
**The World Markets
for
Transformers
2018 - 2028**

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1. INTRODUCTION

1.1 OBJECTIVES AND SCOPE

The objective of this report is to provide a concise overview of the world transformer market. The report gives an estimate of the volume and value of transformer consumption in each national market, broken down by product category. For the purposes of this report the categories of transformers have been defined as follows:

- Generator Transformers - defined as step-up transformers attached to power generation plants. The purpose of these transformers is to increase the voltage from alternator output to transmission level.
- Transmission Transformers - defined as transformers installed in transmission sub-stations. For the purposes of this report, Transmission Transformers are further defined as generally in developing markets having a power handling capacity equal to, or greater than, 5MVA and in industrialised countries nearer 10MVA. Also known as system transformers, the purpose of these transformers is to step-down the voltage from transmission levels to sub-transmission and distribution levels.
- Distribution Transformers - defined as transformers installed in distribution and consumer sub-stations. Distribution Transformers are further defined as generally having a power handling capacity of less than 5MVA.

These categories include all transformers with a power handling capacity exceeding 16kVA. Measuring transformers, instrument transformers or transformers for use in civil aircraft are not included in this report.

The scope for this report is world-wide - that is, every country having a significant transformer customer base. The report is designed to be used as a first line planning tool by companies interested in the global market for transformer products and as a screen on which to identify national markets worthy of further investigation.

1.2 METHODOLOGY

Data in the markets report is presented in both millions of US dollars and in terms of power capacity (MVA). The salient points of the methodology are as follows:-

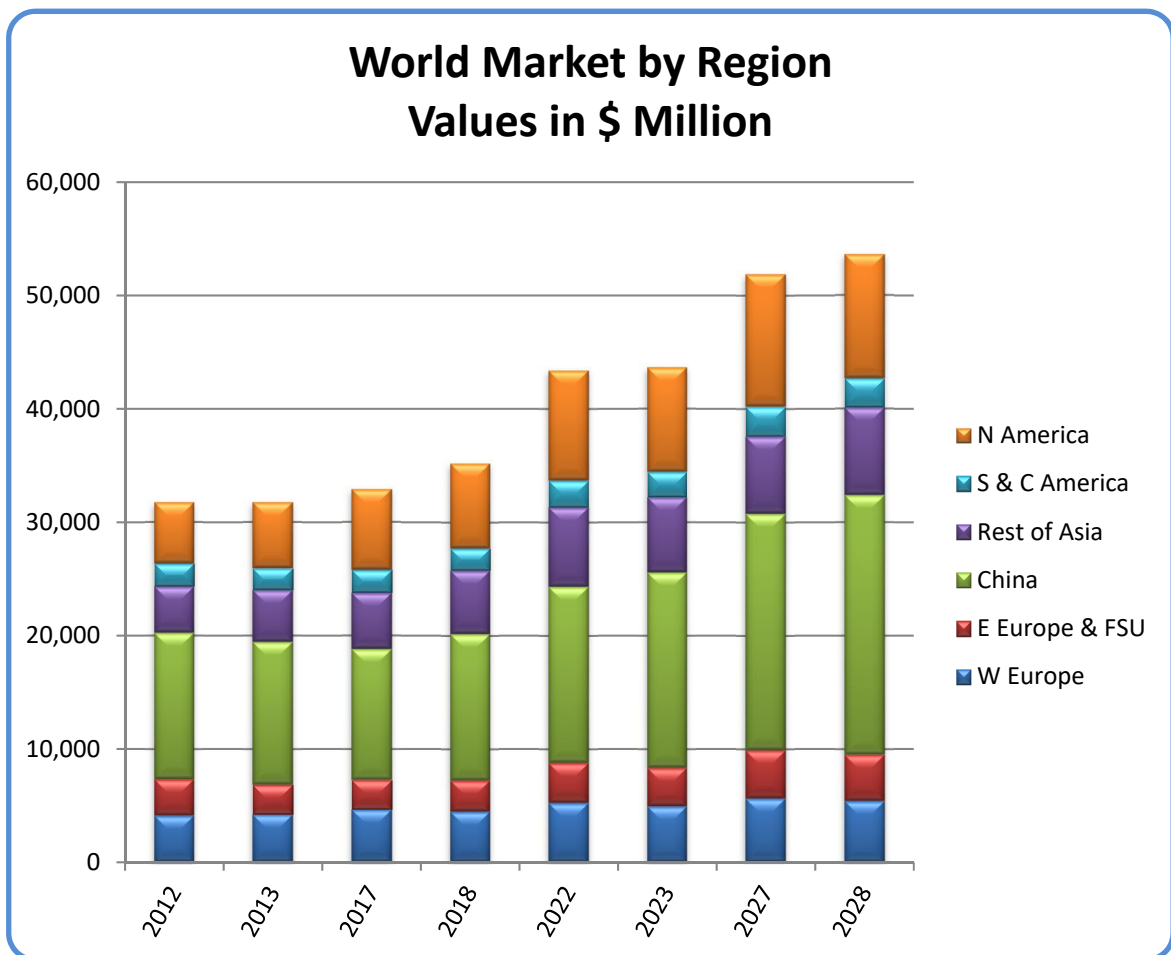
- For the data presented in US dollars, the survey was based primarily on desk research, including a review of available published production and trade statistics. Import and export figures are calculated from national and United Nations' figures for 2011–2017 the most comprehensive and up-to-date statistics available. Market values are assumed to be equal to Production + (Imports - Exports). National production estimates are based on statistics provided by national governments and trade associations. Market sizes for 2018 are estimated by analysing a range of economic indicators together with trends in trade flow and the pattern of market size growth over the period 2011-2017.
- Market values for the period 2018 to 2028 have been estimated based on two separate methodologies. Firstly the past growth rate in market values for each country have been extrapolated and have been compared with general macro-economic indicators such as GDP, GDP growth and inputs to the value added for each economy. Secondly, the development of the electrical power system in each country has been studied to provide indications for future system growth, and hence transformer market growth.
- The future MVA demand for each country has been forecast using the following method. The current year-on-year growth in installed capacity for each country has been tracked for the last 40 years. The development over the last ten years has been used as the basis for establishing the new MVA of generator capacity in each country for the period 2018 to 2028. To this new capacity has been added the power station capacity that is necessary to replace redundant or retired plant. Typical rates for this are based on 2.5% of the installed capacity in the period 1975 to 2017, yielding an assumed plant life of approximately 40 years. The new and replacement generator MVA has then been used as the basis for calculating the transmission and distribution transformer MVA over the forecast period.
- Market values are at factory gate prices - they reflect the prices for the products by the importer and do not include trade mark-ups and installation costs. It should be noted that published classifications of products, especially with respect to trade statistics, are sometimes inaccurate, as products may be shipped under generic titles. It should also be noted that Goulden Reports chronicles shipments rather than contracts. A contract to supply goods over a number of years will not appear as a one-off event in a Goulden Report, but rather will be recorded from the trade statistics. The nature of the market means that demand within countries, especially developing ones, can fluctuate greatly from year to year as purchases are often made on a one-off basis rather than spread evenly over a number of years.
- Within national markets, where published figures were unavailable to us, the breakdown between different product categories is based on intelligence about the pattern of consumption in the country concerned. In these cases the breakdown is made from an estimate of the Total market size rather than the value of the entire market being calculated from the individual product categories.

