Tunisia Power Market Outlook to 2030 - Business Propensity Indicator (BPI), Market Trends, Regulation and Competitive Landscape

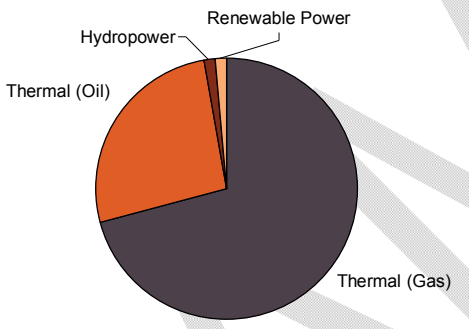
Reference Code: **GDPE0572ICR**

Publication Date: **September 2012**

Thermal Power Dominates Power Generation in Tunisia

In 2011, thermal power accounted for XX% of installed power generation capacity in Tunisia, having previously accounted for XX% in 2000. A major reason for thermal power being the dominant power source is the limited domestic potential in Tunisia for hydropower and renewable power sources. Around XX% of the country is within a hyper-arid zone, which is subject to a Saharan climate. Most of the river systems are in the north of the country, which enjoys a Mediterranean climate, and have already been developed for power generation and agricultural purposes. With power demand increasing, the only viable option has been to increase the generation capacity from thermal power. The availability of natural gas from offshore fields and imports from neighboring countries has resulted in gas-powered generation becoming a major resource for thermal power generation in the country.

Power Market, Tunisia, Cumulative Installed Capacity: Breakup by Type of Power Plant (%), 2011

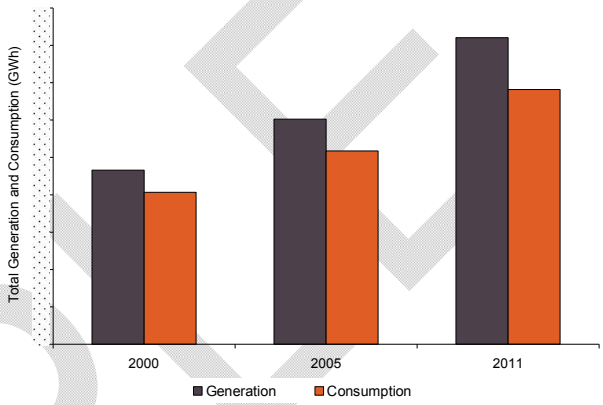


Source: GlobalData; European Neighbourhood Partnership Instrument (ENPI), 2011

Continued Increase in Power Consumption and Generation

Power demand in Tunisia has increased steadily over the past two decades, as a result of robust economical growth in the country. Power consumption rose from XX GWh in 2000 to XX GWh in 2011, at a CAGR of XX%. Power generation has also increased, from XX GWh in 2000, to XX GWh in 2011, at a CAGR of XX%.

Power Market, Tunisia, Annual Generation and Consumption (GWh), 2000-2011



Source: GlobalData, Power eTrack, Capacity and Generation Database, January 11, 2012

Dominance of Thermal Power Expected to Continue, Despite Increased Renewable Share

Thermal power is expected to remain the dominant electricity source for Tunisia in 2030. Hydropower potential is limited in the country and thermal power is the cheapest source that would make it possible for further expected increases in power demand to be met. The Tunisian government has not ruled out the possibility of power generation from coal, as this remains the cheapest thermal power fuel. Heavy dependence upon thermal power will have its own risks as Tunisia's domestic resources dwindle and it is forced to rely upon costly imports that expose it to fluctuating global supply trends and price volatility.

The Tunisian government is concentrating, therefore, on the development of renewable power generation in the country. Solar and wind power generation have substantial potential in the country. The north of the country faces the Mediterranean Sea, and receives high wind velocities favoring wind power generation. The country's first wind farm has already been generating power here since 2000, and more are expected to follow. High solar irradiance in the country, because of its tropical location, also favors solar power development. A number of solar power facilities are planned as part of Tunisia's Solar Power Plan. These projects are expected to increase the share of renewable power in the country. Another notable future energy source in Tunisia is nuclear power; the country has plans to have built its first nuclear plant by 2020.

