



Pioneer and technology leader, driving gas-insulated switchgear (GIS) innovations

HITACHI
Inspire the Next

High Voltage Products

Gas-insulated switchgear

More than 50 years of GIS innovation

Hitachi Energy is a pioneering technology leader that works closely with utility, industry, transportation and infrastructure customers to improve their performance while lowering environmental impact. We operate in more than 90 countries with about 38,000 employees.

Hitachi Energy pioneered high-voltage gas-insulated switchgear (GIS) more than 50 years ago and is a global leader offering a full-range product portfolio with voltage levels from 72.5 kV to 1,200 kV matching current and future requirements for modern switchgears.

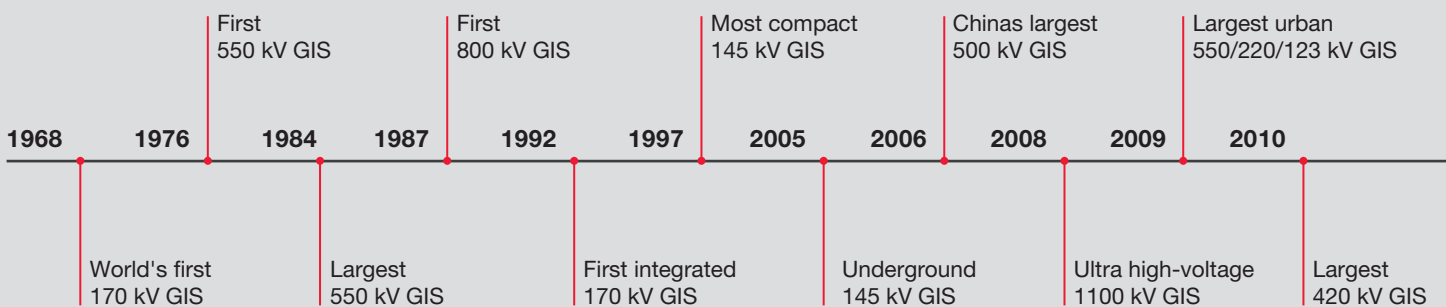
As a market leader in high-voltage GIS technology, Hitachi Energy has a global installed base of around 40,000 bays.

In a power system, switchgear controls, protects and isolates electrical equipment to boost the reliability of power supply. GIS is a compact metal encapsulated switchgear consisting of high-voltage components such as circuit-breakers and disconnectors.

With GIS technology, key components including breakers, switches, contacts and conductors are protected with insulating gas.

