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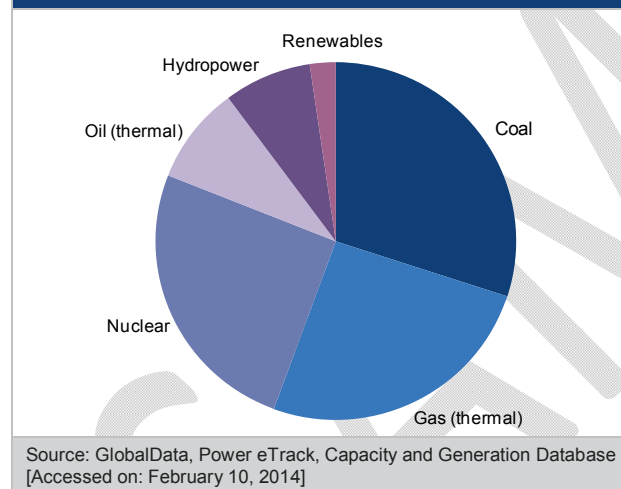
**SOUTH KOREA POWER MARKET OUTLOOK TO 2030  
– MARKET TRENDS, REGULATIONS AND  
COMPETITIVE LANDSCAPE**

## Executive Summary

### Thermal Power Dominates the Power Mix

Thermal power is the dominant form of power generation in South Korea, it contributed XX% of the total installed capacity in 2013. Coal-based thermal capacity was the largest contributor accounting for XX% of the total installed capacity, gas- and oil-based capacities accounted for XX% and XX%, respectively. Installed nuclear capacity contributed to XX% of the total installed capacity. Hydropower and renewables accounted for XX% and XX%, respectively.

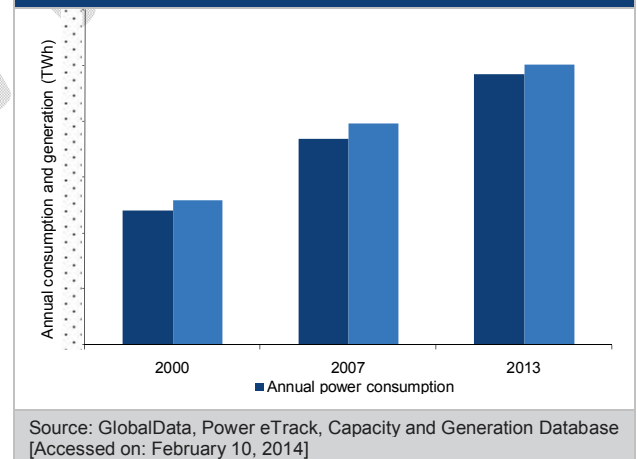
**Power Market, South Korea, Breakdown of Cumulative Installed Capacity by Fuel Type (%), 2013**



### Continued Growth in Power Consumption and Generation

Annual power generation in South Korea grew from XX Terawatt hours (TWh) in 2000 to XX TWh in 2013 at a Compound Annual Growth Rate (CAGR) of XX%. This growth was driven by an increase in thermal power generation that grew at a CAGR of XX%, and by renewable power generation that grew by XX%, during the same period. Annual power generation increased to meet the growing power demand, which was due to an increase in industrial activity and increasing dependence on electronic goods in the residential sector. Due to this, annual power consumption grew from XX TWh in 2000 to XX TWh in 2013 at a CAGR of XX%.

**Power Market, South Korea, Annual Power Consumption and Generation (TWh), 2000–2013**



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## Introduction

## 2 Introduction

South Korea has a democratic republican form of government, with a presidential system in place. It is a member of the United Nations, the G20, the Association of South East Asian Nation, the South Asian Association for Regional Corporation, and the Organization for Economic Cooperation and Development.