1 Table of Contents

1.1 List of Tables

1.2 List of Figures

2 Introduction

Tunisia's economy is partially liberalized, and is heavily connected to the European economy. Prior to 1986, the country's economy had a centralized format where the government had an ownership stake in all industries. The liberalization process, begun in 1986, has been lauded by many international financial institutions. The country became a signatory to the General Agreement on Tariffs and Trade (GATT) in 1990, and is also a member of the World Trade Organization (WTO). The country is also a party of the 'Association Agreement' with the European Union (EU), that removed tariff and other trade barriers on most goods by 2008. However, economic liberalization has not been able to solve the problem of unemployment. An estimated XX% of the population was unemployed in 2011, which sparked off a popular uprising that year that resulted in the fall of the government of Zine el Abidine Ben Ali.

The Gross Domestic Product (GDP) of the country in 2011 was estimated at $XX billion. In 2010 it was $XX billion and, in 2009, it was $XX billion. It has been estimated that, due to the political turmoil in 2011, the country lost around $XX billion to $XX billion of GDP. A major reason for this loss was the slump in tourism, as this sector accounts for XX% of GDP, and delays in key investments was also a factor. Foreign Direct Investment (FDI) in 2011 fell by XX%, and more than XX foreign companies closed their operations in the country. However, Tunisia's economy is expected to grow at around XX% in 2012, due to economic reforms implemented by the present government.

The services sector is the largest contributor to GDP, accounting for an estimated XX% in 2010. The industrial sector contributed XX%, while the agricultural sector accounted for XX% (CIA, 2012). Tunisia is a net importer of hydrocarbons. The country is estimated to have XX million barrels of oil and XX billion cubic meters of natural gas reserves, as of January 2011. Main exports include textiles, agricultural products, phosphates, chemicals and hydrocarbons, and electrical equipment.

The Ministry of Industry, Energy, and Small and Medium Enterprises (MIESME)is the main regulatory body for the Tunisian electricity sector, and is responsible for implementing energy policy through the Directorate General for Energy (DGE). Tunisia privatized its power sector in 1996 and has two Independent Power Producers (IPP) currently operating in the country. However, transmission and distribution have not yet been privatized, and are taken care of by Société Tunisienne de l'Electricité et du Gaz (STEG), a government-owned utility. STEG is also the largest holder of market share by installed capacity in Tunisia.

2.1 GlobalData Report Guidance

- This report comprises an executive summary capturing key growth trends in the Tunisia power market.
- Chapter three covers the methodology for evaluating the Business Propensity Indicator.
- Chapter four covers the Business Propensity Indicator (BPI) for Tunisia.
- Chapter five covers the consumption scenario of the market between 2000 and 2011, with forecasts to 2030.
- This is followed by cumulative capacity and power generation information, and segmentation by source of energy between 2000 and 2011 with forecasts to 2030.
- Chapter seven provides information on the power infrastructure of the country including leading active and upcoming power plants by source of energy, existing and planned developments in transmission and distribution infrastructure, and cross-country interconnections.
- Chapter eight, on regulatory structure, provides brief descriptions of the power regulatory structure and prominent policies influencing the future of the power market.
- Chapter nine describes the competitive landscape of the country's power market, with a complete description and SWOT analysis of the top companies

NOTE: All 2011 market numbers provided in the report are estimates.

4 Tunisia, Power Market, Business Process Indicator

4.1 Supply Security

Thermal power was the dominant source of power in Tunisia in 2011, with a XX% share of total installed capacity. Hydropower had a share of XX%, followed by renewable sources with a combined share of XX%. Within thermal power, gas-based generation capacity accounted for XX%, while oil-fired power plants accounted for XX%.

