

致力于成为全球领先的  
多气源发电系统方案提供商

COMMITTED TO BECOMING THE WORLD'S LEADING PROVIDER  
OF MULTI-SOURCE POWER GENERATION SYSTEM SOLUTIONS

 湖南省力宇燃气动力有限公司  
Hunan Liyu Gas Power Co.,Ltd

性能卓越 · 稳定可靠 EXCELLENT PERFORMANCE, STABLE AND RELIABLE

[www.liyupower.com](http://www.liyupower.com)



力宇公众号  
Liyu Wechat Account



力宇抖音号  
Liyu Tiktok



力宇云游  
Liyu Virtual Tour

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本册子的中英文版如有任何歧义，概以中文版为准。

In case of any discrepancy between the English and Chinese versions of this booklet, the Chinese version shall prevail.

力宇燃气动力  
Liyu Gas Power

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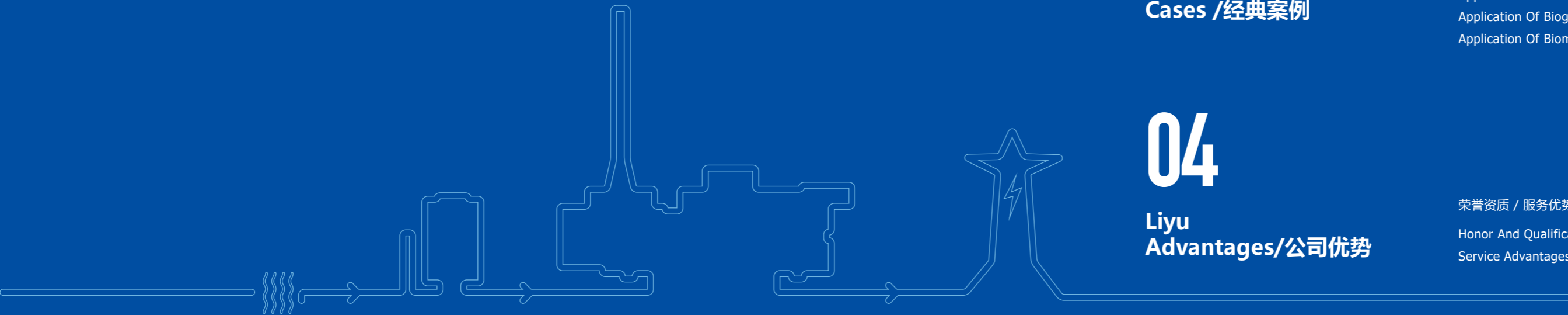
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# ABOUT LIYU 关于力宇

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## LIYU GAS POWER

MULTI-GAS SOURCE POWER GENERATION  
SYSTEM SOLUTIONS PROVIDER

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我们专注于温室气体开发与利用

我们更专注环保节能、高效稳定的动力设备研发与制造

科技创新，助力全球实现能源转型，迈向零碳未来

Focused on the development and utilization of greenhouse gases

We are further specializing in manufacturing of environmental protection , energy conservation, efficient and stable power equipment

Technological innovation, aiming to facilitate global energy transformation towards to a zero-carbon future

# DEVELOPMENT

## HISTORY 发展历程

1994 年

成立“东莞市力宇机电有限公司”，专业从事强鹿、卡特、马克进口机组销售、配套及服务。

In 1994, Dongguan Liyu Electromechanical Co., Ltd. was established, specializing in the trade and engineering supporting services of imported diesel units.

2003 年

总装机规模50MW重油发电机组分布式能源项目投入运行。

In 2003, a distributed energy project based on heavy oil generator sets with a total installed capacity of 50MW was put into operation.

2004 年

公司更名“东莞市力宇燃气动力有限公司”，投建4万平方米的广东力宇产业基地，正式进入燃气发电领域。

In 2004, the company changed its name to "Dongguan Liyu Gas Power Co., Ltd." and invested in the construction of 40,000 square meters of Guangdong Liyu Industrial Base, officially entering the field of gas power generation.

2000 年

力宇（香港）有限公司成立。

In 2000, Liyu (Hong Kong) Co., Ltd. was established.

2005 年

投资近3亿元，占地4万平方米的广东力宇工业园运营基地投入使用。

In 2005, the investment is nearly 300 million yuan, and the operation base of Guangdong Liyu Industrial Park covering an area of 40,000 square meters is put into use.

2006 年

与GE颜巴赫合作，力宇第一个燃气内燃机项目正式投入运营。

In 2006, in cooperation with GE Jenbacher, Liyu's first gas internal combustion engine project was officially put into operation.

2007 年

占据中国垃圾填埋气发电领域90%市场份额。

In 2007, Liyu had covered 90% market share of landfill gas power generation in China.

2009 年

湖南省力宇燃气动力有限公司成立。投资建设占地13万平方米的湖南力宇运营基地。与德国MWM公司强强联手，成为MWM中国市场战略合作伙伴。

In 2009, Hunan Liyu Gas Power Co., Ltd. was established, its operation base was invested to be constructed an area over 130,000 square meters. Joined hands with the German company MWM, Liyu became its strategic partner in China market.

2010 年

成功中标山西中电明秀120MW、晋煤集团150MW瓦斯发电项目。荣获“广东省高新技术企业”。

In 2010, successfully won the bid for Shanxi Zhongdian Mingxiu 120MW and JAMG 150MW gas power generation project. Won the "Guangdong High-tech Enterprise".

2012 年

山西力宇新能源科技有限公司成立。东莞市力宇燃气动力有限公司更名广东力宇新能源科技有限公司。与山西沁水县人民政府签订煤层气综合利用项目投资协议，拥有沁水县境内所有的煤层气专属性。

In 2012, Shanxi Liyu New Energy Technology Co., Ltd. was established. Signed an investment agreement with the Qinshui County People's Government of Shanxi Province for the comprehensive utilization project of coalbed methane, and owned all the exclusive rights of coalbed methane in Qinshui County.

2014 年

山西阳泉力宇保安电站厂房顺利封顶，年产2亿方煤层气液化项目LNG完成批复。荣获“湖南省高新技术企业”。

In 2014, the Shanxi Yangquan Liyu Security Power Plant was successfully capped, a LNG project of coalbed methane liquefaction with 200 million cubic meters/year had been approved. Won the "Hunan High-tech Enterprise".

2018 年

第一台1.5MW燃气内燃机组LY1600点火成功。端氏48.5MW瓦斯发电项目开工。

In 2018, the first 1MW gas-fired internal combustion unit, LY1600, successfully ignited. Additionally, the Duanshi 48.5MW gas power generation project had begun to construct.

2015 年

第一台1MW燃气内燃机组LY1200成功下线，并获湖南省产品质量认证，组建长沙市工程技术研究中心。山西瓦斯气77MW电厂投建运营。

In 2015, the first 1MW gas-fired internal combustion engine unit LY1200 was successfully launched and received Hunan Province product quality certification, and Changsha Engineering Technology Research Center was established. Furthermore, the construction and operation of a 77MW gas-fired power plant in Shanxi province were initiated.

2020 年

第一台2MW燃气内燃机组LY2000研制成功。建成内蒙工业煤气环保能源产业基地，湖南力宇节能科技有限公司成立。

In 2020, the first 2MW gas internal combustion engine unit LY2000 had been developed successfully. Meanwhile, the Inner Mongolia Industrial Gas Environmental Energy Industry Base was established. In addition, Hunan Liyu Energy conservation technology Co., Ltd. was founded.

2023 年

深耕本土，打响海外发展突破攻坚战，构建国内国外双循环发展新格局。

In 2023, the company focused on local development, launched breakthroughs in overseas expansion, and established a new development pattern of dual circulation both domestically and internationally.

2022 年

年度销售装机容量达200MW以上。开展生态转型，业务聚焦可燃温室气体开发、资源化发电利用系统能源解决方案。成为中国国际商会常务理事单位。

In 2022, the annual sales of installation capacity had exceeded 200MW. Liyu shifted its focus towards to ecological transformation, with business concentration on the development of combustible gas resources and the utilization of system energy for power generation. Liyu became a business council member of the China International Chamber of Commerce.



# 30年

## 能源利用经验沉淀

30 Years Energy Utilization Experience Precipitation

力宇集团创立于1994年,总部位于湖南省长沙市,以环保节能、高效稳定的动力设备研发与制造及可燃温室气体开发与利用为核心打造力宇燃气动力、力宇环保能源、力宇节能科技三大能源体系。集团在广东、湖南、山西、内蒙、北京建立五大能源产业基地,总占地面积达35万平方米以上,员工1200多名,现拥有覆盖全球的现代化能源设备产业体系及服务网络,助力全球实现能源转型,迈向零碳未来。

Liyu Group was established in 1994, with its headquarters located in Changsha, Hunan Province. Liyu Group focuses on the research, development, and manufacturing of environmentally friendly, energy conservation, and stable power equipment, as well as the development and utilization of combustible greenhouse gases. Liyu Group has established three major energy systems: Liyu Gas Power, Liyu Environmental Energy, and Liyu Energy-Saving Technology. The group has built five energy industrial bases in Guangdong, Hunan, Shanxi, Inner Mongolia, and Beijing, covering a total area of over 350,000 square meters. With a workforce of more than 1,200 employees, Now it has a global modern energy equipment industry system and service network to help the world achieve energy transformation and move towards a zero-carbon future.

### 创立于 1994

Established in 1994

### 总占地 35 万平方米

Covering a total area of 350000 square meters

### 在职员工 1200+

Over 1200 employees currently employed

## 湖南省力宇燃气动力有限公司

Hunan Liyu Gas Power Co., Ltd.