Historically, South Korea was led by a closed government system that imposed strict import restrictions. However, after the Asian financial crisis of 1997, the country adopted numerous economic reforms and became more open to foreign investments and imports leading to the current, liberal economy that attracts a large amount of Foreign Direct Investment (FDI). In 2012, the country experienced a record growth in its FDI inflow; inward FDI rose from \$XX billion in 2009 to \$XX billion in 2010, which further increased to \$XX billion in 2012. However, inward FDI fell in 2013 due to reduced investment from Japan and the US, to \$XX billion (Yonhap News Agency, 2014). South Korean exports were valued at \$XX billion in 2012, the seventh largest export total in the world (CIA, 2014). Europe, Japan and the US were the key investors in South Korea in 2013; the government is endeavoring to strengthen existing trade relationships with these and other nations.

South Korea registered a Gross Domestic Product (GDP) growth rate of XX% in 2013, with an estimated GDP of \$XX trillion. The economy was negatively affected by the global economic recession during 2008, which resulted in a low growth rate of XX% in 2009. However, due to export growth, low interest rates and an efficient fiscal policy, the country was able to recover from the economic crisis, and return to a position of growth. The government's present challenge includes a rapidly aging population and a heavy reliance on exports, which account for almost half of the country's GDP. The services sector is estimated to have contributed the majority share of GDP in 2012, at XX%, followed by the industrial sector at XX% and the agricultural sector at XX%.

The rapid economic growth has resulted in increases in electricity demand and energy requirements. This has led to an increasing dependence on imported fossil fuels such as oil, natural gas, and bituminous and anthracite coal to meet energy demands. In 2013, coal-based capacity contributed XX% towards the total installed capacity, followed by gas and oil which had a share of XX% and XX%, respectively.

## Introduction

South Korea is expected to record substantial growth in the wind energy segment, as the average prices for power generated from wind sources are now lower than the average prices for that generated from gas sources.

The South Korean power sector is overseen by the Ministry of Trade, Industry and Energy. A governmental agency functioning under the ministry, the Electricity Regulatory Commission, is responsible for regulatory matters. The Korea Electric Power Corporation (KEPCO), a government-owned company, dominates all aspects of the power sector, that is, power generation, transmission, and distribution.

### 2.1 GlobalData Report Guidance

- Chapter two provides an introduction to the country and specifically to the power sector of the country.
- Chapter three provides a snapshot of the key parameters that affect South Korea's power sector, as well as key points about its power market.
- Chapter four provides analysis of South Korea's power market.
- Chapter five provides details of the regulatory scenario of the South Korea power market.
- Chapter six provides information on South Korea's cumulative installed capacity and annual generation trends, as a whole and according to individual generation source.
- Chapter seven describes South Korea's power transmission and distribution infrastructure and includes information on interconnections with neighboring countries. The section also covers electricity imports and exports and upcoming grid-related projects.

Note: all 2013 market figures provided in the report are estimates except where actual data was available.

