





MAINLAND
UTILITY
BUSINESSES

Caring for Future Generations



We invest in the gas infrastructure that enables our customers in mainland China to enjoy a reliable supply of clean energy in their homes and businesses. With the establishment of our wholly-owned subsidiary, Hua Yan Water, we are not only engaged in the provision of clean water resources including water supply and wastewater treatment services, but also expanding into new ventures such as converting food waste into energy that will power communities for our future generations.

MAINLAND UTILITY BUSINESSES

Clean Energy for Mainland China

In 2018, we operated 131 city-gas projects in 23 provinces, autonomous regions and municipalities across the country. The number of customers served during the year exceeded 27 million, or 9 per cent more than the year before.

Our business performance during the year was satisfactory. The growth in city-gas sales was particularly strong, with an increase of 18 per cent over the previous year, to reach a total volume of gas sales of about 23,000 million cubic metres.

The increase in gas sales volume can be mainly attributed to the Chinese government's natural gas utilisation policy, which is accelerating the pace of coal-to-gas conversion. Other key factors influencing the rise in gas sales included cooler weather during the 2017-2018 winter and changing consumer habits, especially with regard to the fast-growing demand for space heating in the regions north of the Yangtze River.

Since 1994, we have been providing clean-burning gas and related products and services that help to create greater value and a greener future for our customers throughout mainland China.



Official opening of our underground salt-cavern gas storage facility in Jintan, Changzhou, Jiangsu province, which began operating in October 2018.

The industrial sectors performed particularly well as many businesses have been converting their boilers and furnaces from coal to natural gas. In the commercial sector, we were able to acquire more than 18,200 new customers during the year, mainly in the restaurant sector, as we stepped up our efforts to promote the safety of piped natural gas versus bottled liquefied petroleum gas.

We see room for further growth in this market as natural gas is still a relatively new fuel in mainland China, where it accounts for about 8 per cent of the total energy consumption currently. The consumption of natural gas should continue to increase to 360 billion cubic metres by 2020 for the whole of mainland China.

By 2030, it is expected that natural gas will make up 15 per cent of all the energy consumed in the country.

In addition, there is tremendous potential for bringing new projects on stream in the Greater Bay Area, where we currently have more than 20 joint venture projects. The government-backed development plan for the Greater Bay Area, which encompasses Hong Kong and Macao along with nine cities in southern Guangdong province, presents numerous investment opportunities.

Warmth



Distributed energy systems (DES) remained the focus of our business in the city-gas market in 2018. Towngas Energy Investment (Shenzhen) Company, a wholly-owned subsidiary of the Group specialising in distributed energy projects, has recorded strong growth since its establishment in 2017.

Combined heat and power systems have become widely accepted among commercial and industrial customers, particularly in industrial parks that require a centralised energy supply. Unlike conventional systems that supply gas to individual boilers and production lines, DES makes use of high efficiency natural gas power generators and large boilers, while simultaneously creating hot water, steam or chilled water through waste heat utilisation.

With a total of over 20 DES projects underway, we have become widely accepted in the market. Our reputation as a leader in this technology was further cemented in December 2018, with the signing of a strategic cooperation agreement with Tsinghua University to establish a Regional Comprehensive Energy Planning Technology Joint Research Centre.

We see a promising future for this business, as DES can guarantee energy efficiency rates of more than 70 per cent and its use has received the support of the Chinese government as part of its strategy to reduce carbon emissions. To capitalise on the opportunities presented by DES, we will explore new projects and continue investing in this sector. Our target is to achieve 3.5 billion cubic metres in natural gas sales through DES by the year 2022.

Securing a Reliable Gas Supply

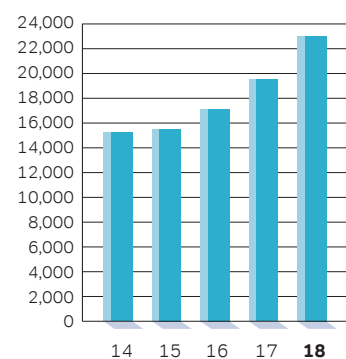
The midstream facilities in which we invest, including gas infrastructure such as long-haul pipelines and gas storage facilities, enable us to secure a reliable supply of natural gas for our customers.

