

Gas Meters Smart & Standard Ed 4 2021

Chapter Summaries

EXECUTIVE SUMMARY

Chapter 1 - THE GAS METERING LANDSCAPE IN 2020

Globally, 34% of gas is consumed by the residential/commercial sector, 39% by industry and 29% by power plants. Analysis of gas customers in 71 countries, their number, consumption of meters in units and value.

Chapter 2 - WORLD DEMAND FOR GAS METERS FROM 2019 TO 2025

Global demand analysed by meter type. Meter technology shares.

Chapter 3 - DEMAND FOR SMART GAS METERS

Global demand for smart gas meters and communications modules by country.

Chapter 4 - LONG-TERM DEMAND TREND FOR GAS METERS

Globally, 34% of gas is consumed by the residential/commercial sector, 39% by industry and 29% by power plants. Until the last decade demand followed regular trends established over a century. It had its local fluctuations but the overall trend for each country was regular. The sudden rollouts of smart meters will have dramatic impacts on demand trends and will change them beyond recognition. The changes in the demand cycle are identified where applicable for each country.

Chapter 5 - GAS DISTRIBUTION SYSTEM

The transmission and distribution of gas involves huge investment and the gas is regulated, compressed and metered at pressures from 1,500 psi in long distance transmission to under 3 psi in domestic households. The meters at the high pressure end are few in number but well-engineered and costly. The system is mapped and the different stages identified.

Chapter 5 - METER TYPES.....FROM 1843 TO THE FUTURE

Overview of the development of metering from the earliest days and each technology.

Chapter 7 - THE GAS METER MARKET IN EUROPE

Chapters 7 to 14 contain regional and country sections, with market reviews with:

- .. A summary of the gas supply industry, distribution and consumers
- .. Gas meters sales in base year 2019 with forecasts from 2020 to 2025 in numbers of units, \$ sales and average selling price per meter - for Residential, AMR, AMI, PPM, Commercial and Industrial, and Smart Meters
- .. Status and commentary on Ultrasonic Meters and Smart Metering
- .. Gas meter vendors

Expanded market commentary for the United States, Japan, China and India.

Chapter 8- THE GAS METER MARKET IN CIS

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Chapter 9 - THE GAS METER MARKET IN THE MIDDLE EAST AFRICA

Chapter 10 - THE GAS METER MARKET IN AST AFRICA

Chapter 11 - THE GAS METER MARKET IN ASIA PACIFIC

Chapter 12 - THE GAS METER MARKET IN NORTH AMERICA

Chapter 13 - THE GAS METER MARKET IN SOUTH AMERICA

Chapter 14 - THE GAS METER MARKET IN CENTRAL AMERICA

Chapter 15- COMPETITIVE ANALYSIS, COMPANY PROFILES AND MARKET SHARES

The three historical global metering groups, Elster, Itron and Landis+Gyr are still the market leaders in the gas meter market, with 61% of the global market in value. Their large share in the value of the market is due to their dominance of the high end C&I sector, providing metering solutions for the high pressure grid and large industry. Global market shares are accompanied with profiles of the meter manufacturers, including those with small shares in numbers of meters but leading positions in high end meters for high pressure measurement - Elster, Itron, Landis+Gyr, Dresser, Diehl, Apator, Sagemcom, Sensus, Dongfa Group, Holley, Emerson.

Chapter 16 - NGV and AUTOGAS METERING

The metering of gas dispensed to CNG and Autogas powered vehicles is a small segment of the metering market. Each filling station has two kinds of gas meter; a master meter which measures the gas arriving at the station, and individual meters on the pumps measuring the gas supplied to vehicles. The technology is outlined and the main meter products listed.

Chapter 17 - THE ORIGINS OF THE GLOBAL GAS INDUSTRY

On overview of the gas industry, from its start with local manufactured coal gas plants, to its conversion and huge expansion with transmission pipelines into an international industry. Its competitive role versus electricity.

Chapter 18 - GAS SOURCES, TYPES AND DELIVERY

A review of gas. Gas comes in many forms, is made from various feedstocks and is delivered in different ways. Most gas comes from three hydrocarbons; natural gas, liquid petroleum gas and coal. There are four major categories of gas.

METHODOLOGY

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Gas Meters Smart & Standard Ed 4 2021 Sample Pages

1. THE GAS METERING LANDSCAPE IN 2020

Globally, 34% of gas is consumed by the residential/commercial sector, 39% by industry and 29% by power plants. These proportions vary a lot by country. In some countries, there is no residential consumption and consumption by power plants and industry, and in some only by power plants, which has an obvious bearing on the distribution of meter types. There were 2.1 billion households in the world in 2019 and 604 million piped gas consumers by 2020.....