## Snapshot

### 3 South Korea, Power Market, Snapshot

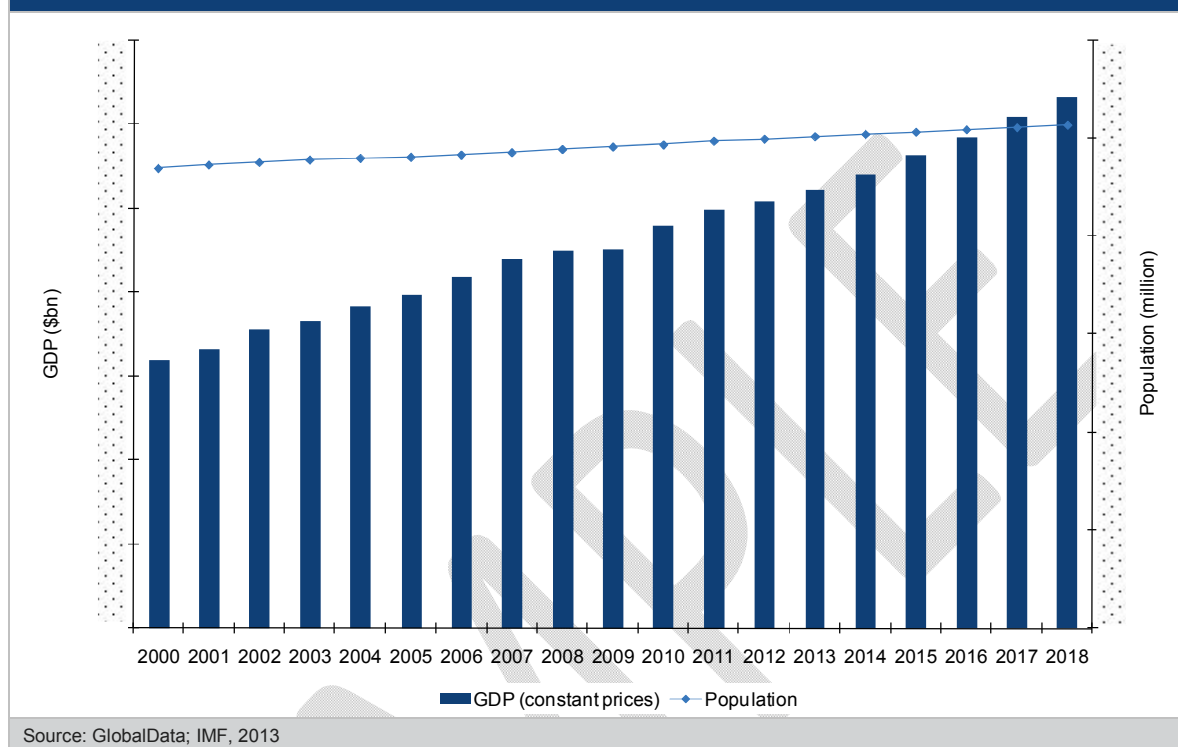
#### 3.1 South Korea, Power Market, Macroeconomic Factors

The GDP of South Korea (at constant prices) increased at a Compound Annual Growth Rate (CAGR) of XX% from 2000 to 2013. The country's population increased at a CAGR of XX% from 2000 to 2013 which resulted in an increase in power consumption at a CAGR of XX%. South Korean GDP is expected to increase at a CAGR of XX% from 2014 to 2018, and power consumption is also expected to increase from 2014 to 2030 at a CAGR of XX%. However, the growth rate of power consumption is expected to reduce beyond this period, due to energy efficiency and energy-saving measures implemented by the government.

South Korea ranked seventh out of XX countries in the 2014 'Ease of Doing Business' rankings by the World Bank, a drop from the sixth position it held in 2013 (World Bank, 2014). It also ranked in the top five in terms of securing electricity supply for businesses, trading across borders, and enforcing contracts and performed favorably against factors such as resolving insolvency and credit availability in 2014.