数十年专注于高效、稳定的燃气发动机设备研发与制造,现拥有70多项燃气发电行业科研成果与专利,是国家高新技术企业和专精特新“小巨人”企业,自主研发的力宇品牌燃气内燃发动机单机功率覆盖900kW~2000kW、综合能效可达87%以上(标准气体),产品成功应用于天然气、沼气、生物质气、工业煤气、石油伴生气、煤层瓦斯气等多元化可燃气体发电领域。

Liyu Gas Power, with decades of dedication, specializes in the research and manufacturing of efficient and stable gas engine equipment. Liyu Gas Power currently holds over 70 research achievements and national patents in the gas power generation industry. It is recognized as a national high-tech enterprise and a specialized and innovative "Little Giant" enterprise. Liyu Gas Power has independently developed gas-fired internal combustion engines under the Liyu brand, with single-unit power ranging from 900 to 2,000 kilowatts and comprehensive energy efficiency of over 87% (based on standard gas). These products have been successfully applied in diversified combustible gas power generation fields, including natural gas, biogas, biomass gas, industrial exhaust gas, associated petroleum gas, and coal mine gas.

## 湖南力宇环保能源有限公司

Hunan Liyu Environmental Energy Co., Ltd.



具备设计可研、设备制造、EPC总包及全生命周期售后服务能力,为客户提供量身定制节能、高效、环保的一体化系统能源解决方案。现已投入商业运行项目每年可向社会提供约88亿度绿色电力,减少二氧化碳排放约1039万吨以上,创造节能减排经济效益约55亿人民币以上,助力绿色经济可持续发展及双碳目标的实现。

Liyu Environmental Energy possesses capabilities in feasibility study, equipment manufacturing, EPC (Engineering, Procurement, and Construction) contracting, as well as comprehensive lifecycle after-sales services. It provides customized, energy conservation, and environmentally friendly integrated system energy solutions to its clients. Currently, Liyu Environmental Energy has operational projects that can provide approximately 8.80 billion kilowatt-hours of green electricity to society annually, resulting in a reduction of over 10.39 million tons of carbon dioxide emissions. This achievement creates an economic benefit of over 5.50 billion RMB through energy conservation and emission reduction efforts, thereby contributing to the sustainable development of the green economy and the achievement of dual-carbon goals.

## 湖南力宇节能科技有限公司

Hunan Liyu Energy Conservation Technology Co., Ltd.



始终关注并赋能企业在高质量发展中的全面绿色转型,致力于节能环保型可燃气体资源化综合利用发电项目投资建设及运营管理与技术服务,公司拥有近30年技术经验沉淀,节能技术团队达200人以上,为客户提供稳定可靠、经济高效的能源服务,助力企业实现降本增效的同时满足节能环保要求。

Liyu Energy Conservation Technology focuses on empowering enterprises to achieve comprehensive green transformation in high-quality development consistently. It is committed to investing in, constructing, operating, managing, and providing technical services for energy projects that utilize combustible gas resources in an energy conservation and environmentally friendly manner. With nearly 30 years of technological experience and a dedicated team of over 200 energy conservation experts, the company offers stable, reliable, and cost-effective energy services to clients. It assists businesses in achieving cost reduction and efficiency improvement while meeting national energy conservation and environmental protection requirements.

# ABOUT

## LIYU

关于力宇



### 生产能力

#### PRODUCTION CAPACITY

配置先进的研发、生产制造仪器及设备，并建立了先进的发动机试验室与完整的研发管理系统，燃气内燃发动机及配套辅助设备年生产能力可达1000台以上。

Equipped with advanced R&D and production instruments and equipment, and established advanced engine laboratory and complete R&D management system, the annual production capacity of gas-fired internal combustion engine and auxiliary equipment can reach to 1000 sets.

**1000+**  
年产量  
Annual Output



### 科研团队

#### RESEARCH TEAM

拥有具备燃气发电机组研发实力的博士、硕士、本科等多层次人才团队，专业涵盖热能与动力工程、内燃机、机械设计及制造、电气工程及其自动化、技术检测等领域。

Multi-level talent team consist of Ph.D., master's, and bachelor's degree holders with strong R&D capabilities in gas power generator units. Our team's expertise covers various fields, including thermal and power engineering, internal combustion engines, mechanical design and manufacturing, electrical engineering and automation, and technical testing.



# BUSINESS

## SECTORS

### 业务板块

#### 发电机组

- 节能环保，稳定高效；
- 产品功率覆盖900kW-2000kW；
- 广泛应用于多种燃气（可变组分燃气）领域；
- 业绩遍布全球。

#### Genset

- Energy conservation and environmental friendly, stable and efficient;
- The product power covers 900kW-2000kW;
- Widely used in a variety of gas (variable component gas) field;
- Performance all over the world.



#### 集装箱集成系统

- 国际品质标准；
- 结构紧凑，功能齐全；
- 高效可靠，运营成本低；
- 模块化配置，应用更灵活。

#### Container Integrated System

- International quality standards;
- Compact structure and complete functions;
- Efficient and reliable, low operating cost;
- Modular configuration, more flexible application.



#### 可燃温室气体的开发与利用

- 为客户量身定制全方位一体化系统能源解决方案；
- 涵盖可研设计、设备集成、EPC总包、电站运营管理及全生命周期售后服务；
- 实现工业煤气的环保综合治理与绿色能源的有机结合，保证效益最大化。

#### Development And Utilization Of Combustible Greenhouse Gases

- We provides customized, comprehensive, and integrated system energy solutions for clients;
- Business includes feasibility study and design, equipment integration, EPC contracting, power plant operation and management, as well as full lifecycle after-sales services;
- We aim to achieve the holistic integration of industrial exhaust gas environmental governance and green energy, ensuring maximum efficiency and benefits.



#### 服务及培训

- 服务网络覆盖全球，快速提供客户全生命周期零件供应及服务支持；
- 完善的服务体系，以保障机组长期稳定运行，实现经济效益最大化；
- 湖南长沙培训中心，为用户提供全面系统的机组应用知识及技能培训。

#### Service And Training

- Service network covers worldwide, provide instant supply of parts for full life cycle and service support;
- Excellent service system, to ensure the long-term stable operation of the unit and maximize economic benefit;
- Training center in Changsha, Hunan, it provides users with comprehensive and systematic unit application knowledge and skills.



# PRODUCTS

## INTRODUCTION

产品介绍

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LIYU GAS POWER

MULTI-GAS SOURCE POWER GENERATION  
SYSTEM SOLUTIONS PROVIDER

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产品覆盖范围

Products Coverage

产品优势

Products Advantages

应用领域

Application Areas



# PRODUCTS

## COVERAGE

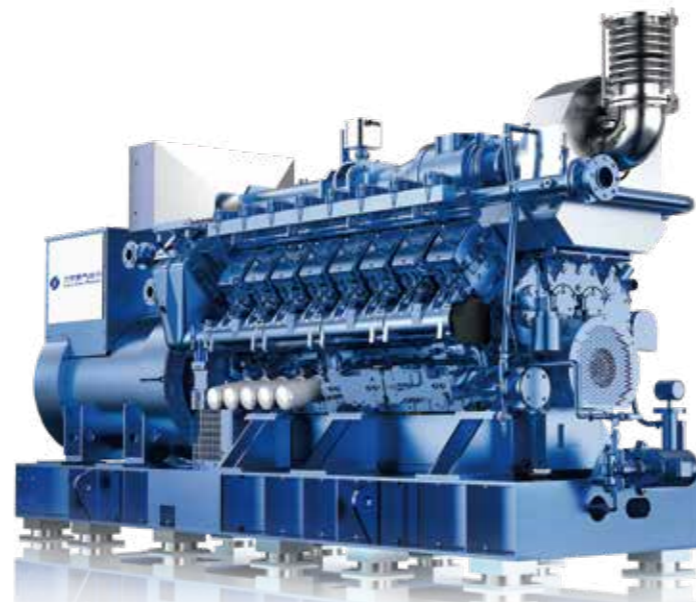
产品覆盖范围

性能卓越 · 稳定可靠

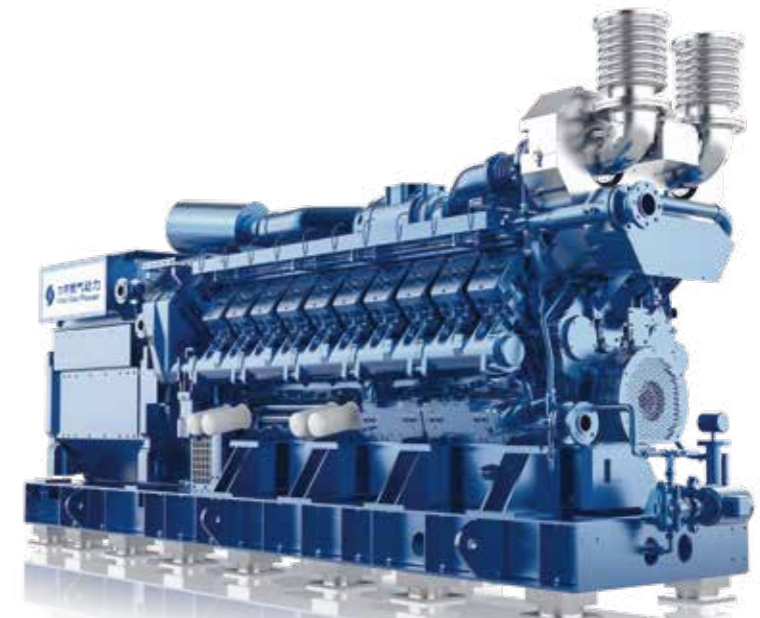
EXCELLENT PERFORMANCE, STABLE AND RELIABLE



