

Hargreaves Industrial Services



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Our Mission

A business built around the quality and commitment of its people, with a foundation in safety, innovation and world-class delivery through technical expertise and commitment to partnership philosophies and mutual success on an ethical basis.

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Introducing

Hargreaves Industrial Services

Hargreaves Asia is the engineering and maintenance provider of choice to the power generation and heavy industrial sectors.

Part of Hargreaves Group PLC, a global provider of support services to the energy and waste industries, HIS (HK) Ltd has been based in Hong Kong since 2012. We deliver long-term engineering and maintenance services for the construction, power and manufacturing sectors, as well as bespoke solutions for individual projects.

Our team operates fully accredited systems for health, safety, quality and environmental management and undertakes projects of any scale. We have an unrivalled safety culture, an excellent safety record and our clients enjoy high service levels and customer satisfaction.

Our dedication to professionalism, client satisfaction and safety is why

80% of our work comes from repeat business



Today, we are proud to support some of the most important construction and maintenance projects in Hong Kong and continue to invest in systems, equipment and staff. In 2018 we were awarded NEC Contractor of the Year.

Why Hargreaves Industrial Services

Hargreaves Industrial Services provides fully managed and supervised electrical and mechanical engineering support for long-term and bespoke projects.

Our business is based on safety, innovation and world-class delivery for our clients. We achieve this through technical expertise and a commitment to partnership philosophies and mutual success on an ethical basis.

Our dedicated team of tradespeople includes electricians, welders, mechanical fitters and more. They have the skills to deliver a range of mechanical and electrical engineering projects, as well as construction, safety training and project management.

HIS (HK) Ltd is a local company with an international approach. We are client focussed and aim to work not just for, but with our clients. As part of this approach, we advocate and welcome engagement on contract operations and design.



We take it so seriously that we are also an IOSH and NEBOSH Training Centre. This means our key personnel are qualified to international standards. This means as a fully accredited training provider, our instructors can cater to all your HSE training needs.

Our sister company, Access Services Ltd (AS) specialises in the design, supply and construction of equipment for safely working at height. This includes scaffolding as a flexible standard solution, plus non-standard solutions for bespoke projects.

Access Services Ltd also provides installation, insulation, painting and maintenance support.

Access Services (HK) Ltd

Access Services (HK) Ltd is the sister company to Hargreaves Industrial Services (HK) Ltd.



We provide metal scaffolding, hydraulic working platforms, motorised access and other specialist engineered solutions to industries working at height. These include the power generation, construction and maintenance sectors throughout Hong Kong.

Safety is our number one priority. We maintain an excellent safety record and all our solutions are fully proven, certified and compliant. Our workforce is highly trained and overseen by competent supervisors and safety professionals.

Access Services (HK) Ltd and Hargreaves Industrial Services (HK) Ltd support some of the most important construction and maintenance projects in Hong Kong. We undertake projects of any scale and continue to expand with investment in stock, systems, vehicles and most importantly, our employees.

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Hargreaves Training & Competency

Hargreaves Training & Competency is a specialised service area of Hargreaves. As a fully accredited IOSH and NEBOSH training provider, our instructors can cater to all your HSE training needs.



Our training gives your managers the tools and knowledge to protect the safety of their colleagues. We run courses from our training centre or in person at your site.

Hargreaves Training & Competency also supports clients and other contractors to implement strong safety leadership frameworks and cultures.

Selected Training Courses include:

1. IOSH Managing Safely
2. IOSH Level 3 Safety and Health for Business
3. NEBOSH International General Certificate
4. NEBOSH Health and Safety at Work Qualification
5. Accident/ Incident Investigation with Root Cause Analysis
6. Competence Assessment

Our People

Our people are at the heart of our business. Without them, we wouldn't be able to provide our industry-leading services.



