



Natural Gas Power Solutions

Global Manufacturer of Gas Engines and Energy Solutions Expert.

The Common Challenges We Face

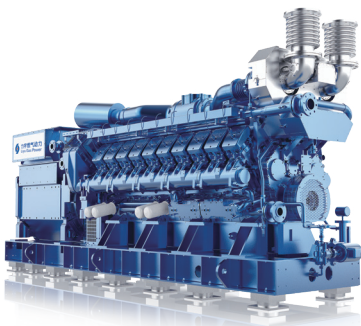
Driven by factors such as economic growth, accelerated technological progress, and industrialization, the continuous increase in global electricity demand has become an inevitable trend.

Data from the International Energy Agency (IEA)[note1] shows that the consumption of oil and coal has been significantly curbed, while natural gas and renewable energy sources are gradually becoming the mainstays of development. This trend is not only reshaping the global energy structure and industrial chain, but also presenting greater challenges in terms of improving energy efficiency, reducing energy costs, and ensuring the stability of energy supply.

Note 1: The data is sourced from the International Energy Agency (IEA) "World Energy Outlook 2024."

How can we meet the demand for high energy efficiency and low consumption while also satisfying the requirements for clean, reliable, and sustainable applications?

Liyu Power employs natural gas distributed generation technology to provide you with customized, highly efficient solutions.



Natural gas is a clean and efficient energy source

Maximum Efficiency, Optimal Stability

Natural gas is primarily derived from natural gas wells or as a by-product of light hydrocarbon recovery from associated petroleum gas. The main combustible component is methane (CH_4), with a concentration typically ranging from 70% to 100%. It is highly suitable as a fuel for gas engines.

Composition Table of Naturel Gas							
Composition	Methane (CH_4)	Ethane (C_2H_6)	Propane (C_3H_8)	Butane(C_4H_{10})	Pentane(C_5H_{12})	Nitrogen (N_2)	Carbon dioxide (CO_2)
unit	%	%	%	%	%	%	%
Minimum value	85	0	0	0	0	0	0
Typical value	90.6	3	1.6	0.5	0.1	3.7	0.5
Maximum value	98	10.3	2	0.7	0.15	11	2

Combined Cooling, Heat, and Power (CCHP) Energy Station Fueled by Natural Gas

Transforming Natural Gas into Electricity and Thermal Energy

Liyu Gas-Fired Power Generation Units: Providing Clean and Efficient CCHP Energy Solutions

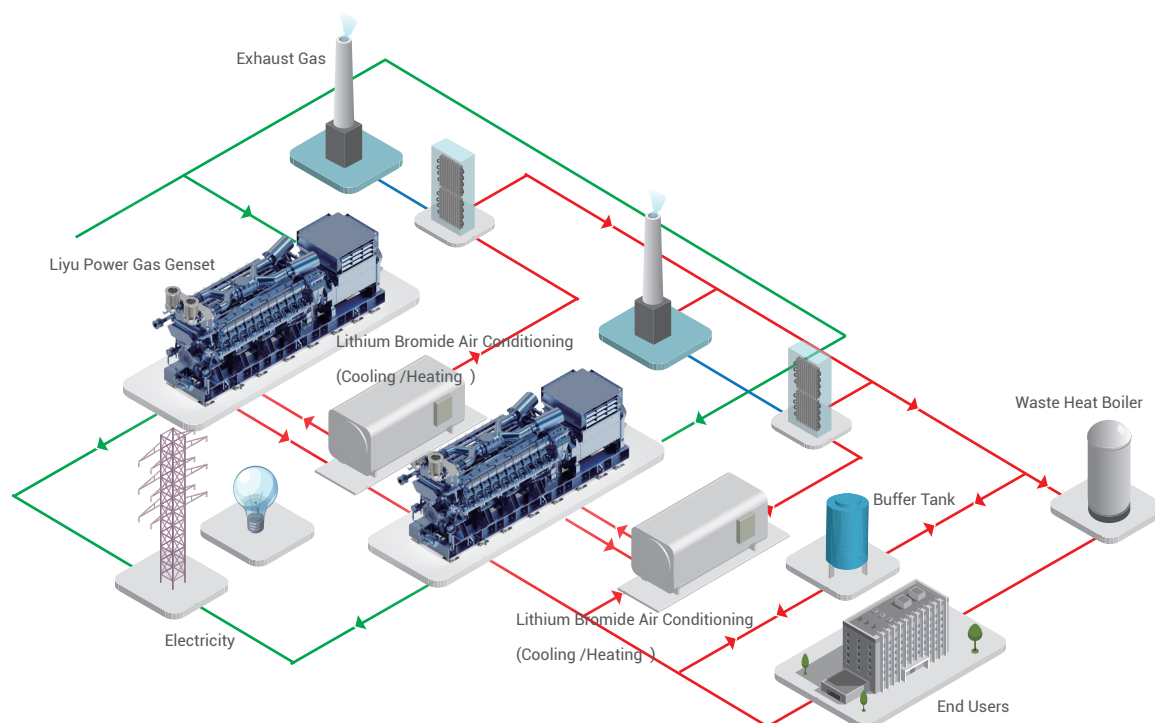
Natural gas, as the cleanest and most efficient combustible gas, can be directly fed into gas engines via natural gas pipelines to generate power by driving generators. In scenarios where natural gas pipelines are unavailable, Liyu can construct LNG/CNG storage and regasification stations to supply the units with re-gasified LNG/CNG.