LY1200



LY1600



LY2000



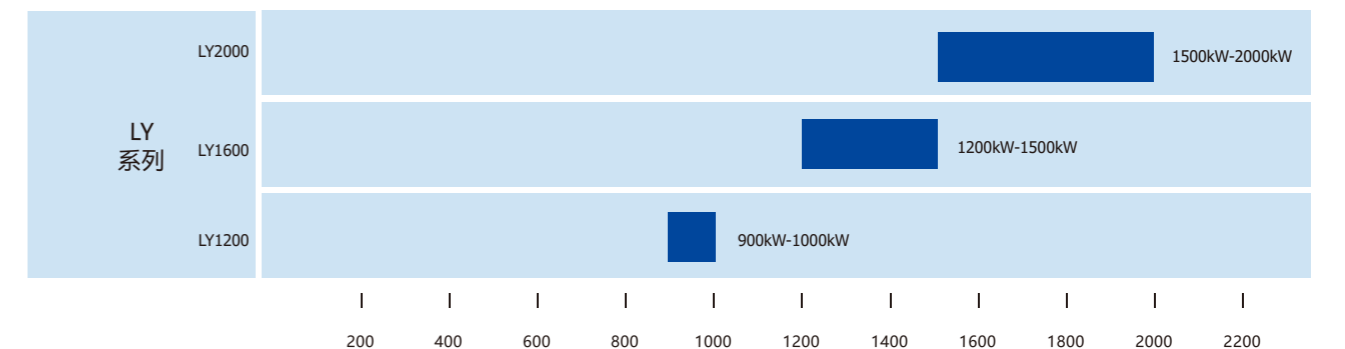
力宇燃气发电机组可广泛应用于天然气、沼气、瓦斯气、生物质气、垃圾填埋气、工业煤气、石油伴生气等燃气发电和能源综合利用领域。

采用国际领先的控制系统、检测系统、保护系统，结合先进的有限元分析技术，确保设备即使在燃气质量变化的情况下也能高效稳定运行。

Liyu gas generator set can be widely used in natural gas, biomass gas, landfill gas, sewage methane, high and low concentration gas, industrial gas ,petroleum associated gas and many other special gas power generation fields.

We adopt international advanced control system, detection system and protection system, combined with advanced finite element analysis technology, to ensure that the equipment can operate efficiently and stably even when the gas quality changes.

功率覆盖900kW-2000kW  
Power Ranged From 900kW To 2000kW



# PRODUCTS

## ADVANTAGES

### 产品优势



## 系列产品

Production Line

LY1200 / LY1600 / LY2000

### High Efficiency 效率高

发电效率41%以上，  
综合利用效率高达87%

The power generation efficiency is more than 41%, and the comprehensive utilization efficiency is more than 87%.

### Low Emission 排放低

$No_x \leq 500mg / Nm^3 (2g/kW \cdot h)$

$No_x \leq 500mg / Nm^3 (2g / kW \cdot h)$ .

### High Reliability 可靠性高

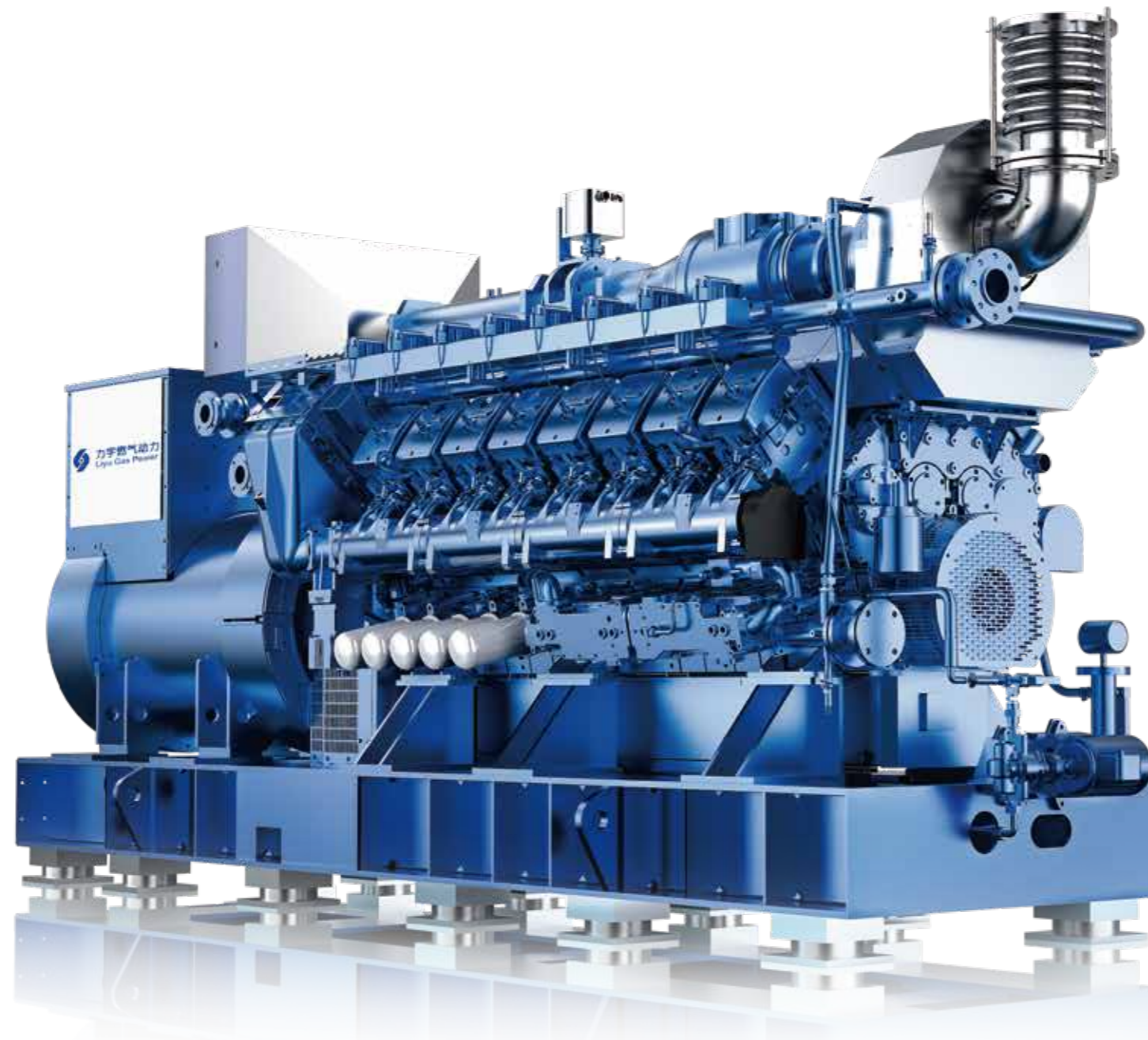
机组大修周期64000小时（天然气），  
机组大修周期48000小时（其他气体）；  
年运行小时高达8000小时

The overhaul period of the unit is 64000 hours(natural gas),The overhaul period of the unit is 48000 hours(other gases); and the annual operation hours are as high as 8000 hours.

### Low Lubricating Oil Consumption 润滑油耗低

润滑油消耗 $\leq 0.2g/kW \cdot h$

Lubricating oil consumption  $\leq 0.2g/kW \cdot h$ .



### Easy Maintenance 维保便捷

专业的维护人员，充足的备件库  
完备的服务体系

Professional maintenance personnel,  
sufficient spare parts warehouse,  
and complete service system.

### High Safety 安全性高

采用多级阻火防爆设计  
先进的爆震控制技术

The multi-level fire-against and anti-explosion design and advanced detonation control technology are employed.

### Compact Structure 结构紧凑

体积小、重量轻  
升功率同类型机组创新高

Small size and light weight  
Increase power with the same  
type of unit to a new high.

### Wide Range Of Applications 应用范围广

广泛应用于天然气、沼气、瓦斯气、生物质气、  
垃圾填埋气、工业煤气、石油伴生气等燃气发电领域

It is used in natural gas, biogas, gas, biomass gas, landfill gas, industrial gas ,petroleum associated gasand other gas power generation fields.

# APPLICATION

## PARAMETERS

### 技术参数



## 技术参数

### TECHNICAL PARAMETERS

发动机型号		单位 Unit	LY1200	LY1600	LY2000
缸数	Cylinders	qty	12	16	20
缸径/行程	Bore / Stroke	mm	170/195	170/195	170/195
排气量	Displacement	dm <sup>3</sup>	53.1	70.8	88.5
转速	Rotating Speed	rpm	1500	1500	1500
平均活塞速度	Mean Piston Speed	m/s	9.75	9.75	9.75
长度 <sup>1)</sup>	Length	mm	5300	6820	7320
宽度 <sup>1)</sup>	Width	mm	1700	1700	1700
高度 <sup>1)</sup>	Height	mm	2300	2615	2615
发电机组净重	Dry Weight Genset	t	13	15	17
润滑油平均消耗	AC Of Lube Oil	g/kW·h	≤0.2	≤0.2	≤0.2

注：对于特殊气体和双燃料气体应用，请另行咨询；本数据资料仅供参考，不作为有约束力的数值。

For special gas and dual fuel gas applications, please consult our staff. The data herein are for reference only and not as binding value.