One of the key projects in our midstream business is our underground salt-cavern gas storage facility in Jintan, Changzhou, Jiangsu province. Starting with an initial storage capacity of 460 million standard cubic metres of gas, the first phase was commissioned in October 2018 and began supplying gas in the following month. The project, which is the first underground gas storage facility in mainland China built by a city-gas enterprise, will have a total storage capacity of 1 billion standard cubic metres when it goes into full operation in 2022.

As well as substantially increasing our storage capacity, the facility will allow us to regulate gas supply and prices more effectively. It enables us to

China Joint Ventures Gas Sales

(million m³)



save gas in the summer months when demand and fuel costs are lower and provide additional gas supply during the winter peak load to our city-gas projects. In this way, the fluctuations in supply and demand are evened out, leading to a more stable supply of gas.

In the near future, we will also be able to sell the stored gas on the open market. It is expected that in mid-2019, the Chinese government will merge the gas pipeline assets of its three state-owned oil and gas companies and form a national pipeline company. This will then allow third-party access to the national grid, thus ensuring a flexible supply of gas.

This tap water plant is owned and operated by Foshan Water Environmental Protection Co., Ltd, in Foshan, Guangdong province.

At the same time, we have been expanding our liquefied natural gas (LNG) receiving terminal facilities in order to supply mainland China with the clean energy it requires to replace coal. At present, China cannot meet the demand for natural gas domestically and imports about half of its supply. That percentage will continue to increase in the years ahead.

China's supply of LNG primarily comes from Australia, Indonesia, Qatar and, as of July 2018, from Russia via the Northern Sea Route on the Arctic coast to the Rudong LNG Terminal in Jiangsu province. In the years ahead, Russia will be a key supplier of gas to China, with 3 million tonnes of LNG shipped per year and, more importantly, a piped gas supply to the northeastern region of China starting at the end of 2019.

To accommodate the growth in imported gas, we plan to invest in several other LNG terminal projects. These were under negotiation during the year, with some expected to come on stream in 2020.

Clean Water Supply and Food Waste Recycling

We have been engaged in the water supply and wastewater treatment business since 2005 through our wholly-owned subsidiary, Hong Kong & China Water Limited (Hua Yan Water). In 2018, Hua Yan Water had eight projects underway in mainland China, including water supply, domestic sewage and industrial wastewater treatment. During the review period, Hua Yan Water sold 610 million tonnes of water, an increase of 31 per cent over 2017. As of the year end, the Company served more than 2.24 million customers.

In a milestone for the Group, in 2018 we invested RMB550 million in Foshan Water Environmental Protection Co., Ltd (Foshan Water Environment Protection) to acquire 26 per cent of that company's shares. The investment is our first water services project in the Greater Bay Area and the first to open in southern China.





Our new food waste project at Suzhou Industrial Park was set up by Hua Yan Water using its experience in sewage treatment.

Foshan Water Environmental Protection currently has 15 water plants, providing up to 1.94 million tonnes of water every day to more than 800,000 households. In addition to supplying water, Foshan Water Environmental Protection is planning to expand into environmental projects.

Since governments at various levels in mainland China have put a high priority on clean water resources, we see tremendous potential for the expansion of the industry and our investments in the water business.

The Group's first food waste project, located at Suzhou Industrial Park, went into trial production in February 2019. The plant can handle 500 tonnes of food waste, green waste and landfill leachate daily for

conversion into natural gas, oil products and solid fuel that will be used in the Park. Organic fertiliser will also be produced using Swedish technology and our own expertise. We plan to extend this business to cities outside Suzhou and are exploring the potential for more food waste projects, mostly in eastern China.

Premium Products, Premium Services

In 2018, we continued to fulfil the needs of more than 27 million customers across the country by providing a selection of quality products, such as space heaters, kitchen appliances and cabinets, as well as gas-related services.

We have been offering customers safe, high-quality gas appliances under the Bauhinia brand since 2005 and, in 2015, began offering a Total Kitchen

Solution of premium kitchen equipment and cabinets under the Mia Cucina brand.

During the year, the Bauhinia name continued to gain recognition in the market, with over 771,000 Bauhinia branded appliances sold. Of these, over 30,000 were gas dryers and more than 30,000 were space heaters. In 2018, we saw a breakthrough in sales of water heaters and clothes dryers for households, which led to an increase in gas consumption per household.

Higher-end products such as household heating systems were especially popular. We have high hopes for this business in mainland China, where the market for these products is huge.

Our reliable, high-quality clothes dryers under the Bauhinia brand have been growing in popularity among mainland customers.