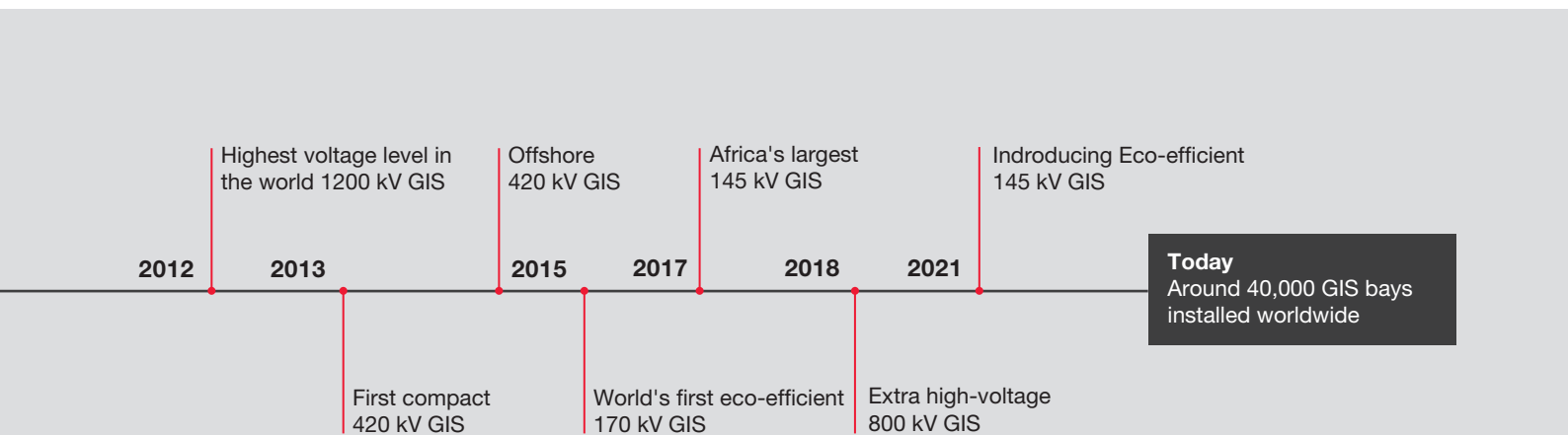
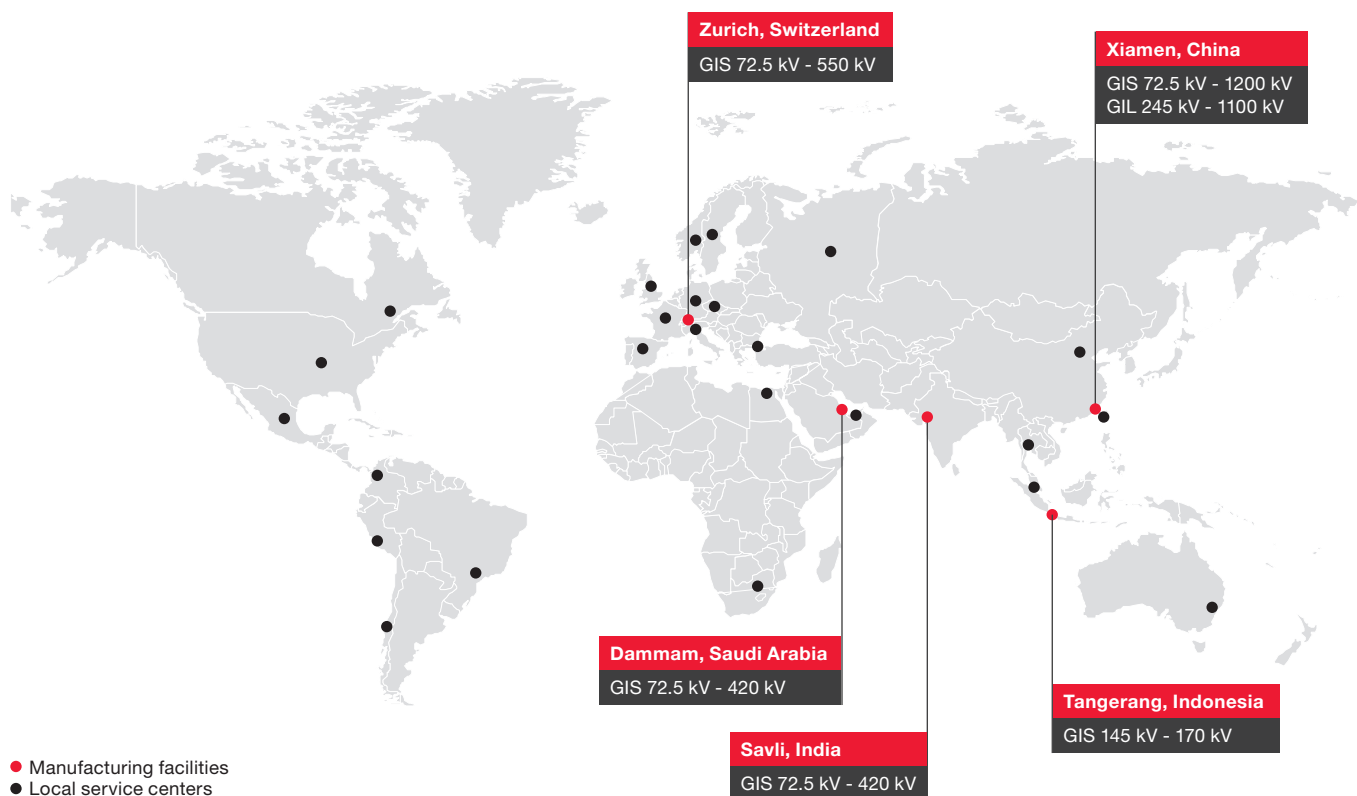
Hitachi Energy has always been and continues to drive innovation in GIS technology in ratings, operations, switching technology, digital control and supervision, and compactness.