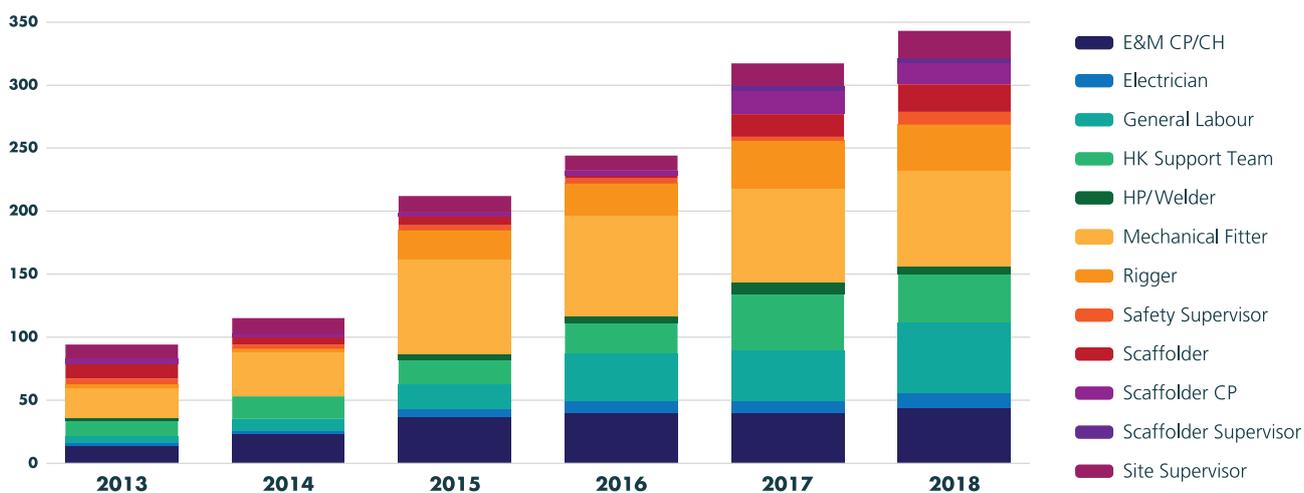
We have a range of people and skills to suit all types of mechanical and electrical engineering and construction projects. We also provide project management and safety training support.



Over 95% of our staff are local, and their safety, welfare and happiness is our top priority. Unlike other companies we recruit, retain and train in-house employees whenever possible, rather than subcontracting out our work. This ensures that our clients always receive the highest quality service.

In contracting with Hargreaves, you can be assured of the passion and commitment of each member of our team—from our senior directors to our junior technicians.

Manpower: Hargreaves Industrial Services (HK) Ltd & Access Services (HK) Ltd



What We Do

01

Managed Solutions

The HIS (HK) Ltd management team helps to plan, Develop and carry out solutions to meet your time and budget constraints while maintaining industry-leading levels of safety.

Our flexibility in staff, equipment and skillset mean we can cater to businesses of any size. We adjust our workforce and equipment to meet your needs, managing and scheduling projects around plant outages and maintenance periods.

We are firm believers in using an integrated maintenance and operations approach to maximise the value and reliability of our clients' assets.



02

Labour Supply

We supply a workforce with a range of different skills, including general labour, trained welders, mechanical fitters, operators and electricians. Our team also includes professional project managers and engineers.

We employ over 300 staff in-house, but also have a network of trusted sub-contractors, allowing us to meet the varying needs of our clients.

Our staff receive inductions and ongoing training to ensure they meet the competencies expected by industry and work safely to method statements on site.

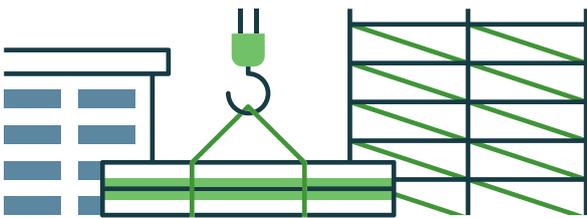


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03

Provision of Equipment

HIS (HK) Ltd offers its clients and contractors a range of equipment over various timescales. This includes scaffolding and lifting equipment and engineering plant and tools.



04

Supervision

Our safety officers, site supervisors and resident representatives provide management support for high-risk activities to protect the safety of employees, colleagues and stakeholders while on site.



05

Safety Training

As an accredited centre for IOSH and NEBOSH training, HIS (HK) Ltd offers a range of internationally recognised safety training courses to suit all levels and abilities.

We also produce a suite of safety information packs to help workers from all backgrounds work safely. This includes picture-based materials for non-English/Cantonese speakers. Our information packs focus on construction and engineering tasks, such as hot work, hand and finger safety, electrical safety and health awareness.