Clients that have purchased previous editions of this report will note that this edition contains a more detailed analysis of the market in each country. Market data by value, by MVA, by insulation type, by size, by end use and forecasts through to 2028 by value and by MVA are all included in this report.

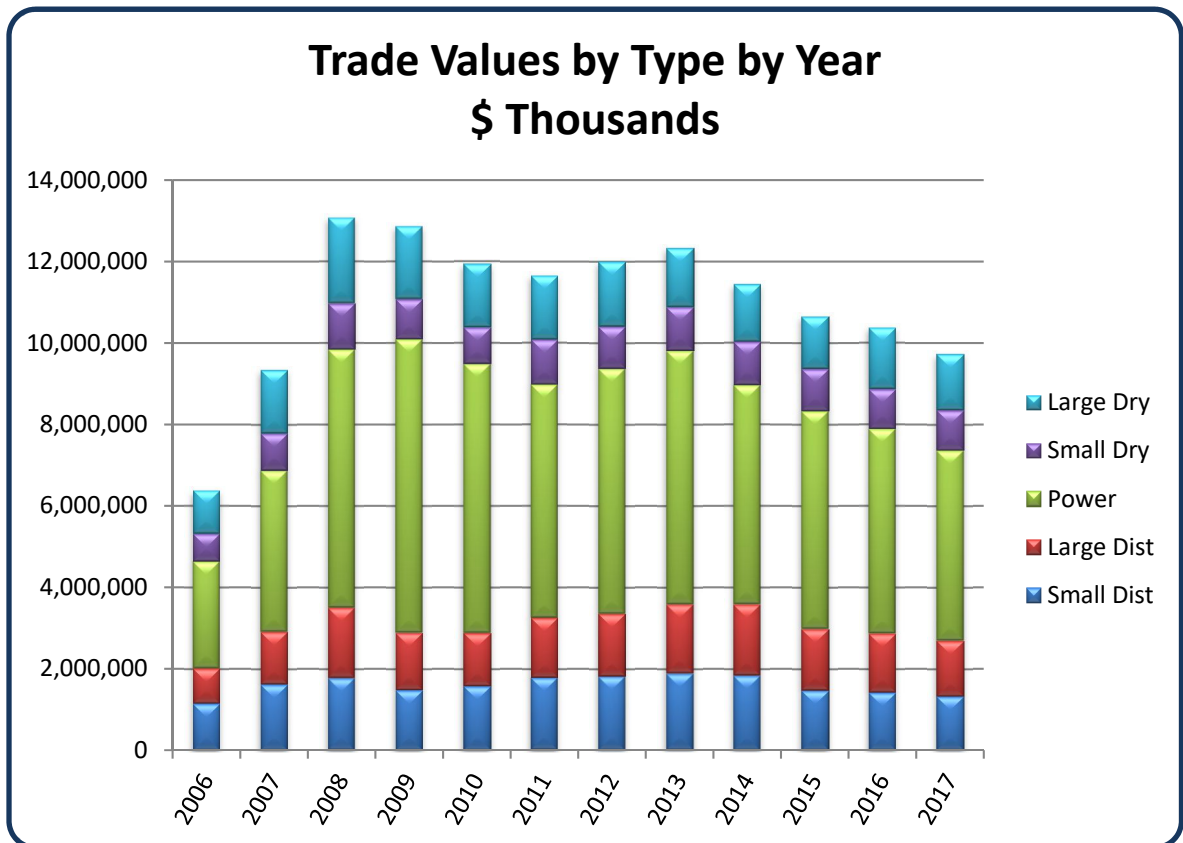
Figures for non-UN countries are based on data obtained from individual countries and are consequently not necessarily comparable with UN-derived information. Clearly the report is only as accurate as the information upon which it draws - the sources are regarded as being the best and most comprehensive available.

2. SUMMARY

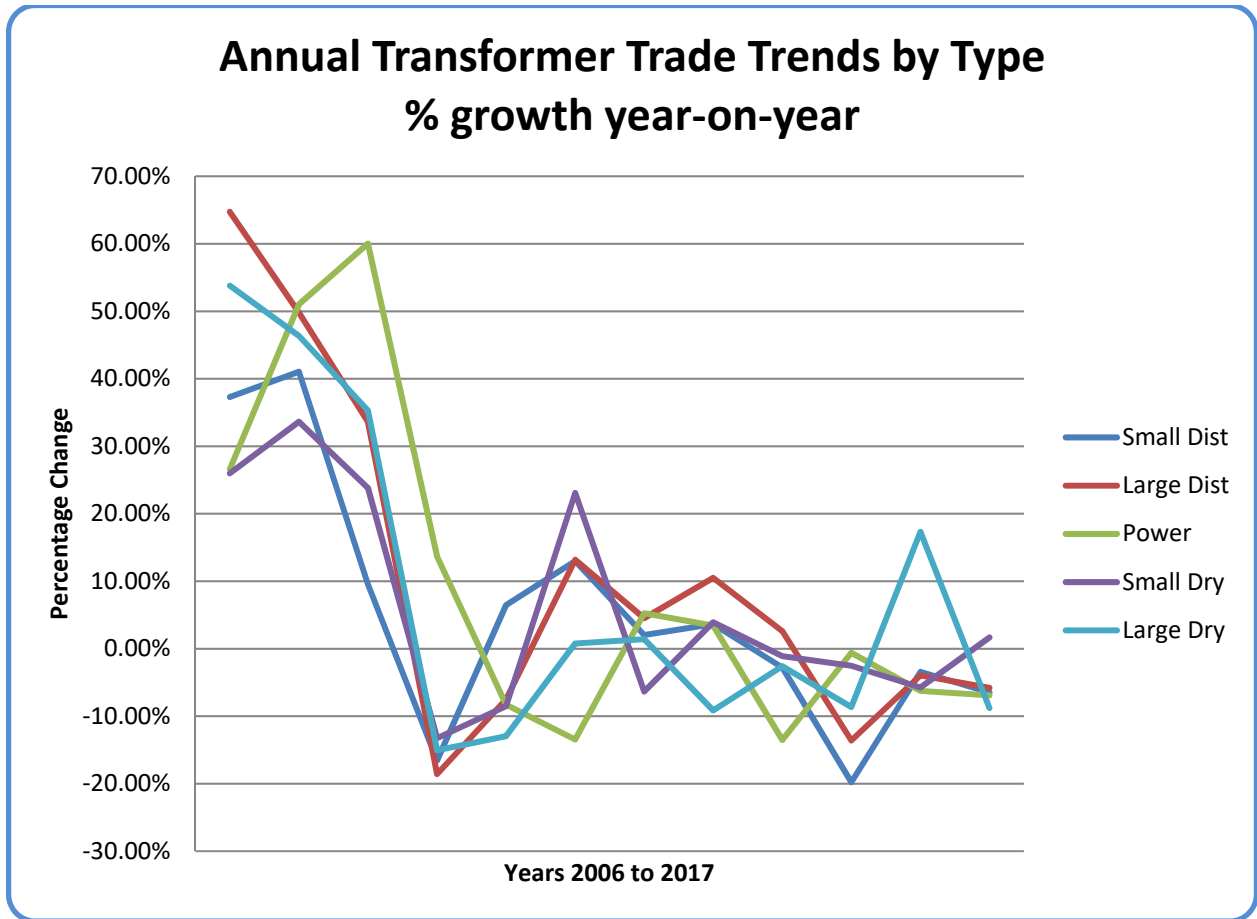
- The global market for Transformers was valued at xxxxxxx million in 2018.
- The largest national market in 2018 is that of China, which was valued at xxxxxxx million and which accounted for 31.1% of the overall world market.
- The second largest national market is that of the USA (xxxxxxx million) followed by India (xxxxxxx million), Russia (xxxxxxx million), Japan (xxxxxxx million), and Brazil (xxxxxxx million).
- The largest regional market for Transformers in 2018 is Asia (xxxxxxx million) followed by North America (xxxxxxx million) and Western Europe (xxxxxxx million).