1) 发电机组交通运输尺寸，单独设置的部件必须单独考虑  
For the transportation size of genset, the components set separately must be considered separately

### LY1200 -技术参数

No<sub>x</sub> ≤ 500mg/Nm<sup>3</sup> 2)

应用领域 Application area		单位 Unit	天然气应用 Natural gas application 50Hz	石油伴生气应用 Petroleum associated gas application 50Hz	低浓瓦斯应用 Low-concentration gas application 50Hz	沼气应用 Biogas application 50Hz	工业煤气应用 Industrial gas application 50Hz
发电机组型号	Genset Model		LY1200GH/L-T	LY1200GH/L-TS	LY1200GH/L-WL	LY1200GH/L-Z	LY1200GH/L-M
发电功率 <sup>3)</sup> ±10%	Electrical Power	kW	1000	1000	1000	1000	900
燃料消耗	Fuel Consumption	kW	2683	2683	2500	2716	2368
发电效率 <sup>4)</sup>	Electrical Efficiency	%	41.0	41.0	40.0	40.5	38.0
热效率	Thermal Efficiency	%	45.1	45.1	46.1	44.6	46.7
总效率	Total Efficiency	%	86.1	86.1	86.1	85.1	84.7

### LY1600 -技术参数

No<sub>x</sub> ≤ 500mg/Nm<sup>3</sup> 2)

应用领域 Application area		单位 Unit	天然气应用 Natural gas application 50Hz	石油伴生气应用 Petroleum associated gas application 50Hz	低浓瓦斯应用 Low-concentration gas application 50Hz	沼气应用 Biogas application 50Hz	工业煤气应用 Industrial gas application 50Hz
发电机组型号	Genset Model		LY1600GH/L-T	LY1600GH/L-TS	LY1600GH/L-WL	LY1600GH/L-Z	LY1600GH/L-M
发电功率 <sup>3)</sup> ±10%	Electrical Power	kW	1500	1500	1460	1500	1200
燃料消耗	Fuel Consumption	kW	3631	3631	3632	3685	3149
发电效率 <sup>4)</sup>	Electrical Efficiency	%	41.3	41.3	40.2	40.7	40.0
热效率	Thermal Efficiency	%	44.9	44.9	45.6	44.5	44.6
总效率	Total Efficiency	%	86.2	86.2	85.8	85.2	84.6

### LY2000 -技术参数

No<sub>x</sub> ≤ 500mg/Nm<sup>3</sup> 2)

应用领域 Application area		单位 Unit	天然气应用 Natural gas application 50Hz	石油伴生气应用 Petroleum associated gas application 50Hz	低浓瓦斯应用 Low-concentration gas application 50Hz	沼气应用 Biogas application 50Hz	工业煤气应用 Industrial gas application 50Hz
发电机组型号	Genset Model		LY2000GH/L-T	LY2000GH/L-TS	LY2000GH/L-WL	LY2000GH/L-Z	LY2000GH/L-M
发电功率 <sup>3)</sup> ±10%	Electrical Power	kW	2000	2000	2000	2000	1500
燃料消耗	Fuel Consumption	kW	4820	4820	4963	4890	3923
发电效率 <sup>4)</sup>	Electrical Efficiency	%	41.6	41.6	40.3	40.9	40.1
热效率	Thermal Efficiency	%	45.4	44.8	46.1	44.6	44.6
总效率	Total Efficiency	%	87.0	86.4	86.4	85.5	84.7

• 污水处理沼气 (65%CH<sub>4</sub>/35%CO<sub>2</sub>)  
Sewage Treatment Biogas (65%CH<sub>4</sub>/35%CO<sub>2</sub>)

• 生物质沼气 (60%CH<sub>4</sub>/32%CO<sub>2</sub>, 其余为N<sub>2</sub>)  
Biomass gas (60%CH<sub>4</sub>/32%CO<sub>2</sub>, the rest are N<sub>2</sub>)

• 垃圾填埋沼气 (50%CH<sub>4</sub>/27%CO<sub>2</sub>, 其余为N<sub>2</sub>)  
Landfill gas (50%CH<sub>4</sub>/27%CO<sub>2</sub>, the rest are N<sub>2</sub>)

• 工业煤气 (75%CO, 6%H<sub>2</sub>, 3%CH<sub>4</sub>, 9%CO<sub>2</sub>, 其余N<sub>2</sub>)  
Industrial gas (75%CO, 6%H<sub>2</sub>, 3%CH<sub>4</sub>, 9%CO<sub>2</sub>, the rest are N<sub>2</sub>)

2) NO<sub>x</sub>排放: NO<sub>x</sub> ≤ 500mg NO<sub>x</sub>/Nm<sup>3</sup>干燥排气在5% O<sub>2</sub>中的含量  
NO<sub>x</sub> emission: NO<sub>x</sub> ≤ 500mg NO<sub>x</sub>/Nm<sup>3</sup>(Content of dry exhaust gas in 5% O<sub>2</sub>)

3) 参照ISO8525-1, 50Hz发电机U=10kV, Cosphi=1.0, 天然气甲烷值最小为MN70  
Refers to ISO8525-1, 50Hz Generator U=10kV, Cosphi=1.0, the minimum methane number of natural gas is MN70

4) 参照ISO3046/1, 50Hz发电机U=10kV, Cosphi=1.0, 天然气甲烷值最小为MN70  
Refers to ISO3046/1, 50Hz Generator U=10kV, Cosphi=1.0, the minimum methane number of natural gas is MN70

注：气质、气压、热值以及运行环境、人员操作水准等因素将影响机组的最终输出。  
Note: Factors such as temperment, air pressure, calorific value, operating environment, and personnel operation level will affect the final output of the unit.

# APPLICATION

## AREAS

### 应用领域

广泛应用于天然气、沼气、瓦斯气、生物质气、垃圾填埋气、工业煤气、石油伴生气等燃气发电和能源综合利用领域

It can be widely used in natural gas, biogas, gas, biomass gas, landfill gas, industrial gas, petroleum associated gas, and other gas power generation & energy comprehensive utilization field.



# CLASSIC CASES

## 经典案例

### LIYU GAS POWER

MULTI-GAS SOURCE POWER GENERATION  
SYSTEM SOLUTIONS PROVIDER

业绩总览  
Performance Overview

工业煤气领域应用  
Application Of Industrial Gas

瓦斯气领域应用  
Application Of Coal-bed Methane (Gas)

天然气领域应用  
Application Of Natural Gas

沼气领域应用  
Application Of Biogas

生物质裂解气领域应用  
Application Of Biomass Cracking Gas

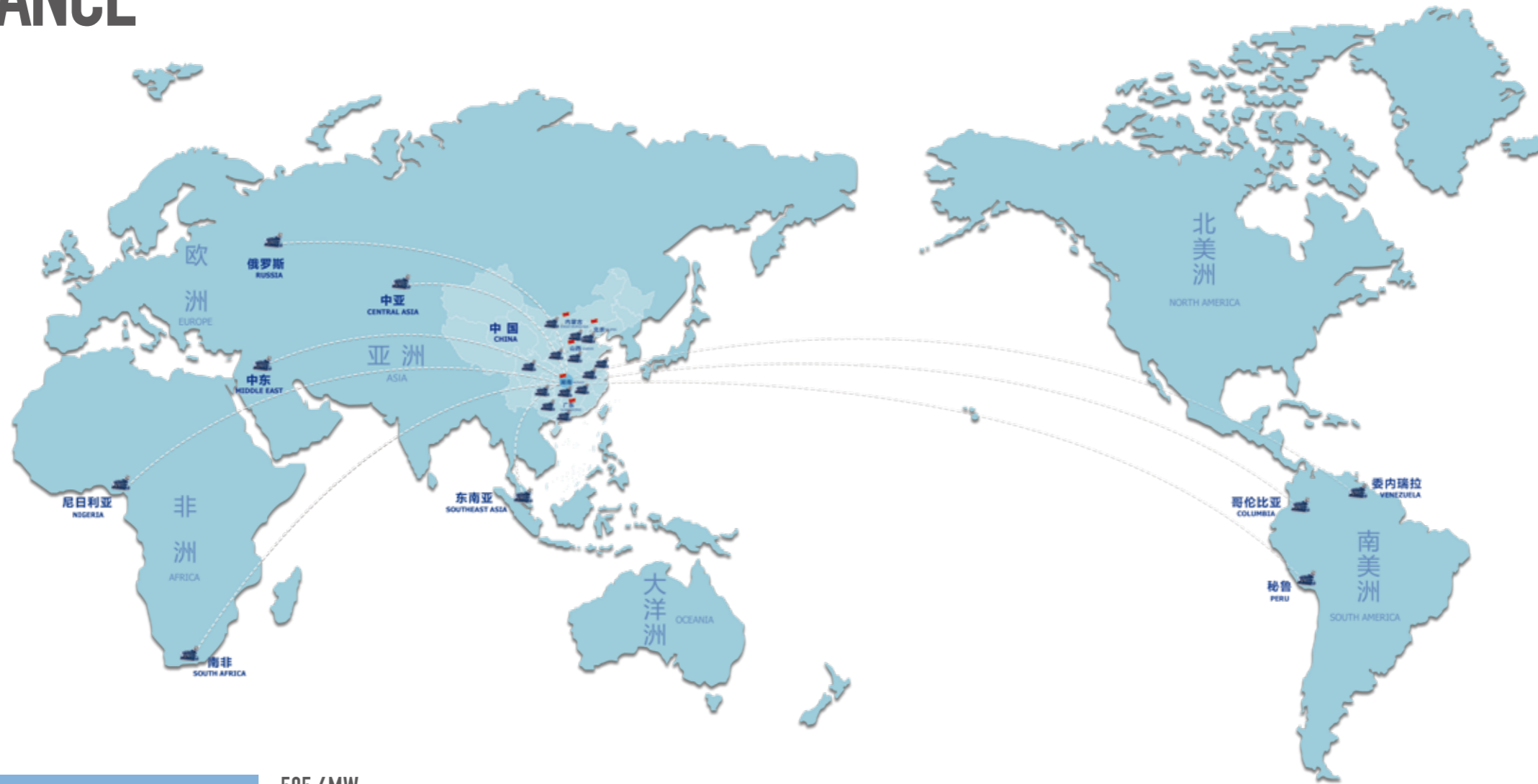


力宇燃气动力  
Liyu Gas Power

# PERFORMANCE

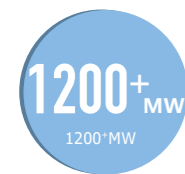
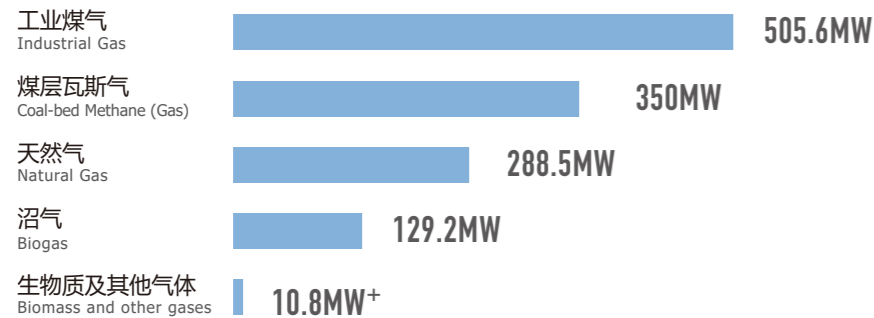
## OVERVIEW