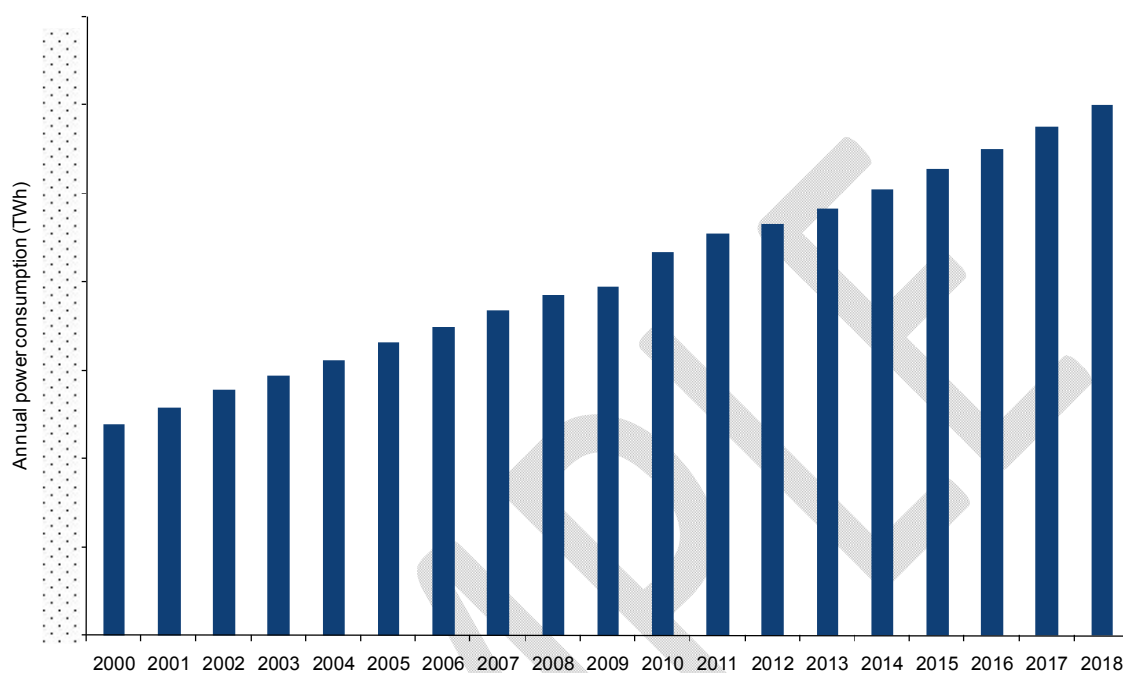
### Snapshot

**Figure 1: Power Market, South Korea, Gross Domestic Product (\$bn) and Population (million), 2000–2018**



## Snapshot

Figure 2: Power Market, South Korea, Annual Power Consumption (TWh), 2000–2018



Source: GlobalData, Power eTrack, Capacity and Generation Database [Accessed on: February 10, 2014]

### Snapshot

**Table 1: Power Market, South Korea, Gross Domestic Product (\$bn), Population (million), and Annual Power Consumption (TWh), 2000–2018**

Year	GDP (constant prices)	Population	Annual power consumption
2000			
2001			
2002			
2003			
2004			
2005			
2006			
2007			
2008			
2009			
2010			
2011			
2012			
2013			
2014			
2015			
2016			
2017			
2018			

Source: GlobalData; IMF, 2013

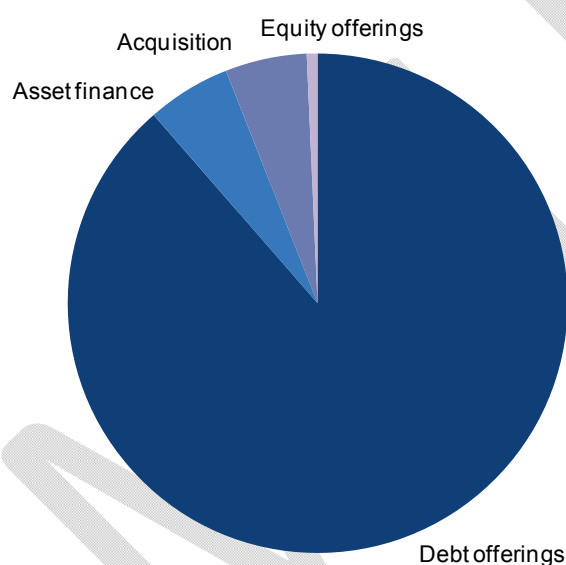
TWh: Terawatt hours

## Market Analysis

### 4.3.2 Deals, Split by Type, 2013

During 2013, debt offerings were the most common type of deal to be made in the South Korean power sector, contributing to XX% of the total annual deal value. Asset finance and acquisition deals contributed to XX% and XX% of the total deal value in 2013, respectively. The remaining share of XX% of the total deal value in 2013 was contributed by equity offerings.

