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GlobalData

QATAR POWER MARKET OUTLOOK TO 2030, UPDATE 2014 – MARKET TRENDS, REGULATIONS AND COMPETITIVE LANDSCAPE

Executive Summary

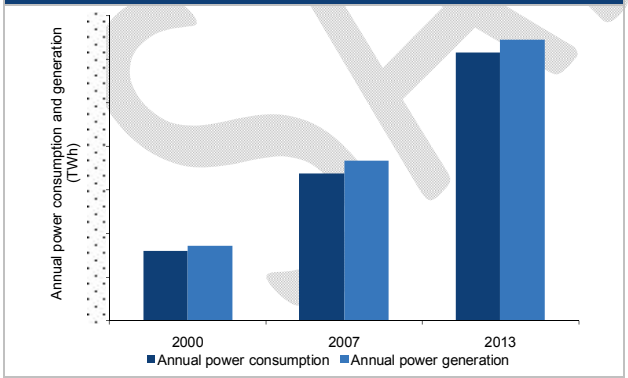
Qatar Dependent on Natural Gas for Power Supply

Qatar is exclusively dependent on natural gas for power generation, largely due to the abundant supply of gas from the North Field, which yields gas in volumes sufficient for export as well as power generation. Oil reserves are comparatively less substantial and all of the oil produced is exported.

Increase in Power Consumption and Generation from 2000 to 2013

Annual power consumption in Qatar increased from XX Terawatt hours (TWh) in 2000 to XX TWh in 2013 at a Compound Annual Growth Rate (CAGR) of XX% due to economic development, which drove both residential and industrial consumption. Annual power generation also increased during the same period from XX TWh to XX TWh at a CAGR of XX%.

Power Market, Qatar, Annual Power Consumption and Generation (TWh), 2000–2013



Source: GlobalData, Power Database [Accessed on November 3, 2014]

Qatar Targets XX% of Domestic Energy Supply from Renewables by 2024

The government has announced that it intends to derive XX% of its energy requirements from renewable sources by 2024 rather than relying XX% on natural gas, as is currently the case. A number of renewable projects have been announced. In 2013, the government announced the launch of a XX Megawatt (MW) solar power project and a XX Gigawatt (GW) solar power generation complex, which will be used to cool the World Cup stadium in Doha, in 2022. The biggest obstacle facing the development of renewable power is its high cost of generation compared with the free electricity from gas-based power plants that is currently being supplied to Qatari citizens. However, it is likely that, with government backing, the share of renewable power in the country will increase.

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2 Introduction

Qatar, a sovereign Arab state in the Middle East region, is one of the most prominent natural-gas-based economies in the Middle East. It is classified as a high-income country with the distinction of having one of the highest levels of per-capita energy consumption of the Gulf Cooperation Countries (GCC). Since gaining independence in 1971, the former British colony has been ruled as an absolute monarchy.

Qatar's Gross Domestic Product (GDP) at constant prices was $XX billion in 2013 with an estimated growth rate of XX%. Qatar remained largely unaffected by the recession in 2008 and 2009; the economy in fact grew at an average XX% annual growth rate and continued to benefit from substantial investment in the hydrocarbon sector. Government authorities also invested directly in domestic banks in order to protect the local banking sector from the financial crisis.

The industry sector accounted for an estimated XX% of total GDP in 2013, while the services sector accounted for XX% and the remaining XX% came from the agricultural sector. Oil and natural gas exports are the country's primary sources of revenue, as it possesses substantial oil and gas reserves. Qatar ranks third in the world in terms of natural gas reserves, which are estimated to exceed XX trillion cubic feet (tcf), accounting for XX% of the world's total gas reserves. The country also possesses proven oil reserves in excess of XX billion barrels, which is expected to produce continued output for the next 57 years. The government has started to focus on increasing private and foreign investment in the country's non-energy sectors in order to ensure diversification of revenue generation sources (CIA, 2014).

Since the privatization of the electricity market in 2000, Qatar General Electricity and Water Company (Kahramaa) has been responsible for regulating and maintaining the supply of electricity and water. Qatar Electricity and Water Company (QEWC) is a semi-public company responsible for all of country's power-generating units. Gas is the only fuel used for power generation and is likely to remain the predominant fuel in future, despite the government's plans to invest in the development of renewable energy technologies, especially solar. A number of research studies are currently being conducted, with the aim of ensuring the diversification of Qatar's power mix in the future.

Introduction

2.1 GlobalData Report Guidance

- The executive summary summarizes key growth trends in the Qatar's power market.
- Chapter three provides a snapshot of the key parameters that affect Qatar's power sector, as well as key points about the power market.
- Chapter four provides a power market analysis for Qatar.
- Chapter five provides details of the regulatory scenario for the power market and the inward foreign investment scenario in Qatar.
- Chapter six provides information regarding Qatar's cumulative installed capacity and annual generation trends, as a whole and by individual generation source.
- Chapter seven describes the power transmission and distribution infrastructure in Qatar and includes information on interconnectors with neighboring countries. The section also covers electricity imports and exports and upcoming grid-related projects.