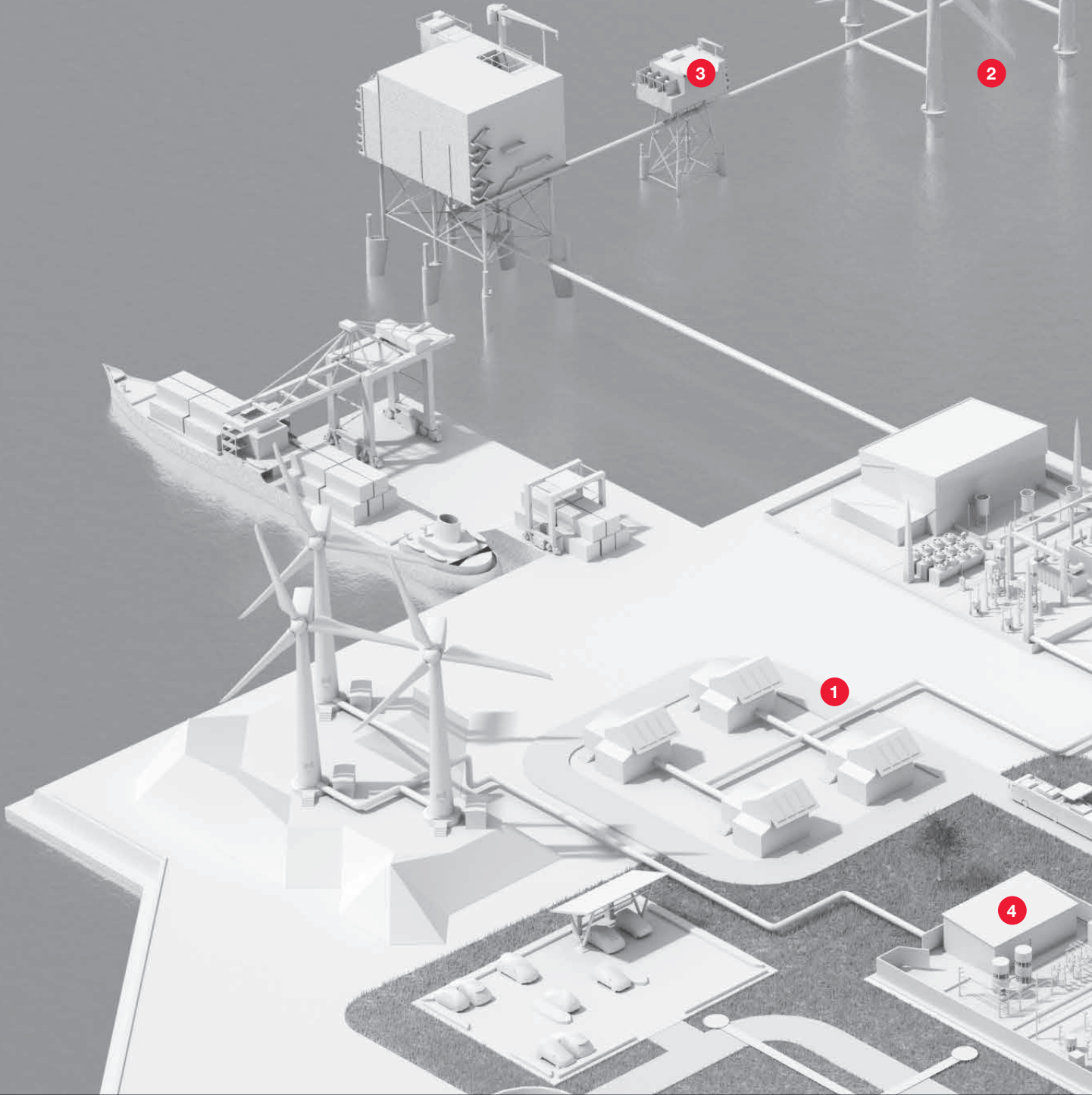
Many first's from Hitachi Energy in GIS



Global manufacturing network

Our global network of state-of-the-art manufacturing facilities are located close to our customers.





For all types of applications

GIS can be safely operated in confined spaces and is used where space is limited, such as extensions, in city buildings, on roofs, on offshore platforms, industrial plants and hydro power plants.



Applications

- 1 Power transmission and distribution
- 2 Integration of renewable power generation units to the grid
- 3 Offshore and onshore wind power connections
- 4 Very large power plants
- 5 Industry applications
- 6 Long range power transmission

Benefits

- Advanced features for digital substation
- Low environmental impact and life-cycle costs
- Reduced installation and commissioning time
- High quality standards and safety

SF₆ offering



ELK-04, 145 kV

3150 A, 40 kA

Economic and compact layout for higher performance ratings. An ideal solution when reduced space availability is a key selection criterion.



