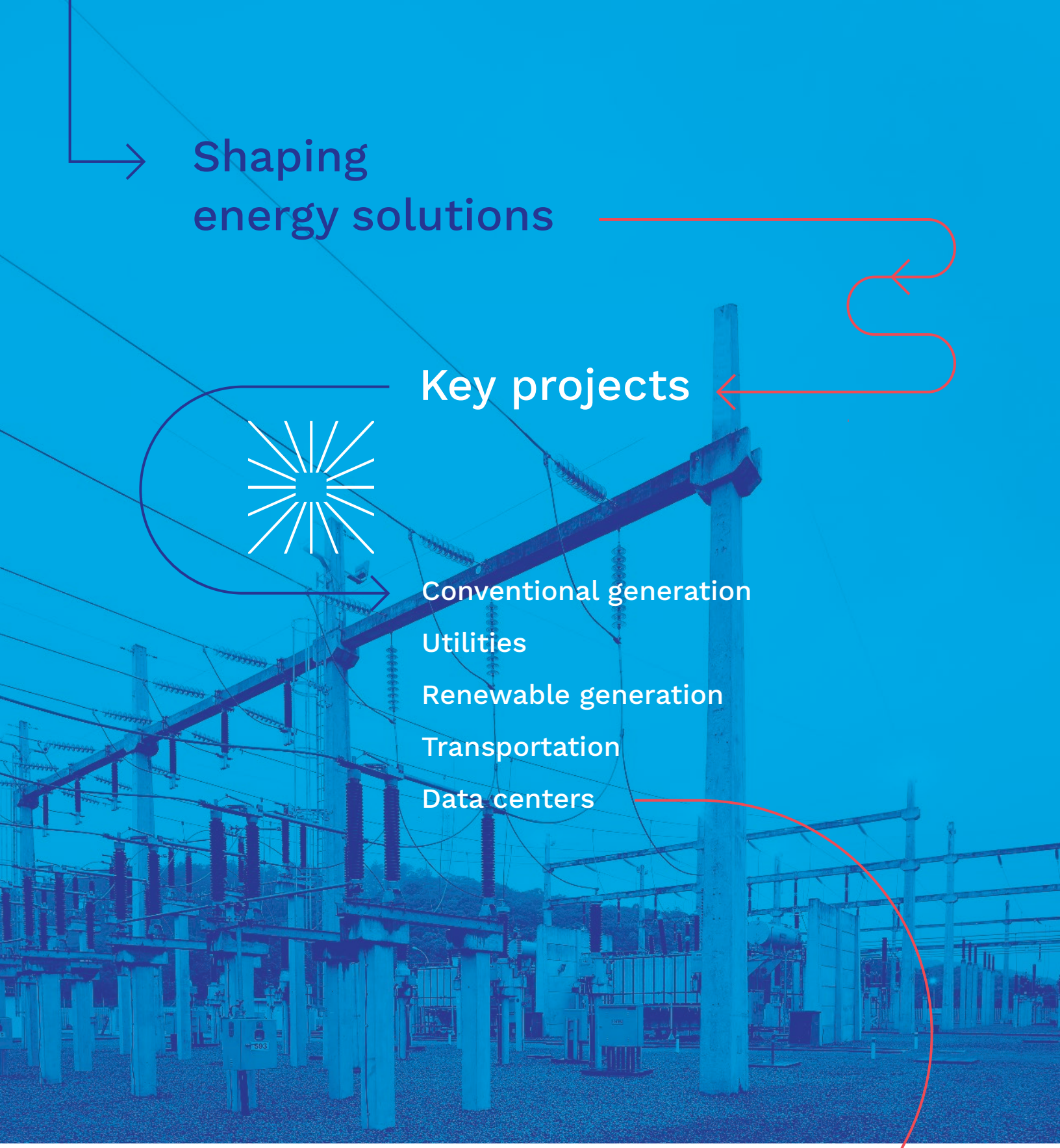
Shaping energy solutions

Key projects



- Conventional generation
- Utilities
- Renewable generation
- Transportation
- Data centers

linxon

Linxon combines SNC-Lavalin's project management expertise and Hitachi Energy's industry leading technological knowledge into a company dedicated to substations.

We are building the infrastructure to power the world with carbon-free energy.

Turnkey substations

Conventional generation

1. Cricket Valley 345 kV GIS Substation
2. Hummel Energy Station – 500 kV
3. Hinkley Point C
4. Rumailah fast-track extension 400/132 kV
5. Tanajib cogeneration 380 kV BSP switching station
6. Bismayah 3,000 MW CCPP
7. Rumailah 3,000 MW CCPP
8. Al Fadhili 380/115 kV Gas Plant
9. Dohuk 1,000 MW GPS
10. Khormala 640 MW GPS
11. Akola, Koradi, Tiroda – 765 kV
12. Rabigh IPP 380 kV GIS substation
13. Doha substations – Phase VI 132/11 kV GIS substations
14. Al Dahma 220 kV Extension

Utilities

15. Morristown 230 kV/34.5 kV
16. Glen Brook AIS Substation
17. Rio Oso 230 kV and 115 kV
18. Embarcadero
19. Potrero - 230 kV & 115 kV switchyard
20. 69 kV GIS urban substation
21. Waterfront 230 kV
22. Naval Base – Elevated GIS substation
23. TVA Hiwassee 500 kV GIS and Expansion
24. Ontario Hearn Substation
25. Hagby 400 kV, 220 kV and 132
26. SSEN AIS and GIS substation framework agreement, 132 - 400 kV
27. ESB substation framework agreement
28. London Power Tunnel, 400/132 kV, UK with EconiQ™ 420 kV GIS
29. Värtan 220/110 kV GIS
30. Bühl, 380 kV substation
31. Gullarängen/Nynäshamn 130 kV substations
32. Ringhals 400 kV AIS
33. Grundfors 400 kV
34. Hall 400 kV substation
35. Shurton
36. Burwell extension project, 400 kV mechanical switched capacitors
37. 400 kV AIS substation for the British-Danish Viking Link
38. Skanstull 400 kV
39. Barkarby 130 kV GIS
40. St. John's Wood SGT Replacement
41. Sege 400 kV AIS
42. Djuptjärn/Högnäs 400 kV AIS
43. Upgrade of 380 kV hybrid switchgear
44. Thuwal and Khulais 380 kV BSP expansion
45. Blackzone – substation replacement project
46. Expansion of Al Mursalat (9012) 380/132 kV BSP
47. Al Badr Expansion (9013) & Installation of Reactors @ Nafal 9008 & PP-7 (9007)
48. Refurbishment of Qatif 230 kV Substation
49. Rabigh 2 expansion of 380 kV GIS & installation of reactors @ MKH & JNE
50. Ghazal 230 kV GIS substation and associated remote end modification
51. Abraj 132/11 kV substation, Dubai
52. Central Iraq – 132/33 kV GIS, Jica lot 2
53. Baghdad North, 400 kV
54. 2012 - 2016 Transmission Project Phase 1
55. Sahel Al Zallaq, 220 kV GIS
56. Amazon Askar
57. Green Hills – 132 kV
58. Rabwah – 132 kV
59. 2007 - 2011 Transmission Project
60. Makkah Central 380/110 kV GIS Station
61. Najibiyah 400/132 kV GIS Station
62. Diyala 400 kV Extension
63. King Abdulah 380 kV GIS substation
64. Namerah North 380 kV GIS substations
65. Transmission grid expansion – Phase VII, 400 kV GIS substations
66. Gulf Interconnection Phase I
67. Quarayya 380 kV GIS substations
68. Amara 400/132 kV Substation
69. Erbil Stage 6 Package 18 KRG-MOE-ES06b-2011
70. Amara Extension 400/ 132 kV Substation
71. Al Rayyan village underground substations
72. Fujairah 400/132 kV GIS Station
73. WBSETCL 220/132 GIS/AIS
74. Dhalkebar, Nepal 400 kV GIS
75. 400/220/132 kV substation at Saharsa
76. Ajmer Phagi – 765 kV
77. Substation package, SS-22
78. Substation package, SS-27
79. Bhiwani substation and Bhadla substation, 765/400 kV
80. Champa – 765 kV
81. Agra – 765 kV
82. Srinagar – 400 kV
83. Navsari – 400 kV
84. Bilaspur – 765 kV

Renewable generation

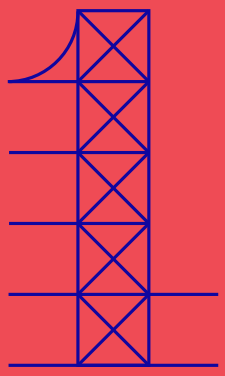
85. Vineyard Offshore 220/115 kV substation
86. Maritime Link – AC substations for the Emera 500 MW HVDC Connection Project
87. Seagreen 1 (1075 MW) Offshore Wind Farm – substation package
88. Storfinnforsen, 130 kV and 400 kV AIS
89. Rampion Offshore Windfarm
90. Pen-y-Cymoedd Onshore Windfarm
91. Shams 400 kV Substation
92. Banaskantha – 765 kV Sankhari – 400 kV
93. Mohammed Bin Rashid Solar Park Main & Extension - 400 kV Substation
94. CPSU – I & II, Air Insulated Substation (AIS)
95. Obra Adani thermal transmission project
96. Fatehgarh, Air Insulated Substation (AIS)
97. Khetri, Jhatikara & Sikar, Air Insulated Substation (AIS)
98. Kamuthi 220 & 110 kV

Transportation

99. Chennai Metro mass urban transit system
100. Great Western Electrification Plan
101. BMRCL urban mass transit system
102. Kochi Metro urban mass transit system
103. Kolkata Mass Rapid Transit System (MRTS)
104. Pink and Yellow monorail network
105. Bangalore Metro Phase l, India
106. Delhi Metro Rail Corp, phase 1 and 2

Data centers

107. Greenfield substations for Cumulus Data Center



Conventional generation

North America

Europe

Middle East & Africa

Asia Pacific

Cricket Valley 345 kV GIS Substation

Customer: Bechtel Infrastructure and Power
Location: New York City, US — 2019

The challenge

→ A 1,100 MW clean burning natural gas power plant to supply power to New York City and surrounding areas. The facility was located on a small site of a retired industrial facility. The site required costly site prep and was highly congested

Scope

→ A compact 345 kV GIS substation that minimized the substation footprint to fit in the constrained area while also minimizing site preparation costs and improving constructability. Our team worked with ConEd to ensure the substation met the rigorous utility requirements to ensure high system reliability and security

Benefits

→ The compact GIS substation overcame the site's space challenges. A single supplier for the whole delivery, managing grid interconnect requirements, planning all activities and managing the risk of working at this very challenging site, provided the customer with certainty of project success

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Hummel Energy Station – 500 kV

Customer: Bechtel **End user:** Panda Power Funds
Location: Shamokin Dam, PA, US — 2018

The challenge

→ Conversion from coal to natural gas which required an upgraded grid connection
→ The brownfield site provided considerable challenges due to the limited space available
→ Multiple transmission lines with varying voltage levels

Scope

→ Full turnkey solution for the 500 kV GIS substation including 1000 meters of GIB
→ Technical skills for interconnection with the existing utility switchyard

Benefits

→ Compact GIS substation that overcame the sites space challenges
→ A single supplier for the whole delivery, planning all activities and managing the risk of working at this very challenging site ensured timely completion

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Hinkley Point C

Customer: NNB Gen Co (EDF Energy)
Location: Somerset, United Kingdom — 2022, 2025