### 业绩总览



#### 业绩表

Performance Table



Installed Capacity  
装机规模



Power Supply  
提供电力



Create Benefits  
创造效益



Reduce Carbon Dioxide  
减少二氧化碳

力宇燃气发电系统集成解决方案服务案例遍布全球，应用于煤层气（瓦斯）、生物质气、天然气、沼气、工业煤气、石油伴生气等燃气发电领域。

截至2024年1月，公司投入商业运用及在建项目总装机容量超过1200MW。

每年向社会提供近88亿度绿色电力，每年减少二氧化碳排放约1039万吨以上，创造节能减排效益约55亿元人民币。

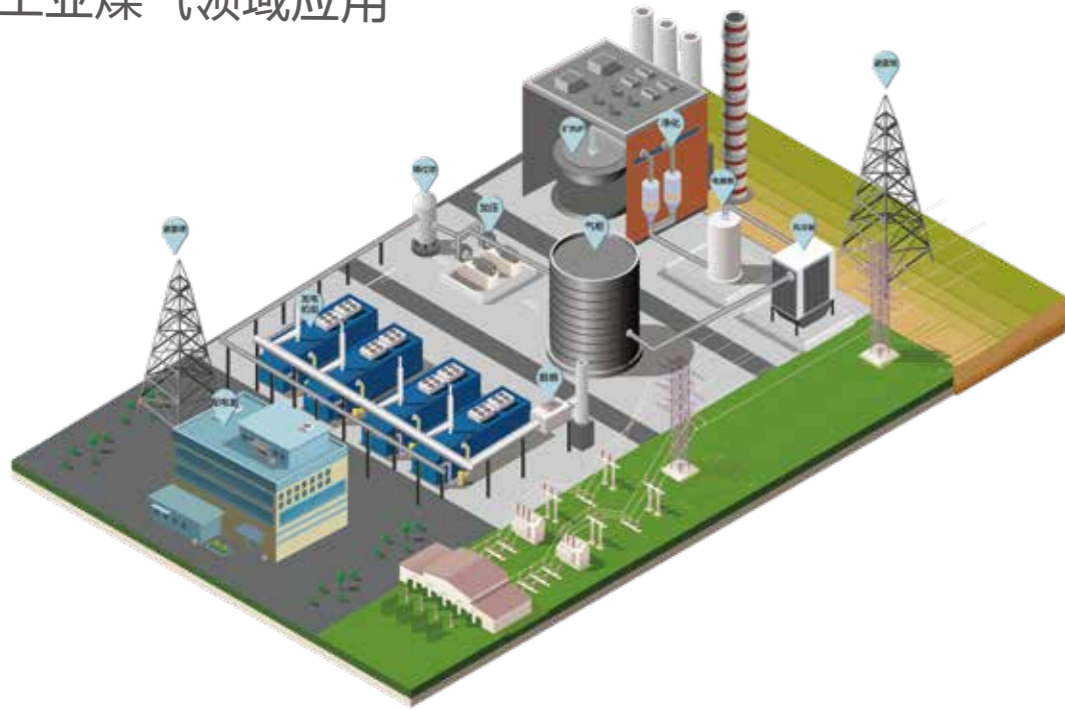
The service cases of Liyu gas power generation system integration solutions are distributed worldwide, and are widely used in coal bed methane (gas), biomass gas, natural gas, petroleum associated gas and other gas power generation fields.

Until January 2024, the total installed capacity of Liyu units put into commercial use and under construction projects has exceeded 1200MW.

We provides nearly 8,80 billion degrees of green electricity to the society every year, reduce carbon dioxide emissions by over 10,39 million tons annually, and create benefits of energy conservation and emission reduction about 5,50 billion yuan.

# APPLICATION OF INDUSTRIAL GAS

## 工业煤气领域应用

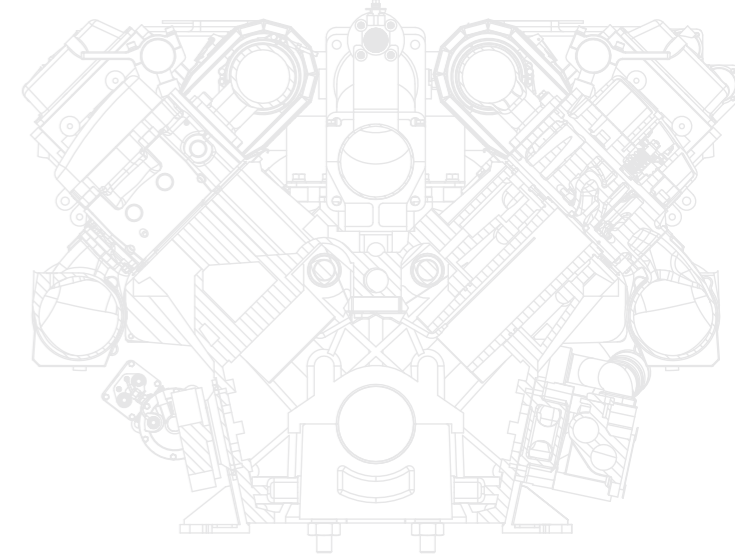


## 工业煤气应用工艺流程说明

工业煤气经脱硫、除尘、除水、冷却（必要时增压）、电捕焦等预处理后作为力宇燃气发动机的燃料做功，由燃气发动机带动发电机发电，发动机尾气在必要时需脱硝处理以达到氮氧化物排放标准。多台燃气发电机组可集成为单个发电单元，单个发电单元为一个小型能源站，接入工业煤气即可发电。众多小型能源站可组合为较大的燃气发电厂，且能更好地适应不同产能需求的工况，灵活调整控制发电单元的使用率，始终保持效率最优的运行状态，为企业持续高效提供生产、生活用电的同时解决其冶炼炉煤气带来的环保问题。

### Industrial Gas Application Process Explanation

Industrial gas is pretreated by desulfurization, dust removal, water removal and cooling (pressurization if necessary), electric detarring and other pretreatments as fuel for Liyu gas engines. The gas engine drives the generator to generate electricity. The engine exhaust needs to be denitrified when necessary to achieve nitrogen oxide emission standard. Multiple gas generator sets can be integrated into a single power generation unit, and a single power generation unit is a small power station, which can generate electricity when connected to industrial gas. Many small power stations can be combined into larger gas-fired power plants, and can better adapt to the working conditions of different production capacity needs, flexibly adjust and control the utilization rate of power generation units, and always maintain the optimal operating state of efficiency, so as to provide continuous and efficient production and living electricity for the enterprise while solving the environmental problems caused by its smelting furnace gas.



## 科翰公司工业煤气发电项目

【国家节能中心示范项目】

该项目位于内蒙古丰镇市，力宇为其提供12台×1.2MW工业煤气发电机组，项目完工后预计年发电量可达1.2亿度，所发电量全部供内蒙古科翰公司使用，可节约标准煤3.68万吨/年，减排二氧化碳13.52万吨/年。

### Kehan Industrial Gas Power Generation Project

The project is located in Fengzhen City, Inner Mongolia Autonomous Region. Liyu will provide 12 sets of 1.2MW industrial gas generator units for the project. After completion, the project is expected to generate an annual electricity output of 120 million kilowatt-hours. All the electricity generated will be used by Inner Mongolia Hanken Metallurgical Company. The project is estimated to save 39,300 tons of standard coal and reduce CO2 emissions by 119,600 tons per year.