By utilizing the waste heat from the cylinder liner water and flue gas of the power generation units, we can achieve the following:

1. Connect to lithium bromide air conditioning units to provide low-cost cooling and heating services for buildings;
2. Equip with hot water boilers to supply hot water for factories and communities;
3. While providing cooling and heating, the units can still generate electricity normally.

The overall energy utilization efficiency reaches to 88%.

Schematic Diagram of the Natural Gas CCHP Process Flow:



Advantages of Using Natural Gas as Fuel

Promoting Sustainable Development and Higher Economic Benefits



Energy Conservation and Carbon Reduction

The total efficiency of combined heat and power can reach over 88%, with an electrical efficiency exceeding 41%, achieving highly efficient utilization.



Stability and Reliability

It can serve as a stable and sustainable power source, integrated into the multi-energy complementary microgrid system of source-grid-load-storage. While ensuring the stability and sustainability of the power grid system, it also generates higher economic returns.



Higher Economic Benefits

The operational model of a Combined Cooling, Heat, and Power (CCHP) energy station brings the highest economic benefits from the cycle of cooling, heating, and electricity.



Better Environmental Benefits

Natural gas power plants can reduce the use of fossil fuels and significantly lower the emissions of greenhouse gases such as carbon dioxide. They also decrease the proportion of fossil fuel usage, reduce primary energy consumption, and improve energy efficiency, thereby increasing the share of renewable energy in the energy mix.



Lower Operating Costs

As a clean combustible gas, natural gas can effectively extend the major overhaul cycle of the units to 64,000 hours, reducing the consumption of consumables and labor. The operating cost can be as low as 0.035 RMB per kWh, thereby extending the lifespan of the units.



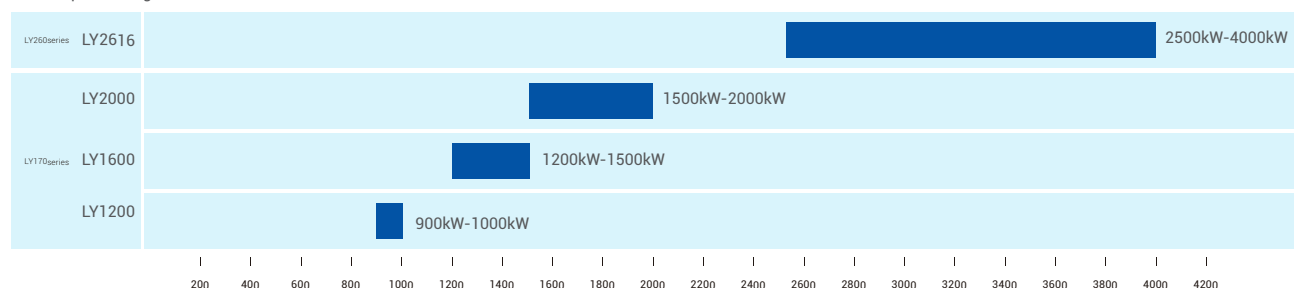
Robust Product Portfolio

Power solutions for natural gas utilization in electricity generation, suitable for various scales