Global Projects

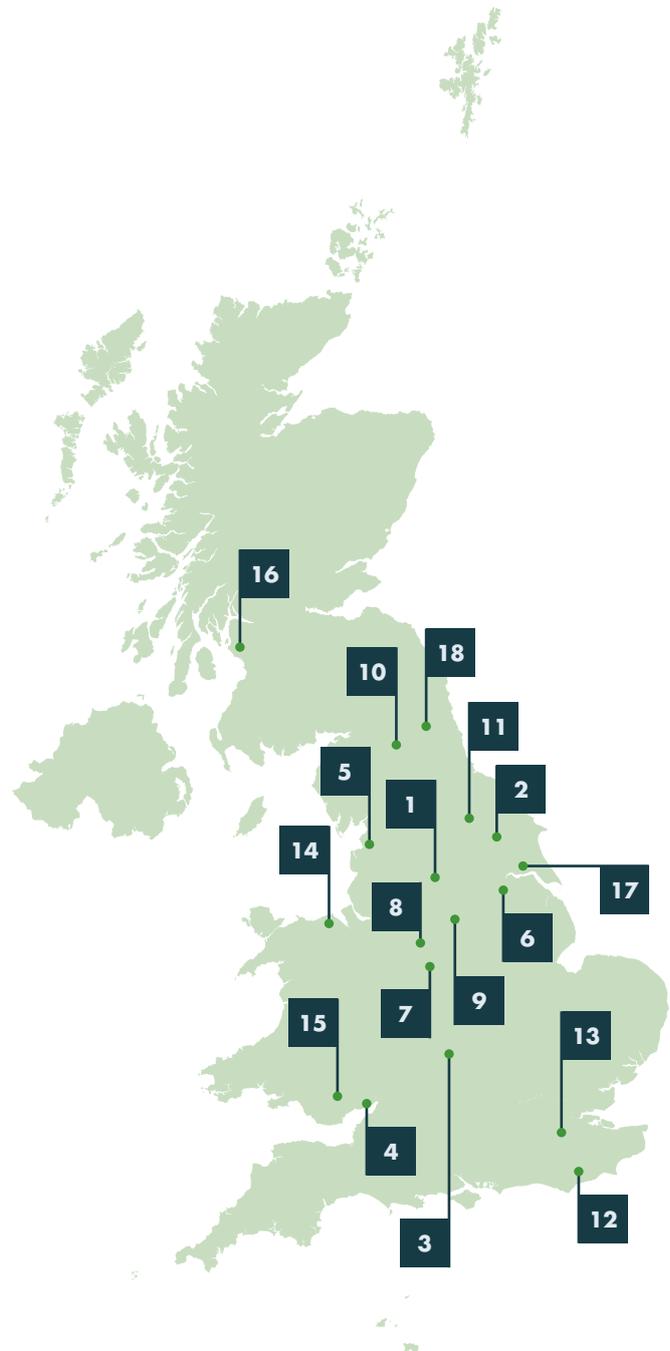
HK Industrial Sites



1. Black Point Power Station
2. Castle Peak Power Station
3. Penny's Bay Power Station
4. Lamma Power Station
5. Hong Kong Airport

UK Industrial Sites

1. Etex – Ferrybridge
2. Drax – Drax Power Station
3. Uniper – Ratcliffe Power Station
4. RWE, Etex – Bristol
5. SSE – Fiddlers Ferry Power Station
6. P66, ABP, EP UK – Humber Powers Station, Refinery & Terminal
7. RWE – Staythorpe Power Station
8. Liberty Steel – Stocksbridge
9. EDF – West Burton & Cottam
10. CF Fertilisers – Billingham
11. EP UK – Gale Common
12. GBRF – Robertsbridge
13. Uniper – Grain Power Station
14. Uniper – Connaught Quay Power Station
15. TATA – Orb Electrical Steels
16. Drax – Daldowie
17. IBT LTD – Immingham Bulk Terminal
18. EP UK – Lynemouth Power



Our Clients

SIEMENS

CLP 中電

ABP
ASSOCIATED BRITISH PORTS

sembcorp

Green Island Cement
Company Limited
青洲英坭有限公司

ALSTOM

Tarmac

International Power

CEMEX

Scottish and Southern
Energy

CLYDEPORT

e-on | UK

Eggborough
Power Ltd

RWE

SSI

EDF ENERGY

MITSUI & CO.