The challenge

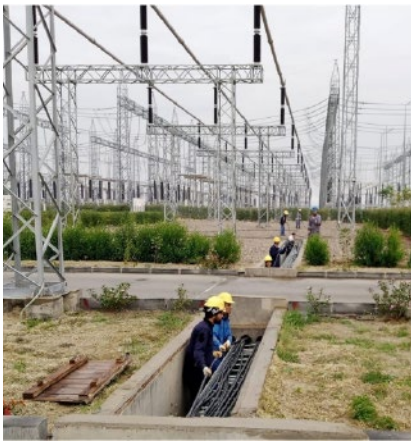
→ First nuclear power plant in the UK for decades
→ 400 kV GIS substation for reliable connection of 3,700 MW; 7% of UK's power needs 2025; enough to power 6 million homes
→ Full-turnkey 400 kV substation including civil works with timely delivery and maximum security requirements

Scope

→ 400 kV GIS, overhead lines, underground cable, 6 x 120 MVA transformers and 6 x 700 MVA transformers, with fire protection on the conventional island
→ IEC 61850 substation automation, control and protection

Benefits

→ Excellent reliability through in-house and on-site engineering, installation and project management expertise
→ On-time delivery with proactive risk mitigation measures
→ Inherent safety by design - won the ABB country award for Project safety 2018



Rumailah fast-track extension 400/132 kV

Customer: International Free Company in Iraq **End user:** Ministry of Electricity
Location: Basrah, Iraq — 2019 - 2024

The challenge

→ The power plant will after this final extension have a capacity to export 3,000 MW of electricity to the Iraqi transmission grid, stabilizing the power quality and reducing CO^2 emissions in Southern Iraq
→ The 400/132 kV substation at Rumailah 3,000 MW PP will be the largest substation in Iraq with a footprint of 700 x 250 m

Scope

→ 14 no's 400 kV diameters, 33 no's 132 kV bays, 4 no's 400/132 kV 250 MVA auto transformers, 1 no's 400 kV 50 MVAr shunt reactor

Benefits

→ During the entire project phase, Linxon has been supporting SHG with engineering to design the most optimal technical solution of the 400/132 kV substation to export 3,000 MW from the power plant to Iraq transmission grid
→ The supply also included engineering and procurement packages of the 400/132 kV substation at various stages to match completion of the power plant construction

Tanajib cogeneration 380 kV BSP switching station

Customer: SCT **End user:** Saudi Aramco
Location: Eastern Region, Saudi Arabia — 2023

The challenge

→ The development of this cogeneration plant and the seawater desalination plant with a net capacity of approximately 940 MW of electricity generation, a steam output of approximately 1,084 tons per hour, and a desalinated water output of approximately 19,470 cubic meters per day
→ The project will generate 940 MW net power capacity that will transpire through 380 kV GIS to the grid

Scope

→ 4 Dia_380 kV, 63 kA GIS (11Breakers) incl. LCC, Control & Protection, Gantry & Termination, Metering, Communication, Metering, AC/DC, LV Cable Works, Civil/ Electromechanical Works

Benefits

→ The cogeneration plant consisting of gas turbines, heat recovery steam generators, and steam turbines can efficiently generate electricity with the waste heat used to generate process steam and achieve high thermal efficiency, which contributes to carbon emissions reduction by reducing natural gas consumption
→ The project will supply electricity, steam, and desalinated water to the new oil and gas facilities in the area owned by Aramco

Bismayah 3,000 MW CCPP

Customer: Mass Global Holding Group **End user:** Ministry of Electricity
Location: Bismayah, Iraq — 2016 - 2018

The challenge

→ Functional combined cycle 3,000 MW power plant in 4 stages

Scope

→ 10 diameters 400 kV + 8 bays 132 kV GIS switchgear
→ 2 x 500 MVA 400/132 kV auto transformers
→ R&C and telecommunication
→ Erection and commissioning
→ Training

Benefits

→ First successful private investment power generation in central Iraq and by far the biggest power plant in Iraq
→ One competent partner for the complete substation design
→ HV Substation completely commissioned by ABB

Rumailah 3,000 MW CCPP

Customer: International Free Company in Iraq **End user:** Ministry of Electricity
Location: Basrah, Iraq — 2018

The challenge

→ Functionnal combined cycle 3,000 MW power plant in 4 stages

Scope

→ 6 diameters 400 kV AIS switchgear
→ 2 x 50 MVAr 400 kV shunt reactors
→ R&C and telecommunication
→ Interface with Power Plants

Benefits

→ First successful private investment power generation in South Iraq
→ One competent partner for the complete substation design
→ New DCB installed in Iraq Market

Al Fadhili 380/115 kV Gas Plant

Customer: Doosan Heavy Industries **End user:** SEC/Aramco Engie
Location: Saudi Arabia — 2018

The challenge

→ Partial energization within 19 months from contract award
→ Multiple stake holders (SEC/Aramco/Engie/Doosan), SEC standards
→ New HCIS 2017 security standards

Scope

→ Full turnkey 380/115 kV substation
→ 36 bays 380 kV GIS ½ scheme with outdoor GIBs
→ 115 kV GIS + 502 MVA power transformers
→ Control and protection scope (IEC 61850)
→ Civil construction, mechanical HVAC & firefighting
→ Remote end modifications

Benefits

→ Achieved full energization in 19 months (fast track)
→ Pilot class 1 security standard executed

Dohuk 1,000 MW GPS

Customer: Mass Global International
Location: Dohuk, Iraq — 2010 & 2013

The challenge

→ New 132 kV AIS substation to secure power generation in Kurdistan

Scope

→ Turnkey delivery of three green field 132 kV AIS S/S consisting of
→ 24 bays 132 kV switchgear
→ R&C and communications
→ Civil design, erection and commissioning
→ Training of local Iraqi engineers and remote supervision

Benefits

→ A new substation with the latest primary & secondary equipment technology that secures transmission of power generated at Dohuk GPS
→ Completion time 12 months

Khormala 640 MW GPS

Customer: KAR Group
Location: Dohuk, Iraq — 2013

The challenge

→ New 400 kV AIS substation to secure power generation in Kurdistan Region; Khormala 640 MW

Scope

→ Turnkey delivery of three green field 132 kV AIS S/S consisting of
→ EP supply of 400 kV AIS S/S
→ 5 diameters 400 kV switchgear with Disconnecting CB
→ R&C and communications
→ Engineering, supervision for erection and commissioning
→ Training of local Iraqi engineers and remote supervision

Benefits

→ A new substation with the latest primary & secondary equipment technology that secures transmission of power generated at Khormala GPS
→ Completion time 14 months

Akola, Koradi, Tiroda – 765 kV

Customer: Adani Transmission
Location: Akola, Koradi, Tiroda, India — 2012

The challenge

→ Reliable evacuation of generation plants
→ Fast Track completion, multiple site coordination

Scope

→ Supply, installation, testing and commissioning excluding civil works
→ 34 bays of 765 kV & 18 bays of 400 kV

Benefits

→ On time delivery
→ Meeting increased demand for electricity supply

Rabigh IPP 380 kV GIS substation

Customers: SEPCO III Electric Power Construction Corporation and Saudi Electricity Company
Location: Rabigh (Jeddah) Saudi Arabia — 2011

The challenge

→ The first IPP (Independent Power Plant) being built in the country
→ Power supply for the fast growing industry and population in Saudi Arabia

Scope

→ 380 kV GIS substation with 9 circuit breakers
→ IEC 61850 substation automation, control and protection system, telecommunication, installation and commissioning of substation

Benefits

→ Increased availability and reliability

Doha substations – Phase VI 132/11 kV GIS substations

Customer: Hyundai Eng. & Construction (HDEC), Kahramaa
Location: Doha, Qatar — 2009

The challenge

→ Advanced power plant with 2,600 MW electricity generation and 55 million gallons of drinking water per day
→ Coordinated integration into the existing grid

Scope

→ 3 GIS substations: 31 CB's 400 kV, 12 CB's 220 kV, 12 CB's 132 kV
→ Transformers, substation automation system, telecommunication, auxiliaries, installation supervision and commissioning
→ Electrical Balance of Plant (EBoP) and power train (GCB, IPB), MV, HV-cabling

Benefits

→ Short delivery time
→ Coordination of substation and EBoP in one hand

Al Dahma 220 kV Extension

Customer: Transco, ADWEA **End user:** Transco
Location: Al Ain, Abu Dhabi — 2009

The challenge

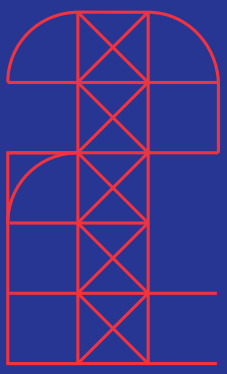
→ Expansion 220 kV/33 kV feeding Al Ain Airport, Royal Family Residential Area, and other stations

Scope

→ 2 x 220 kV GIS ELK-14 with adaptor to connect old ELK-1
→ Extension of the 13 x 33 kV GIS MV SWG Panels
→ Control and Protection Modification
→ Telecom works
→ Civil Works including FF and HVAC modification for buildings
→ Supervision for erection and commissioning

Benefits

→ Successful Execution in minimum outage time
→ HV Substation completely commissioned by ABB



Utilities

North America

Europe

Middle East & Africa

Asia Pacific

Morristown 230 kV/34.5 kV

Customer: FirstEnergy Service
Location: New Jersey, US — 2024

The challenge

- Engineering and procurement of existing outdated 230 kV/34.5 kV equipment
- Design and construction sequence required to minimize outages to avoid critical energization periods

Scope

- Reliable gas-insulated equipment using Hitachi Energy GIS (ELK-04- and ELK-14)
- Modular protection, automation and control (MPAC) panels
- 230 kV and 115 kV HV XLPE cable systems in cable trenches
- Dead end steel structures, associated equipment steel supports
- Design, civil construction works, installation

Benefits

- Reliability improvements via replacement of outdated systems
- GIS technology reduces the substation's footprint by up to 70% and minimizes maintenance
- Enhanced security in a remote location, placing major equipment inside the buildings

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Glen Brook AIS Substation

Customer: FirstEnergy Service
Location: New Jersey, US — 2024

The challenge

- PPL anticipated severe voltage issues and thermal overload during summer peak demand and required to upgrade and expand their transmission network

Scope

- A turnkey 230/69 kV AIS substation, including 230 kV, 115 kV and 69 kV breakers, steel structures, capacitor banks, control building battery and AC/DC systems, installation and commissioning

Benefits

- Most cost-effective and best long-term solution to resolve all of the reliability issues
- The substation will produce significant long-term reliability benefits to the Berwick area and is expected to impact approximately 46,200 customers

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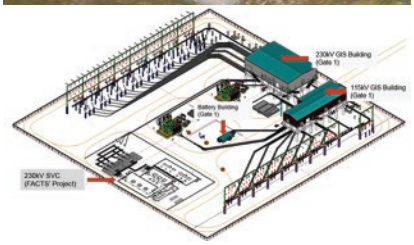

Rio Oso 230 kV and 115 kV

Customer: Pacific Gas and Electric company PG&E
Location: California, US — 2023

The challenge

- Engineering and procurement of existing outdated 230 kV and 115 kV AIS equipment replacements
- Design and construction sequence required to minimize outages to avoid critical energization periods