ELK-04, 170 kV

4000 A, 63 kA

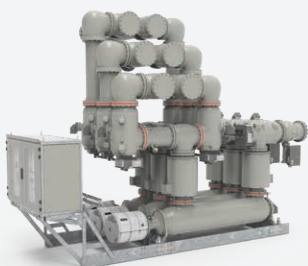
The modular solution, based on a few building blocks with standardized dimensions offers a space saving design, a small footprint and high performance ratings.



ELK-14, 300 kV

4000 A, 63 kA

The modular design offers an outstanding level of flexibility for optimizing substation layouts, both in arrangement and technical features.



ELK-3, 420 kV

6300 A, 63 kA

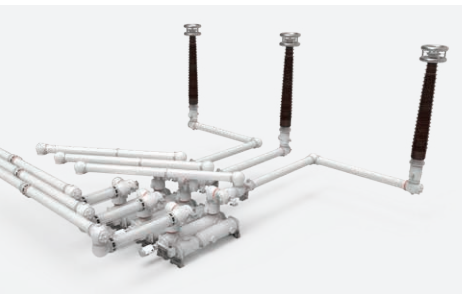
The modular architecture permits maximum flexibility and adaptation to changing needs. It is fully factory tested for a reduced delivery and installation time.



ELK-3, 550 kV

6300 A, 63 kA / 80 kA

Requires less space than comparable GIS systems. Its modular architecture permits flexibility and adaptation to changing needs while providing short delivery and installation time.



ELK-4, 800 kV

6300 A, 63 kA

The extra high-voltage (EHV) GIS offers maximum flexibility and customization in layout configuration. Optimized, compact and easily accessible layouts for the common one-and-a-half-breaker and two-breaker circuit schemes.

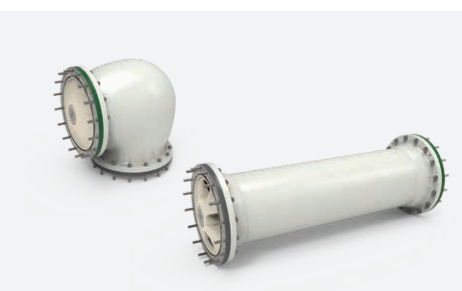
EconiQ™ – Eco-efficient portfolio



EconiQ gas-insulated switchgear (GIS) ELK-04, 145 kV

3150 A, 40 kA

The EconiQ GIS ELK-04, 145 kV is the most robust SF₆-free gas-insulated switchgear. It combines a low carbon footprint, superior reliability and low lifecycle costs in a flexible product layout.



EconiQ gas-insulated line (GIL) ELK-3, 420 kV

5000 A, 63 kA

The EconiQ GIL for gas-insulated switchgear (GIS) ELK-3, 420 kV enables significant reduction of SF₆ gas, compared to standard layouts. The modular design of the product allows multiple configurations and substitution of the insulation gas with an eco-efficient alternative.

Providing value to our customer

Enabling digital substations

Hitachi Energy's GIS can be equipped with monitoring, measurement, control, protection and communication features for smooth integration into substation automation systems.

Benefits

- Integration into substation automation systems using IEC 61850 bus
- Low power instrument transformer (LPIT) via IEC 61850-9-2LE process bus
- Local control cubicle (LCC) with Relion® series control and protection IED
- REB500 bay control IED
- Switchsync™ PWC600 for point-on-wave controlled switching
- Modular switchgear monitoring (MSM) to supervise SF₆-gas density
- Station wide interlocking and double-operation interlocking

