated to prevent re-work which can further help minimise the construction cost.

3D model and 4D animations are adopted to present the construction processes and the future operation of HBR for facilitating the communication with local community. A clear picture about the project development and benefits can be presented effectively to the local residents, green groups and stakeholders.

How does BIM benefit the project?

BIM enhances safety of work inside a live substation by simulating the working environment. Construction team, operators and maintenance team can identify potential hazards, unsafe features, make improvement and formulate safety plan in early stage.

The visualisation feature of BIM model not only allows studies on the possibilities in spatial studies for exploring future substation development, but also more effective options within the virtual environment for cost effectiveness. The virtual design process enables more scenario studies to avoid rework at site and results in a better design quality.

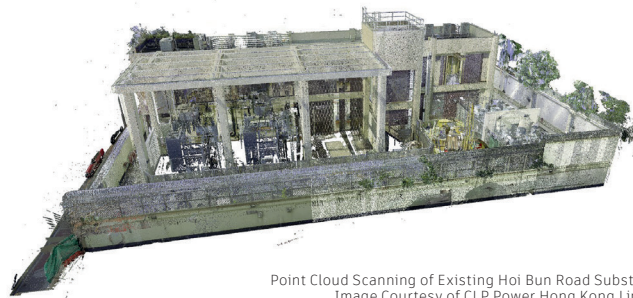
BIM improves the project's overall buildability by enhancing the design coordination and reducing waste due to the abortive works. Through BIM, the 3D model and 4D animations of the project works in HBR are produced quickly for presentation to the local community, the acceptance of the project by the public can be improved.

Better with BIM

With the use of BIM, 3D to 7D models, animations of the work processes and programme can be generated easily. Those relevant information enhances the transfer of project information from design stage to operation stage. The performance of the project can be accessed and reviewed easily. BIM helps to manage the knowledge and experience gained from the development works in a live substation which is very valuable for future redevelopment of other live substations.



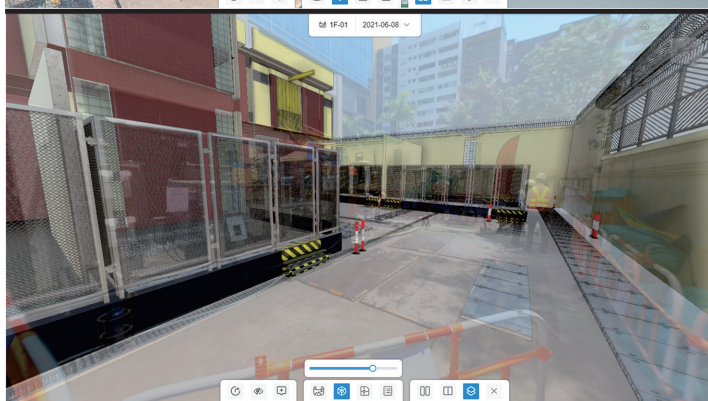
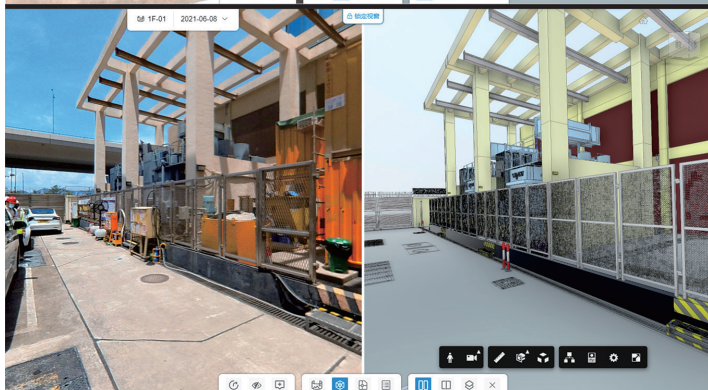
Transmission Substation Achieving BIM Normalcy – Overview of Hoi Bun Road Substation
Image Courtesy of CLP Power Hong Kong Limited



Point Cloud Scanning of Existing Hoi Bun Road Substation
Image Courtesy of CLP Power Hong Kong Limited



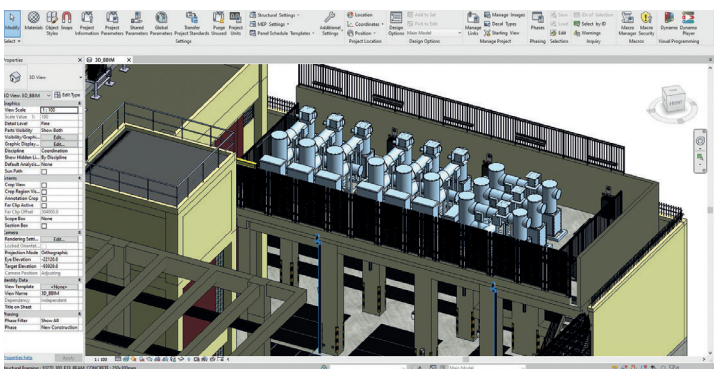
New RMU platform inside Hoi Bun Road Substation
Image Courtesy of CLP Power Hong Kong Limited



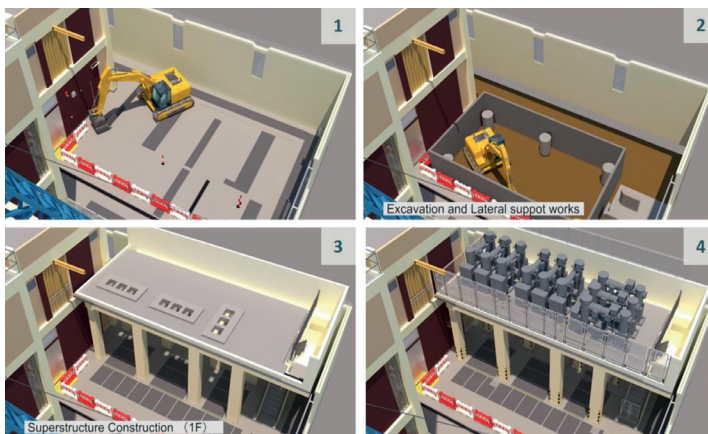
Eagle Eye System
Image Courtesy of CLP Power Hong Kong Limited



Simulation for Safety Training
Image Courtesy of CLP Power Hong Kong Limited



Revit Model Facilities Collaboration Process
Image Courtesy of CLP Power Hong Kong Limited



Construction Sequences Simulation for construction of new RMU platform
Image Courtesy of CLP Power Hong Kong Limited