Scope

- Pre-engineered buildings for 230 kV and 115 kV GIS and MPAC
- Five diameters BAAH, 15-breakers – 230 kV and 115 kV GIS
- Modular protection, automation and control (MPAC) panels
- 230 kV and 115 kV HV XLPE cable systems in cable trenches
- Dead end steel structures, associated equipment steel supports
- Civil works

Benefits

- Reliability improvements via replacement of outdated systems
- Modernized protection, control and automation of the substation
- Enhanced security in a remote location, placing major equipment inside the buildings

Embarcadero

Customer: Pacific Gas and Electric (PG&E)
Location: San Francisco, CA, US — 2019

The challenge

→ Improve of existing Embarcadero substation's reliability and flexibility needed
→ Constantly small earthquakes and shakes, and the need of preparing for larger events in the future
→ A new 230 kV power line under the San Francisco Bay and two new gas-insulated substation expansions in the city at the existing Embarcadero and Potrero substations

Scope

→ 230 kV Breaker-and-A Half (BAAH) Gas Insulated Substation (GIS)

Benefits

→ Additional power source to prevent power outages in case of earthquakes
→ Increase capacity and improve reliability of electrical service

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Potrero - 230 kV & 115 kV switchyard

Customer: Pacific Gas and Electric (PG&E)
Location: San Francisco, CA, US — 2019

The challenge

→ Constantly small earthquakes and shakes, and the need of preparing for larger events in the future
→ A new 230 kV power line under the San Francisco Bay and two new gas-insulated substation expansions in the city at the existing Embarcadero and Potrero substations

Scope

→ Two bays of 230 kV GIS breaker-and-a-half (BAAH), with circuit breakers, disconnect switches, and future BAAH equipment
→ One three-phase 230/115 kV, 420 MVA transformer bank
→ One 230 kV shunt reactor for the ZA Embarcadero-Potrero cable with a circuit breaker and disconnect switch, assorted equipment

Benefits

→ Improved reliability; greater redundancy and resiliency added in the event of a catastrophic earthquake
→ Increased the power capacity of San Francisco's financial district

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69 kV GIS urban substation

Customer: City of Anaheim (COA)
Location: California, US — 2019

The challenge

→ COA required a turnkey supplier with proven experience to design and install an aesthetically suitable building for close proximity to Disneyland

Scope

→ (2) 69/12 kV 33/40/50 MVA transformers enclosed in architectural building
→ 12 kV metal clad AIS switchgear lineup with (25) breakers
→ P&C Engineering, SCADA, panels, architectural buildings, foundations, vaults
→ (6) ABB 69 kV GIS breakers and (2) future spaces

Benefits

→ Wealth of experience executing turnkey (EPC) GIS projects, including (2) for COA
→ Strong project team and local strategic partners
→ Comprehensive, modern proposal presentation including 3D renderings of the project

Waterfront 230 kV

Customer: Pepco
Location: Washington DC, US — 2017

The challenge

→ Architectural building with precast exterior
→ Aging infrastructure, site was located in a congested urban community

Scope

→ 8 bays of BAAH 230 kV GIS breakers with tie breakers, 6 ring bus 13 kV switchgear (102 breakers total), high voltage equipment
→ Relay and Protection equipment and station automation
→ HVAC/Fire protection/Building security
→ Landscaping and construction

Benefits

→ Comprehensive, modern design

Naval Base – Elevated GIS substation

Customer: AEP (American Electric Power)
Location: Corpus Christi, Texas, US — 2016

The challenge

→ 69 kV GIS Substation
→ Potential for future 138 kV Substation upgrade
→ Address high water table in regards to cable installation

Scope

→ Cost effective project solution (utilize existing material from postponed project)
→ Pre-cast building foundation
→ Elevated slab to counteract the high water table
→ HV cabling system that will allow for future upgrade

Benefits

→ Pre-cast foundation allows for quick onsite assembly
→ Energized on schedule
→ Flexible assembly allowing for future upgrade
→ Full commissioning of GIS Substation and relay panels

TVA Hiwassee 500 kV GIS and Expansion

Customer: Tennessee Valley Authority (TVA)
Location: Tennessee State, TN, US — 2011

The challenge

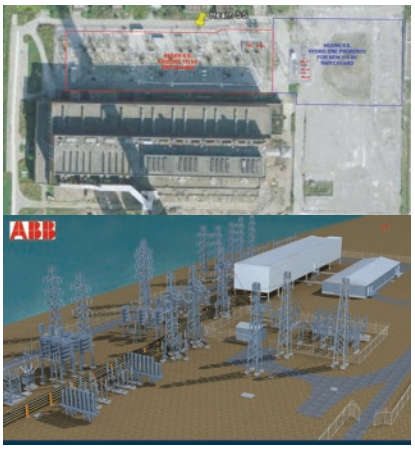
→ Manufacturing plant needed high reliability 161 kV feed
→ TVA needed 500 kV station in area
→ Manufacturer allotted minimum area on site for 500-161 kV

Scope

→ Being familiar with the capabilities of the GIS equipment, our team was able to provide a solution that optimized the layout
→ Small initial station footprint gave TVA room to expand site in future

Benefits

→ Deploy new 500 kV GIS at plant site
→ Compact and low cost building solution
→ Station completed on time



Ontario Hearn Substation

Customer: Hydro One
Location: Ontario, Canada — 2008

The challenge

- → Insufficient space to connect to existing AIS
- → Splice connection into existing 40 year old oil-filled cable
- → Keeping existing substation energized while building the expansion
- → Fast track schedule

Scope

- → GIS for new substation with P&C
- → Modular retrofits to existing bays
- → HV cable connection between major systems
- → Avoided splices in oil-filled cables

Benefits

- → Adherence to HONI procedures
- → EPC with management of complex systems integration
- → Winter construction
- → Collaborative approach

Hagby 400 kV, 220 kV and 132

Customer: Vattenfall Eldistribution
Location: Stockholm, Sweden — 2025

The challenge

- → Building brownfield 132 kV station comprising 8 bays on the site of an old station to minimize increased footprint

Scope

- → A new 132 kV station with 8 bays
- → The extension of a 400 kV substation with 2 bays
- → Demolition and replacement of a section of another 220 kV substation

Benefits

- → The refurbishment is part of an overall scheme to meet increased power supply demands
- → Strengthening the transmission grid in the Stockholm region
- → Increasing performance and decreasing future maintenance costs, whilst ensuring minimal environmental impact

SSEN AIS and GIS substation framework agreement, 132 - 400 kV

Customer: SSEN
Location: Scotland, UK — 2029

The challenge

- → Framework agreements for turnkey delivery of high voltage and extra high voltage substations and associated systems
- → Support current and future project demand within the SSEN Transmission projects portfolio in the United Kingdom

Scope

- → Design, engineering, procurement, construction and commissioning of Gas Insulated (GIS) substations and AIS substation works along with associated systems
- → Current and future project demand within SSEN Transmission. We are now in these two frameworks for an initial term of 5 years with a potential extension for another 2 years

Benefits

- → A Delivery Partner Model which aims to promote long-term collaborative working with the supply chain in order to provide the most efficient solution to the consumer and support the net-zero ambitions

ESB substation framework agreement

Customer: ESB
Location: Republic of Ireland — 2029

The challenge

→ The framework activities will range from small substation extensions and refurbishment to large scale, innovative, new build substation requirements

Scope

→ The proposed scope of works for the projects under this framework agreement will include, but not be limited to:
→ 400 kV/220 kV/110 kV/38 kV voltage levels GIS and/or AIS
→ Substation control system and protection systems, underground HV cable circuits and overhead lines depending on project requirements

Benefits

→ Linxon providing its market leading technical/equipment innovation, system integration and construction knowledge across ESB Networks electrical transmission, whilst supporting both organisations' drive towards Net Zero

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London Power Tunnel, 400/132 kV, UK with EconiQ™ 420 kV GIS

Customer: National Grid, UK
Location: United Kingdom — 2026

The challenge

→ Linxon is supplying the substation package relating to National Grids' London Power Tunnels 2 project in the United Kingdom. This vital work will help keep Londoners connected to safe and reliable electricity supplies

Scope

→ To connect the underground cables to the Transmission and Distribution Networks, Linxon will design, supply, install and commission connection bays at two existing national Grid substation sites, modification works at two further sites and construct a new 7 bay 400/132 kV Gas Insulated Switchgear (GIS) substation at Bengeworth Road, South East London
→ Pioneering EconiQ™ 420 kV GIS

Benefits

→ The project aims to boost certainty and productivity in delivery, improve whole asset life outcomes and support a more sustainable, innovative and highly skilled industry

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Värtan 220/110 kV GIS

Customer: Ellevio
Location: Sweden — ~2026

The challenge

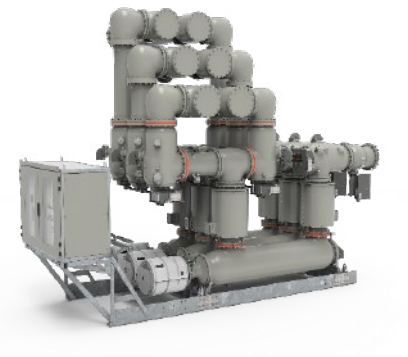
→ The largest substation project that Ellevio has ever undertaken
→ The indoor technology has been chosen because this enables the construction of the substation on a smaller footprint
→ Construction works whilst the old substation is operational

Scope

→ 110 kV GIS switchgear: 17 double busbar, single breaker; 3 double busbar double breaker; 4 coupler bays
→ 220 kV GIS switchgear: 16 double busbar, double breaker; 4 double busbar single breaker, 4 coupler bays
→ Transformers 225/112.5/33 kV 250 MVA; 112.5/33 kV 75 MVA; reactor 225 kV 150 MVAr
→ Execution in two stages: 110 kV GIS, 20 months (stage 1) and 220 kV, 55 months (stage 2) plus one option (stage 3)

Benefits

→ Meeting the need to strengthen and renew Stockholms electricity grid to secure future transmission capacity



Bühl, 380 kV substation

Customer: Transnet BW
Location: Bühl, southwestern Germany — 2025 - 2026

The challenge

→ Strengthening the 'Badische Rheinschiene' power link in the Rhine valley will increase the capacity and improve the reliability of the grid to transmit electricity generated by northern windfarms to consumers in the south, while nuclear and coal power plants are being put out of service

Scope

→ Design, supply, install and commission a 380 kV GIS substation to replace an existing 220 kV AIS substation. The upgrade includes 4 new GIS bays, double-busbar, control and protection systems, substation automation, metering, and telecommunication systems, new auxiliary supplies, 2 x 20 kV compact stations, diesel generator, a 110 kV cable connection between 380/110 kV transformers, and an existing 110 kV substation as well as all buildings, infrastructure and roads

Benefits

→ The new installation will be equipped with Hitachi Energy's gas-insulated switchgear (GIS) technology that offers outstanding reliability and can be safely operated in confined spaces

Gullarängen/Nynäshamn 130 kV substations

Customer: Vattenfall Eldistribution
Location: Stockholm, Sweden — 2024

The challenge

→ Design, supply, construction and commissioning of two turnkey substations to Vattenfall Eldistribution, which will replace old equipment in Gullarängen and Nynäshamn

Scope

→ The existing 70 kilovolt (kV) air-insulated outdoor switchgear will be replaced by gas-insulated indoor switchgear
→ The voltage will be raised to 130 kV
→ In Gullarängen, the medium-voltage switchgear as well as a power transformer will also be replaced
→ Two modern buildings for the substations