Table 1: Demographics, consumers and demand for gas meters in units and \$ value, by region 2020.

| | Population | Households | Natural gas consumers | Demand for meters | Demand for meters |
|--------------------|------------|------------|-----------------------|-------------------|-------------------|
| | Million | Million | Thousand | Thousand | \$ million |
| Europe | | | | | |
| CIS | | | | | |
| Middle East | | | | | |
| North Africa | | | | | |
| Sub-Saharan Africa | | | | | |
| Asia | | | | | |
| Pacific | | | | | |
| North America | | | | | |
| South America | | | | | |
| Central America | | | | | |
| World | | | | | |

Annual demand trend for gas meters, IGC and residential, in units, \$ value, the World, 2019-2025.

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|--------------------------------------|------|------|------|------|------|------|------|
| '000 meters | | | | | | | |
| Basic residential | | | | | | | |
| AMR/AMI | | | | | | | |
| PPM/Self-management | | | | | | | |
| Communications modules | | | | | | | |
| Communal | | | | | | | |
| Industrial & grid meters | | | | | | | |
| All meters and comms. modules | | | | | | | |
| \$ million | | | | | | | |
| Basic residential meters | | | | | | | |
| AMR/AMI meters | | | | | | | |
| PPM/Self-management | | | | | | | |
| Communications modules | | | | | | | |
| Communal | | | | | | | |
| Industrial & grid meters | | | | | | | |
| All meters and comms. modules | | | | | | | |

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SOUTH KOREA

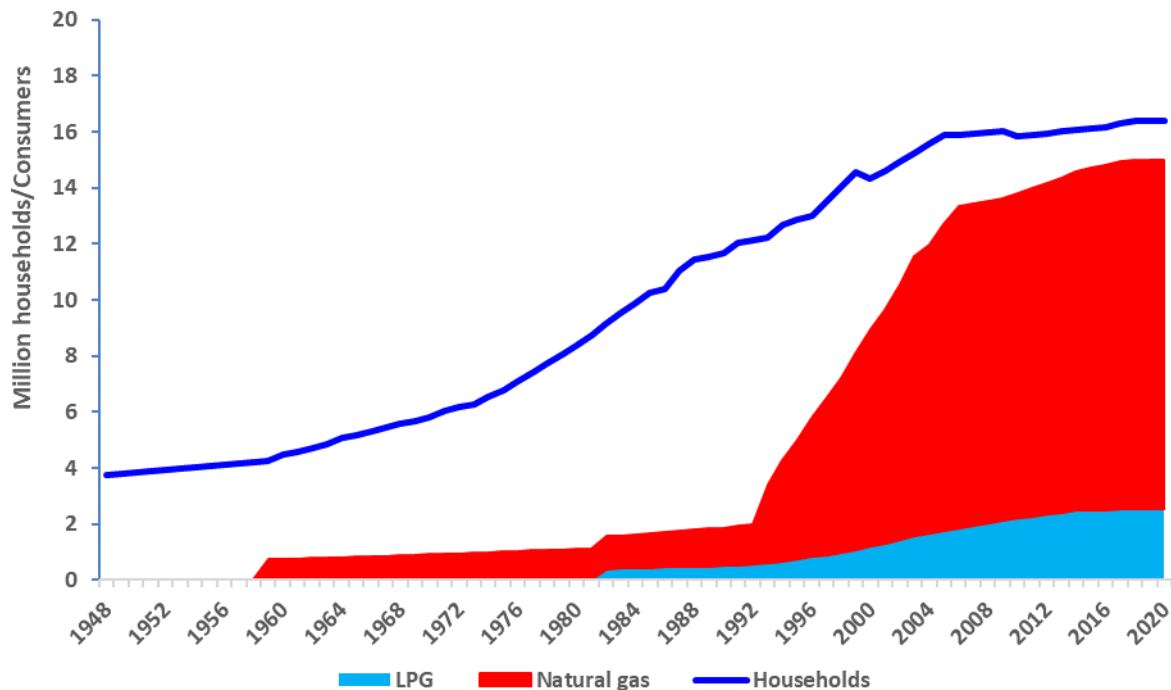
Table 2: Basic population and gas statistics, South Korea.

| Population | Households | Gas Customers |
|-------------|-------------|---------------|
| Million | Million | Thousand |
| 2019 | 2019 | 2020 |
| 51 | 21.0 | 15,300 |

Natural gas first was imported into South Korea in 1986 and consumption has grown fast since then. Kogas imports and sells gas wholesale and direct to large industrial companies. It is distributed by 33 private city gas companies to households, commercial and industrial customers. Most demand was in the industrial sector at the start of importation but after 1995 households began to predominate.