**12X1.2MW**  
Installed Capacity  
装机规模



## 内蒙古瑞濠66MW工业煤气发电项目(一期)

该项目位于内蒙古丰镇市，项目一期力宇为其提供22台×1.5MW工业煤气发电机组，该电厂一期投产后预计年发电量约2.64亿度，所发电量供业主公司生产用电消耗，可节约标准煤8.44万吨/年，减排二氧化碳31万吨/年。

### Inner Mongolia Ruihao 66MW Industrial Gas Power Generation Project (Phase 1)

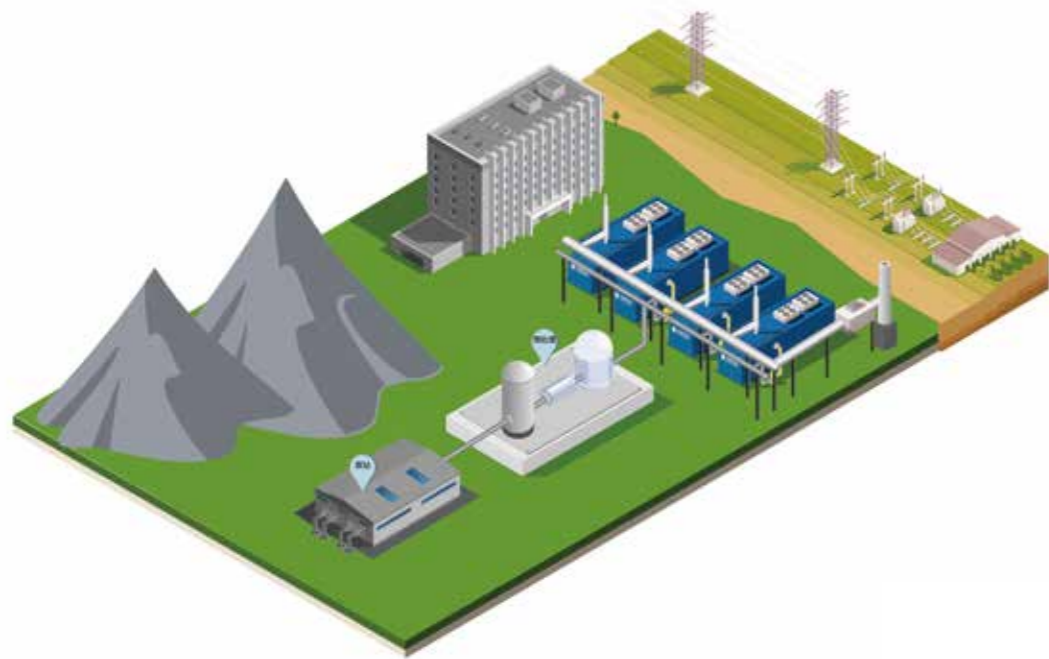
The project is located in Fengzhen City, Inner Mongolia Autonomous Region. In Phase 1 of the project, Liyu will provide 22 sets of 1.5MW industrial gas generator units. After the commissioning of the power plant in Phase 1, it is estimated to generate an annual electricity output of approximately 264 million kilowatt-hours. The electricity generated will be used for the consumption of the owner company's production. The project is expected to save 84,400 tons of standard coal and reduce CO2 emissions by 310,000 tons per year.

**22X1.5MW**  
Installed Capacity  
装机规模



# APPLICATION OF COAL-BED METHANE (GAS)

瓦斯气领域应用



## 瓦斯气应用工艺流程说明

瓦斯气经脱水、除尘、升压、稳压等预处理流程后输送入力宇瓦斯气专用发电机组作为燃料运行，推动活塞做功，由燃气发动机带动发电机发电，产生的热能用作余热供暖。

一般来说，大部分的煤矿都具有一定的煤矿瓦斯和废弃矿井甲烷，可将其有效用于燃气发动机进行发电和供热。大力进行煤矿瓦斯发电利用，可以节能减排、变害为利，降低煤矿安全事故、减少温室气体排放，形成良好的经济、环保和社会综合效益。

### Gas Utilization Process Explanation

After undergoing processes such as dehydration, dust removal, boosting, and pressure stabilization, the gas is transported to Liyu's specialized gas power generator sets to serve as fuel. The gas powers the pistons in the gas engines, which in turn drive the generators to produce electricity. The generated thermal energy can be utilized for waste heat heating. In general, most coal mines have a certain amount of coal mine gas and abandoned mine methane. These gases can be effectively utilized for power generation and heating using gas engines. By promoting the utilization of coal mine gas for power generation, energy conservation and emission reduction can be achieved, turning hazards into benefits. This practice helps reduce coal mine safety accidents, minimize greenhouse gas emissions, and generate positive economic, environmental, and social benefits.

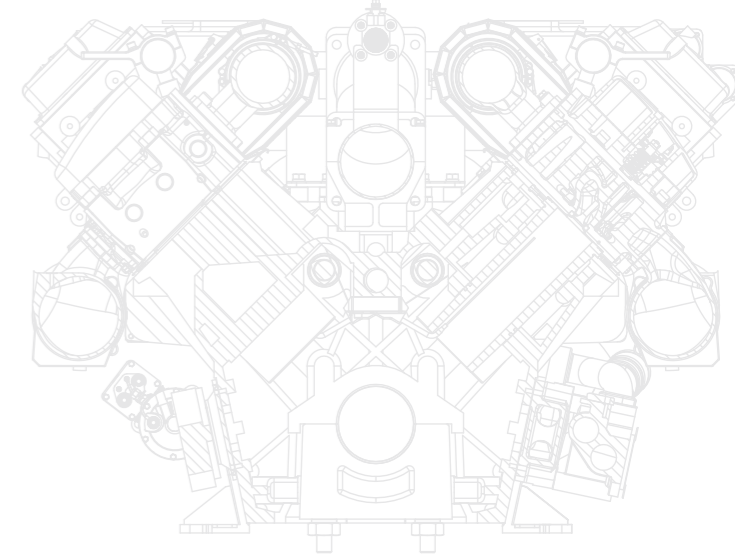
## 上社低浓瓦斯发电项目

【国家重点节能技术应用典型案例】

项目位于山西孟县，利用上社煤矿、上社二景的瓦斯建设一座瓦斯发电厂，充分合理利用浓度低于8%的矿井瓦斯进行发电。项目投入15台×1MW低浓瓦斯发电机组和15台×1.1MW高浓瓦斯发电机组，总投资约3.778亿元，年发电可达2.52亿度，年可节约标煤8.06万吨，年减排二氧化碳29.59万吨。所发电量并入国家电网，产生的余热为上社煤矿提供冬季供暖等生活及生产所需。

### Yuxian County Shangshe Gas Power Generation Project

The project is located in Yuxian county, Shanxi Province. It builds a gas power plant using gas from Shangshe Coal Mine and ShangsheErjing coal mine, and fully utilizes mine gas with a concentration lower than 8% to generate electricity. The project will invest 15 sets of 1MW low-concentration gas generator sets and 15 sets of 1.1MW high-concentration gas generator sets, with a total investment of about 377.8 million yuan, annual power generation of 252 million kilowatt hour, and annual savings of 80,600 tons of standard coal. annual carbon dioxide reduction 295,900 tons. The amount of electricity generated is integrated into the national grid, and the waste heat generated provides the living and production needs for winter heating in Shangshe Coal Mine.



15X1MW

+  
15X1.1MW

Installed Capacity  
装机规模



## 小回沟煤矿低浓度瓦斯发电项目

该项目位于山西省清徐县马峪乡小回沟煤矿，力宇为其提供10台×1MW低浓瓦斯发电机组，电厂投产后年发电量约0.8亿度，所发电量并入国家电网，可节约标准煤2.56万吨/年，减排二氧化碳9.39万吨/年。

### Xiaohuigou Coal Mine Low-Concentration Methane Power Generation Project

The project is located in Xiaohuigou Coal Mine, Mayu Township, Qingxu County, Shanxi Province. Liyu will provide 10 sets of 1MW low-concentration methane engines for the project. After the power plant is commissioned, it is estimated to generate an annual electricity output of approximately 80 million kilowatt-hours. The electricity generated will be integrated into the national grid. The project is expected to save 25,600 tons of standard coal and reduce CO2 emissions by 93,900 tons per year.

10X1MW

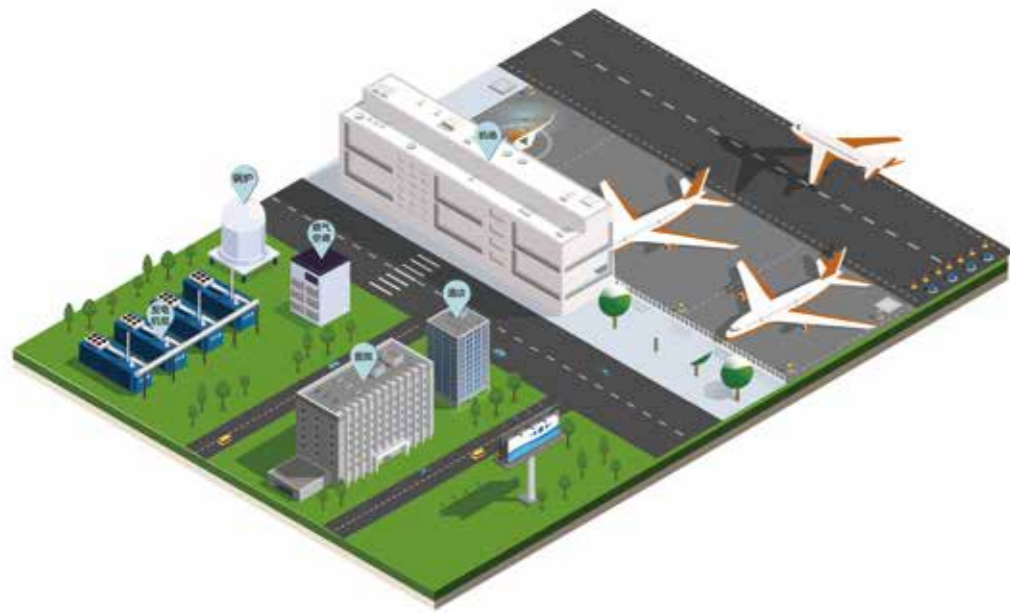
Installed Capacity  
装机规模





# APPLICATION OF NATURAL GAS

## 天然气领域应用



## 天然气应用工艺流程说明

天然气作为目前最清洁高效的可燃气体，可直接通过天然气管道接入燃气发动机作为燃料做功，带动发电机发电，产生电能可用于生产、生活用电，同时所产生的热能可通过热交换装置生产用于满足现场热负荷等，还可以通过溴化锂机组满足空调制冷需求，实现冷、热、电三联供（CCHP），获得高经济效益。

天然气发电应用能够有效利用天然气的能量，同时也能够减少能源浪费，显著降低二氧化碳等温室气体的排放，有助于推动能源结构调整和可持续发展。

### Natural Gas Utilization Process Explanation

Natural gas as the current cleanest and most efficient combustible gas, can be directly supplied to gas engines as fuel through natural gas pipelines. The gas engines drive generators to produce electricity, which can be used for various purposes such as industrial and domestic power supply. The thermal energy generated can be utilized through heat exchange devices to meet on-site heat loads. Additionally, it can also be used for air conditioning or refrigeration purposes through lithium bromide unit to achieve combined Cooling, Heating, and Power (CCHP) systems, thereby obtaining high economic benefits.