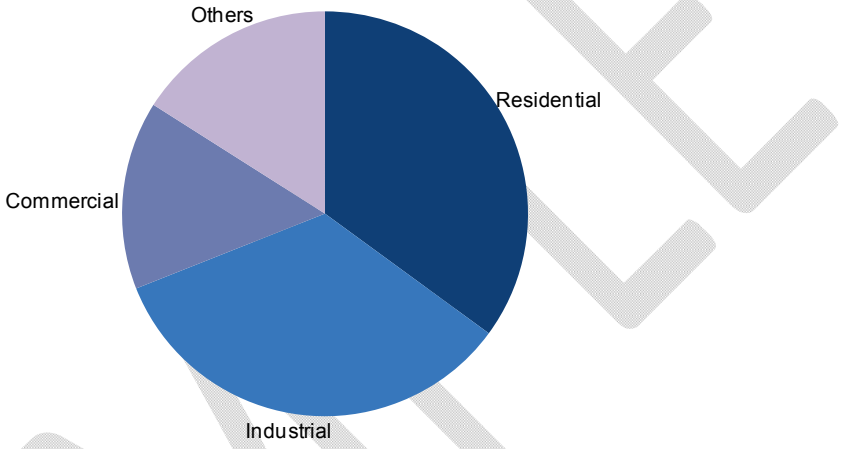
Note: all 2013 market values provided in the report are estimates, except where actual data were available.

Market Analysis

4.4.1 Consumption by Sector, 2013

The residential sector was the largest electricity-consuming sector in the country in 2013 with an estimated XX% share of consumption, followed by the industrial sector with XX% and the commercial sector with XX%. Other smaller sectors contributed a combined XX% share of Qatar's total electricity consumption in 2013.

Figure 6: Power Market, Qatar, Electricity Consumption by Sector (%), 2013



Source: GlobalData

Table 5: Power Market, Qatar, Electricity Consumption by Sector (%), 2013

Sector	Share
Residential	
Industrial	
Commercial	
Other	

Source: GlobalData

6 Qatar, Power Market, Capacity and Generation Overview

6.1 Qatar, Power Market, Cumulative Installed Capacity by Type of Power Plant, 2013

Power generation in Qatar is carried out exclusively by gas-based thermal power plants, which amounted to XX GW in terms of power generation capacity in 2013.

6.2 Qatar, Power Market, Cumulative Installed Capacity and Annual Power Generation, 2000–2030

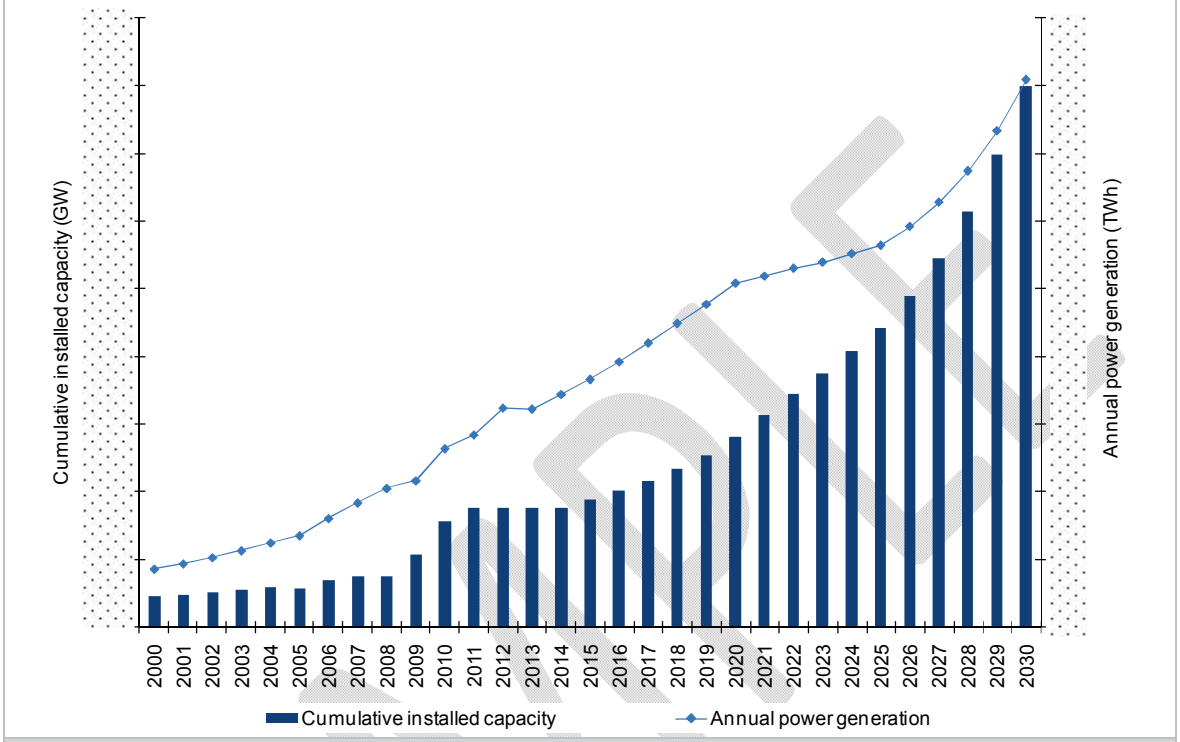
Qatar's cumulative installed capacity amounted to XX GW in 2000, increasing to XX GW in 2013 at a CAGR of XX%. From XX GW in 2014, it is expected to increase at a CAGR of XX% to reach XX GW in 2030.