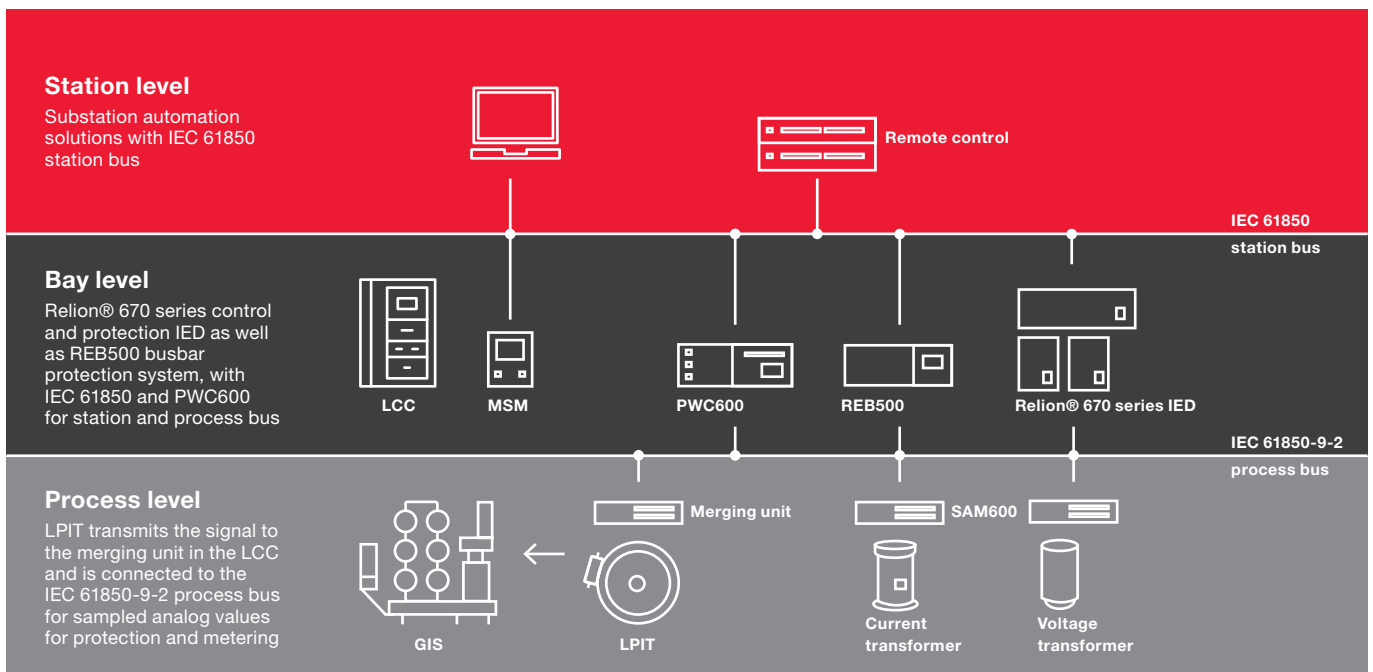
Service for GIS

Hitachi Energy's service portfolio offers comprehensive solutions that extend the operating asset life while reducing maintenance costs.

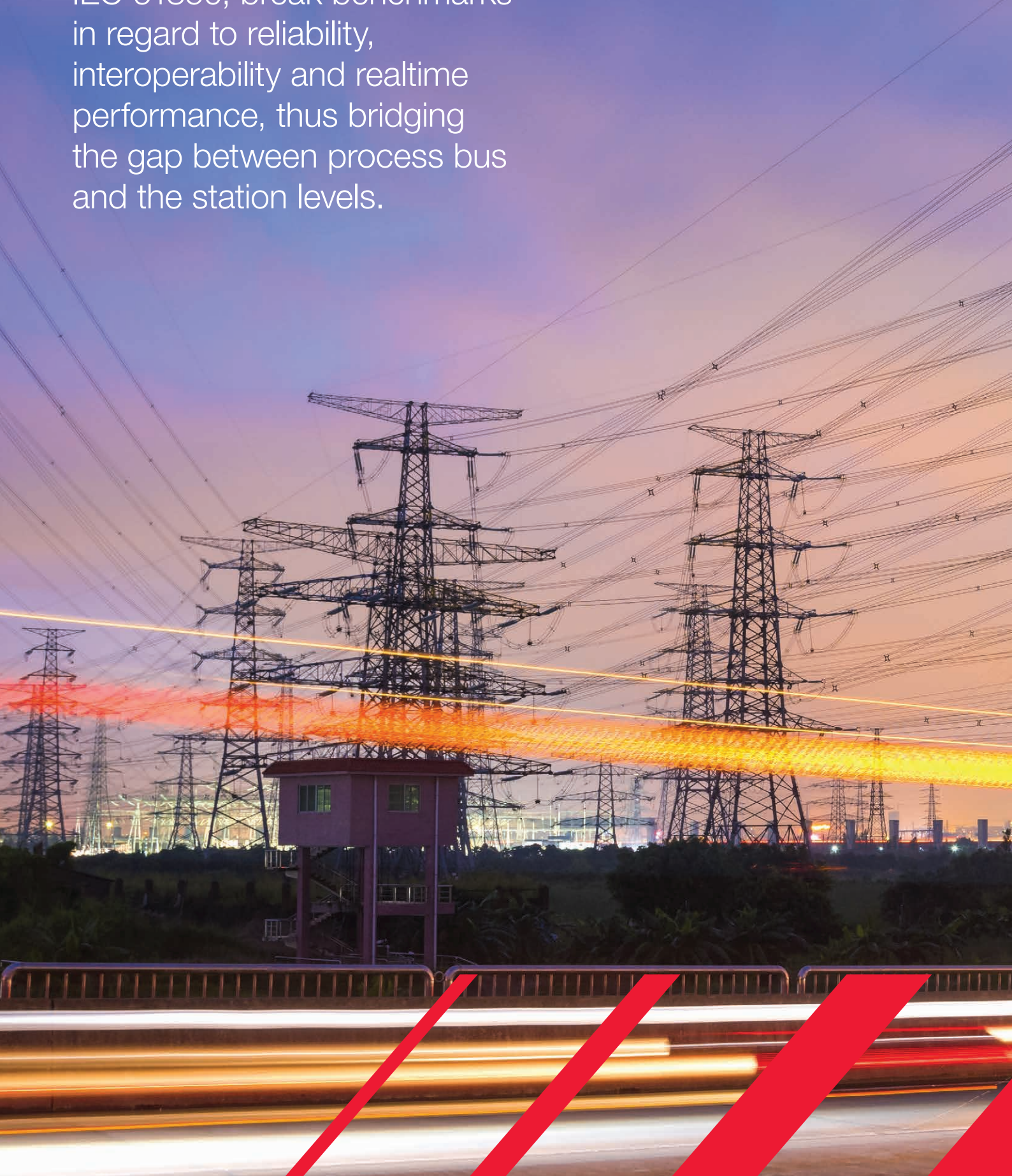
With technology development at the forefront of everything we do, upgrade and retrofitting are just two of our many offerings which can help you modernize and extend the life of your existing equipment.