- The largest producer in 2017 was China, with production totalling xxxxxxx million.
- Reported trade in transformers totalled US\$xxxxxx million in 2017. This equates to xxxx% of global consumption of transformers. The three year average for trade - eliminating one year variations was US\$xxxxxxx million.



- The largest exporters in 2017 were China (US\$xxxxxx million), South Korea (US\$xxxxx million) Germany (US\$xxxxx million), followed by Mexico (US\$xxxxx million), and Italy (US\$xxxxx million).
- The largest importer in 2017 was the USA (US\$xxxxx million) followed by Canada (US\$xxxxx million), UK (US\$xxxxx million) UAE (US\$xxxxx million) Saudi Arabia (US\$xxxxx million) and Germany (US\$xxxxx million). The annual trade trends in different types of transformer are shown in the chart below. This shows the year on year growth in trade values for 5 types of transformer.
- Trade in Transformers of all types has fallen with the exception of small dry types in 2011 when an increase was recorded and large dry type transformers which also increased dramatically in 2016 - probably as a result of investment in wind power where dry GSU transformers are used. Notice that these two categories change back again in 2017.



One trend which has become very clear from the analysis of transformer parts trade that is included in this report is that of manufacturers outsourcing the supply of transformer parts and sub assemblies. Part of this is no doubt due to transformer manufacturers rationalising their supply chains but increasingly manufacturers are happy to purchase key parts and to concentrate their skill base on design and assembly expertise. The Henry Ford approach to transformer manufacture where raw materials went into one end of a factory and finished transformers came out of the other end, has long since finished. A tank welding unit and electrostatic paint bay were once considered as much an essential integral part of any transformer plant as a winding shop or testing facility. Finished tanks are now routinely outsourced as are increasingly, windings, complete cores, bushings, tap changers, etc, etc,. Trade in parts grew by a cagr of 10.12% from 2009 to 2013, from US\$xxx billion to US\$xxx billion in 2013. This trend continues and it is notable that in 2016 the total trade in transformers and the total trade in parts were numerically equal at US\$xxxx billion.

Recent Supply Changes

During the final editing of this report came an announcement from ABB and Hitachi that ABB is to sell the Grid business to Hitachi firstly 80% with a two year transition to 100% of the equity.

In December 2018 it is announced that ABB is to divest itself of the entire Power Grid business to Hitachi so that it can concentrate on the remaining 70% of the business and shape it as a "leader in digital industries".

The information from ABB indicates that Enterprise Value of \$11 billion for 100% of Power Grids, equivalent to an EV/op. EBITA multiple of 11.2x and that they intend "to return 100% of the estimated net cash proceeds of \$7.6-7.8 billion from the 80.1% sale to shareholders in an expeditious and efficient manner through share buyback or similar mechanism."

Clearly the management do not feel that they need to accumulate funds from the sale. However; the sale will provide a very welcome present for the shareholders and the advisers/market-makers and analysts that have ensured that the rumours circulating over the last few years have now come to pass. The EBIT return from the ABB Power Grid business (and the former Power Products and Power Systems divisions that preceded it) over the last 11 years have returned a total of US\$18,430 million - not inflation adjusted. In the long term sticking with the grid business looks like the better of the two options for the shareholders but the opposing view that a "bird in the hand is worth two in the bush" has prevailed.

So what does Hitachi benefit from the purchase from ABB other than an US\$11 billion business? There are a lot of fine words in press releases issued by both parties but the attraction must be the acquisition of a truly leading global business ensuring that Hitachi will be the regions number one player with global capabilities.

In this edition of our report the ABB and Hitachi figures are shown separately and have not been amalgamated. In the next edition we will look at the ramifications of the sale and the final positioning of Hitachi in the transformer industry market.

2.1 Summary Tables

Table 1

The Fastest Growing National Markets for Transformers 2013 - 2018 (US\$ Thousand)

Country	Market Size 2013	Market Size 2018	Cagr 2013-2018

Source: Goulden Reports and United Nations

Note: Only countries with market sizes greater than US\$20 million are included in this section. Smaller markets may display significantly larger percentage changes.

Table 2

**The Fastest Growing National Markets for Transformers
2013 - 2018 (MVA)**

Country	Market Size 2013	Market Size 2018	Cagr % change

Source: Goulden Reports and United Nations

Note: Only countries with market sizes greater than 200 MVA are included in this section. Smaller markets may display significantly larger percentage changes.

Table 3

**The Fastest Declining National Markets for Transformers
2013- 2018 (US\$ Thousand)**

Country	Market Size 2013	Market Size 2018	Cagr 2013 - 2018

Source: Goulden Reports and United Nations

Note: Only countries with market sizes greater than US\$20 million are included in this section. Smaller markets may display significantly larger percentage changes.