Liyu natural gas power generation units, characterized by energy-saving and high efficiency, stability, and excellent fuel adaptability, cover a power range of 900kW to 4000kW per unit, with a maximum overall efficiency of over 88%;

The gas-fired power generation units are arranged in a containerized structure, with each container acting as a mini power station. Multiple mini power stations can be combined to form a large-scale power plant, offering high flexibility to adapt to on-site gas supply conditions and ensuring efficient output under different operating conditions:

The unit power range covers 900kW to 4000kW.



Features of Liyu Natural Gas Power Generation Units



High Efficiency

Power Generation Efficiency: Over 41%
Comprehensive Utilization Efficiency: Up to 88%



Reduced Emissions

$\text{No}_x \leq 500 \text{ mg} / \text{Nm}^3$ (2g/kW·h)



Exceptional Reliability

Unit Overhaul Cycle: 64,000 hours
Annual Operating Hours: Up to 8,000 hours



Minimal Lubricant Oil Consumption

Lubricant Oil Usage: $\leq 0.2 \text{ g} / \text{kW} \cdot \text{h}$



Streamlined Maintenance

Professional maintenance team, well-stocked spare parts warehouse, and comprehensive service system.



Enhanced Safety

Multi-stage flameproof and explosion-proof construction, Advanced detonation control systems