4.2 Regulatory Scenario

Power generation in Tunisia has been privatized and IPPs are operating in the country. The government is keen to promote the involvement of IPPs in the generation sector, to meet future demand in the country. Transmission and distribution is not yet privatized. There are particular opportunities for power sector investment in gas-based power generation, and in renewable power such as wind and solar, both Photovoltaic (PV) and thermal or Concentrated Solar Power (CSP).

4.3 Infrastructure

Tunisia has a well-developed power sector infrastructure with an electricity access rate of XX% as of 2010. The total length of transmission lengths in 2010 was XXkm, while total distribution line length was XXkm.

4.4 Competition

STEG is currently the only power utility in Tunisia, and takes full responsibility for generation, transmission, and distribution in the country.

4.5 Macroeconomic Factors

Tunisia ranked XXth out of XX countries globally according to the World Bank in 2012 in terms of ease of doing business, following a 2011 ranking of XXth in the same index (World Bank, 2012).

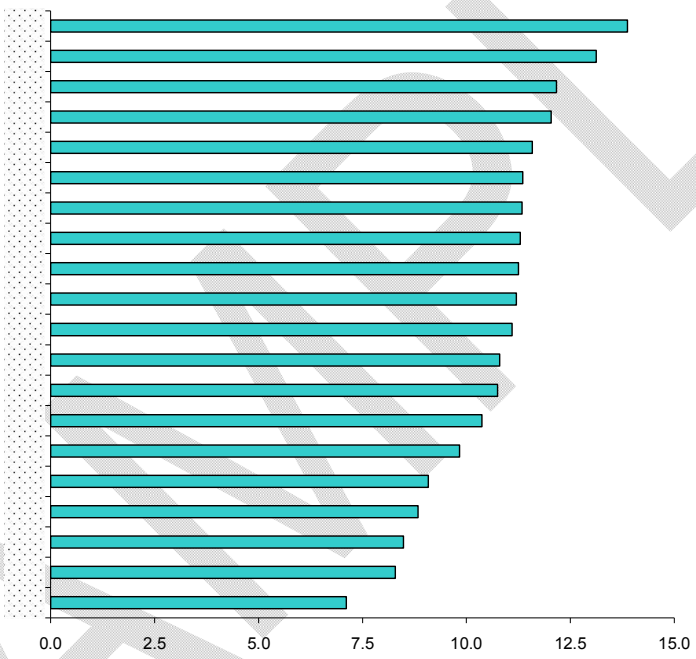
4.6 Future Potential

Thermal power is expected to continue to be the dominant source for power generation capacity in the country by 2020, followed by renewable sources. Hydropower installed capacity is expected to be the third largest contributor by 2020.

4.7 Tunisia, Power Market, Business Process Indicator Ranking

The chart below shows the BPI rankings of twenty African countries. It also shows how Tunisia compares with its preceding and succeeding countries in terms of individual ranking areas.

Figure 2: Power Market, Tunisia, Business Propensity Indicator Ranking



Source: GlobalData
Refer to BPI methodology section for more details

Tunisia ranks XXth among the 20 countries that have been compared.It has ranked immediately above XX and below XX.