Benefits

→ This modernization is part of Vattenfall's large-scale "Capacity Stockholm" program, a major investment with the aim of strengthening the electricity grid and upgrading the regional network around the capital of Sweden

Ringhals 400 kV AIS

Customer: Svenska Kraftnät
Location: Sweden — 2023

The challenge

→ A challenging execution timeline
→ The modernization of the substation will be executed while power generation is maintained, keeping outages to a minimum

Scope

→ A replacement of the existing substation consisting of two 400 kV switchgears (totally 11 bays)
→ The new substation will be connecting reactor 3 and 4 to the transmission grid
→ Turnkey supply including project management, engineering, procurement, equipment supply, civil design, civil works, mechanical & electrical installation and commissioning

Benefits

→ High technology solutions mainly from ABB, such as the switchgears with disconnector circuit breakers (DCB's), auxiliary power supply plus the protection and control system according to IEC 61850

Grundfors 400 kV

Customer: Svenska Kraftnät
Location: Sweden — 2023

The challenge

→ A turnkey supply of an 400 kV electrical substation in northern Sweden
→ The cold climate in this area puts extra high requirements on the high voltage equipment's and the local construction

Scope

→ Turnkey EPC delivery including project management, engineering, procurement, equipment supply, civil design, civil works, mechanical & electrical installation and commissioning
→ Relocation of 2 existing transformers 350 and 750 MVA and 2 reactors
→ Demolition of existing AIS switchyard

Benefits

→ The major hydro power plant in Grundfors will be connected to the transmission grid through this substation. The hydro power plant is a major supplier to manage the electrical demand from all major cities in the northern part of the country

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Hall 400 kV substation

Customer: Svenska Kraftnät
Location: Södertälje, Sweden — 2023

The challenge

→ Installation of one new 400 kV air insulated (AIS) substation
→ Design, supply, construction and commissioning

Scope

→ Replace an existing substation, which having reached the end of its lifespan
→ Including demolition of existing substation

Benefits

→ A part of a modernization program to expand and upgrade existing substations to ensure it can meet the needs of Sweden's growing urban population

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Shurton

Customer: National Grid UK
Location: Somerset, United Kingdom — 2022

The challenge

→ Main connections to HPC, the first nuclear power plant in the UK for decades
→ Full-turnkey 400 kV substation including civil works

Scope

→ 400 kV GIS (18 bays), 6 x 2400 MVAr series reactors
→ IEC 61850 substation automation, control and protection

Benefits

→ Excellent reliability through in-house and on-site engineering, installation and project management expertise
→ Integrated security solution providing a robust security system around the site

Burwell extension project, 400 kV mechanical switched capacitors

Customer: National Grid, UK
Location: United Kingdom — 2022

The challenge

→ The upgraded station will provide network stability for the grid in line with the Net Zero and network security commitments undertaken by National Grid

Scope

→ The Linxon scope consists of the design, supply, installation and commissioning of two new 225 MVAr Mechanically Switched Capacitors with dampening network (MSCs) bays inclusive of the associated civil works to extend the substation site

Benefits

→ The MSCs contribute to network stability and fault prevention across the UK transmission network

400 kV AIS substation for the British-Danish Viking Link

Customer: National Grid
Location: United Kingdom — 2022

The challenge

→ The interconnector project will involve the construction of a converter station in each country and the laying of submarine/underground cables between each converter station and their respective substations

→ Viking Link will be approximately 760 km in length and will allow electricity to be exchanged between Great Britain and Denmark

→ Linxon's task is to deliver the UK grid connection substation works on behalf of National Grid for this critical link

Scope

→ The extension of double busbars, bus coupler and two user (interconnector) bays, including civil works

Benefits

→ The interconnector and the substation works will allow Britain and Denmark to make more effective use of renewable energy sources, increasing access to clean green energy and improving the security of electricity supplies for both countries

Skanstull 400 kV

Customer: Svenska Kraftnät
Location: Sweden — (first energisation) 2022

The challenge

→ As Stockholm grows, there is a need to strengthen and renew the region's electricity grid in order to secure future electricity needs

→ The 400 kV GIS substation is located in the southern exit of the tunnel close to Hammarby Sjöstad and will connect the cables from Anneberg, the substation Snösätra and also feed the existing 220 kV substation in Skanstull

Scope

→ A 400 kV GIS, two large digitally enabled ABB Ability Power Transformers (400/220/11 kV 500 MVA) and two 400 kV shunt reactors plus an industry-acclaimed power automation and control system, MicroSCADA Pro

Benefits

→ The substation will be installed in a double storage building which is partly underground to save space

→ The complex site location and transport logistics in the middle of Stockholm are very challenging and require solid project management and project coordination

Barkarby 130 kV GIS

Customer: Vattenfall Eldistribution AB
Location: Stockholm, Sweden — 2021

The challenge

→ Stockholm is expanding heavily in the northwest part and the substation is needed to secure the electrical infrastructure in the growing area

Scope

→ Turnkey delivery of new 130/10 kV GIS substation including project management, engineering, equipment supply, civil design, civil works, installation and commissioning
→ Protection & control system using IEC 61850
→ Two substation buildings with high requirements on the external finishing

Benefits

→ High technology solutions, such as the 130 kV GIS switchgear from ABB, ensuring high reliability, operational safety and low maintenance

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St. John's Wood SGT Replacement

Customer: National Grid UK
Location: London, United Kingdom — 2019

The challenge

→ Transformer replacement and upgrade within existing 400 kV GIS substation
→ Change of connection from 275 kV mesh corner to 400 kV double bus

Scope

→ Replacement of an existing SGT, a 275/66 kV 185 MVA super grid transformer with a 400/66 kV 240 MVA SGT at St. John's Wood 400 kV substation

Benefits

→ Excellent reliability through in-house and on-site engineering, installation and project management expertise
→ Minimum disruption
→ Rating upgrade
→ Improved reliability, efficiency, noise performance, fault analysis, system response times

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Sege 400 kV AIS

Customer: Svenska Kraftnät
Location: Malmö, Sweden — 2016

The challenge

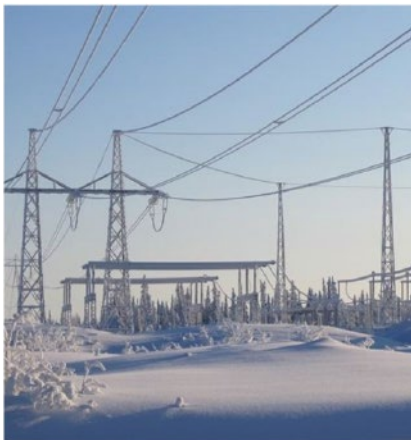
→ Turnkey delivery of a 400 kV AIS Substation with 9 bays close to Malmö in southern Sweden
→ Construction in a safe way beneath live 400 kV transmission lines under a tight time schedule

Scope

→ 9 double busbar, double breaker bays 420 kV AIS equipment
→ Protection & control system using IEC 61850
→ Turnkey EPC delivery including design, civil, installation and commissioning works

Benefits

→ Delivery on time while meeting customers high quality demands
→ Zero accidents in a challenging environment (close to live OHL)



Djuptjärn/Högnäs 400 kV AIS

Customer: Svenska Kraftnät
Location: Kalix and Sundsvall, Sweden — 2016

The challenge

→ Turnkey delivery of two 400 kV AIS Substations with 4 resp 6 bays in middle/north of Sweden
→ Construction in a safe way close to live 400 kV transmission lines under a tight time schedule

Scope

→ Total 10 double busbar, double breaker bays 420 kV AIS equipment
→ Protection & control system using IEC 61850
→ Turnkey EPC delivery including design, civil, installation and commissioning works

Benefits

→ Delivery on time while meeting customers high quality demands
→ Zero accidents in a challenging environment (close to live OHL)

Upgrade of 380 kV hybrid switchgear

Customer: Tennet
Location: Simbach, Germany — 2014

The challenge

→ Extension of an existing 220 kV substation for the grid integration of a 900 MW combined cycle gas turbine plant
→ Upgrade of the voltage level to 380 kV and extension of the feeders on restricted space

Scope

→ Turnkey project for modification and extension of the existing 220 kV AIS substation, comprising:
  • 420 kV hybrid switchgear
  • 2 x 300 MVA power transformers
→ Integration of the 380 kV overhead line (OHL)
→ Engineering, design, supply, installation and commissioning

Benefits

→ Optimized utilization of the available space through sophisticated arrangement of the switchgear bays with optional extension to 3 busbars
→ Modifications during operation with minimized downtime

Thuwal and Khulais 380 kV BSP expansion

Customer: Saudi Electricity Company
Location: Western Region, Saudi Arabia — 2023

The challenge

→ The work covers the expansion of an existing 380 kV Air Insulated Substation at Khulais and existing 380 kV GIS in Thuwal
→ Also considered the Remote End scopes which covers RBG-PV, SMR, & MKN

Scope

→ For Thuwal, One Dia. 380 kV GIS, with complete protection, metering, control and SCADA equipment
→ For Khulais Two bays of 380 kV AIS Double Bus Single breaker configuration and modification on AC/DC LV Aux Supply, Prot., metering, control SCADA/Telecom, Civil and Electromechanical works. Also relocation of existing Capacitor Banks and Spare SGT is included

Benefits

→ The expansion project aimed to meet the load growth requirement in the region and to ensure security of supply in Thuwal & Khulais cities

Blackzone – substation replacement project

Customer: Saudi Electricity Company
Location: Makkah/Jeddah, Saudi Arabia — 2023

The challenge

- The National Grid Saudi Arabia-Western Operating Area proposed to purchase three 380/120/13.8 kV, 250 MVA power transformers to serve as spare unit for the 3 in service transformers at HVM 380 kV S/S (TR-01 & TR-02) and at HVP 380 kV S/S (TR-28)
- New transformers shall match with existing units in terms of electrical parameters and shall be able integrate to the existing space & facilities in case of replacement later

Scope

- The work includes supply, installation of the spare Transformer on a designated storage foundation in West Area, assembled, oil filled, pre-commissioned tested and preparation for long term storage

Benefits

- The project is considered to support the stability, increased availability and reliability of the stations
- The substation will produce significant benefits to the end user and enhance the productivity of the stations

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Expansion of Al Mursalat (9012) 380/132 kV BSP

Customer: Saudi Electricity Company
Location: Riyadh, Saudi Arabia — Portion 1 & 2 commissioned and Portion 3 — 2023

The challenge

- The project has been considered to continue the reconfiguration task of Riyadh City Network and to provide better system
- The protection elements must be coordinated to ensure secure operation when out-of-zone faults occur and correct discrimination between faults. The relay system and relay schemes shall be designed in such a way that they will not issue any mal-tripping impulse. Maximum priority shall be given on achieving high degree of reliability

Scope

- The Expansion of existing 380 kV BSP, Al Mursalat 380/132 kV BSP including necessary modifications such as additional Protection, Control, Communication, and SCADA Equipment at the 9012 BSP and the relevant remote ends substations

Benefits

- The project considered to continue the reconfiguration task of Riyadh City Network and to provide better system reliability and operational flexibility
- Adding to this is to reduce the short circuit level of many 380 kV BSP by regrouping of PP9, PP10, East Ring and North Ring of Riyadh 380 kV Systems

Al Badr Expansion (9013) & Installation of Reactors @ Nafal 9008 & PP-7 (9007)