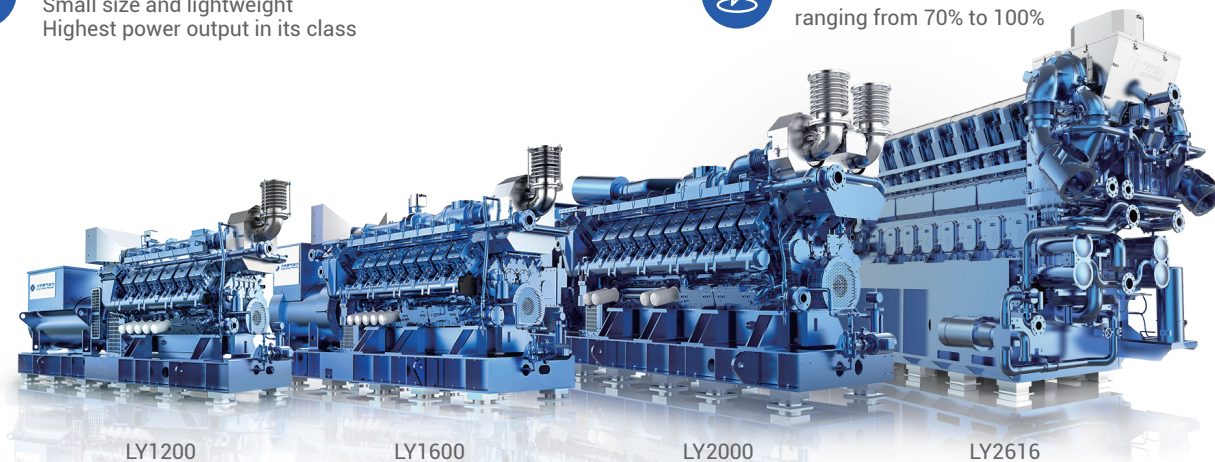
Compact Design

Small size and lightweight
Highest power output in its class



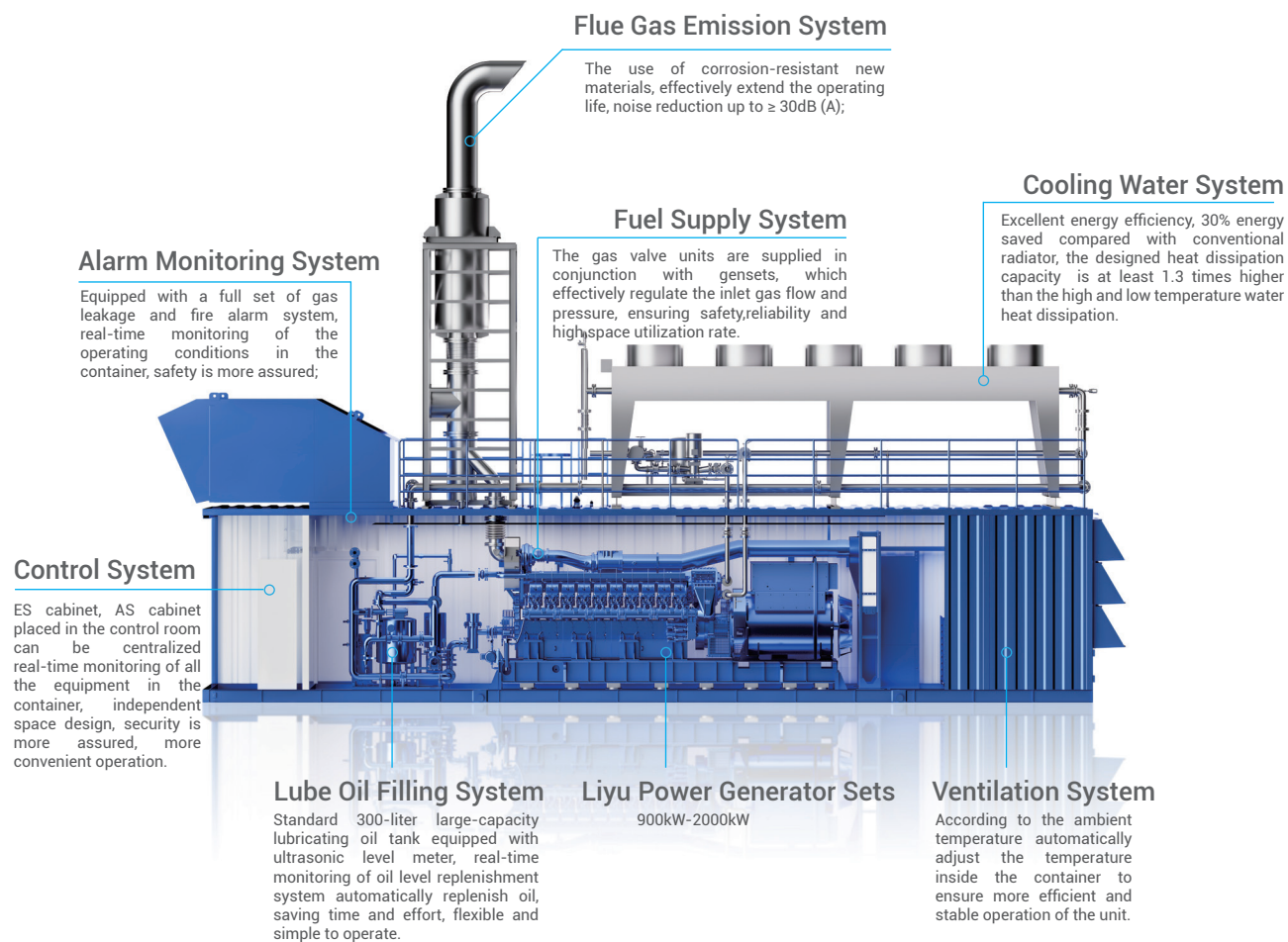
Versatile Application Range

Natural gas with methane concentration ranging from 70% to 100%



Containerised unit structure

The preferred layout solution for your energy station



Container type	L	W	H
LY1200-CT	13.4m	3m	3m
LY1600-CT	14.0m	3m	3m
LY2000-CT	14.0m	3m	3m

Can be flexibly adjusted according to on-site requirements.



Advantages of containers

- Small footprint | The container size is 13.4*3*3m, saving space cost;
- Low installation cost | Open-air placement, no need to build a plant, saving plant construction costs;
- Highly integrated | electricity generated upon ventilation, output voltage 10.5KV, saving installation costs;
- Skid-mounted design | short installation period (1-2 months), short construction cycle;
- Silent design | Noise $\leq 85\text{dB(A)}$ at 1 meter outside the container, environmentally friendly and reliable;
- Convenient maintenance | Easy to transfer and transport;
- High flexibility | can be freely combined according to the gas volume, the size of the plant can be large or small, higher utilization efficiency.