Figure 5: Power Market, South Korea, Deals by Type (%), 2013



Source: GlobalData, Power eTrack, Deals Database [Accessed on: January 30, 2014]

Table 5: Power Market, South Korea, Deals by Type (%), 2013

Deal type	Share
Debt offerings	
Asset finance	
Acquisition	
Equity offerings	

Source: GlobalData, Power eTrack, Deals Database [Accessed on: January 30, 2014]



## Appendix

### 9 Appendix

#### 9.1 Market Definitions

##### 9.1.1 Power

The term power refers to the rate of production, transfer or energy use, usually related to electricity. It is measured in Watts and often expressed in kilowatts (kW), Megawatts (MW) or Gigawatts (GW). It is also known as "real" or "active" power.

##### 9.1.2 Installed Capacity

This term refers to the generator's nameplate capacity, as stated by the manufacturer, or the maximum rated output of a generator under given conditions. It is given in MW on a nameplate affixed to the generator.

##### 9.1.3 Electricity Generation

This term refers to the production of electric energy, achieved through the transformation of other forms of energy. It also refers to the amount of electric energy produced and is measured in GWh.

##### 9.1.4 Electricity Consumption

Electricity consumption is the sum of electricity generated, plus imports, minus exports, minus transmission and distribution losses. It is measured in GWh.

##### 9.1.5 Thermal Power Plant

A thermal power plant is a plant in which the turbine generators are driven by burning fossil fuels.

##### 9.1.6 Hydropower Plant

A hydropower plant is a plant in which the turbine generators are driven by falling water.

##### 9.1.7 Nuclear Power

Nuclear power refers to electricity generated by the use of thermal energy released from the fission of nuclear fuel in a reactor.

## Appendix

## 9.1.8 Renewable Energy Resources

Renewable energy resources are naturally replenishing energy resources that are limited in the amount of energy available per unit of time. Biomass, geothermal, solar and wind energy are all examples of renewable resources.

## 9.2 Abbreviations

Table 22: Abbreviations

CAGR	Compound Annual Growth Rate
CCGT	Combined-cycle Gas Turbine
Ckm	Circuit kilometre
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GW	Gigawatt
HVDC	High Voltage Direct Current
KEPCO	Korea Electric Power Corporation
KHNP	Korea Hydropower and Nuclear Power
KPX	Korea Power Exchange
kV	kilovolt
LCGG	Low Carbon Green Growth
LNG	Liquefied Natural Gas
MW	Megawatt
PV	Photovoltaic
TWh	Terawatt-hour

Source: GlobalData

## Appendix

### 9.3 Bibliography

- Cho M. (2014). S.Korea to tax coal for power from July 1; lower LNG, fuel oil tax. Thomson Reuters. Available from: <http://www.reuters.com/article/2014/01/23/korea-power-tax-idUSL3N0KW1AB20140123> [Accessed on: January 29, 2014].
- CIA (2014). The World Factbook: Korea, South. Central Intelligence Agency, January 28, 2014. Available from: <https://www.cia.gov/library/publications/the-world-factbook/geos/ks.html> [Accessed on: February 11, 2014].
- CleanBiz Asia (2013). Korea gives details of 2015 carbon trading plan. CleanBiz Asia Ltd. Available from: <http://www.cleanbiz.asia/news/korea-gives-details-2015-carbon-trading-plan#.UuiKYmXhVkg> [Accessed on: January 29, 2014].
- Hyun-jung B. (2013), via Asia News Network. South Korea issues first electricity reserve warning, Asia News Network. Available from: <http://www.asianewsnet.net/South-Korea-issues-first-electricity-reserve-warni-47519.html> [Accessed on: February 10, 2014].
- IMF, 2013. World Economic Outlook [database]. Available from: <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx> [Accessed on January 6, 2014].
- KEPCO (2013). Power Sales Volume by Type of Usage. Korea Electric Power Corporation. Available from: [http://cyber.kepco.co.kr/kepco/cmmn/fms/FileDown.do?atchFileId=FILE\\_000000008102667&fileSn=0](http://cyber.kepco.co.kr/kepco/cmmn/fms/FileDown.do?atchFileId=FILE_000000008102667&fileSn=0) [Accessed on: January 30, 2014].
- Thomson Reuters (2014). Korea exchange wins bid to host nation's carbon trading. Thomson Reuters. Available from: <http://www.reuters.com/article/2014/01/14/south-korea-carbon-idUSL3N0KJ18T20140114> [Accessed on: January 29, 2014].
- US State Department (2013). 2013 Investment Climate Statement - Republic of Korea. Bureau of Economic and Business Affairs, US State Department. Available from: <http://www.state.gov/e/eb/rls/othr/ics/2013/204670.htm> [Accessed on: January 29, 2014].
- World Bank (2014). Ease of Doing Business in Korea, Rep. Available from: <http://www.doingbusiness.org/data/exploreeconomies/korea> [Accessed on: February 10, 2014].