PEEL PORTS

siniat
Shaping the way people build

港燈
HK Electric

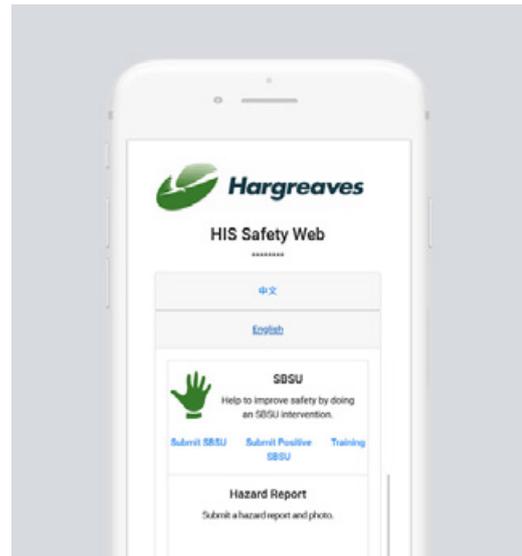
PHILLIPS
66

Safety Innovations

OHSAS 18001 System Certification



Step Back Speak Up: Safety web



UK Safety tour and safety expo learning about best practice



Worksite Training Packs





Major Awards



Selected awards as of August 2019

AWARD	ORGANIZATION	YEAR
CLP Power HK Ltd. – COO Award – Best Safety Performance	CLP	March 2018
NEC Contractor of the Year	NEC	June 2018
Achieved OHSAS 18001 Certificate	SGS	May 2018
Champions of the CPPS GBG Housekeeping Competition 2017–2018	CLPP	March 2018
Winners of the BPPS GBG Housekeeping	GBG	December 2017
QCC 2017 – Contractor Circles Silver Award	CLPP	December 2017
Good Housekeeping Competition – Operation Sites Category Golden Award	CLPP	November 2017
Winners of the CPPS GBG Housekeeping	GBG	October 2017
QCC 2017 - Contractor Circles Silver Award	GBG	August 2017
Winners of the CPPS GBG Housekeeping	GBG	August 2017
British Safety Council Five Star Safety	BSC	April 2017
CLP Power HK Ltd. – COO Award – Best Safety Performance	CLPP	March 2017
Best NEC Contract Award	GBG	December 2016
QCC 2016 – Contractor Circles Gold Award	CLPP	December 2016

NEC Contract Management

HIS (HK) Ltd specialises in the development, administration and management of NEC contracts in the industrial, power and energy sectors. We have NEC accredited project managers in our Hong Kong office and provide the following consultancy services:



- Contract development
- Contract management and administration
- Training in NEC contract management¹

HIS (HK) Ltd won NEC Contractor of the Year in 2018, and its sister company Access Services was highly commended in 2019.



HIS **Solutions** for Industry

HIS offers mechanical and electrical maintenance services across the energy, power and industrial sectors. These range from specialist engineering support to general maintenance and cleaning services.

We conduct short term, project-based work as well as long term maintenance contracts, often on NEC terms and conditions. We are firm believers in using an integrated maintenance and operations team to maximise the value and reliability of our clients' assets.

HIS (HK) Ltd has won many awards for safety and customer satisfaction, including NEC Contractor of the Year in 2018.



Selected Case Studies

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01

CLP Power HK Ltd



SCOPE OF WORK

NEC3/NEC4 Term Service Contract - Integrated Maintenance Services at Castle Peak, Black Point and Penny's Bay Power Stations (2014 - 2024)



PROJECT DESCRIPTION

In 2014, CLP Power HK Ltd appointed Hargreaves to deliver electrical and mechanical maintenance of plant and equipment across three major power stations in Hong Kong. Hargreaves supplied all appropriate manpower and equipment to maintain services across the CLP portfolio.

After the initial five-year NEC contracts, CLP awarded Hargreaves the role of principal maintenance contractor until 2024.