We possess extensive experience in power plant construction.

We provide exemplary case studies.



HuangHua International Airport(CHN)

Location: Changsha,Hunan
Installed Engines: 1 x LY1200
Project Type: CCHP



HongQiao International Airport(CHN)

Location: Shanghai
Installed Engines: 1 x LY1600
Project Type: CCHP



Natural Gas Power Station

Location: Northern Europe
Installed Engines: 15 xLY2000
Project Type: Independent natural gas power station

For more application practices, please feel free to contact our marketing team at any time for detailed information.

We're at your service.

For more than 30 years, we have been committed to the innovation of power generation technology and services, with high-efficiency, low-emission, safe and cost-effective energy solutions to enable customers to achieve energy independence while creating more economic, environmental and social benefits, the gradual establishment of a global service network, the whole life cycle of the after-sales service system, will make us become a more reliable partner



7×24×365 Online



Sales enquiry: 24-hour solution



On-site service:
24 hours for general breakdowns
72 hours to complete a major breakdown



Immediate resolution of product,
service and spare parts enquiries



Complaint suggestion:
response within 24 hours



Integrated Service Model Providing you with systematic energy solutions

Liyu marketing system takes technology as the forerunner, and establishes a professional technical team with advantageous scientific and technological resources both at home and abroad, and a deep understanding of customers' needs, which comprehensively covers all project stages before, during and after sales.

Comprehensive coverage of pre-sales, sales and after-sales of various project phases;

From pre-feasibility study, to program design, equipment procurement, construction, contract acceptance to put into use.

All-round one-stop comprehensive service, fully meet all the needs of customers.



Shaping the Future of Green Energy

30 years of experience in energy utilization

Founded in 1994, Liyu is a global gas engine manufacturer and energy solution company, headquartered in Changsha, Hunan Province, China, with a total industrial area of 350,000 square meters. Liyu's self-developed LY170 and LY260 series of gas gensets feature energy-saving, high-efficiency, stable and reliable, and excellent fuel adaptability, and the single-engine power ranges from 900kW to 4000kW. LY260 series gas generator sets are characterized by energy saving, high efficiency, stability and reliability and excellent fuel adaptability. The single power covers 900KW~4000KW power range and is widely used in natural gas, biogas, biomass gas, coal bed methane, petroleum gas, industrial gas (smelter tail gas), coal gas and other fields.

With over 30 years of expertise in energy applications, Liyu Power is the cornerstone of Liyu Group. The company has developed three key energy systems: Liyu Environmental Energy, Liyu Energy Conservation, and Liyu Power, creating a comprehensive, integrated ecosystem that spans R&D, manufacturing, power plant design and construction, as well as investment and operational management. Driven by its core vision, Liyu has established a global energy service network that fosters innovation and supports the global energy transition. By leveraging continuous technological advancements and a worldwide service network, Liyu empowers customers to achieve sustainable growth and contribute to the transformation of the global energy landscape.

Our mission is to Striving towards zero carbon future

"The mission of "Striving Towards Zero Carbon Future" originates from LYU's original intention of giving power to green mountains and green water, and echoes the diversified and multi-dimensional cooperation nowadays, joining hands with global customers and partners to jointly establish a sustainable energy ecosystem, and realize the synergistic development of energy, economy, and environment. We will work together with our global customers and partners to establish a sustainable energy ecosystem, achieve synergistic development of energy, economy and environment, and promote the optimization of energy structure to contribute to global sustainable development.



Headquarters

LIYU POWER

No. 289 Luyun Road, High-tech District, Changsha City, Hunan Province, China

T: +86-0731-8873 0808

E: liyu@liyupower.com

Russia branch

LIYU GAZ POWER RUS

Moscow Region, Krasnogorsk District, Putilkovo Village, Greenwood Terrace, Building 23, Office 361.

T: 8-800-201-60-88

E: info@liyupower.ru

Dubai branch

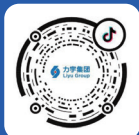
LIYU POWER INTERNATIONAL DMCC

Uptown Tower, Uptown Dubai, Dubai, United Arab Emirates

E: contact@liyupower.com



WeChat



DouYin



@LiyuPower



@Liyu-Power



@LiyuPower