Benefits

- 24/7 hotline ensures quick reaction time
- Diverse training courses for your personnel
- Customized maintenance and retrofit solutions
- Capability of bay extensions for any GIS, including non-Hitachi Energy's switchgears
- Options to adapt your GIS to future requirements including rating upgrades and layout modifications
- Service agreements including: Risk assessments, warranty extensions, diagnostics, consulting and much more



Hitachi Energy's world-leading digital substations, based on the international standard, IEC 61850, break benchmarks in regard to reliability, interoperability and realtime performance, thus bridging the gap between process bus and the station levels.



Comprehensive portfolio

SF ₆ offering		ELK-04	ELK-04	ELK-14	ELK-3	ELK-3	ELK-4
Enclosure		Three-phase	Three-phase	Single-phase	Single-phase	Single-phase	Single-phase
Rated voltage	kV	145	170	300	420	550	800
Rated power-frequency withstand voltage	kV	275	325	460	650	740	960
Rated lightning impulse withstand voltage	kV	650	750	1050	1425	1675	2100
Rated normal current	A	3150*	4000	4000	5000	5000/6300	5000/6300
Rated short-circuit breaking current, 3s	kA	40	63	63/80	63/80	63/80	63

EconIQ – Eco-efficient portfolio		EconIQ GIS ELK-04, 145 kV		EconIQ GIL ELK-3, 420 kV	
Enclosure		Three-phase		Single-phase	
Rated voltage	kV	145		420	
Rated power-frequency withstand voltage	kV	275		650	
Rated lightning impulse withstand voltage	kV	650		1425	
Rated normal current	A	3150		5000	
Rated short-circuit breaking current, 3s	kA	40		63	



Commitment

Quality assurance

We are committed to providing the best products and services. Our products comply with or exceed the latest international standards. In addition to type tests in independent laboratories, our certified design and manufacturing process guarantee the highest quality.

Our products are type tested according to international standards:

- IEC
- ANSI/IEEE
- GOST

Our products are certified by third-party organizations:

- PEHLA
- LAPEM

Sustainability

For Hitachi Energy, sustainability is about balancing economic success, environmental stewardship and social progress to benefit all our stakeholders.

Sustainability considerations cover how we design and manufacture products, what we offer customers, how we engage suppliers, how we assess risks and opportunities, and how we behave in the communities where we operate and towards one another, while striving to ensure the health, safety and security of our employees, contractors and others affected by our activities. In line with our business practices, we publish environmental product declarations for each product we manufacture.



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