Table 4

**The Fastest Declining National Markets for Transformers
2013 - 2018 (MVA)**

Country	Market Size 2013	Market Size 2018	Cagr% Change

Source: Goulden Reports and United Nations

Note: Only countries with market sizes greater than 100 MVA are included in this section. Smaller markets may display significantly larger percentage changes.

Table 5

The Largest National Markets for Transformers 2018 (US\$ Million)

Country	Market Size 2018	% of Total

Source: Goulden Reports and United Nations

3. THE WORLD MARKET

Table 6

The World Market for Transformers, by Region, 2013 - 2018 (US\$ Thousand)

Region	2013	2014	2015	2016	2017	2018

Source: Goulden Reports and United Nations

Table 7

The World Market for Transformers, by Region, 2013/2018 (% Change)

Region	2014/2013	2015/2014	2016/2015	2017/2016	2018/2017	Cagr
Western Europe						
Eastern Europe						
Former Soviet Union						
North Africa						
West Africa						
Central Africa						
East Africa						
Southern Africa						
Middle East						
Indian Sub Continent						
Asia						
South America						
Central America And Caribbean						
North America						
Oceania						
World						

Source: Goulden Reports and United Nations

Table 8

The World Market for Transformers, by Region, by Function Type 2018 (US\$ Thousand)

Region	Generator	Transmission	Distribution	Of Which - Pole Top	Total
Western Europe					
Eastern Europe					
Former Soviet Union					
North Africa					
West Africa					
Central Africa					
East Africa					
Southern Africa					
Middle East					
Indian Sub Continent					
Asia					
South America					
Central America					
Caribbean					
North America					
Oceania					
World					

Source: Goulden Reports and United Nations

Table 9

The World Market for Transformers, by Region, by Number of Units 2018 (Units)

Region	Generator	Transmission	Distribution	Of Which - Pole Top	Total
Western Europe					
Eastern Europe					
Former Soviet Union					
North Africa					
West Africa					
Central Africa					
East Africa					
Southern Africa					
Middle East					
Indian Sub Continent					
Asia					
South America					
Central America					
Caribbean					
North America					
Oceania					
World					

Source: Goulden Reports and United Nations

Table 10

The World Market for Transformers, by Region, by Function Type 2018 (MVA)

Region	Generation Transformers	Transmission Transformers	Distribution Transformers	Total
Western Europe				
Eastern Europe				
Former Soviet Union				
North Africa				
West Africa				
Central Africa				
East Africa				
Southern Africa				
Middle East				
Indian Sub Continent				
Asia				
South America				
Central America And Caribbean				
North America				
Oceania				
World				

Source: Goulden Reports and United Nations

Table 11

The World Market for Transformers, by Region, by Insulation Type 2018 (US\$ Thousand)

Region	Oil Filled	Safety Fluid	Cast Resin & Dry Types	Total
Western Europe				
Eastern Europe				
Former Soviet Union				
North Africa				
West Africa				
Central Africa				
East Africa				
Southern Africa				
Middle East				
Indian Sub Continent				
Asia				
South America				
Central America And Caribbean				
North America				
Oceania				
World				

Source: Goulden Reports and United Nations

Table 12

The World Market for Transformers, by Region, by Size of Transformer 2018 (US\$ Thousand)

Region	Over 150 MVA	50 to 150 MVA	5 to 50 MVA	0.5 to 5 MVA	50 to 500 kVA	5 to 50 kVA	Total
Western Europe							
Eastern Europe							
Former Soviet Union							
North Africa							
West Africa							
Central Africa							
East Africa							
Southern Africa							
Middle East							
Indian Sub Con							
Asia							
South America							
Central America And Caribbean							
North America							
Oceania							
World							

Source: Goulden Reports and United Nations

Table 13

The World Market for Transformers, by Region, by End Use Customer 2018 (US\$ Thousand)

Region	Utility Organisations	Construction & Industry	Rail & Transport	Mining, Marine & Offshore	Total
Western Europe					
Eastern Europe					
Former Soviet Union					
North Africa					
West Africa					
Central Africa					
East Africa					
Southern Africa					
Middle East					
Indian Sub Continent					
Asia					
South America					
Central America And Caribbean					
North America					
Oceania					
World	32,207,800	6,894,430	848,655	1,530,982	41,481,867

Source: Goulden Reports and United Nations

3.1 FORECAST WORLD MARKET 2013-2028

Table 14

The Forecast World Market for Transformers, by Region, 2013 - 2028 (US\$ Thousand)

Region	2013	2018	2023	2028	Cagr 13-18	Cagr 18-23	Cagr 23-28
Western Europe							
Eastern Europe							
Former Soviet Union							
North Africa							
West Africa							
Central Africa							
East Africa							
Southern Africa							
Middle East							
Indian Sub Continent							
Asia							
South America							
Central America And Caribbean							
North America							
Oceania							
World							

Source: Goulden Reports

Table 15

The Forecast World Market for Transformers, by Region, 2013 - 2028 (MVA Demand)

Region	2013	2018	2023	2028	Cagr 13-18	Cagr 18-23	Cagr 23-28
Western Europe							
Eastern Europe							
Former Soviet Union							
North Africa							
West Africa							
Central Africa							
East Africa							
Southern Africa							
Middle East							
Indian Sub Continent							
Asia							
South America							
Central America and Caribbean							
North America							
Oceania							
World							

Source: Goulden Reports

4. THE WORLD'S MAJOR TRANSFORMER MANUFACTURERS

This table has been compiled from published sources and are designed to serve only as a general overview.
See notes in Summary section for comments on ABB sale of Grid Business to Hitachi

Table 16

Leading Manufacturers' Sales of Transformers 2017 (US\$ Thousand)

Company	Country	Transformer Sales 2017	Estimated World Market Share %
ABB	Switzerland		
Aichi	Japan		
BHEL	India		
CG Group	India		
Daihen	Japan		
Eaton Cooper	USA		
EFACEC	Portugal		
GE	USA		
Hitachi	Japan		
Howard	USA		
Hyosung	Korea		
Hyundai	Korea		
JHSP	China		
JST	France		
Meidensha	Japan		
Mitsubishi	Japan		
Nissin	Japan		
Schneider	France		
SGB Group	Neth/Germany		
Siemens	Germany		
SPX Waukesha	USA		
Takaoka	Japan		
Tamini	Italy		
TBEA	China		
Toshiba	Japan		
TWBB -	China		
WEG	Brazil		
Wilson	Australia		
XD Group	China		
ZTR	Ukraine		
Sub-Total			
Other			
Total			

Source: Goulden Reports

Table 17

Leading Manufacturers' Sales of Transformers, per Region, 2017 (US\$ Million)

Company	Western Europe	Eastern Europe & Former USSR	Africa	Middle East
ABB				
Aichi				
BHEL				
CG Group				
Daihen				
Eaton Cooper				
EFACEC				
GE				
Hitachi				
Howard				
Hyosung				
Hyundai				
JHSP				
JST				
Meidensha				
Mitsubishi				
Nissin				
Schneider				
SGB Group				
Siemens				
SPX Waukesha				
Takaoka				
Tamini				
TBEA				
Toshiba				
TWBB -				
WEG				
Wilson				
XD Group				
ZTR				
Sub-Total				
Other				
Total				

continued...

