

Products that Contribute to Lower CO₂ Emissions

Amid accelerated efforts to address global warming, demand is growing for products that help reduce CO₂. Against this backdrop, KHI offers various highly efficient energy utilization products, such as cogeneration systems driven by gas turbines or gas engines, all over the world. We also actively delve into renewable energy utilization technologies, such as those for woody biomass power generation and bioethanol production.

Web A detailed description of our contribution to a better environment through our products is available in the Detailed Environmental Report posted on our website.
<http://www.khi.co.jp/english/index.html>

Gas Turbine & Machinery Company/ Gas Turbine Division

**Realizing highly efficient use of energy with world-caliber technology
—Developed the L30A new-model gas turbine for power generation**

KHI developed the L30A, a new-model gas turbine for power generation in the 30MW-class—our largest output capacity—to drive such energy solutions as cogeneration systems. This gas turbine boasts electric generating efficiency of more than 40%—the world’s highest rate in this output class—which is made possible by raising compressor pressure, applying newly developed heat-resistant materials and improving turbine cooling technology. Also noteworthy, the L30A can achieve total energy efficiency exceeding 83% in a cogeneration system and generating efficiency above 50% in a combined cycle power plant. In terms of environmental performance, this gas turbine holds NO_x emissions up to 15ppm (O₂ = 15%)—again, a world’s best—because it features KHI’s own DLE (Dry Low Emission) combustion system.

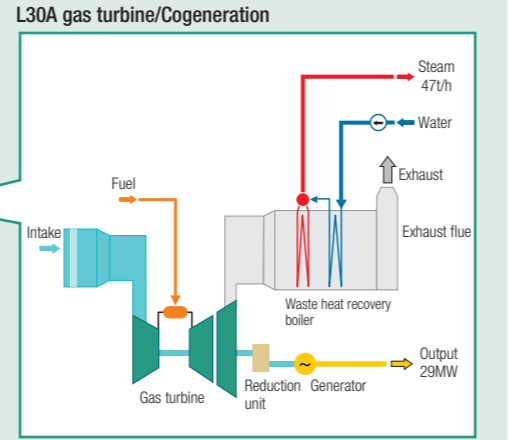
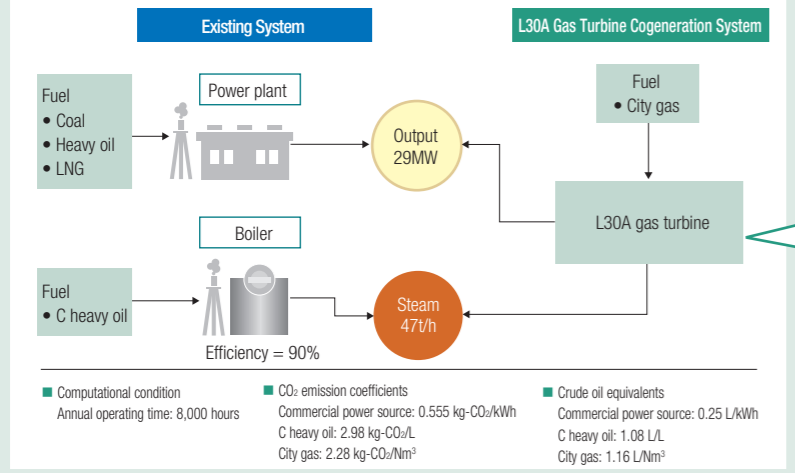
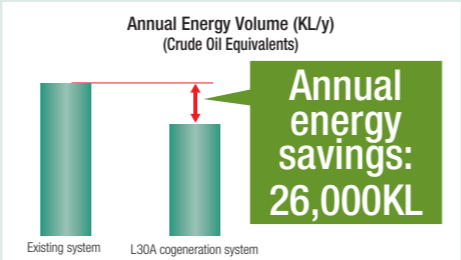
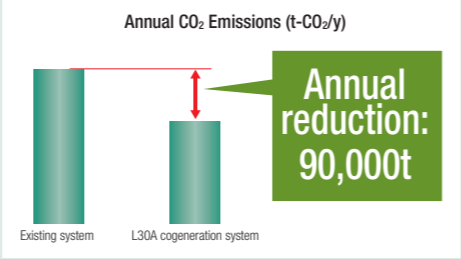
KHI reached an agreement with Daicel Chemical Industries, Ltd., to install a cogeneration system equipped with the first market-ready L30A at the latter’s Himeji Production Sector Aboshi Plant and begin a field test. The field test will serve two purposes: supply the Aboshi Plant with electricity and heat (steam) and contribute to a decrease in CO₂ emissions, and confirm the durability and reliability of the L30A.

The Great East Japan Earthquake was a catalyst to revisit the idea of distributed power generation, such as cogeneration systems, especially from the perspective of energy utilization efficiency and energy security. Given this reality, we will apply the technologies we have at our disposal to realize highly efficient use of energy whether at home or abroad while addressing the need for power source diversification.



L30A gas turbine

CO₂ Reduction, Energy-Saving Effect by Installing L30A Gas Turbine



Striving for the World’s Highest Level of Quality

KHI undertakes a variety of approaches to extend high-performance, high-quality products to customers around the world. The following section highlights some examples from the Precision Machinery Company.

Precision Machinery Company (Quality Certification Activities at the Nishi-Kobe Works)

The Precision Machinery Company manufactures hydraulic machinery and units responsible for motion control in various machines. Of the products made by this internal company, machinery for use in construction equipment, such as hydraulic shovels, have captured a large share of the market and have earned a solid reputation for quality and reliability. While small in size, our products are used at high speed and under high pressure, and their dependability under such conditions is the result of sophisticated design and processing technologies as well as persistent quality control at every stage of production. Indeed, this is an amalgamation of multiple technologies, from design through to production. Some products made in Japan are also made abroad, at four locations, and the Company promotes diverse activities to ensure that all the machinery and components it provides are of the highest quality wherever in the world its customers may be.

Product Planning/Design	Product Evaluation	Parts Procurement
<p>New products go through an exhaustive verification process by the sections involved in product development at every stage of development, in accordance with in-house design review tools. In addition, respective engineering sections jointly pursue component research with the Corporate Technology Division, which provides R&D assistance to internal companies, yielding successful results.</p> <p>Design review</p>	<p>Products are evaluated under a variety of conditions at the engineering plant, which features 30 performance/durability test stands inside soundproof rooms, anechoic chambers, ultralow-temperature rooms and other facilities.</p> <p>Engineering plant performance/durability test equipment</p>	<p>The internal company continuously implements activities, such as quality workshops, where participants learn by studying mistakes that have occurred in the procurement process. Participating suppliers also have a high awareness of quality, and joining them in such activities is definitely a benefit for the Precision Machinery Company.</p> <p>Quality workshop with participating suppliers</p>
After-Service	Assembly/Inspection	Parts Processing/Heat Treatment
<p>If a quality issue appears, it is swiftly addressed and measures are put in place to prevent a recurrence. Quality status is always presented and discussed at quality meetings, and top management supports activities transcending department borders to ensure an all-around approach to quality.</p> <p>Quality meeting</p>	<p>Equipment and facilities, such as work support systems, are incorporated all through assembly operations to prevent human error. The same preventative measures have been implemented at production points at home and abroad.</p> <p>Assembly operations using work support system</p>	<p>The core parts of hydraulic machinery are made at factories in Japan where operations are tightly controlled. Human error is eliminated through automated processing, measurement, assessment and data entry.</p> <p>Automated core parts inspection</p>