Hargreaves is responsible for providing labour, maintenance equipment, materials and supervision to complete the works. This includes:

- Identifying the maintenance needs of the affected systems
- Implementing maintenance solutions
- Reviewing and revising the overall maintenance strategy for the affected systems to improve safety, efficiency and cost-effectiveness



- Providing general electrical and mechanical services
- Managing resources, including labour, equipment, plant and materials and subcontractors
- Planning, scheduling and implementing work activities
- Rectifying defects and carrying out fault repairs
- Conducting root cause analysis and implementing remedial actions
- Devising value engineering initiatives
- Updating records and preparing relevant reports
- Preparing budgets and monitoring expenditure
- Ensuring compliance with all statutory requirements
- Providing transport of personnel, equipment and materials to the site
- Providing translations as required from English and Chinese for those that do not speak either language

● CONTINUED

02 Hong Kong Electric

SCOPE OF WORK
Fitting a Submersible Pump



PROJECT DESCRIPTION

HIS (HK) Ltd provided the materials, consumables, tools, equipment and supervised labour for the installation of an additional submersible pump at the discharge of Coal Yard Effluent Pump No. 1 in Lamma Power Station. This involved:

- Fencing off the area by physical means and with appropriate warning notices to prevent entry by unauthorized people
- Performing an inspection to check the condition of the non-return valve
- Supplying and fabricating a cover for the existing non-return valve to allow connection of a new submersible pump
- Providing transport, installation and connection of a new submersible pump
- Providing support for testing and certification post installation

● CONTINUED

03

CLP Power HK Ltd



SCOPE OF WORK

CPB Condenser Retubing and CPPS Condenser Refurbishment (2016 - Present)



PROJECT DESCRIPTION

Tubes within the B1 condenser had exceeded their life and a replacement was needed. HIS (HK) Ltd brought in its specialist engineering team to remove and replace thousands of tubes across two condenser sheets during the 2019 outage schedule.

We completed condenser tube replacements on four units, using innovative tools to minimise outage time and reduce noise.

Our duties included:

- Erecting a scaffold around the condenser sheet
- Opening the condenser and inspecting tube sheet and tube
- Removing existing tubing from the condenser
- Preparing the tubesheet and tube holes
- Fitting and expanding new condenser tubing
- Re-coating the tubesheet and waterbox
- Securing and testing tubes to prevent leakage
- Removing scaffolding
- Cleaning the compressor and water gun

● CONTINUED

04

Green Island Cement Company



Green Island Cement
Company Limited
青洲英坭有限公司

SCOPE OF WORK

Conveyor/Materials Handler Overhaul (2018)



PROJECT DESCRIPTION

HIS (HK) Ltd conducted significant maintenance on one of the conveyors at Green Island Cement.

HIS provided all necessary labour, equipment and materials to complete the work, which included:

- Erecting and dismantling scaffolding
- Replacing the grate plate
- Replacing the moving frame guide rail
- Replacing the support shaft wear ring
- Replacing drive shaft travelling carts
- Replacing the hydraulic pump for damping and replace coupling

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05

CLP Power HK Ltd



SCOPE OF WORK

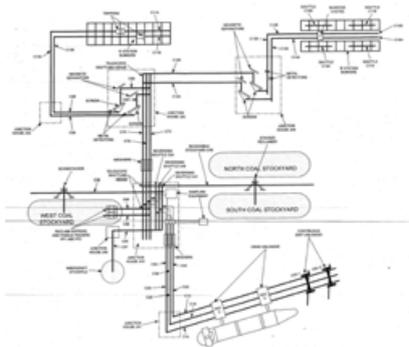
Coal and Ash Plant Handling System Maintenance and Overhaul (2014 - Present)



PROJECT DESCRIPTION

Hargreaves provided a daily preventive maintenance service within a coal and ash plant system. This included maintenance of the conveyor, coal ship unloader, and vehicles and general electrical and mechanical services.

- NEC contract management and administration
- Maintenance inspections
- Routine maintenance
- Conveyor refurbishment, including:
- Conveyor:
 - Chain and flight bar replacement
 - Wear plate replacement
 - Corrosion removal and support
 - Hydraulic system refurbishment
 - Conveyor belt refurbishment
 - Drive sprocket replacement
 - Bearing replacement
 - Trash screen repair
 - Chute lining replacement
- Coal ship unloader maintenance and repair
- Vehicle servicing, inspection and repair



CONTINUED

06

Green Island Cement Company



Green Island Cement
Company Limited
青洲英坭有限公司

SCOPE OF WORK

Replacement of Kiln Filler Bars (2017)



PROJECT DESCRIPTION

Green Island Cement Company commissioned HIS (HK) Ltd to replace kiln filler bars in Pier 2 and Pier 3 at Green Island Cement Plant.