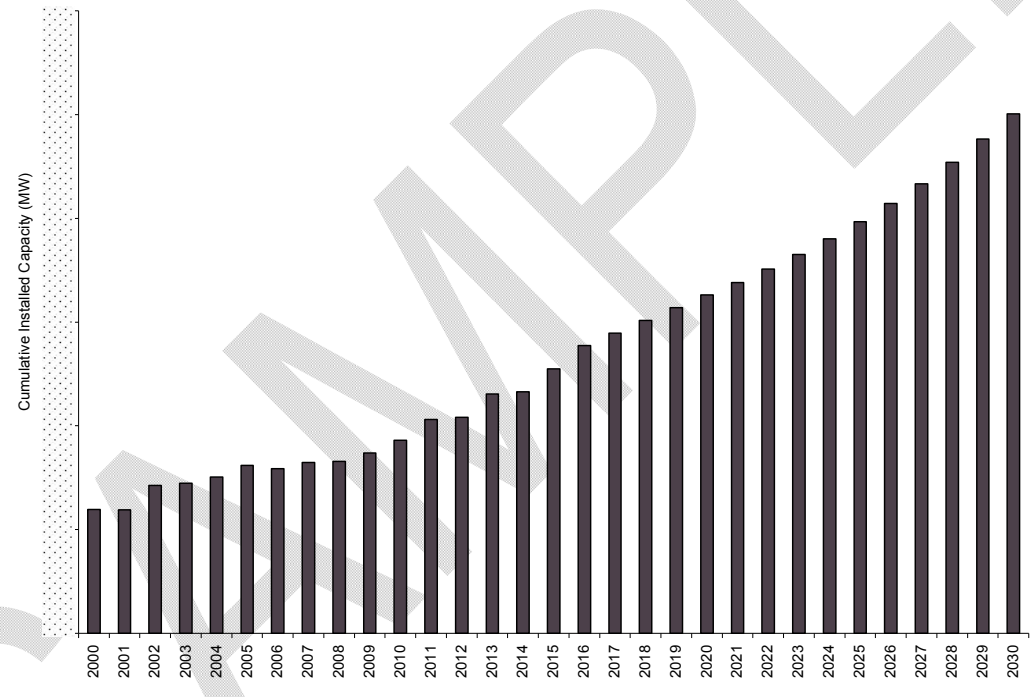
5.1.2 Cumulative Installed Capacity, 2000-2030

Cumulative installed capacity in Tunisia increased from XX MW in 2000 to XX MW in 2011 at a CAGR of XX%. Cumulative installed capacity is expected to increase between 2012 and 2030 at a CAGR of XX% to result in a figure of XX MW.

Thermal power remains the dominant source of electricity in Tunisia; installed capacity increased at a CAGR of XX% between 2000 and 2011, and is expected to grow between 2012 and 2030 at a decreased CAGR of XX%. In comparison, renewable power increased at a CAGR of XX%, and is expected to grow between 2012 and 2030 at a CAGR of XX%. Hydropower installed capacity actually decreased at a CAGR of -XX% until 2011, and is expected to increase at a low CAGR of XX% during the forecast period.

In the 1980s, power generation in Tunisia was characterized by surplus electricity and this was the main driving force behind economic development. However, with increases in power demand outstripping increases in installed capacity, the country turned to importing power in the 1990s. Tunisia's power generation capacity is once again heavily dependent upon gas, and, although this gas is available from domestic offshore fields, Tunisia also imports gas from Algeria. This heavy dependence upon fossil fuels means that the country is vulnerable to global fluctuations in fuel supplies, and price volatility.

Figure 4: Power Market, Tunisia, Cumulative Installed Capacity (MW), 2000-2030



Source: GlobalData, Power eTrack, Capacity and Generation Database, January 11, 2012

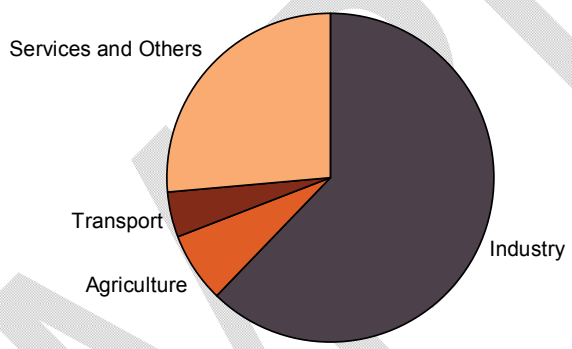
Table 4: Power Market, Tunisia, Cumulative Installed Capacity (MW), 2000-2030	
Year	**Installed capacity (MW)**
2000	
2001	
2002	
2003	
2004	
2005	
2006	
2007	
2008	
2009	
2010	
2011	
2012	
2013	
2014	
2015	
2016	
2017	
2018	
2019	
2020	
2021	
2022	
2023	
2024	
2025	
2026	
2027	
2028	
2029	
2030	
Source: GlobalData, Power eTrack, Capacity and Generation Database, January 11, 2012	