Table 18

Leading Manufacturers' Sales of Transformers, per Region, 2017 (US\$ Million) - continued

Company	Asia-Pacific	North America	South & Cen'l America & Caribbean	Total
ABB				
Aichi				
BHEL				
CG Group				
Daihen				
Eaton Cooper				
EFACEC				
GE				
Hitachi				
Howard				
Hyosung				
Hyundai				
JHSP				
JST				
Meidensha				
Mitsubishi				
Nissin				
Schneider				
SGB Group				
Siemens				
SPX Waukesha				
Takaoka				
Tamini				
TBEA				
Toshiba				
TWBB -				
WEG				
Wilson				
XD Group				
ZTR				
Sub-Total				
Other				
Total				

Source: Goulden Reports

4.1 TRANSFORMER INDUSTRY CONTACT DETAILS

4.1.1 **ABB**

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ABB Inc Transformers

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International manufacture in plants grown organically and by acquisition; becoming increasingly more specialist. Transformer operations in more than 30 plants and 20 countries including; India, Italy, USA, Finland, Denmark, Germany, Norway, Spain, Sweden, Switzerland, Poland, Romania, Egypt, Turkey, Indonesia, Philippines, China, Vietnam, Brazil, Colombia. The sale of ABB powergrid operations to Hitachi (or at least 80% of the equity) will change the landscape of the global manufacturing base. This was announced in December 2018 and is reported briefly in this edition but will be covered in greater detail during 2019.

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Km. 9.25 Apodaca, N.L.
66600 Mexico
Tel: 1-800-437-7653
+52 (81) 8030-2000
+52 (81) 8030-2400
Fax+52 (81) 8030-2222

GE (wasAlstom Grid)

51,Esplanade du Général de Gaulle
Paris, La Défense92000
France
Tel: 00 33 (0)1 49 01 61 00

4.1.8 Hitachi

Hitachi, Ltd.

(T & D Division / Power Systems Sales Management Division)

1-8-13, Sotokanda,
Chiyoda, Tokyo, 101-8608
Japan

The sale of ABB powergrid operations to Hitachi (or at least 80% of the equity) will change the landscape of the global manufacturing base. This was announced in December 2018 and is reported briefly in this edition but will be covered in greater detail during 2019.

Hitachi, Ltd., Kokubu Engineering & Product Division

Role:-Development/design/manufacturing
(transmission and conversion systems, receiving and conversion systems)
1-1-1, Kokubu-cho, Hitachi,
Ibaraki, 316-8501
Japan

Hitachi, Ltd., Omika Works

Role; Development/design/manufacturing (Power System Information and Controls)
5-2-1, Omika-cho, Hitachi,
Ibaraki, 319-1293
Japan

Hitachi HVB,inc.

Role:- Sales/manufacturing
7250 McGinnis Ferry Rd.
Suwanee, GA 30024
U.S.A.

PT. Hitachi Power Systems Indonesia

Role:- Manufacturing
EJIP Industrial Park Plot 8E
Cikarang Selatan,
Bekashi,
The Republic of Indonesia

Hitachi Fortune Transformer, Inc.

Role:- Sales/manufacturing
Located in Port of Taichung Free Trade Zone,
Taichung
Taiwan

4.1.9 Howard

Howard Industries

3225 Pendorff Road

Laurel, MS 39440

USA

Tel: +1 601-425-3151

Fax: +1 601-649-8090

And at

Ellisville Mississippi Facility

1520 Highway 11 South

Ellisville, MS 39437

USA

4.1.10 Hyosung

Hyosung Corporation Power & Industrial Performance Group

119, Mapo-daero,

Mapo-gu,

Seoul, (121-720)

Korea

Tel: +82-2-707-7000

Fax: +82-2-707-7799

Changwon Plant

171, Yeondeok-ro, Seongsan-gu,

Changwon-si, Gyeongsangnam-do(641-712),

Korea

Phone +82-1588-6114

Fax +82-55-282-5116

Jochiwon Plant

142, Gongdan-ro,

Yeongi-gun,
Chungcheongnam-do, (339-823)
Korea
Phone +82-41-860-3114
Fax +82-41-860-3113

Boading Hyosung Tianwei Transformer Co., Ltd.

No.3888 ChaoyangNorthroad,
Baoding City,
Hebei province,
China
Phone +86-312-332-8310
Fax +86-312-332-8307

Nantong Hyosung Transformer Co., Ltd.

No. 88 Xiaoxing Avenue,
Haian Development Zone,
Jiangsu, (100004)
China
Phone +86-513-8890-5598
Fax +86-513-8881-6379

4.1.11 Hyundai

Hyundai Heavy Industries

Electro Electric Systems
1000, Bangeojinsunhwan-doro,
Dong-gu,
Ulsan, 682-792,
South Korea
Tel: +82-52-202-2114

Hyundai Power Transformers USA, Inc

215 Folmar Parkway

Montgomery,

AL 36105

USA

Tel: +1 (334) 481-2000

Fax: +1 (334) 481-2098

Hyundai Heavy Industries Co

41, Rojen Blvd.

1271 Sofia

Bulgaria

4.1.12 JHSP

JiangSuHuaPeng Transformer Co., Ltd

68 Kunlun Developemnt Zone

Liyang City,

Jiangsu Province,

China 213300

Tel:+86-519-87319099

Fax:+86-519-87319125

4.1.13 Meidensha

Meidensha Corporation

ThinkPark Tower, 2-1-1 Osaki,

Shinagawa-ku,

Tokyo, 141-6029

Japan

Tel: +81-3-6420-7510

Fax: +81-3-5745-3053

Meiden Numazu Works

Numazu-shi
Shizuoka Prefecture
Japan

Meiden Singapore Pte Ltd

5 JalanPesawat
Singapore 619363
Power/Distribution Transformers
Tel: 6268 1819
Fax: 6268 7662

4.1.14 Mitsubishi

Mitsubishi Electric Corporation

Ako Works
1288-1 Fujiwarashinden
Tenwa, Ako
Hyogo
Japan

Mitsubishi Electric Power Products Inc

Power Transformer Division
2865 Riverport Rd
Memphis, TN 38109
USA

Tel: (901) 566-3800

4.1.15 Nissin

Nissin Electric Co., Ltd.
47, Umezu-Takase-cho,

Ukyo-ku,
Kyoto 615-8686,
Japan
Tel: +81-75-861-3151
Fax: +81-75-864-8312

And at:

2121, Soja, Soja-Machi,
Maebashi,
Gunma Pref. 371-8515,
Japan
Tel: +81-27-251-1131
Fax: +81-27-254-1578

4.1.16 Schneider

Schneider Electric SA.