Gentleness



Our Mia Cucina line of high-end kitchen cabinets, stoves and other kitchen equipment has also achieved encouraging results since it was introduced in mainland China in 2017. During the year, we sold a total of over 4,100 Mia Cucina packages to property developers and individual home owners as part of our Total Kitchen Solution.

Following the success of our Mia Cucina cabinet displays in various cities last year, we plan to set up a grand showroom in early 2019 at Suzhou Industrial Park, aimed primarily at developers of building projects. We expect that this showroom, along with our ongoing marketing efforts, will help us to build the brand even further in mainland China.

To serve our customers more efficiently, we offer an e-commerce platform, Towngas Lifestyle, to bring customers a wide selection of high-quality

lifestyle services and products. This convenient online platform provides one-stop e-services and a variety of products, including festive foods, kitchenware and gas-related insurance.

Setting the Standard in Customer Service

We are justifiably proud of our customer service in mainland China and are constantly looking for new ways to raise our standards even higher.

In addition to 269 customer centres across 86 mainland cities, another key platform we have established for serving

customers is our Virtual Customer Centre (VCC). Accessible through websites, social media and mobile apps, the VCC in 2018 served over 3.5 million members, who made over 3 million gas-related service transactions on the platform, including bill payments.

Also during the year, we continued to promote Total Quality Management (TQM) in mainland China and received strong support and enthusiastic input from employees for this programme. Focusing on

This quadcopter drone is just one of the many advanced tools used by our technical professionals to ensure the safety of our network.



the highest standards of craftsmanship, courtesy and integrity, it enables us to take customer service to a new level of excellence.

In the past 15 years, our senior management have been making personal visits twice a year to the operations of selected joint venture companies to inspect the quality of work of our frontline staff and set an example for them.

Another distinguishing feature of TQM is our Three Courtesies service programme, emphasising

“manners”, “etiquette”, and “politeness” in the daily interactions of our people with customers. The Three Courtesies was also the theme of the 2018 Service with a Smile Ambassadors contest, organised every three years to recognise our frontline staff and enhance service quality. During the contest, 45 ambassadors out of over 1,500 participants were selected as “exemplars” for promoting our service culture of professionalism, integrity and courtesy among our joint ventures and in the community.

Safety at Home and at Work

We are firmly committed not only to maintaining but improving our high standard of safety among our staff and the many customers we serve.

To that end, we make regular safety inspections at our customers’ homes to ensure that their gas installations and equipment are in safe working order. Originally launched in Hong Kong during the 1990s, these inspections were introduced in mainland China

when we started operating there and have now become a common practice throughout the industry. Additionally, we have made a tremendous effort to educate our customers about gas usage safety by sharing our experience and tips with them on the proper handling of gas and gas appliances.

Within our own operations, we conduct regular safety and risk audits every two years. In 2017/18, we evaluated 106 of our joint venture companies. All of these companies met the requirements, and nearly half received an “excellent” rating with scores of more than 90 out of 100.

The overall safety record of our joint venture companies has improved significantly since 2009, as can be seen in the 80 per cent reduction in the incident rate over the past decade.

2018

Utility Businesses in Mainland China

Towngas Piped City-Gas Projects

GUANGDONG PROVINCE

Panyu	1994	260	105	80%
Zhongshan	1995	240	96	70%
Dongyong	1998	178	75	82.6%
Shenzhen	2004	–	2,878	26.47%
Chaoan	2007	185	99	60%
Chaozhou Raoping	2011	189	106	60%

CENTRAL CHINA

Wuhan	2003	1,000	420	49%
Xinmi	2009	205	85	100%

EASTERN CHINA

Yixing	2001	246	124	80%
Taizhou	2002	200	83	65%
Zhangjiagang	2003	200	100	50%
Wujiang	2003	150	60	80%
Xuzhou	2004	245	125	80%
Suining	2009	155	67	100%
Fengxian	2009	60	31	100%
Peixian	2015	300	100	100%
Danyang	2004	150	60	80%
Jintan	2006	150	60	60%
Tongling	2006	240	100	70%
Suzhou Industrial Park	2001	600	200	55%
Changzhou	2003	248	166	50%
Nanjing	2003	1,200	700	49%
Fengcheng	2007	206	88	55%
Pingxiang	2009	297	105	100%
Jiangxi	2009	52	26	56%
Zhangshu	2009	86	34	100%
Yonganzhou	2010	100	68	93.9%
Hangzhou	2013	2,988	1,195	24%