Customer: Saudi Electricity Company
Location: Riyadh, Saudi Arabia — 2023

The challenge

- The project is an Expansion of Existing Badr (9013) and Installation of Reactors at Nafal (9008) and PP-7 (9007) stations
- The project has some constraints such as relocation of facilities old system, change of layout, extra demands at design stage that needs to considered

Scope

- 380 kV GIS 1 Bay, 380 kV Bus Reactor 3 Nos. (150 MVAR & 120 MVAR) incl. C&P, Automation, Gantries & Termination, EHV Power Cable, AC/DC, and Civil/Electromechanical works

Benefits

- This expansion projects will support in improving the voltage profile of Kingdom's grid in the minimum load scenarios, specifically to the Central Region

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Refurbishment of Qatif 230 kV Substation

Customer: Saudi Electricity Company
Location: Qatif, Saudi Arabia — 2023

The challenge

- In order to ensure reliability of the grid due to high risk of failure anticipated due to existing outdated equipment at Qatif BSP, the end user decided to retrofit the existing 230 kV GIS CB's and replace the existing old transformers along with UG cables

Scope

- The contract covers the replacement of CBs of existing BBC, ELK 230 kV GIS and replacement of existing transformers T-701 & T-703 and UG Cables including required modifications to existing protection, control, communication and related works

Benefits

- Reliability improvements via replacement of outdated systems
- Enhance the productivity of the substations and improve the performance with long term capability
- Strengthening our execution capabilities in the Eastern region

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Rabigh 2 expansion of 380 kV GIS & installation of reactors @ MKH & JNE

Customer: Saudi Electricity Company
Location: Rabigh, Makkah & Jeddah Saudi Arabia — 2023

The challenge

- The project is an expansion of existing Rabigh 2 and installation of Reactors at MKH & JNE stations
- The scope involves addition of 380 kV GIS, 380 kV Bus reactors and 380 kV Cable in the existing stations

Scope

- Scope of work is mainly consisting of 380 kV GIS having double bus bar single breaker configuration comprising of two bays, five nos. of 380 kV reactors (150 MVAR, 120 MVAR & 80 MVAR) & modification on AC/DC, LV auxiliary supply, control, protection, metering, SCADA/telecommunication, civil, and electro-mechanical works

Benefits

- The expansion of the substation will enhance the grid requirement and power supply reliability of 380 kV grid in the region
- The project falls within the Saudi Electricity Company's short-term plan to improve the stability of the network in the various stations

Ghazal 230 kV GIS substation and associated remote end modification

Customer: Saudi Electricity Company
Location: Riyadh and Nafal, Saudi Arabia — 2023

The challenge

→ The projects fall within the Saudi Electricity Company's short-term plan to improve the stability of the network in the various stations. To meet the additional line termination requirement in the existing substation, Linxon will supply the extension of 230 kV GIS for 1 Nos Diameter for Saudi Aramco

Scope

→ 230 kV GIS Expansion – 3 bays
→ 230 kV Cable Connection – 1 lot
→ Remote end modification for Ghazal and South Ghawar GSP

Benefits

→ Linxon will extend the existing 230 kV GIS to provide power supply to the South Ghawar Gas separation plant, helping to increase the country's usage of natural gas

Abraj 132/11 kV substation, Dubai

Customer: DEWA (Dubai Electricity and Water Authority)
Location: Emirates of Dubai, UAE — 2022

The challenge

→ A substation located in Business Bay, Dubai to cater the planned development network in the area

Scope

→ The scope of works includes design, supply, construction, installation, testing and commissioning of 132 kV GIS (8-bays), power transformers, reactor, 11 kV AIS switchgears, earthing/auxiliary transformers, capacitor banks, control & protection system, CCTV system, civil works including fire protection, HVAC, lighting and small power systems & remote end modification works

Benefits

→ Linxon is implementing environmental supporting measures by reducing usage of plastic bottles as well as a hybrid solar power system for site facilities, and thereby contributing to reduction of CO2 emission

Central Iraq – 132/33 kV GIS, Jica lot 2

Customer: Ministry of Electricity in Irak
Location: Central parts of Iraq — 2022

The challenge

→ Delivering four (04) turnkey 132/33 kV GIS substations
→ Successfully delivering to customer requirement in 18 months

Scope

→ High voltage 132 kV GIS, 132/33 kV power transformers and 33 kV switchgear
→ Implement control and protection system, communication system, among others
→ Design, civil construction works, installation and commissioning

Benefits

→ Meeting high quality standards
→ Contributing to ramp up the country's electricity capacity

Baghdad North, 400 kV

Customer: Ministry of Electricity in Iraq
Location: Iraq — 2021

The challenge

→ Stabilize electricity transmission and power distribution in the northern parts of Baghdad
→ The grid has been impacted by high population and urban expansions

Scope

→ High voltage 400 kV GIS
→ Control and protection system, communication system, among others
→ Design, engineering, supply, installation, testing and commissioning supervision

Benefits

→ Solving bottlenecks and provides flexibility for the transmission lines in the national network of Baghdad province
→ Future aim is to refurbish, upgrade as well as expand the transmission and distribution networks

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2012 - 2016 Transmission Project Phase 1

Customer: Electricity & Water Authority (EWA)
Location: Bahrain — 2019-2020

The challenge

→ Six 220/66 kV GIS substations for the rapidly growing power needs of Bahrain
→ Supply, installation, testing and commissioning excluding civil works

Scope

→ Six 220/66 kV GIS substations including cable works
→ AIS medium voltage switchgear 21 and 11 kV
→ IEC 61850 substation automation, control and protection

Benefits

→ Well know solution with outstanding quality
→ On-time delivery of substations within 12 months

Sahel Al Zallaq, 220 kV GIS

Customer: Electricity & Water Authority (EWA)
Location: Bahrain — 2020

The challenge

→ The Electricity & Water Authority (EWA) of Kingdom of Bahrain has decided to construct additional capacity on their electricity transmission network to service a high-profile development in the southern part of the Kingdom

Scope

→ Linxon provided the complete engineering, procurement, installation, testing & commissioning of 220 kV Gas Insulated Switchgear (GIS) 66 kV GIS, 21/11 kV switchgears, integrated control system (ICS), control & protection system, high voltage/medium voltage and low voltage cables and relevant terminations, auxiliary power supplies, including house transformer 11 kV/400 V, standby diesel generator and earthing/earth grid works

Benefits

→ Well know solution with outstanding quality
→ On-time delivery of substations within 12 months

Amazon Askar

Customer: Electricity & Water Authority (EWA)
Location: Bahrain — 2020

The challenge

→ 220 kV GIS substations upgrade for an existing 66 kV GIS substation and will connect a 100 MW solar plant in Askar to the the Bahraini grid
→ Supply, installation, testing and commissioning excluding civil works

Scope

→ Eight 220 kV GIS breakers including cable works
→ AIS medium voltage switchgear 21 kV
→ IEC 61850 substation automation, control and protection

Benefits

→ Well know solution with outstanding quality
→ On-time delivery of substations within 12 months

Green Hills – 132 kV

Customer: EMAAR
Location: Dubai, UAE — 2020

The challenge

→ Power supply for Mega Development Dubai Hills Estate
→ Complying with DEWA high demands and EMAAR special architectural demand

Scope

→ Turnkey substation
→ 07 bays of 132 kV & 72 feeders of 11 kV

Benefits

→ Successfully delivering to customer special requirement
→ Meeting high quality standards

Rabwah – 132 kV

Customer: EMAAR
Location: Dubai, UAE — 2020

The challenge

→ Power supply for Mega Development Dubai Hills Estate
→ Complying with DEWA high demands and EMAAR special architectural demand

Scope

→ Turnkey substation
→ 08 bays of 132 kV & 72 feeders of 11 kV

Benefits

→ Successfully delivering to customer special requirement
→ Meeting high quality standards

2007 - 2011 Transmission Project

Customer: Electricity & Water Authority (EWA)
Location: Bahrain — 2010-2018

The challenge

→ 220/66 kV GIS substations for rapidly growing power needs of Bahrain
→ Turnkey supply, installation, testing and commissioning excluding civil works

Scope

→ Eleven 220/66 kV GIS substations including cable works
→ AIS medium voltage switchgear 21 and 11 kV
→ IEC 61850 substation automation, control and protection
→ Extension works for two existing stations

Benefits

→ Delivery on time while meeting customers high quality demands
→ Space and cost savings through compact design and products

Makkah Central 380/110 kV GIS Station

Customer: Saudi Electricity Company (SEC)
Location: Makkah, Saudi Arabia — 2015

The challenge

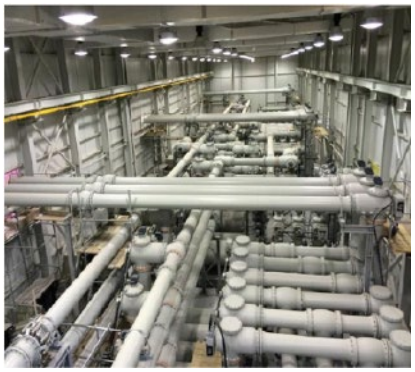
→ Turnkey supply, installation, testing and commissioning including civil works in the holy city close to the Kaaba
→ Space constrained site, multi-story building

Scope

→ Grid station with 380/110 kV GIS switchgears, MV switchgear, 502.5 MVA power transformers, 380 kV bus shunt reactors
→ IEC 61850 substation automation, control and protection system, telecommunication, civil works, installation and commissioning

Benefits

→ Space and cost savings through compact design and products
→ Innovative multistory solution proposed and executed



Najibiyah 400/132 kV GIS Station

Customer: Ministry of Electricity
Location: Najibiyah, Iraq — 2015

The challenge

→ Supply of 400/132 kV GIS, C&P, SAS, HV equipment including supervision of installation testing and commissioning

Scope

→ Engineered package delivery of 400 kV and 132 kV GIS, C&P, SAS and telecommunication equipment
→ Supervision of installation testing and commissioning of GIS, C&P, SAS and telecommunication equipment

Benefits

→ Meeting the timely deliveries challenge in short time span
→ Space and cost savings through compact design

Diyala 400 kV Extension

Customer: ETP, Baghdad **End user:** Ministry of Electricity
Location: Baghdad, Iraq — 2011

The challenge

→ Extension of a 400 kV GIS substation with one additional diameter for 2 new OHL for 400 kV connections

Scope

→ Delivery of one diameter 400 kV GIS
→ One 50 MVAr/400 kV power reactor
→ Relay, control and communications
→ Electrical, mechanical and civil design and training
→ Remote supervision and security arrangements for transportation up to site

Benefits

→ A substation extension with the latest primary & secondary equipment technology that secures safe power transmission delivered in 14 months time

King Abdulah 380 kV GIS substation

Customer: Saudi Electricity Company (SEC)
Location: Riyadh, Saudi Arabia — 2011

The challenge

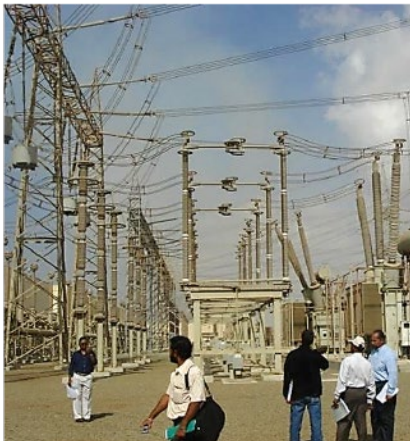
→ Power supply for the King Abdullah Financial District in the city of Riyadh