35, rue Joseph Monier – CS 30323
F-92506 Rueil-Malmaison Cedex
France
Tél. : +33 (0) 1 41 29 70 00
Fax : +33 (0) 1 41 29 71 00

Australia – Benalla

Industry leading Australian manufacturing plant for oil filled distribution transformers and kiosks. Over 35 years experienced designing and building kiosks for Australian utilities and various other market sectors. Innovations include internal arc rated kiosks, automated kiosks and cyclone rated kiosks.

Turkey - Cayirova

Manufacturing plant for oil distribution transformers, medium power transformers, cast resin transformers and special transformers.

France - Fontenay

le Comte Specialised manufacturing plant for impregnated and cast resin transformers, impregnated and cast resin reactors and special winding transformers (earthing transformers, motor starting transformers, rectifier transformers).

France - Metz

Centre of Excellence for Schneider Electric. Spread over three sites manufacturing a broad range of oil and dry type transformers.

Indonesia - Jakarta

An expanding manufacturing plant that offers oil distribution transformers, medium power transformers and special transformers (Zone 2 Hazardous transformers, auto transformers and phase shifting transformers).

India - Vadodara

There are two manufacturing sites in India with over 50+ years of experience in total. The plants manufacture generator, furnace, isolation, earthing, converter duty/rectifier duty, auto and reactor transformers.

China - Suzhou

The plant in Suzhou has over 20 years experience in cast resin dry-type technology and produce the Trihal range of transformers. The transformers have a fireproof resin filter and the core is made with grain oriented silicon steel, which minimises loss and noise levels.

Brazil

The Brazilian manufacturing plant was originally established in 1976, Blumenau, Santa Catarina. The plant offers dry epoxy resin encapsulated transformers as well as inductance, control, measurement and power transformers.

Greece

An industrial site with 40 years of experience capable of manufacturing oil immersed (mineral or vegetable oil), natural cooling, wound-core and distribution transformers.

The plant specialises in the manufacture of amorphous core, photo voltaic and wind farm transformers.

Poland

Specialised manufacturing factory with almost 70 years of experiences in the design and production of oil-immersed and cast resin transformers. The factory also specialises in production of epoxy resin/fibreglass dry type transformers ideal for industrial applications.

4.1.17 Siemens

HQ

Siemens AG

Wittelsbacherplatz 2

80333 Munich

Germany

Energy Division

Siemens AG

Freyeslebenstrasse 1

91058 Erlangen

Germany

Produces power transformers at:-

Linz and Weiz in Austria; Nuremburg and Dresden in Germany; Trento in Italy; Zagreb in Croatia; Voronezh in Russia; Mumbai in India; Guangzhou, Jinan and Wuhan in China; Jundiai in Brazil; Bogota in Colombia; and Guanajuato in Mexico. Distribution transformers in Weiz in Austria; Kichheim in Germany; Sabugo in Portugal; Budapest in Hungary; and TroisRiviers in Canada. The UAE facility is now Transtech – a licensee producing distribution transformers and the Pakistan facility is being sold.

4.1.18 SPX Waukesha

SPX Transformer Solutions, Inc.

Corporate Headquarters/Transformer Manufacturing

400 S. Prairie Avenue

Waukesha, WI 53186

USA

Tel:+1 800-835-2732

Fax:+1 262-521-0196

And at

SPX Transformer Solutions, Inc.

Transformer Manufacturing Facility and Offices

2701 US Highway 117 South

Goldsboro, NC 27530

USA

Tel:+1 800-758-4384

Fax:+1 919-580-3254

4.1.19 Takaoka

Takaoka Toko Co., Ltd.

8f, SiaToyosu Prime Square,
5-6-36 Toyosu,
Koto-Ku, Tokyo 135-0061,
Japan
Tel: +81-3-6371-5000
Fax: +81-3-6371-5436

Principal Plant

1440, Nakakuki,
Oyama-shi,
Tochigi, 323-0806,
Japan
Tel: +81-285-22-2111
Fax: +81-285-22-3729

Also at

80, Nagare, Jimokuji,
Ama-shi, Aichi, 490-1111,
Japan
Tel: +81-52-444-3321
Fax: +81-52-445-4965

Takaoka Electric manufactures and sells electrical equipment primarily to the Japanese market. The company was founded in 1918 and employs 1,086 people. The revenue of fiscal year March 2013, was \$627 million. The company offers power transformers (gas-insulated and oil-immersed), on-load tap changing transformers (gas-insulated and oil-immersed), distribution transformers, mobile transformers, and mold-type transformers; horizontal break, vertical break, and pantograph disconnectors, as well as on-load switches; and gas-insulated switchgear, cubicle-type gas-insulated switchgear, and gas circuit breakers.

4.1.20 TBEA

Tebian Electricity Apparatus Stock Co., Ltd.

No. 52 South Yan'an Road,
Changji,

831100Xinjiang

China

Tel: 0994-2721888

Fax: 0994-2723615

Website: www.tbea.com.cn

TBEA Shenyang Transformer Co., Ltd.

No. 18, No 2 Middle School Road,

Tiexi District,

110025Shenyang,

Liaoning Province

China

Tel: 024-25698188

Fax: 024-25851119

TBEA Hengyang Transformer Co., Ltd.

Baishazhou,

421007Hengyang,

Hunan Province

Tel: 0734-8498138

Fax: 0734-8400443

TBEA Xinjiang Transformer Co., Ltd

No. 52 South Yan'an Road,

Changji,

831100Xinjiang

China

Tel: 0994-2727193

Fax: 0994-2724548

TBEA Tianjin Transformer Co., Ltd.