HIS provided the labour, equipment and materials to complete the work, which included the following:

- Erection and dismantling of scaffolding
- Gouging filler bar welds
- Fabrication and installation of jacking lugs around the kiln
- Removing filler bars
- Cleaning kiln shell and performing NDT to check the condition



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07

CLP Power HK Ltd



SCOPE OF WORK

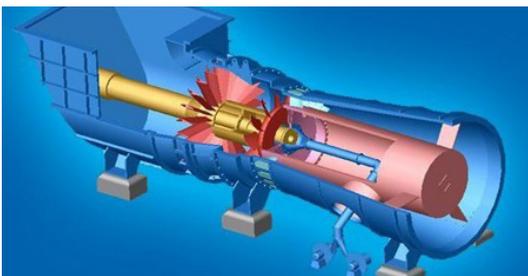
FGD Outage Services (2014 - Present)



PROJECT DESCRIPTION

CLP Power HK Ltd tasked Hargreaves to overhaul a fuel gas desulphurisation system, which limits harmful emissions from the CPPS into the atmosphere. Hargreaves managed the FGD area as a separate zone during outage times to ensure the effectiveness of the work and the safety of the site. We performed the following services:

- Recycle pump system overhaul
- Repair to internal wall lining of fuel gas absorber
- Overhaul of slurry mixer agitator
- Overhaul of booster fan
- Repair of gas heater
- Ducting internal lining repair



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08

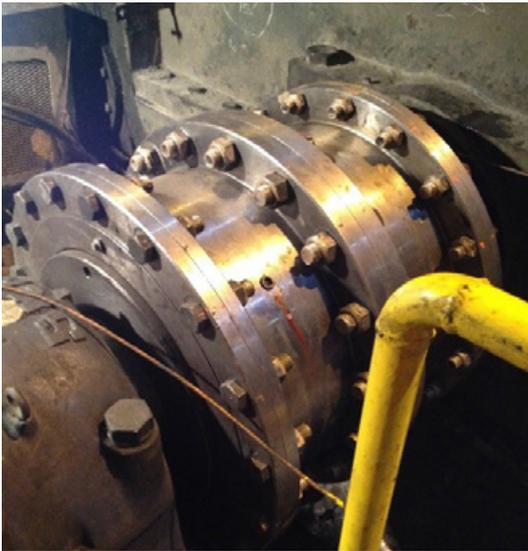
Green Island Cement Company



Green Island Cement
Company Limited
青洲英坭有限公司

SCOPE OF WORK

5-GM-3 Girth Gear and Pinion Replacement



PROJECT DESCRIPTION

HIS (HK) Ltd replaced a large girth gear and pinion for Green Island Cement Works.

HIS provided the workforce and equipment to deliver the project, which required 24-hour working. This included:

- Operation of gantry crane
- Provision of mobile crane for material install/dismantle
- Scaffolding supply and erection
- Removal and clean-up of gear cover and gear teeth
- Removal and replacement of girth gear and pinion
- Adjustment and calibration of new gear and pinion
- Re-installation of gear cover
- Disposal of old girth gear



● CONTINUED

09

Hong Kong Electric

SCOPE OF WORK

Stacker Reclaimer Coal Chute Lining Replacement



PROJECT DESCRIPTION

HIS provided materials, consumables, tools, equipment and supervised labour to replace the steel liner for the coal chute at Lamma. This involved:

- Checking backing plates were intact and cleaning the bonding surfaces to remove any debris
- Preparing and applying high strength epoxy adhesive weld central washer to the surface
- Fitting new ceramic tiles, cut to size where necessary
- Checking for clearance under tiles or unevenness
- Performing site clearance and a general tidy up

CONTINUED

10

CLP Power HK Ltd



SCOPE OF WORK

Castle Peak Power Station Ducting Refurbishment (2016 - Present)



PROJECT DESCRIPTION

HIS (HK) Ltd removed and replaced cladding and insulation at Castle Peak Power Station (CPPS). The project involved:

- Providing scaffolding and labour and ensuring safe access to affected areas for completion of the scope of work
- Renewing cladding and insulation of steam air-heater inlet and outlet ducts, SA hot air ducts to wind boxes, expansion joints of the SA hot air ducts to wind boxes and gas air heater inlet/outlet ducts
- Replacing damaged steel ducts areas
- Re-coating the damaged protective coating with high temperature ($\geq 300^{\circ}\text{C}$ dry heat) or low temperature (150°C dry heat) coatings.