5.5 Tunisia, Power Market, Power Consumption by Sector, 2011

Power demand in Tunisia has been displaying an upward trend, due to robust economic growth. GDP for Tunisia grew from 1990, at an average of XX% per year, until 2008. Economic expansion has slowed since 2009, due to the global recession, and GDP growth in 2010 was down, at XX%. Power demand growth was higher at around XX% per year from 1990 to 2002. After 2002, power demand growth was lower, at XX% per year. During the XXth development plan period, between 2007 and 2011, power demand grew at XX% per year. During the XXth plan period, between 2012 and 2016, power demand growth has been expected to increase substantially to XX% per year, due mainly to the announcement of several power generation projects. However, the continuing global economic recession, along with political difficulties in Tunisia in 2011, has lessened the chances of any large or sudden increases in power demand, and updated figures indicate a growth rate of between XX% and XX% per year until 2030 (ESMAP, 2011).

In Tunisia, the services sector was the largest contributor to GDP, followed by industry and then agriculture, in 2011. In terms of power consumption, the industrial sector is estimated to have accounted for XX% of total consumption, followed by agriculture and transport services, with respective shares of XX% and XX%. Services and other sectors accounted for the remaining XX% of power consumption.

Figure 14: Power Market, Tunisia, Power Consumption Share of Various Sectors (%), 2011



Source: GlobalData; Société Tunisienne de l'Electricité et du Gaz (STEG), 2011

Table 14: Power Market, Tunisia, Power Consumption Share of Various Sectors (%), 2011

Sector	Percentage (%)
Industry	
Agriculture	
Transport	
Services and others	

Source: GlobalData; Société Tunisienne de l'Electricité et du Gaz (STEG), 2011

9 Appendix

9.1 Market Definitions

9.1.1 Power

The rate of production, transfer, or energy use, usually related to electricity. Measured in watts and often expressed in kilowatts (kW) or megawatts (MW), it is also known as "real" 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. Installed capacity is given in Megawatts (MW) on a nameplate physically fixed on the generator.

9.1.3 Active Installed Capacity

Active installed capacity refers to that component of electric power that actually performs work. It is given in Kilowatts (KW) or Megawatts (MW).

9.1.4 Electricity Generation

Producing electric energy by transforming other forms of energy. Also refers to the amount of electric energy produced, expressed in Gigawatt hours (GWh).

9.1.5 Electricity Consumption

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

9.1.6 Thermal Power Plant

A plant in which turbine generators are driven by burning fossil fuels.

9.1.7 Hydropower Plant

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

9.1.8 Nuclear Power

The electricity generated by the use of the thermal energy released from the fission of nuclear fuel in a reactor.

9.1.9 Renewable Energy Resources

Naturally replenishing energy resources limited in the amount of energy that is available per unit of time. For example, biomass, geothermal, solar, wind can all be termed as renewable resources.