Qatar's installed capacity is derived wholly from thermal power, specifically gas-based power generation. It is the largest exporter of natural gas in the world due to the immense deposits of natural gas at its disposal, which it uses for power generation as well as for international exports. The country's oil reserves, which are less extensive, are exported. Qatar does not currently generate any electricity from coal, hydropower, or nuclear power. The government has plans to increase the share of renewable sources in its power mix in future.

Qatar's annual power generation amounted to XX TWh in 2000, which increased to XX TWh in 2013 at a CAGR of XX% and is expected to increase to XX TWh in 2014 and XX TWh in 2030 at a CAGR of XX%.

Capacity and Generation Overview

Figure 7: Power Market, Qatar, Cumulative Installed Capacity (GW) and Annual Power Generation (TWh), 2000–2030



Source: GlobalData, Power Database [Accessed on November 24, 2014]

Capacity and Generation Overview

Table 6: Power Market, Qatar, Cumulative Installed Capacity (GW) and Annual Power Generation (TWh), 2000–2030		
Year	Cumulative installed capacity	Annual power generation
2000		
2001		
2002		
2003		
2004		
2005		
2006		
2007		
2008		
2009		
2010		
2011		
2012		
2013		
2014		
2015		
2016		
2017		
2018		
2019		
2020		
2021		
2022		
2023		
2024		
2025		
2026		
2027		
2028		
2029		
2030		
Source: GlobalData, Power Database [Accessed on November 24, 2014]		

9 Appendix

9.1 Market Definitions

9.1.1 Power

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

9.1.2 Installed Capacity

Installed capacity 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 Megawatts (MW) on a nameplate affixed to the generator.

9.1.3 Electricity Generation

Electricity generation refers to the process of generating electricity from other forms of energy. It also refers to the amount of electricity produced, expressed in Gigawatt hours (GWh).

9.1.4 Electricity Consumption

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

9.1.5 Thermal Power Plant

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

9.1.6 Hydropower Plant

A hydropower plans is one in which the turbine generators are driven by falling water.

9.1.7 Nuclear Power

Nuclear power is the 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 those that provide energy that is naturally replenished but limited in the amount of energy available per unit of time. Biomass, geothermal, solar, small hydro and wind are examples of renewable resources.

9.2 Abbreviations

Table 17: Abbreviations	
bcf	billion cubic feet
CAGR	Compound Annual Growth Rate
CCGT	Combined-Cycle Gas Turbine
Ckm	Circuit kilometer
Cogen	Cogeneration
CSEE	Center for Sustainable Energy Efficiency
DCC	Distribution Control Centre
DNI	Direct Normal Irradiance
GCC	Gulf Co-operation Countries
GDP	Gross Domestic Product
GW	Gigawatt
GWh	Gigawatt hour
IWPP	Independent Water and Power Project
Kahramaa	Qatar General Electricity and Water Company
kV	kilovolt
kWh	kilowatt hour
LNG	Liquefied Natural Gas
MW	Megawatt
NCC	National Control Center
OPEC	Organization of the Petroleum-Exporting Countries
PV	Photovoltaic
QEWC	Qatar Electricity and Water Company
T&D	Transmission and Distribution
tcf	trillion cubic feet
tcm	trillion cubic meters
TWh	Terawatt hour
Source: GlobalData	

Appendix

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Appendix

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) and the Strategic and Competitive Intelligence Professionals (www.scip.org).

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

9.4.1 Coverage

This report gives detailed information on Qatar's power market. It examines Qatar'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.

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 Qatar's power market scenario through to 2030, analyzing factors such as the following:

- Qatar's macro-economic scenario
- Government regulations, policies and targets
- Government and private sector investments

Appendix

- 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.

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 get 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.

9.5 Disclaimer