SHANDONG PROVINCE

Jinan East	2003	610	470	49%
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NORTHERN CHINA

Jilin	2005	247	100	63%
Beijing Economic-technological Development Area	2005	111	44	49%
Hebei Jingxian	2011	186	79	81%

NORTHWESTERN CHINA

Xi'an	2006	1,668	1,000	49%
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HAINAN PROVINCE

Qionghai	2008	110	50	49%
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Midstream Projects

Guangdong LNG	2004	8,595	2,578	3%
Anhui NG	2005	–	336	20.61%
Hebei NG	2005	2,760	920	43%
Jilin NG	2007	360	220	49%
Henan NG	2012	125	60	49%
Jintan NG (Phase 1)	2013	180	100	64%
Jintan NG (Phase 2)	2018	890	300	100%
Huanghua Port LNG	2017	90	90	20%

LNG Refilling Station

Nanjing (Marine)

Water/Waste Treatment Projects

	Year of Establishment	Project Investment Rmb M	Registered Capital Rmb M	Equity Share %
	2014	600	217	32.95%
Wujiang	2005	2,450	860	80%
Suzhou Industrial Park	2005	4,705	1,597	50%
Wuhu	2005	1,000	400	75%
Suzhou Industrial Park (Industrial Wastewater Treatment)	2011	550	185	49%
Maanshan	2013	607	213	100%
Jiangbei	2013	1,049	374	100%
Suzhou Industrial Park (Food Waste Processing and Utilisation)	2016	220	75	55%
Foshan Water Environmental Protection	2018	824	824	26%

Towngas China Piped City-Gas Projects

GUANGDONG PROVINCE

Foshan
Shaoguan
Qingyuan
Yangdong
Fengxi

EASTERN CHINA

Nanjing Gaochun
Dafeng
Tongshan
Hubei Zhongxiang
Maanshan
Bowang
Zhengpugang Xin Qu
Modern Industrial Zone
Wuhu Fanchang
Wuhu Jiangbei
Anqing
Chizhou
Tunxi
Huangshan

Huizhou
Tongxiang
Huzhou
Yuhang
Songyang
Changjiu
Fuzhou
Jiujiang
Wuning
Xiushui
Yifeng
Changting

SHANDONG PROVINCE

Jimo
Laoshan
Zibo
Zibo Lubo
Longkou
Jinan West
Weifang
Weihai
Taian
Chiping

Linqu
Laiyang
Zhaoyuan
Pingyin
Feicheng
Boxing Economic Development Zone
Yangxin
Wulian

HUNAN PROVINCE

Miluo

NORTHEASTERN CHINA

Benxi
Chaoyang
Tieling
Fuxin
Shenyang Coastal Economic Zone
Yingkou
Dalian
Changxingdao

Dalian Economic and Technical Development Zone
Anshan
Lvshun
Kazuo
Beipiao
Wafangdian
Xinqiu
Jianping
Changchun
Gongzhuling
Siping
Qiqihar

HEBEI PROVINCE

Qinhuangdao
Yanshan
Cangxian
Mengcun
Shijiazhuang

INNER MONGOLIA

Baotou

SOUTHWESTERN CHINA

Ziyang
Weiyuan
Pengxi
Lezhi
Pingchang
Dayi
Yuechi
Cangxi
Chengdu
Zhongjiang
Jianyang
Pengshan
Mianyang
Xinjin
Xindu
Mianzhu
Jiajiang
Qijiang
Guilin
Zhongwei (Fusui)
Xingyi
Luliang
Liujiang District,
Liuzhou

Midstream Projects

Xuancheng NG
Taian Taigang
Inner Mongolia NG
Jinan-Liaocheng Pipeline & Chiping South Citygate

CNG Refilling Stations

Qiqihar (Lianfu)
Qiqihar (Xingqixiang)

Distributed Energy Systems

Sichuan
Shenyang Economic and Technical Development Zone
Jiawang District, Xuzhou
Jimo Chuangzhi New District, Qingdao
Yangxin Economic & Technological Development Zone, Binzhou
Changchun
Guilin
Tangshan Chengnan Economic Development Zone
Boxing Economic Development Zone, Binzhou
Xuzhou Biomedical Industrial Park

Other Projects

Zhuojia Public Engineering
Towngas Natural Gas Sales