North Yard,
Nanniwan Road,
Huanghedao,
Nankai District,
300112Tianjin
China
Tel: 023-28526207
Fax: 023-28514989

4.1.21 Toshiba

Toshiba Corp

1-1, Shibaura 1-chome,
Minato-ku,
Tokyo 105-8001,
Japan
Tel:+81-3-3457-4511
Fax:+81-3-3456-1631

Toshiba Corporation Social Infrastructure Systems Company

Transmission & Distribution Systems Division

72-34 Horikawa-cho,
Saiwai-ku Kawasaki-shi,
Kanagawa 212-8585,
Japan

Principal Transformer plant:-

Hamakawasaki Operations

2-1 Ukishima-cho,
Kawasaki-ku Kawasaki-shi,
Kanagawa 210-0862,

Japan

Tel: +81-44-288-6203

Toshiba Infrastructure South America Ltd (TIC-SA)

Rodovia Fernão Dias,

3045 Bandeirantes

Contagem/MG CEP 32240-090

Brazil

Tel: +55 31 3329-6660

Fax: + 55 31 3329-6699

And at

Toshiba Infrastructure South America Ltd (TIC-SA)

Betim,

Minas Gerais,

Brazil

Products:

Medium- and large-capacity power transformers

Construction: Started in May 2011, completed in May 2013

Changzhou Toshiba Transformer Co., Ltd.

No.86, Longjiang Road,

Changzhou,

Jiangsu, 213012,

China

Tel: +86 (0519) 8325-6016

Changzhou Toshiba Shudian Transformer Co., Ltd.

No. 75 Feilong West Road,

Changzhou ,

Jiangsu, 213012,

China

Tel: +86 (0519) 8397-2697

4.1.22 TWBB - Baoding

Tianwei Group

No. 3688 Xiangyang North Street,

Baoding,

Hebei

China

Email: btw@btw.cn

Tel: +86 (312) 3309001

Fax: +86 (312) 3309000

Power Transmission & Transformation Business (large transformer)

No. 2222 Tianwei West Road,

Baoding,

071056 Hebei,

China

Tel: +86 (312) 3308341

International sales: gjb@btw.cn

Fax: +86 (312) 3230382

Power Transmission & Transformation Business

(Special type transformer and dry type transformer)

No.2399 Tianwei West Road,

Baoding,

Hebei 071056,

China

Phone: +86 (312) 3308786

Fax: +86 (312) 3235162

Email: twtb8786@vip.163.com

4.1.23 WEG

WEG EquipamentosElétricos S.A. - Headquarters

Av. Pref. WaldemarGrubba, 3000

89256-900Jaraguá do Sul– SC

Brazil

Tel: +55 47 3276-4000

Fax: +55 47 3276-4060

Website: <http://www.weg.net>

WEG EquipamentosElétricos S.A. - Manufacturing Plant IV

RuaDr. Pedro Zimmermann, 6751

BairroItoupava Central

89068-001Blumenau – SC

Brazil

Tel: +55 47 3337-1000

Fax: +55 47 3337-1090

WEG Industrial Plant IX - Hortolândia/SP

Rod.Jorn. Francisco Aguirre Proença

Hortolandia SP

Brazil

WEG ItajaíEquipamentosElétricos S.A.

Rua Rosa OrsiDalsóquio, 100

88311-720Itajaí– SC

Brazil

Tel: +55 47 3276 4000

Industrial Plant VIII - Gravataí

UnidadeGravataí

Rodovia RS20 - km 6,5

Gravataí– RS

Brazil

Tel: +51 3489.2500 - (51) 2131.2500

Fax: +51 3489.2501

WEG VOLTRAN S.A. DE C.V

Sur 2 No 11

Zona Industrial

Tizayuca - CP 43805

Hidalgo

Mexico

Tel: +52 77 9796 3790

WEG TRANSFORMADORES MEXICO S.A. DE C.V

CarreterasJorobas , S/N - Tula Km 3.5

Parque Industrial Huehuetoca

Municipio de Huehuetoca

CD. de México y ÁreaMetropolitana

Mexico

Tel: +52 55 5321 4285 - +52 55 5321 4277

WEG Transformers Africa

3b Van Deventer Street,

Wadeville, Germiston

Johannesburg

Email: info@wegtransformersafrica.co.za

Tel: +27 (0) 11 827 3458/9

4.1.24 XD Group

Xi'an Electric Manufacturing Corp

No.7 Tangxing Road,

P.C: 710075 Xian,

P.R.China

Tel:(029) 88832222

Fax: (029) 84242679

E-mail: xdnet@xd.com.cn

Xi'an XD Transformer Co., Ltd

No.485 Daqing Road,

Xian, P.C: 710077

P.R. China

Tel: +86-029-84264003

Fax: +86-029-84261802

E-mail: office@xdxb.com.cn

4.1.25 ZTR

Zaporozhtransformator PJSC

DnepropetrovskoeShosse, 3

69600, Zaporozhe,

Ukraine

Tel: +38 (061) 270-39-00

Fax: +38 (061) 270-37-39

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5. REGIONAL MARKETS

5.1 WESTERN EUROPE

Table 19

Western Europe: The Market for Transformers, by Country, 2013 - 2018 (US\$ Thousand)

Country	2013	2014	2015	2016	2017	2018
Austria						
Belgium						
Cyprus						
Denmark						
Finland						
France						
Germany						
Greece						
Iceland						
Ireland						
Italy						
Luxembourg						
Malta						
Netherlands						
Norway						
Portugal						
Spain						
Sweden						
Switzerland						
United Kingdom						
Total						

Source: Goulden Reports and United Nations

Table 20

Western Europe: The Market for Transformers, by Country, 2013 - 2018 (% Change)

Country	2014/2013	2015/2014	2016/2015	2017/2016	2018/2017	Cagr
Austria						
Belgium						
Cyprus						
Denmark						
Finland						
France						
Germany						
Greece						
Iceland						
Ireland						
Italy						
Luxembourg						
Malta						
Netherlands						
Norway						
Portugal						
Spain						
Sweden						
Switzerland						
United Kingdom						
Total						

Source: Goulden Reports and United Nations

Table 21

Western Europe: The Market for Transformers, by Country, by Type 2018 (US\$ Thousand)

Country	Generation Transformer	Transmission Transformer	Distribution Transformer	Of Which Pole Top	Total
Austria					
Belgium					
Cyprus					
Denmark					
Finland					
France					
Germany					
Greece					
Iceland					
Ireland					
Italy					
Luxembourg					
Malta					
Netherlands					
Norway					
Portugal					
Spain					
Sweden					
Switzerland					
United Kingdom					
Total					

Source: Goulден Reports and United Nations

Table 22

Western Europe: The Market for Transformers, by Country, 2018 (MVA)

Country	Generation Transformers	Transmission Transformers	Distribution Transformers	Total
Austria				
Belgium				
Cyprus				
Denmark				
Finland				
France				
Germany				
Greece				
Iceland				
Ireland				
Italy				
Luxembourg				
Malta				
Netherlands				
Norway				
Portugal				
Spain				
Sweden				
Switzerland				
United Kingdom				
Total				

Source: Goulde Reports and United Nations

Table 23

Western Europe: The Market for Transformers, by Country, by Insulation 2018 (US\$ Thousand)