The application of natural gas for power generation enables the efficient utilization of its energy while reducing energy waste. It significant reduce the emission of greenhouse gases such as carbon dioxide, thus promoting energy structure adjustments and sustainable development.

## 长沙黄花国际机场分布式能源站

项目位于长沙黄花国际机场T2航站楼，是湖南省第一个分布式能源项目，力宇为其提供了1台1.1MW天然气发电机组。年发电量约880万度，所发电量供航站楼使用，可节约标准煤2816吨/年，减排二氧化碳1.03万吨/年。

### Changsha Huanghua International Airport Distributed Energy Station

The project is located at Terminal 2 of Changsha Huanghua International Airport and is the first distributed energy project in Hunan Province. Liyu has provided a 1.1MW natural gas generator set for the project. The annual electricity generation is approximately 8.8 million kilowatt-hours, which will be used to power the terminal building. The project is expected to save 2,816 tons of standard coal and reduce CO2 emissions by 10,300 tons per year.

**1X1.1MW**

Installed Capacity  
装机规模



## 融程花园酒店分布式能源站项目

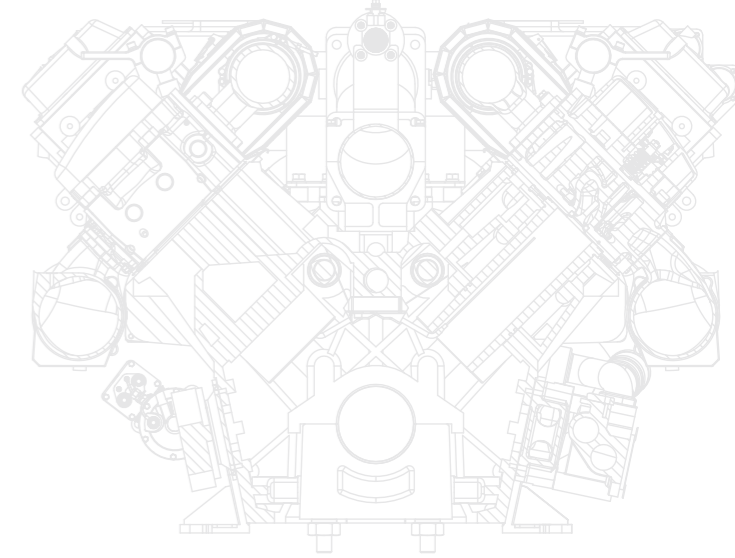
项目位于长沙湘府路融程花园酒店地下室，力宇为其提供3台×1.1MW燃气内燃发电机组，项目投入运营后，年发电量约0.26亿度，所发电量供酒店使用，年可节约标煤8448吨，年平均能源综合利用率可达85%。

### Rongcheng Garden Hotel Distributed Energy Station Project

The project is located in the basement of Rongcheng Garden Hotel on Xiangfu Road, Changsha. Liyu has provided three sets of 1.1MW gas-fired internal combustion generator units for the project. After the project is put into operation, the annual electricity generation is approximately 26 million kilowatt-hours, which will be used by the hotel. The project is expected to save 8,448 tons of standard coal annually, and achieve an average energy utilization rate of 85% per year.

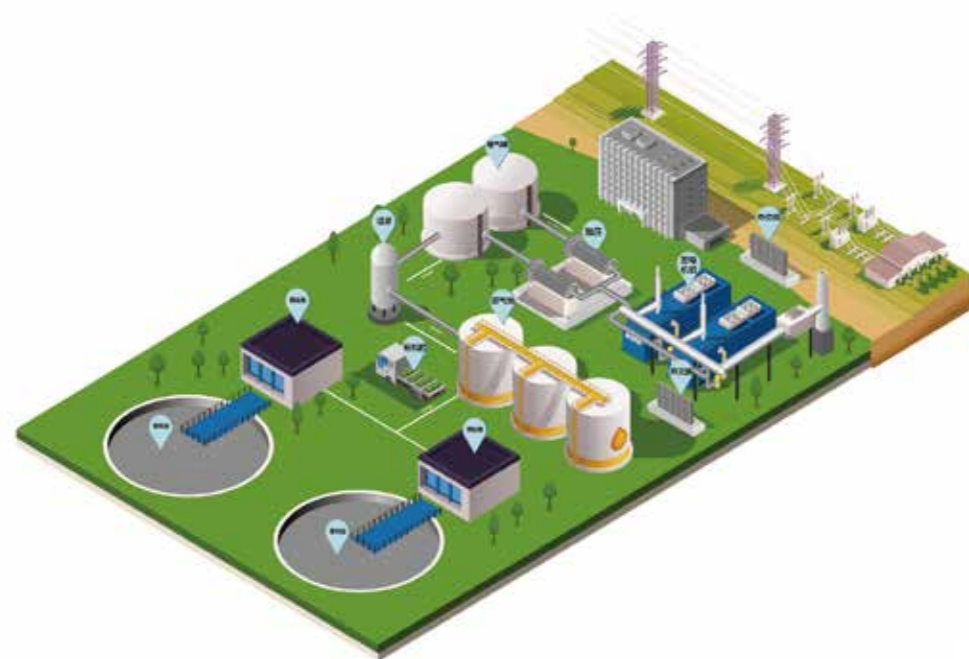
**3X1.1MW**

Installed Capacity  
装机规模



# APPLICATION OF BIOGAS

## 沼气领域应用



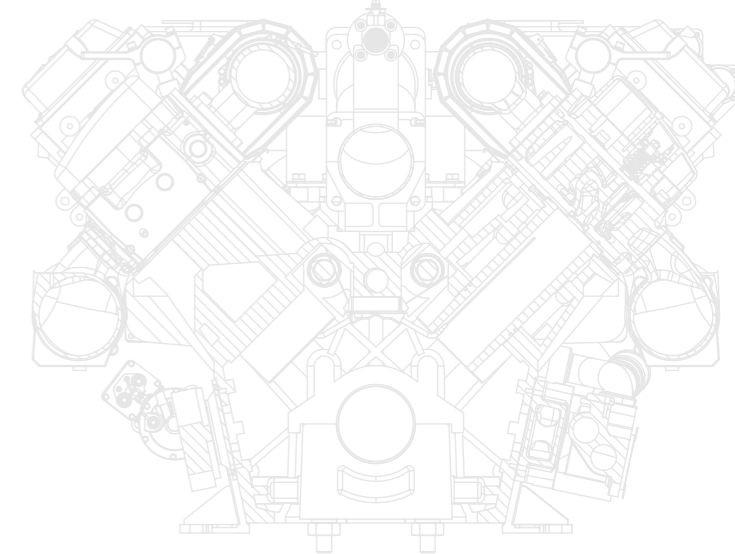
## 沼气应用工艺流程说明

先将有机物质收集起来形成原料池，经预处理后输送至发酵罐里，从中生成的沼气经脱硫后统一被收集在储气罐内，而后沼气经脱水、除尘、加压流程被输入到力宇燃气内燃机组内，产生的电能既可以供业主工厂自用，也可以选择输送至公共电网，而同步产生的热能可用于抵消处理设备自身的热量需求或向其它设施供热。

以沼气为燃料的燃气发电机组是有机物质资源化利用的有效路径，力宇沼气发电机组能够有效耐受垃圾填埋气中常见的杂质，能改善废气管理，解决废气处理及排放的难题，使经济供能的利用达到最大化。

### Biogas Utilization Process Explanation

The process of utilizing biogas starts with the collection of organic materials, which are then accumulated in a raw material pool. After undergoing pre-treatment, the organic materials are transferred to a fermentation tank where biogas is generated. The produced biogas is collected in a gas storage tank after desulfurization. The biogas is then subjected to dehydration, dust removal, and pressurization processes before being inputted into Liyu's gas engines. The generated electricity can be used for self-consumption by the facility or can be fed into the public grid. The simultaneous production of heat can be utilized to meet the heat requirements of the processing equipment or for providing heat to other facilities. Utilizing biogas as a fuel in gas engine generator sets represents an effective approach for the resource utilization of organic matter. Liyu employs high-quality engine components that can effectively withstand common impurities found in landfill gas, thereby improving exhaust gas management and addressing the challenges of exhaust gas treatment and emissions. This ensures the maximization of energy utilization for economic purposes.



## 贵阳比例坝垃圾填埋气发电项目

项目位于贵阳市白云区，力宇为其提供7台X1.5MW+3台x1MW沼气发电机组。项目投入运营后年发电量约1.08亿度，所发电量全部接入贵阳电网，可节约标准煤3.45万吨/年，减排二氧化碳12.68万吨/年。

### Guiyang Biliba Landfill Gas Power Generation Project

The project is located in Baiyun District, Guiyang City. Liyu has provided seven units of 1.5MW and three units of 1MW biogas power generation units for the project. After the project is put into operation, the annual electricity generation is approximately 108 million kilowatt-hours, which will be integrated into the Guiyang power grid. The project is expected to save 34,500 tons of standard coal annually and reduce carbon dioxide emissions by 126,800 tons per year.