Scope

→ Turnkey delivery of a 380/132/13.8 kV substation, design, supply, installation and commissioning
→ Transformers, medium-voltage switchgear, cables, civil works
→ IEC 61850 substation automation, control and protection system

Benefits

→ Reliable interconnection and high-quality power supply



Namerah North 380 kV GIS substations

Customer: Saudi Electricity Company (SEC)
Location: Namerah, Saudi Arabia — 2010

The challenge

→ Power supply for the southwest Saudi Arabia
→ The new constructed power plant in Shuqaiq (south grid) will deliver it's power to the Shoiaba power plant (west grid)

Scope

→ Namerah main station: 380 kV/132 kV GIS, 550 kV hybrid switchgear, 80 MVA and 40 MVA shunt reactors, 502 MVA power transformers, substation automation, control and protection system, telecommunication and substation auxiliary systems
→ Shoiaba and Shuqaiq remote ends: for each, 550 kV hybrid switchgear, 80 MVA shunt reactor, disconnectors and outdoor HV equipment

Benefits

→ One competent partner until completion
→ Increased reliability

Transmission grid expansion – Phase VII, 400 kV GIS substations

Customer: Qatar General Electricity and Water Corporation (Kahramaa)
Location: Qatar — 2009

The challenge

→ Large-scale grid expansion and fast development of the infrastructure

Scope

→ 3 turnkey substations including civil works, 40 bays 400 kV GIS, 66 bays 220 kV GIS, 36 bays 132 kV GIS, 41 bays 66 kV GIS, 61 bays 11 kV AIS
→ 25 transformers rated 40 to 800 MVA
→ IEC 61850 substation automation, control and protection systems

Benefits

→ Proficient project implementation across the entire value chain
→ Reduction of energy losses
→ Enhancement of grid reliability through introduction of 400 kV voltage level

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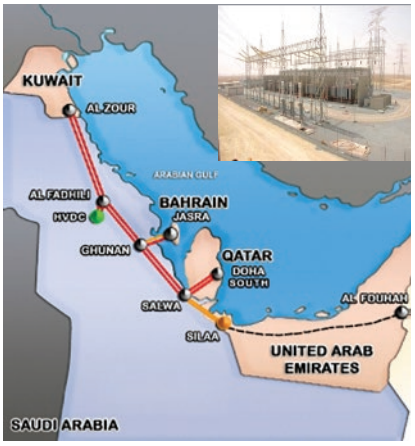

Gulf Interconnection Phase I

Customer: Gulf Cooperation Council Interconnection Authority
Location: Kuwait, Saudi Arabia, Bahrain and Qatar — 2009

The challenge

→ Fast-track turnkey substations for reliable grid interconnection between Kuwait, Saudi Arabia, Bahrain and Qatar for power exchange

Scope

→ Six turnkey 400 kV gas-insulated substations, 3 in KSA and each one in KW, BH, QA
→ GIS type ELK 3-420 with 66 circuit breakers, each 3 power transformers 650/325/400 MVA, shunt reactors (13 x 125 MVAr, 2 x 300 MVAr being the largest in the world)

Benefits

→ Single point of responsibility ensuring very short delivery time with high-quality power supply substation across major Gulf countries

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Quarayya 380 kV GIS substations

Customer: Saudi Electricity Company (SEC)
Location: Quarayya, Saudi Arabia — 2008

The challenge

→ Power supply for the eastern province of Saudi Arabia
→ Interconnection to the GCC North Grid

Scope

→ Two turnkey 380 kV substations including 15 km 380 kV insulated GIS bus ducts
→ Modification of the remote end substations, substation automation, control and protection system, telecommunication, civil works and balance of plant

Benefits

→ Short delivery time
→ Increased availability and reliability
→ Smooth coordination with GCCIA and compliance to GCCIA grid code

Amara 400/132 kV Substation

Customer: PCO, US Government **End user:** Ministry of Electricity
Location: Baghdad, Iraq — 2008

The challenge

→ New Greenfield 400/132 kV AIS substation to secure power supply in the southern region of Iraq

Scope

→ Turnkey supply of a new 400/132/11 kV AIS S/S
→ 2 diameter 400 kV and 12 bays 132 kV switchgear
→ 2 x 50 MVAr, 400 kV shunt reactors
→ 2 x 250 MVA, 400 kV power transformers
→ R&C and telecommunication
→ Civil works, erection and commissioning
→ Training, remote supervision and security

Benefits

→ A new substation with the latest primary & secondary equipment technology that secures safe power transmission

Erbil Stage 6 Package 18 KRG-MOE-ES06b-2011

Customer: Zagros **End user:** Ministry of Electricity
Location: Kurdistan, Iraq — 2014

The challenge

→ A package consisting of 4 new 132/33/11 kV GIS substations to secure power supply in Erbil City

Scope

→ Complete engineering and supply of equipment for all 4 GIS
→ 40 bays 132 kV GIS switchgear, 120 x 33 kV and 132 x 11 kV panels
→ 12 x 63 MVA power transformers
→ Relay, control and telecommunications
→ Training of MoE for Operation and Maintenance, training of local Iraqi engineers for erection and commissioning
→ Supervision of GIS

Benefits

→ Supply of all substations with the latest primary & secondary equipment technology for completion of total project within 18 months

Amara Extension 400/132 kV Substation

Customer: ETP, Baghdad **End user:** Ministry of Electricity
Location: Baghdad, Iraq — 2013

The challenge

→ Extension of 400/132 kV AIS substation on turnkey basis to secure connection of new generation to the network in the southern region of Iraq

Scope

→ Turnkey supply of a new 400/132/11 kV AIS S/S
→ 6 diameter 400 kV and 24 bays 132 kV switchgear
→ 3 x 50 MVAr, 400 kV shunt reactors
→ 2 x 250 MVA, 400 kV power transformers
→ R&C and telecommunication
→ Civil works, erection and commissioning
→ Training, supervision and security

Benefits

→ A new substation with the latest primary & secondary equipment technology that secures safe power transmission

Al Rayyan village underground substations

Customer: Qatar General Electricity and Water Corporation (Kahramaa)
Location: Al Rayyan, Qatar — 2012

The challenge

→ Underground substations to help meet increased residential and commercial demand for power in Doha area as part of the Musheirab project

Scope

→ Supply of two 66/11 kV underground substations, including;
- gas- and air-insulated switchgear, power transformers and cables

→ IEC 61850 substation automation, control and protection systems

Benefits

→ Architectural substation design to blend in with surrounding landscape
→ Extremely compact footprint based on latest GIS technology
→ Highly reliable equipment offering operational safety and efficiency as well as low maintenance

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Fujairah 400/132 kV GIS Station

Customer: Abu Dhabi Transmission & Despatch Company
Location: Fujairah, United Arab Emirates — 2012

The challenge

→ Power supply for the Sudah port and the Al Hayl industrial areas of Fujairah
→ Turnkey supply, installation, testing and commissioning including civil works

Scope

→ 400/132 kV grid station with 400/132 kV GIS switchgears, 500 MVA power transformers, 50 MVAr reactors
→ IEC 61850 substation automation, control and protection system, telecommunication, civil works, Installation and commissioning

Benefits

→ Meeting the growing demand for electricity supply
→ Space and cost savings through compact design and products

WBSETCL 220/132 GIS/AIS

Customer: West Bengal State Electricity Transmission Company Limited
Location: West Bengal, India — 2023

The challenge

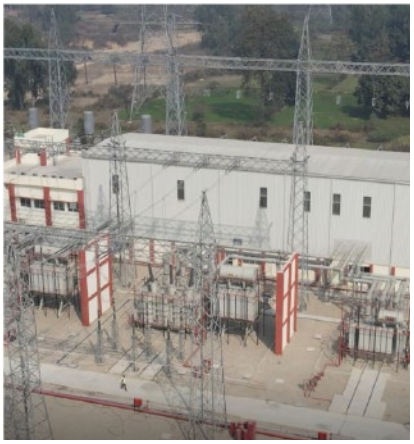
→ To cater to the load growth in these cities

Scope

→ Design, engineering, manufacturing, supply, installation & commissioning of 220/132 KV GIS/AIS bays at Falakata, Indus, Berhampore & Domkol including augmentation of transformer capacity at Domkol

Benefits

→ Long term reliable power supply in the area



Dhalkebar, Nepal 400 kV GIS

Customer: Nepal Electrcity Authority (NEA)
Location: Dhalkebar, Nepal— 2021

The challenge

→ First 400 kV substation at Nepal, designed & built by NEA with in-house consultancy

Scope

→ 15 bays of 400 kV GIS including 315 MVA transformers & 80 MVAr reactors

Benefits

→ Dhalkebar substation is an important milestone for Nepal's hydropower sector
→ The substation allowed the 400 kV Muzaffarpur (India) – Dhalkebar (Nepal) line to come into operation on November 11, 2020, facilitating transmission of up to 1,000 megawatts of electricity through Nepal's first ever high-voltage cross-border transmission line
→ This major hub for power exchange between Nepal and India, will ease the process of importing power and help meet the increasing demand for electricity in Nepal, along the country's east-west axis

400/220/132 kV substation at Saharsa

Customer: Power Grid Corporation of India Ltd.
Location: Saharsa, India — 2021

The challenge

→ To meet the evolving grid requirements and improve power supply reliability, the interstate transmission network has been expanded covering three new 400 kV substations at Saharsa, Chandauti and Motihari
→ The power demand in the state of Bihar is steadily increasing in this agricultural dominant area

Scope

→ Design, engineering, manufacturing, supply, installation & commissioning of 400 kV, 220 kV and 132 kV substation equipment

Benefits

→ Creation of another asset and supporting Govt. of India's ambitious target
→ Leveraging capabilities to consistently generate maximum value for all stakeholders in India

Ajmer Phagi – 765 kV

Customer: Power Grid Corporation of India Ltd.
Location: Rajasthan, India — 2021

The challenge

→ India's Intended Nationally Determined Contribution (INDC) aims to base 40% of the total installed power generation capacity on non-fossil fuel resources by 2030 with international support on technology transfer and financing

Scope

→ The contract works includes complete design (Primary, Secondary, Civil) and construction on site (civil, erection, testing & commissioning). The substations are existing substations. 3 nos of 765 kV bays to be constructed in Ajmer (PG) substation and 1 no. of 765 kV bay to be constructed in Phagi (RRVPN) substation

Benefits

→ Successfully delivering to customer requirement
→ Meeting high quality standards

Substation package, SS-22

Customer: Power Grid Corporation of India Ltd.
Location: Tamil Nadu, India — 2021

The challenge

→ Linxon has been involved to set up the Southern Region System Strengthening Scheme – XXV & Southern Region System Strengthening Scheme – XXVI for the southern part of India

Scope

→ Design, Supply and construction for Extension substation 1) 400 kV Hosur 2) 400 kV Dharampuri 3) 400 kV Madhugiri 4) 400 kV Hiriyur 5) 400 kV Pugalur (AIS) 6) 400 kV Pugalur HVDC 7) 400/220 kV Gazuwaka 8) 220 kV Cochin 9) 400 kV Kozikode

Benefits

→ Successfully delivering to customer requirement
→ Meeting high quality standards

Substation package, SS-27

Customer: Power Grid Corporation of India Ltd.
Location: Punjab/J&K, India — 2021

The challenge

→ (i) Extension of 220 kV Jallandhar S/S, (ii) Extension of 400/220 kV Amritsar S/S, (iii) Extension of 400 kV Moga S/S, (iv) Extension of 400/220 kV Kishenpur S/S, (v) Extension of 220 kV Abdullapur S/S and (vi) Extension of 220 kV Fatehabad S/S