CONTINUED

11

Hong Kong International Airport



SCOPE OF WORK

TIG Welding Repair of Secondary Baggage Sorter at Hong Kong International Airport



PROJECT DESCRIPTION

Hargreaves undertook specialist welding repairs across the baggage handling system at Hong Kong Airport.

We provided supervision, labour, materials, tools and equipment to fabricate the steel track and replace the defective parts. This included:

- Providing specialist TIG welding tools and equipment
- The design, delivery and fabrication of replacement sorter track
- Providing non-destructive testing services
- Providing a comprehensive service support report

CONTINUED

12

CLP Power HK Ltd

SCOPE OF WORK
BPPS HRSG Tubes Replacement



PROJECT DESCRIPTION

HIS (HK) Ltd delivered a transition weld partial replacement for CLP Power HK Ltd. The project involved:

- Inspecting and assessing the condition of the transition joint through NDT
- Repairing defective indications found on the transition joint
- Reinstating insulation and cladding

Our team also undertook a ducting and casing refurbishment. This involved:

- Visual inspection and NDT to identify defects
- Removing defective weld imperfections and perform weld repairs, carry out condition a survey to identify the area to be enhanced - includes sling, girths support, duct surface internally
- Replacing and repairing all the damaged duct surface, structural I-beams, buck stay clips and sling supports.
- Aligning the inlet duct and enhance the duct supports by fitting with guides.

They then carried out an HRSG pressure part refurbishment. This involved:

- Inspection by non-destructive and metallurgical examination and/or per advises from metallurgical/technical services
- Replacing defective components, including drain valves, external pipes and hanger
- Re-inspecting by non-destructive and metallurgical examination
- Re-instating the insulation and cladding

Finally, we replaced the HP economizer tube to header. This involved:

- Removing insulation and cladding
- Opening the inspection door
- Replacing any defective tube found during NDT

● CONTINUED

13

Doosan Babcock



SCOPE OF WORK

Refurbishment of Chemical Monitoring Systems at Castle Peak and Black Point Power Stations



PROJECT DESCRIPTION

Hargreaves supported Doosan Babcock to replace and update its ageing steam and water chemical sampling equipment at Castle Peak and Black Point Power Stations.

We provided supervision, labour, materials, tools and equipment to replace the steam and water chemical analysers. This involved:

- Removal of existing analysers
- Installation of new analysers
- Testing and commissioning
- Refurbishment of analyser house (general repair and repainting)
- Installation of new ventilation fan
- Refurbishment of main control panel and removal of recorder



● CONTINUED

14

CLP Power HK Ltd



SCOPE OF WORK

A4 Silencer Steel Frame Support and Installation Service



PROJECT DESCRIPTION

Hargreaves fabricated and installed a new exhaust stack silencer on A station, Castle Peak.

We provided supervision, labour, materials, tools and equipment to fabricate the steel frame support, remove the existing silencer and install the upgrade. It required the following steps:

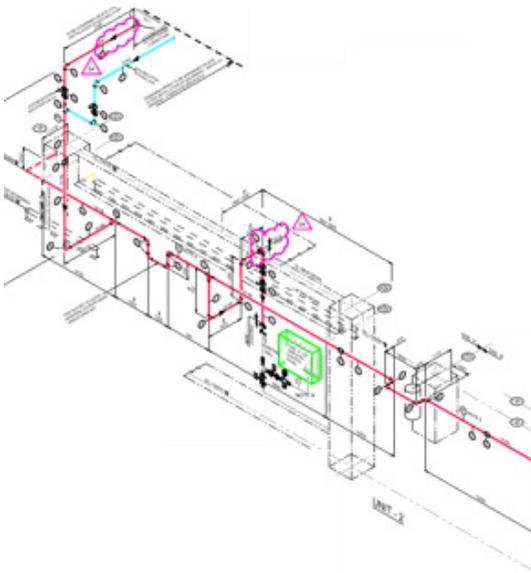
- Dismantling the existing silencer
- Fabrication of steel frame support and guide shoe for the new silencer
- Supply and installation of four new support springs for the new silencer on top of the vent stack
- Coating the new frame for weather protection
- Undertaking inspection of the new silencer when delivered
- Pre-assembly of the new silencer and transmission piece
- Surface-prep and spray coating of the new silencer
- Removing the existing silencer from heights above 70m
- Installation of new components

● CONTINUED

15

CLP Power HK Ltd

SCOPE OF WORK SCR Amplifier Fitting



PROJECT DESCRIPTION

Air Amplifiers

47 amplifiers of SCR unit procured, installed around the SCR catalyst.