9.2 Abbreviations

Table 25: Abbreviations	
Abbreviation	**Full Form**
$m	Dollar Million
BOOT	Build, Own, Operate, Transfer
CAGR	Compounded Annual Growth Rate
CHP	Combined Heat and Power
CIA	Central Intelligence Agency
COMELEC	Comité Maghrébin de l'Electricité
CSP	Concentrated Solar Photovoltaic
DGE	Directorate General for Energy
EIA	Energy Information Agency
ELMED	European Logistics Mediterranean
ENPI	European Neighbourhood and Partnership Instrument
ESMAP	Energy Sector Management Assistance Program
FDI	Foreign Direct Investment
FIPA-TUNISIA	The Foreign Investment Promotion Agency of Tunisia
GDP	Gross Domestic Product
GWh	Gigawatt Hour
IEA	International Energy Agency
IMF	The International Monetary Fund
IPP	Independent Power Producer
IRENA	International Renewable Energy Agency
kV	Kilo Volt
kW	Kilowatt
kWh	Kilowatt Hour
LPG	Liquefied Petroleum Gas
MIESME	The Ministry of Industry, Energy, and Small and Medium Enterprises
MVA	Megavolt-Ampere
MW	Megawatt
PV	Photovoltaic
STEG	Société Tunisienne de l'Electricité et du Gaz
Source: GlobalData	

9.3 Bibliography

- CIA, 2012. Tunisia: The World Factbook. *Central Intelligence Agency*. Available from: https://www.cia.gov/library/publications/the-world-factbook/geos/ts.html. Accessed on: July 6, 2012
- EIA (2011a). *Total Electricity Imports (Billion Kilowatthours) - Tunisia [Database]. Energy Information Agency*. Available at: http://www.eia.gov/cfapps/ipdbproject/iedindex3.cfm?tid=2&pid=2&aid=3&cid=TS,&syid=2000&eyid=2010&unit=BKWH. Accessed on: January 11, 2012
- EIA (2011b). *Total Electricity Exports (Billion Kilowatthours) - Tunisia [Database]. Energy Information Agency*. Available at: http://www.eia.gov/cfapps/ipdbproject/iedindex3.cfm?tid=2&pid=2&aid=4&cid=TS,&syid=2000&eyid=2010&unit=BKWH. Accessed on: January 11, 2012
- ESMAP (2011). Power Sector Financial Vulnerability Assessment - Tunisia. *Energy Sector Management Assistance Program (ESMAP)*. Available from: http://www.esmap.org/esmap/sites/esmap.org/files/Esmap%20Vulnerability%20Tunisia%2001%2012.pdf
- Foreign Investment Promotion Agency of Tunisia, 2011. Freedom to Invest. *THE FOREIGN INVESTMENT PROMOTION AGENCY, FIPA-TUNISIA*. Available from: http://www.investintunisia.tn/site/en/article.php?id_article=788. [Accessed July 6, 2012]
- Global Energy Observatory, 2011. *References for Tunisia - Overview of Hydro Power Plants in Tunisia [Database]. Global Energy Observatory*. Available at: http://globalenergyobservatory.org/countryid/217. Accessed on: July 6, 2012
- IMF (2011). *World Economic Outlook Databases [Database]. The International Monetary Fund*. Available from: http://www.imf.org/external/pubs/ft/weo/2011/02/weodata/index.aspx Accessed on: July 6, 2012
- IRENA, 2012. RENEWABLE ENERGY COUNTRY PROFILE: TUNISIA. *International Renewable Energy Agency*. Available from: http://www.irena.org/REmaps/countryprofiles/africa/Tunisia.pdf.
- European Neighbourhood and Partnership Instrument (2011). Paving the Way for the Mediterranean Solar Plan, Country Report: Tunisia. *Paving The Way for the Mediterranean Solar Plan Project Consortium.* Available from: http://www.pavingtheway-msp.eu/fileadmin/paving-the-way/Country-report_-_Tunisia_-_Activity_1_4-1_01.pdf.
- United Nations Conference on Trade and Development (2011). World Investment Report 2011. *United Nations Conference on Trade and Development*. Available from: http://unctad.org/en/docs/wir2011_embargoed_en.pdf
- World Bank (2012). Ranking of Economies via Doingbusiness.org. *The World Bank Group*. Available from: http://www.doingbusiness.org/rankings. Accessed on: July 6, 2012

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 the country's power market. It examines the country'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 like the Capacity and Generation Database, Power Plant Database and Transmission and Distribution Database.

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

- The country'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.

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.

9.6 Disclaimer