## Appendix

- Yonhap News Agency (2013). Reserve margin falls under 10% for 54 days this year, more than in 2011. Maeil Business Newspaper & MK Inc. Available from: <http://news.mk.co.kr/english/newsRead.php?rss=Y&sc=30800011&year=2013&no=420829> [Accessed on: February 10, 2014].
- Yonhap News Agency (2014), Foreign direct investment in S. Korea drops in 2013. GlobalPost – International News. Available from: <http://www.globalpost.com/dispatch/news/yonhap-news-agency/140128/foreign-direct-investment-s-korea-drops-2013> [Accessed on: January 29, 2014].

### 9.4 GlobalData's Methodology

GlobalData's dedicated research and analysis teams consist of experienced professionals with backgrounds in marketing, market research and consulting in the power industry, and advanced statistical expertise.

GlobalData adheres to the codes of practice of the Market Research Society ([www.mrs.org.uk](http://www.mrs.org.uk)) and the Strategic and Competitive Intelligence Professionals ([www.scip.org](http://www.scip.org)).

The following research methodology is followed for all country outlook reports.

#### 9.4.1 Coverage

This report gives detailed information on South Korea's power market. It examines South Korea's power market structure and provides historical and forecast numbers for generation, capacity and consumption up to 2030. The report provides insights on the market's regulatory structure, import and export trends, competitive landscape and leading active and upcoming power projects.

## Appendix

### 9.4.2 Secondary Research and Analysis

The capacity, generation and consumption data is collected and validated using a number of secondary resources, including, but not limited to:

- Government agencies, ministerial websites, industry associations, the World Bank, statistical databases
- Company websites, annual reports, financial reports, broker reports and investor presentations
- Industry trade journals, market reports and other literature
- GlobalData's proprietary databases, including the Capacity and Generation Database, the Power Plant Database and the Transmission and Distribution Database

Further to this, the following secondary information is collected and analyzed to project South Korea's power market scenario through to 2030, analyzing factors such as the following:

- South Korea's macroeconomic scenario
- Government regulations, policies and targets
- Government and private sector investments
- Contract and deal announcements
- Utility expansion plans
- The sector's historic track record
- Other qualitative insights built through secondary research and analysis of company websites, annual reports, investor presentations, industry and trade journals, and data from industry associations

## Appendix

### 9.4.3 Primary Research and Analysis

Secondary research is further complemented through primary interviews with industry participants to verify and fine-tune the market numbers obtained through secondary research and gain first-hand information on industry trends.

The participants are drawn from a diverse set of backgrounds, including equipment manufacturers, industry associations, government bodies, utilities, distributors, and academia. The participants include, but are not limited to, C-level executives, industry consultants, academic experts, business development and sales managers, purchasing managers, plant managers, government officials, and industry spokespeople.

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