Control Panel

- Design, material supply, fabrication, installation and testing of the control panel that controls the solenoid valve opening and closing for air supply to the Air Amplifiers.
- Control system to command signal for controlling solenoid valves to feed compressed air to the Air Amplifiers.
- Local control button and feedback connection to CPB DCS system

Piping Manifold

- Fabrication the manifold for the air amplifier
- The manifold to be pre-fabricated and NDT tested before the outage period.

Associated Pipe Work/ Pipe Fitting

Install the interface accessories for connecting the air amplifier to the retained compressed air ancillary equipment associated with compress air systems including Pressure regulator control panel, pressure gauge filter (oil and water) separator drain and pipe sealing.

CONTINUED

16

CLP Power HK Ltd



SCOPE OF WORK

CPPS Boiler Pressure Part Overhaul



PROJECT DESCRIPTION

Remnant Life Assessment (RLA)

Preparation work for blowdown vessel inspection

Non-Destructive Test Inspection (Preparation)

- Removing and reinstating claddings
- Casings and insulation
- Numbering and cleaning of boiler tubes to the required standards

Inspections

- Thermal tool
- EP2-cold-formed bend
- EP3-CMV weld
- Bottom slope tie bar NDT prep
- Soot-blower openings
- Drain pocket with drain piping bend
- Cage front and rear wall inlet header

Boiler Tubes Replacement

- Replaced all fretted, excessively corroded or thinned tubes
- Identified by visual and NDT inspection cage wall tubes, final, platen, re-heat super-heaters and economizer
- Replace erosion shields on tubes in the identified area
- Replace beyond lifetime tubes in final super-heater, re-heater, cage wall and economizer

● CONTINUED

17

CLP Power HK Ltd



SCOPE OF WORK

CPA 400kV Crane Repair

PROJECT DESCRIPTION

Replacement Electrical Conductor System

- Removed the electrical conductors, collectors and hanger accessories
- Fitted new electrical conductors to the hanger supports and ensure the bolts of the hanger clamps are tightened to the supplier's design value
- Apply jointing compound to each electrical conductor connector pins

Installation of New Electrical Collectors

- Install four sets tandem electrical collector to the support brackets
- Check all the electrical collectors (8 off) are aligned centrally with the conductors
- Connect the collector's cable to the local junction box

Electrical Conductor Commissioning Check

- Check the insulation and continuity of the electrical conductor system
- Carry out functional checks for the electrically operated crane with CLP RO

Hoist Rope Wire Replacement and RPE Survey

- Carry out wire rope replacement
- Re-apply mobiltac 375 grease to the new rope wire



- Check & reset upper and lower cut-off switches to limit the hook travel after electrical supply available
- Set up the test weight with lifting gear and carry out a survey with RPE. Ensure ASLI in good operating function
- Replace tubes that beyond lifetime in final super-heater, re-heater, cage wall and economizer

Installation of Radio Remote Control Set

- Supply and install one set radio remote control including power supply, radio transmitter and receiver
- Carry out an operational check for the crane with "pendant control" and "radio control" separately

Repair of Cat Ladders and Platforms

- Prepare and install new platforms and cat ladders
- Install the new platforms and cat ladders with the support of safe access
- Carry out NDT for the new welds on the cat ladders, steel support and platforms

Safety **Always**

Safety, Health, Environment and Quality (SHEQ)

HIS (HK) Ltd is at the forefront of SHEQ compliance, innovation and best practice.

The safety of our colleagues, clients and stakeholders is at the heart of everything we do. Our safety management system is certified by SGS, and the British Safety Council recently awarded us five-stars for safety. We are committed to protecting the environment inside and outside our working areas.

Our behavioural safety programme supports staff to create safe and environmentally friendly working environments. We also encourage staff to take part in our SHEQ programmes.

All workers must follow the core principles laid out in our code of conduct and employee handbooks. These include:



Zero tolerance to
drugs and alcohol



Dispose of waste
appropriately



Keep your
work area tidy



Wear PPE
as required

Delivering Professional Services to Recognised Systems of Safety and Quality.

- Project Management
- Partnership Contracting
- Personnel
- Engineering Maintenance
- Project Engineering Services
- Access Services
- Facilities Management



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