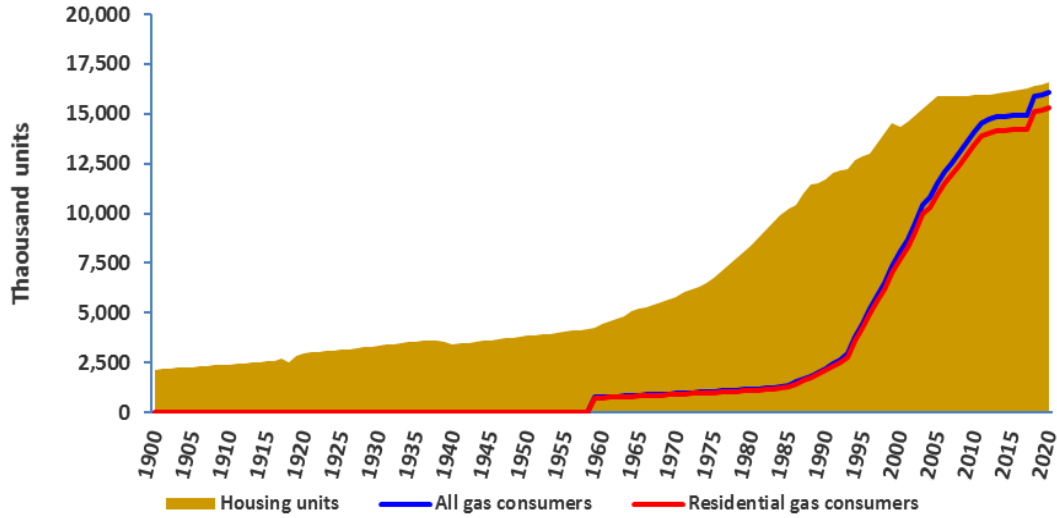
LPG was first used in Korea in 1959. It is used in households, as a feedstock for piped city gas and for automobiles. Propane, the main component of LPG, was first widely used for cooking in residential and commercial entities, and butane was increasingly used for transportation. Demand was not significant in the initial stages; in 1968, the demand for LPG in the Korean market stood at a meagre 16 tons and production at 15 tons. LPG is now used by 3 million households for cooking and heating and 2 million automobiles for fuel. The households use consists of bottled cylinder gas and LPG as a feedstock for piped city gas.

Figure 1: Household penetration of natural gas and LPG in South Korea, 1948-2020.



Gas Meters Smart & Standard Ed 4 2021 Sample Pages

Figure 2: Numbers of housing units, all gas and residential consumers, South Korea, 1900-2020.



100% of consumers are metered.

Smart meters

We have no reports yet of smart gas metering.

Meter demand

Table 3: Annual demand trend for gas meters, IGC and residential, in units, \$ value, with average selling price per meter, Korea, 2019-2025.

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|--------------------------|------|------|------|------|------|------|------|
| '000 meters | | | | | | | |
| Residential | | | | | | | |
| PPM | | | | | | | |
| AMI | | | | | | | |
| Industrial & grid | | | | | | | |
| Total meters | | | | | | | |
| \$ million | | | | | | | |
| Residential | | | | | | | |
| PPM | | | | | | | |
| AMI | | | | | | | |
| Industrial & grid | | | | | | | |
| Total value | | | | | | | |
| Average selling price \$ | | | | | | | |
| Residential | | | | | | | |
| PPM | | | | | | | |
| AMI | | | | | | | |
| Industrial & grid | | | | | | | |

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Sample Pages

Meter manufacturers

The Korean gas meter market is dominated by local meter manufacturers.

Keuk Dong started as a manufacturer of fans for motors and became a supplier to Samsung Electronics in 1990, entering gas meter manufacturing. The company now has a high share in the domestic gas meter market and exports to Latin-America, Southeast Asia and Central Asia.

Keuk Dong first introduced Micom meters (Multi Function safety gas meter) into Korea market, providing gas safety and home network technology.

Daehan GM Corporation claims to be the oldest gas meter manufacturer in Korea.