Scope

→ Design, engineering, manufacture, testing at manufacturer's works, and supply of equipment & materials including transportation, In-transit insurance, delivery at site, unloading, handling, storage, erection, testing and commissioning and documentation of all the equipment

Benefits

→ Successfully delivering to customer requirement
→ Meeting high quality standards

Bhiwani substation and Bhadla substation, 765/400 kV

Customer: Power Grid Corporation of India Ltd.
Location: Rajasthan, India — 2021

The challenge

→ The Government of India has set a target of installing 175 GW of renewable energy capacity by the year 2022, which includes 100 GW from solar, 60 GW from wind, 10 GW from bio-power and 5 GW from small hydro-power

Scope

→ Design, Supply and construction for Extension substation
1) Bhadla – 2 x 765 kV and 4 x 400 kV bays
2) Bhiwani – 2 x 765 kV and 1 x 400 kV bays

Benefits

→ Successfully delivering to customer requirement
→ Meeting high quality standards

Champa – 765 kV

Customer: Power Grid Corporation of India Ltd.
Location: Champa, India — 2013

The challenge

→ Creating a pooling station of 6,000 MW capacity
→ Grid connectivity between North, West and Central India

Scope

→ Turnkey substation
→ 23 bays of 765 kV & 29 bays of 400 kV

Benefits

→ Successfully delivering to customer requirement
→ Meeting high quality standards

Agra – 765 kV

Customer: Power Grid Corporation of India Ltd.
Location: Agra, India — 2012

The challenge

→ Creating a pooling station of 4,000 MW capacity
→ Grid connectivity between North, Northeast and Central India

Scope

→ Turnkey substation
→ 18 bays of 765 kV & 13 bays of 400 kV

Benefits

→ Well known solution with outstanding quality
→ Excellent reliability in-house and on-site engineering, installation and project management expertise

Srinagar – 400 kV

Customer: Power Transmission Corp. Uttaranchal Ltd.
Location: Srinagar (Uttaranchal), India — 2011

The challenge

→ Hilly terrain
→ Remote site

Scope

→ Turnkey substation
→ 11 bays of 400 kV & 10 bays of 220 kV

Benefits

→ Innovative engineering making use of terrain to construct substation in 17 different levels to minimise environmental impact

Navsari – 400 kV

Customer: Power Grid Corporation of India Ltd.
Location: Navsari, India — 2011

The challenge

→ Increased reliability
→ Space saving

Scope

→ Turnkey substation
→ 8 bays of 400 kV & 7 bays of 220 kV

Benefits

→ Compact substation ensuring 65% space saving compared to conventional substation
→ Maintenance free Gas Insulated Switchgear

Bilaspur – 765 kV

Customer: Power Grid Corporation of India Ltd.
Location: Bilaspur, India — 2011

The challenge

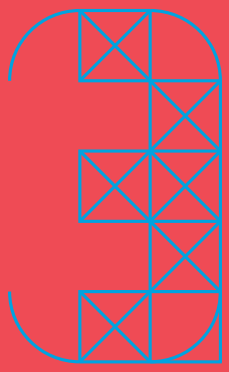
→ Evacuation of Independent Power Producer in Indian central region at 765 kV voltage level

Scope

→ Turnkey substation
→ 18 bays of 765 kV & 6 bays of 400 kV

Benefits

→ Meeting the growing demand for electricity supply
→ Delivered turnkey substation in less than 28 months



Renewable generation

North America

Europe

Middle East & Africa

Asia Pacific

Vineyard Offshore 220/115 kV substation

Customer: Vineyard Wind
Location: Massachusetts, US — 2023

The challenge

- Connect clean, renewable energy to the ISO New England power grid from the first utility-scale offshore wind project ever built in US
- Congested site which required complex compensation studies and interconnection with ISO-NE grid

Scope

- A turnkey 220/115-kilovolt (kV) substation, cable interconnection, transformers, reactors, synchronous condensers and harmonic filters
- The substation will commence construction in 2021 and be fully commissioned by 2023

Benefits

- Design plans to make the substation to blend in with its surroundings and use the highest environmental protection standards
- Cost-competitive electricity for more than 400,000 homes, expected to reduce carbon emissions by more than 1.6 million tons per year
- Local jobs for the next 25 years in both operations and maintenance

Maritime Link – AC substations for the Emera 500 MW HVDC Connection Project

Customer: Emera
Location: Newfoundland and Nova Scotia, Canada — 2018

The challenge

- The link will enable clean, renewable energy, generated in Newfoundland and Labrador to be transmitted to the NAM grid in Nova Scotia reducing dependence on fossil fuels

Scope

- Delivery of a full turnkey solution for the HVDC and AC substation technologies
- The first bipolar HVDC configuration of its kind in the world using proven Voltage Source Converters (VSC) to enhance system reliability and reduce losses, as power continues to flow even if one conductor or converter is not in use

Benefits

- The link made history on December 8, 2017, by conducting the first exchange of electricity
- The stabilizing features of the total solution allows Nova Scotia to integrate additional renewables such as wind power and contribute to Canada's emission-reduction efforts
- https://youtu.be/rQ2OZZ0zyqI

Seagreen 1 (1075 MW) Offshore Wind Farm – substation package

Customer: Petrofac, SSE Renewables and Total
Location: United Kingdom — (first energisation) 2022

The challenge

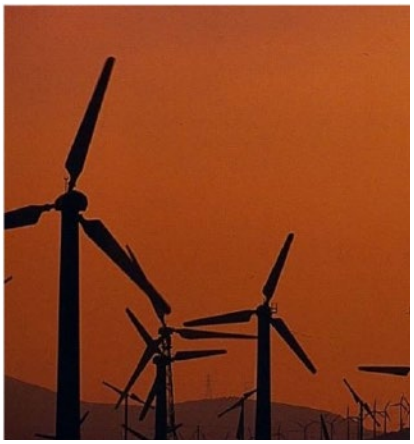
- Delivery of a 220/400 kV turnkey onshore substation and supply, install and commission the HVAC equipment for the 66/220 kV offshore substation forming the backbone of the transmission system for the Seagreen offshore wind farm project

Scope

- The design, supply and construction of all onshore civil works and the HVAC electrical system equipment at both the onshore Tealing substation site and within the offshore substation platform to be located 27 km from the Angus coast

Benefits

- Seagreen 1 is helping to kick start Scotland's green recovery from the coronavirus
- Scotland's largest offshore wind farm, able to provide around 1 million homes with renewable electricity each year
- Linxon has commenced site/construction works with offshore platform fabrication due to commence in late 2020



Storfinnforsen, 130 kV and 400 kV AIS

Customer: E.ON Energy Networks
Location: Sweden — (first energisation) 2020

The challenge

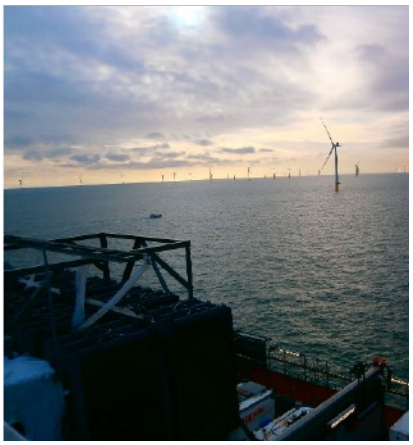
- A turnkey upgrade for an electrical substation in northern Sweden
- An extension of the 130 kV and the 400 kV air insulated switchgears (AIS) substations as well as civil works
- The site will be energized during the entire project to enable consumers to have reliable access to power, times for outages are limited
- Erection works during winter period will be necessary

Scope

- The existing 130 kV substation needs to be extended by one bay AIS 400 kV, three bays of AIS 130 kV and a new capacitor bank to stabilize the grid

Benefits

- The substation will connect increased wind power from several surrounding wind parks into the grid of Storfinnforsen in northern Sweden



Rampion Offshore Windfarm

Customer: E.ON
Location: United Kingdom — (first energisation) 2017

The challenge

- Delivery of the grid connection substation scope for the 400 MW Rampion offshore wind farm which included a turnkey onshore substation and 1 km access road and the supply, installation and commissioning of the HV balance of plant on the offshore platform

Scope

- Substation works for a 400/150/33 kV electrical system which included 400/150 kV super-grid transformers, shunt reactors and Dynamic Reactive Compensation with Harmonic Filtration

Benefits

- Delivery of full grid code compliance
- Met the target first circuit energisation date to lock-in E.ON's subsidy allocation
- The wind farm generates enough renewable electricity to power the equivalent of 350,000 UK homes

Pen-y-Cymoedd Onshore Windfarm

Customer: Vattenfall
Location: United Kingdom — (first energisation) 2017

The challenge

- Delivery of a turnkey grid connection package for the largest onshore wind farm in England and Wales with challenging terrain and significant stakeholder management requirements

Scope

- Turnkey 400/132 kV grid substation
- Turnkey 132/33 kV Wind Farm substation including significant enabling works
- 132 kV cable connection to the grid substation across challenging terrain including a 100 m high escarpment

Benefits

- Delivery of full grid code compliance
- Met the target first circuit energisation date
- Strong contribution towards Vattenfall's local content commitments by utilising local project staff and supply chain

Shams 400 kV Substation

Customer: DEWA
Location: Dubai, United Arab Emirates — Ongoing (February – 2021)

The challenge

- Integration of solar power into the Dubai electrical grid
- Deliver reliable power to consumers and serve the building and infrastructure sector alongside utility and industry customers

Scope

- Supply of 14 x 400 kV, 28 X 132 kV gas-insulated switchgear, 4 x 400/132 kV 500 MVA power transformers, 2 X 400 kV, 100 MVAr Shunt Reactor, 4 X 132 kV, 30 MVAr Shunt Reactor, protection, automation and control systems as well as surveillance and communication systems
- IEC 61850

Benefits

- State-of-the-art technologies that will boost capacity and bring clean solar power
- Digitalization to support open and seamless communication with all intelligent devices

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Banaskantha – 765 kV
Sankhari – 400 kV

Customer: Power Grid Corporation of India Ltd.
Location: Banaskantha & Sankhari, Gujarat, India — 2024

The challenge

- To strengthen the power grid in the region meeting the high demands for electricity in a growing society

Scope

- Extension of substations
- 1 bay of 765 kV & 7 bays of 400 kV

Benefits

- Transmission network expansion in Gujarat to increase its available transfer capacity
- Delivering turnkey substation in less than 20 months

Mohammed Bin Rashid Solar Park Main & Extension - 400 kV Substation

Customer: DEWA
Location: Dubai, United Arab Emirates — 2017 (MBRSOLAR Main) & 2019 (MBRSOLAR Extn.)