7X1.5MW

+

3X1MW

Installed Capacity  
装机规模



## 江门污水处理厂沼气发电项目

项目位于江门仁科污水处理厂内，力宇为其提供了1台x1MW沼气高压发电机组。项目投入运营后年发电量约800万度，所发电量供厂区自用，可节约标准煤2560吨/年，减排二氧化碳9395吨/年。

### Jiangmen Sewage Treatment Biogas Power Generation Project

The project is located in Jiangmen Renke Sewage Treatment Plant, and Liyu provided it with 1 x1MW biogas high-pressure generator set. After the project is put into operation, the annual power generation is about 8 million kilowatt hour, and the generated power is for the plant's own use, which can save 2,560 tons of standard coal per year and reduce carbon dioxide emissions by 9,395 tons per year.

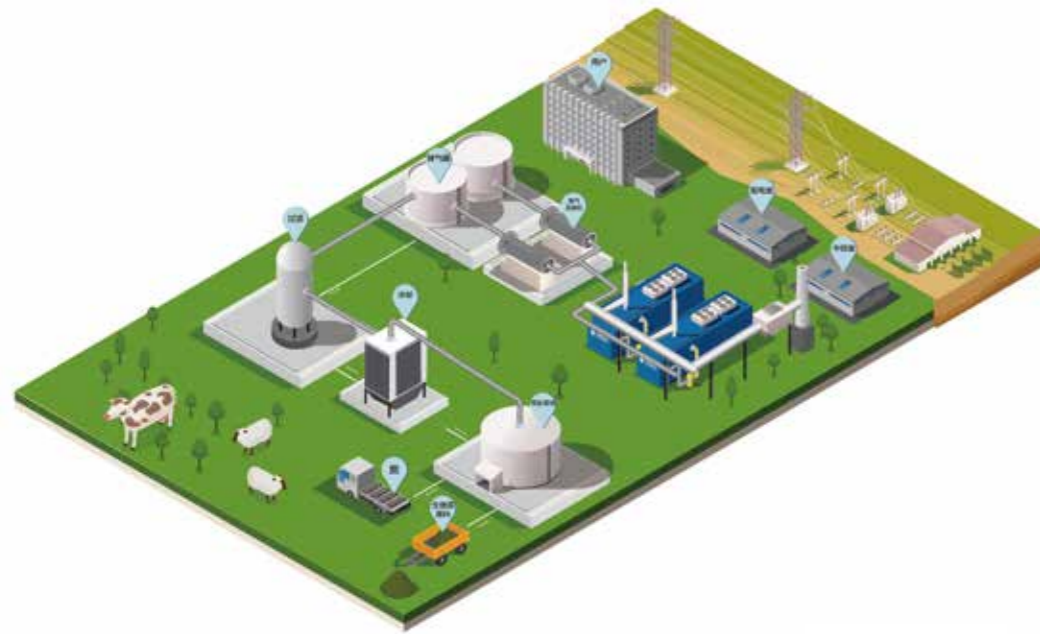
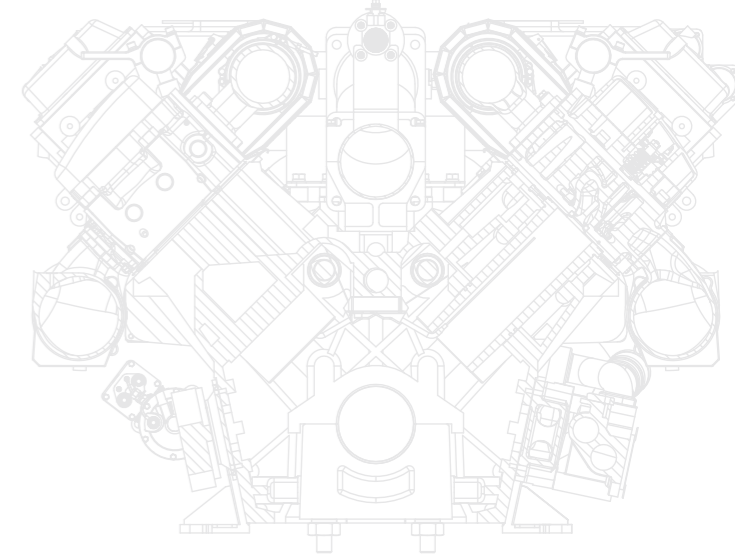
1X1MW

Installed Capacity  
装机规模



# APPLICATION OF BIOMASS CRACKING GAS

生物质裂解气领域应用



## 生物质裂解气应用工艺流程说明

将木屑、秸秆等生物质原料收集到预处理池经催化热分解从而产生出以甲烷为主要成分的生物质气，再经燃气冷却、净化等工艺获得高质量的生物质气输送至储气罐，通过加压流程输送进入力宇燃气内燃机缸内燃烧做功带动发电机进行发电。

高温裂解所产生的炭基肥还田可用于农业种植，发电机组尾气可循环利用与前端工艺所需的余热利用，解决了有机固体废物处理问题，形成了能源再生的良性利用循环。

### Biomass Cracking Gas Utilization Process Explanation

The process begins by collecting biomass raw materials such as wood chips and straw and feeding them into a pre-treatment tank for catalytic thermal decomposition. This process produces biomass gas primarily composed of methane. The generated biomass gas then undergoes gas cooling and purification processes to obtain high-quality biomass gas, which is then transported to storage tanks. Through a pressurization process, the biomass gas is delivered into Liyu's gas engines for combustion in the cylinders, driving the generators to produce electricity.

The char-based fertilizer generated from high-temperature pyrolysis can be used for agricultural purposes such as field fertilization. The exhaust gases from the generator sets can be recycled and utilized for waste heat recovery in the front-end processes. This process effectively addresses the disposal of organic solid waste and creates a sustainable cycle of energy regeneration.

## 成都生物质裂解气发电项目

该项目位于成都，装机量为1台LY1200生物质气发电机组，使用无焦油生物质气燃气燃料，在低位热值为1200kcal/m<sup>3</sup>时，机组功率800kW。

Chengdu Biomass Cracking Gas Power Generation Project

The project is located in Chengdu, with a installed capacity of LY1200GH-S biomass gas generator set. It uses tar-free biomass gas fuel. When the low heat value is 1200kcal/m<sup>3</sup>, the unit power is 800 kW.

**1X0.8MW**

Installed Capacity  
装机规模



# COMPANY ADVANTAGES

公司优势

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LIYU GAS POWER

MULTI-GAS SOURCE POWER GENERATION  
SYSTEM SOLUTIONS PROVIDER

荣誉资质

Honor And Qualification

服务优势

Advantages Of Service

# HONOR AND QUALIFICATION

## 荣誉资质

2023年获得  
国家高新技术企业认定

In 2023, obtained the recognition as a national high-tech enterprise.



2022年入选  
国家重点节能技术应用典型案例

In 2022, selected as a typical case for the application of key energy-saving technologies by the national government.



2022年获得  
中国节能协会会员证书

In 2022, obtained the membership certificate of the China Energy Conservation Association (CECA).



2021年获得  
中国国际商会常务理事单位

In 2021, became an executive council member of the China Chamber of International Commerce (CCOIC).



2016年荣获  
科技成果研发证书

In 2016, Received the R&D certificate for scientific and technological achievements



2016年荣获  
长沙市科学技术进步奖

In 2016, Received the Changsha Science and Technology Progress Award



2015年荣获  
工业和信息化部科学技术成果登记证书

In 2015, Received the Science and Technology Achievement Registration Certificate from the Ministry of Industry and Information Technology



2014年获得  
长沙市燃气综合利用工程技术研究中心认定

In 2014, Recognized by Changsha Gas Comprehensive Utilization Engineering Technology Research Center



荣获ISO 9001质量管理体系认证证书  
Received ISO 9001 Quality Management System Certification



专利证书  
Patent Certificates

有效授权专利73项，其中发明专利12项，软件著作权14项。

Totally 73 validly authorized patents, including 12 invention patents and 14 software copyright.

# SERVICE ADVANTAGES

## 服务优势

一体化服务模式，  
为您提供系统化能源解决方案。

Integrated service mode to provide you with systematic energy solutions.

力宇营销体系以技术为先导，建立集国内外优势科技资源、深谙客户需求的专业技术团队，全面覆盖售前、售中和售后各个项目阶段；

从前期的可行性研究，到方案设计、设备采购、施工、合同验收至投入使用，全方位一站式综合服务，完全满足客户所有需求。

Liyu marketing department is established with a professional technical team whom has superior global technological resources and can deep understanding of customer needs, therefore we can cover all project stages include pre-sales, sales and after sales;

All-round one stop comprehensive service could fully satisfy all needs of our customer from the first beginning feasibility research to project design, equipment procurement, construction, project acceptance to the final operation.



7×24×365在线  
7×24×365 Online.



产品、服务、备件类咨询立即解决

Instant reply to consultant on products, services and spare parts.



销售咨询：24小时解决

Consultant on sales: reply within 24 hours.



投诉建议：24小时内升级

Complaint & Suggestion: upgrade within 24 hours.



现场服务：  
24小时完成一般故障  
72小时完成重大故障

On-site Service:

General Failure To Be Solved Within 24 Hours,  
Major Failure To Be Solved Within 72 Hours.



### 前期阶段

Early Stage

项目建议书  
Project Proposal

·  
可研报告  
Feasibility Study Report



### 实施阶段

Implementation Stage

方案规划  
Programme Planning

·  
初步设计  
Preliminary Design

·  
设备供应  
Equipment supply

·  
详细设计  
Detailed Design

·  
施工  
Construction

·  
工程交接  
Project Handover



### 验收阶段

Acceptance Stage

合同验收  
Contract Acceptance

·  
竣工验收  
Completion Acceptance

·  
调试验收  
Commissioning Acceptance



### 售后阶段

After Sales Stage

零件供应  
Parts Supply

·  
售后服务  
After-sales Service

·  
运营管理  
Operation Management

·  
技术培训  
Technical Training