The challenge

- Integration of solar power into the Dubai electrical grid
- Deliver reliable power to consumers and serve the building and infrastructure sector alongside utility and industry customers

Scope

- Supply of 14 x 400 kV, 31 X 132 kV Gas-insulated switchgear, 4 x 400/132 kV 505 MVA Power Transformers, 4 x 30 MVAr 132 kV bus-reactor, Protection, Automation and control systems as well as surveillance and communication systems
- IEC 61850

Benefits

- State-of-the-art technologies that will boost capacity and bring clean solar power
- Digitalization to support open and seamless communication with all intelligent devices

CPSU – I & II, Air Insulated Substation (AIS)

Customer: Tata Power Solar System Limited
Location: Rajasthan, India — 2022

The challenge

- Two new 400 kV substations to transport power from a 450 MW Solar power plant in the state of Rajasthan

Scope

- The project consists of the delivery of two new 400/33 kV substations, each with six bays; in both cases the project will include the installation and commissioning of associated equipment

Benefits

- Through delivery of this substation we will support Tata Power Solar in their goal to increase the transmission of renewable energy whilst also meeting Linxon's commitment to play our role in protecting the environment and reducing the world's carbon footprint

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Obra Adani thermal transmission project

Customer: Obra Badaun Transmission Ltd.
Location: Uttar Pradesh, India — 2020

The challenge

- The overarching project "Obra-C Badaun Transmission Limited" has approximately 625 kilometers of transmission lines at voltage levels of 765 kV and 400 kV in the region
- This project is primarily being constructed to transfer power from the Obra-C thermal power project

Scope

- Design, engineering, manufacturing, testing and equipment delivery of a 400/220 kV/132 kV GIS substation, and in addition 30 bays of GIS 132 kV extensions to both sites
- Commissioning including GIS and associated civil works, all on a turnkey basis

Benefits

- India is strengthening the transmission network in the densely populated state of Uttar Pradesh in order to provide reliable power to more than 200 million people

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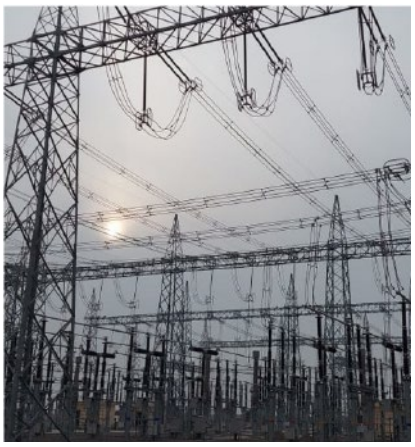


Fatehgarh, Air Insulated Substation (AIS)

Customer: Power Grid Corporation of India Ltd.
Location: Rajasthan, India — 2020

The challenge

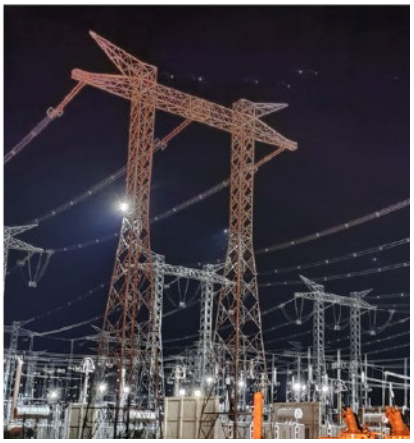
- India is adding substantial renewable generation capacity to the country
- Rajasthan with its huge solar potential is already witnessing development of various ultra mega solar power parks

Scope

- Design, engineering, manufacturing, testing and equipment delivery of AIS substations with cumulative 11 bays of 765 kV AIS & 10 bays of 400 kV
- Commissioning including AIS and associated civil works, all on a turnkey basis

Benefits

- This project is primarily being constructed to transfer power from potential solar energy zones thus helping the growth of renewable energy share in the Indian Grid



Khetri, Jhatikara & Sikar, Air Insulated Substation (AIS)

Customer: Powergrid Khetri Transmission System Limited
Location: Rajasthan, India — 2020

The challenge

- India is adding substantial renewable generation capacity to the country
- Rajasthan with its huge solar potential is already witnessing development of various ultra mega solar power parks

Scope

- Design, engineering, manufacturing, testing and equipment delivery of AIS substations with cumulative 12 bays of 765 kV AIS & 10 bays of 400 kV at all the sites
- The scope also covers commissioning including AIS and associated civil works, all on a turnkey basis

Benefits

- This project is primarily being constructed to transfer power from potential solar energy zones thus helping the growth of renewable energy share in the Indian Grid

Kamuthi 220 & 110 kV

Customer: Adani Green Energy
Location: Kamuthi, India — 2017

The challenge

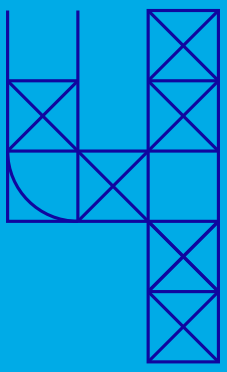
- Evacuation of the largest solar plant in India
- Short completion time

Scope

- Supply, installation, testing and commissioning excluding civil works
- 220 kV & 110 kV bays

Benefits

- Meeting the timely deliveries challenge in short time span
- Reliable evacuation



Transportation

North America

Europe

Middle East & Africa

Asia Pacific

Great Western Electrification Plan

Customer: Network Rail Infrastructure Ltd.
Location: Southern England, United Kingdom — 2020

The challenge

→ In 2014, ABB Grid Integration (ABB EPC projects now delivered by Linxon) and UK Power Networks Services joined forces in a consortium to deliver a turnkey project for the creation of the new autotransformer feeder substations (25-0-25 kV) to deliver trackside power for Network Rail's Great Western Route Modernisation (GWRM) programme

Scope

→ Engineering/design, manufacture, installation and commissioning of 25 kV substations (switchgear, transformers & automation including IEC 61850 solution) along the 190 km route

Benefits

→ The project is a critical element in the electrification of the Great Western railway to make travel more reliable, greener and smoother for passengers, as well as quieter for people living near the railway

Chennai Metro mass urban transit system

Customer: Chennai Metro Rail Limited (CMRL)
Location: Chennai, India — 2026

The challenge

→ Metro rail has one of the lowest carbon emission rates among mass transport systems. The need to cut congestion on roads, reduce journey times and provide meaningful sustainable solutions has seen a focus on moving people, not vehicles. Access to mass public transport is key to improving city livability throughout the Indian state of Tamil Nadu

Scope

→ Design, manufacturing, supply, installation, testing and training, and commissioning of the power supply system for Phase 2 Corridor 3 (from Sholinganallur to Sipcot 2) & corridor 5 (from CMBT to Sholinganallur)

→ The project scope includes traction substations and auxiliary main substations, along with wayside substations and power cables, overhead catenary systems and a supervisory control and data acquisition system

Benefits

→ This contract is part of Phase 2, which will significantly increase ridership and reduce congestion, particularly around Chennai's expanding IT hub

BMRCL urban mass transit system

Customer: The Bangalore Metro Rail Corporation (BMRCL)
Location: Bangalore, India — 2022 - 2024

The challenge

→ Supply of the complete power supply package (including third rail) for the new lines of the Phase II corridor Urban Mass Rapid Transit System in the city of Bangalore, India

Scope

→ Engineering, project management, supply, erection, testing and commissioning for the complete power supply scope

→ Traction substations, auxiliary substations (along with power cables), a 750 V DC third rail system and a supervisory control and data acquisition system for the complete electric traction power

→ Maintenance planning system installed at BMRCL's operation control centre and integrated with the supervisory control and data acquisition system

Benefits

→ Improved efficiency of power supply by almost + 10% compared with competitors

→ Reduced carbon footprint and greenhouse gas emissions by around 17 million metric tons over a lifetime period of 25 years

Kochi Metro urban mass transit system

Customer: Kochi Metro Rail Limited (KMRL)
Location: Kochi, India — 2022 and 2023

The challenge

→ Working on operating lines for extension for existing power supply network for new stations
→ Integration of existing system by third party and new system supplied by Linxon

Scope

→ Design, engineering, project management, supply, erection, testing and commissioning of complete power supply scope for the extension
→ Traction substations and auxiliary substations
→ Power rings for the new systems
→ A 750 V DC third rail system, basically a conductor rail providing electric traction power to railway trains and is placed outside of running rails

Benefits

→ Single supplier which takes overall responsibility of complete traction power supply system for extension package

Kolkata Mass Rapid Transit System (MRTS)

Customer: Rail Vikas Nigam Ltd. (RVNL)
Location: Kolkata, India — 2022

The challenge

→ For an old metropolis like Kolkata with lingering issues of over population, congestion as well as environmental pollution, ideal transportation solution is MRTS along with supplementary feeder bus service and adequate first and last mile connectivity

Scope

→ Linxon turnkey scope involves project management, engineering, supply, erection, testing and commissioning of complete power supply scope for the two corridors. The project consists 13 traction substations and auxiliary substations and a 750 V third rail system, basically a conductor rail providing electric traction power to railway trains and is placed outside of running rails

Benefits

→ Once operational, the system will nourish this public-transport oriented transit feature of the city and will cater the expectation and demand of the people by providing fast, reliable, safe and modern mass transportation mode

Pink and Yellow monorail network

Customer: MRTA of Thailand
Location: Bangkok, Thailand — 2021

The challenge

→ Two monorail projects in Bangkok which transport millions of city commuters in the Greater Bangkok area
→ Reducing air pollution and easing traffic congestion

Scope

→ Bulk substation, traction and service substations and critical equipment
→ Complete turnkey solution which includes engineering, supply, installation testing and commissioning
→ 115 kV AC/22 kV AC/750 kV DC

Benefits

→ The substation package will help power both monorail projects, thus bringing respite to millions of commuters in Bangkok, easing traffic congestion and reducing pollution
→ Encourages a shift from road transport to more sustainable urban rail commuting

Bangalore Metro Phase I, India

Customer: Bangalore Metro Rail Corp.
Location: Bangalore, India — 2017

The challenge

→ Turnkey power supply for the first phase of the modern Bangalore Metro, comprising two corridors – the East-West corridor of 17.9 km length with 17 stations and the 20.8 km long North-South corridor with 21 stations

Scope

→ Design, supply, installation and commissioning of four distribution substations rated at 66/33 kV
→ 38 auxiliary and 27 traction substations
→ Transformers, switchgear, capacitors, relays and the associated cables
→ SCADA (Supervisory Control And Data Acquisition) system

Benefits

→ Efficient and seamless management of various parameters of the power network, high system reliability and space saving design with compact gas-insulated and air-insulated switchgear

Delhi Metro Rail Corp, phase 1 and 2

Customer: Delhi Metro Rail Corp
Location: Delhi, India — 2013

The challenge

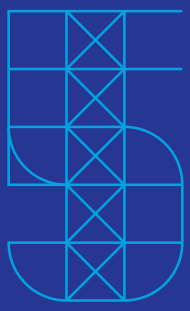
→ Reliable partner for the electrification of metro line 1, 3, 4, 5 and 6 (phase I and phase II of DMRC)

Scope

→ Turnkey delivery of the complete electrification system, comprising design, supply, installation, testing and commissioning
→ 370 track km of 25 kV overhead contact line and related 25 kV switching posts
→ Three traction substations feeding the lines with one AC 25 kV and 150 auxiliary substations for the railway infrastructure
→ SCADA system including asset and building management systems

Benefits

→ Reliable system completed ahead of schedule



Data centers

Greenfield substations for Cumulus Data Center

Customer: Talen Energy
Location: Pennsylvania, US — (first energization) 2023

The challenge

→ To power a 400,00 square foot data center by delivering three critically fast-tracked substations to Talen Energy's flagship Cumulus data center campus project

Scope

→ Deliver a series of turnkey substations that will safely, and reliability connect the newly proposed data center to the PJM grid. Entire scope includes one 500 kV GIS substation, one 230 kV GIS substation, and one 69/34.5 kV AIS substations

Benefits

→ To deliver clean, safe, reliable power generated from the Susquehanna nuclear power plant to energize a newly developed data center for some of the largest companies in the tech industry. This project will create local jobs and support the local community

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