Country	Oil Filled	Safety Fluid	Cast Resin & Dry Types	Total
Austria				
Belgium				
Cyprus				
Denmark				
Finland				
France				
Germany				
Greece				
Iceland				
Ireland				
Italy				
Luxembourg				
Malta				
Netherlands				
Norway				
Portugal				
Spain				
Sweden				
Switzerland				
United Kingdom				
Total				

Source: Goulde Reports and United Nations

Table 24

Western Europe: The Market for Transformers, by Country, by Size of Transformer 2018 (US\$ Million)

Country	Over 150 MVA	50 to150 MVA	5 to 50 MVA	0.5 to 5 MVA	50 to 500 kVA	5 to 50 kVA
Austria						
Belgium						
Cyprus						
Denmark						
Finland						
France						
Germany						
Greece						
Iceland						
Ireland						
Italy						
Luxembourg						
Malta						
Netherlands						
Norway						
Portugal						
Spain						
Sweden						
Switzerland						
United Kingdom						
Total						

Source: Goulден Reports and United Nations

Table 25

Western Europe: The Market for Transformers, by Country, by End Use Customer 2018 (US\$ Thousand)

Country	Utility Organisations	Construction & Industry	Rail & Transport	Mining, Marine & Offshore	Total
Austria					
Belgium					
Cyprus					
Denmark					
Finland					
France					
Germany					
Greece					
Iceland					
Ireland					
Italy					
Luxembourg					
Malta					
Netherlands					
Norway					
Portugal					
Spain					
Sweden					
Switzerland					
United Kingdom					
Total					

Source: Goulden Reports and United Nations

Table 26

Western Europe: The Market for Transformers, by Country, 2013 to 2028 (US\$ Thousand)

Country	2013	2018	2023	2028	Cagr 13-18	Cagr 18-23	Cagr 23-28
Austria							
Belgium							
Cyprus							
Denmark							
Finland							
France							
Germany							
Greece							
Iceland							
Ireland							
Italy							
Luxembourg							
Malta							
Netherlands							
Norway							
Portugal							
Spain							
Sweden							
Switzerland							
United Kingdom							
Total							

Source: Goulden Reports and United Nations

Table 27

Western Europe: The Market for Transformers, by Country, 2013 to 2028 (MVA Demand)

Country	2013	2018	2023	2028	Cagr 13-18	Cagr 18-23	Cagr 23-28
Austria							
Belgium							
Cyprus							
Denmark							
Finland							
France							
Germany							
Greece							
Iceland							
Ireland							
Italy							
Luxembourg							
Malta							
Netherlands							
Norway							
Portugal							
Spain							
Sweden							
Switzerland							
United Kingdom							
Total							

Source: Goulden Reports and United Nations

5.2 EASTERN EUROPE

SAME TABLE STRUCTURE AS FOR W EUROPE

5.3 FORMER SOVIET UNION

SAME TABLE STRUCTURE AS FOR W EUROPE

5.4 NORTH AFRICA

SAME TABLE STRUCTURE AS FOR W EUROPE

5.5 WEST AFRICA

SAME TABLE STRUCTURE AS FOR W EUROPE

5.6 CENTRAL AFRICA

SAME TABLE STRUCTURE AS FOR W EUROPE

5.7 EAST AFRICA

SAME TABLE STRUCTURE AS FOR W EUROPE

5.8 SOUTHERN AFRICA

SAME TABLE STRUCTURE AS FOR W EUROPE

5.9 MIDDLE EAST

SAME TABLE STRUCTURE AS FOR W EUROPE

5.10 INDIAN SUB CONTINENT

SAME TABLE STRUCTURE AS FOR W EUROPE

5.11 ASIA

SAME TABLE STRUCTURE AS FOR W EUROPE

5.12 SOUTH AMERICA

SAME TABLE STRUCTURE AS FOR W EUROPE

5.13 CENTRAL AMERICA AND CARIBBEAN

SAME TABLE STRUCTURE AS FOR W EUROPE

5.14 NORTH AMERICA

SAME TABLE STRUCTURE AS FOR W EUROPE

5.15 OCEANIA

SAME TABLE STRUCTURE AS FOR W EUROPE

6. PRODUCTION

Table 28

The Top 30 Producers of Transformers, 2017 (US\$ Million)

Country	Rank	Previous Rank	Production	% share
China				
USA				
India				
Korea, South				
Japan				
Germany				
Turkey				
Brazil				
Russia				
Mexico				
Thailand				
Italy				
Canada				
France				
Taiwan				
United Kingdom				
Spain				
Netherlands				
Poland				
South Africa				
Austria				
Indonesia				
Portugal				
Switzerland				
Croatia				
Hungary				
Belgium				
Saudi Arabia				
Sweden				
Australia				
Others				
Total				

Source: Goulden Reports and United Nations

7. TRADE ANALYSIS

7.1 TOP 25 EXPORTERS

Table 29

The Top 25 Exporters of Power & Distribution Transformers, 2015 to 2017 (US\$ Thousands)

Country	2015 to 2017 Av.	Value 2017	% Total 2017
China			
Germany			
Mexico			
Korea, South			
Italy			
Turkey			
Austria			
USA			
India			
Canada			
Croatia			
Spain			
Japan			
Brazil			
France			
Poland			
Sweden			
Denmark			
Switzerland			
Netherlands			
Portugal			
Belgium			
Hungary			
Finland			
United Kingdom			
Others			
Total			

Source: Goulden Reports and United Nations

Table 30

The Top 25 Exporters of Transformers up to 650kVA 2015 to 2017 (US\$ Thousands)

Country	2015 to 2017 Av.	Value 2017	% Total 2017
Mexico			
India			
USA			
China			
Canada			
Turkey			
Hungary			
Poland			
Belarus			
Germany			
France			
Sweden			
Spain			
Ireland			
Brazil			
Switzerland			
Croatia			
Italy			
Korea, South			
Colombia			
Bulgaria			
Slovakia			
Tunisia			
Portugal			
Kazakhstan			
Others			
Total			

Source: Goulden Reports and United Nations

Table 31

The Top 25 Exporters of Transformers, 650-10,000kVA 2015 to 2017 (US\$ Thousands)

Country	2015 to 2017 Av.	Value 2017	% Total 2017
China			
Mexico			
Turkey			
Germany			
Austria			
Switzerland			
USA			
Poland			
Denmark			
Italy			
France			
India			
Korea, South			
Finland			
Canada			
Spain			
Hungary			
Belarus			
Belgium			
Portugal			
Japan			
Croatia			
Indonesia			
Taiwan			
Ukraine			
Others			
Total			

Source: Goulden Reports and United Nations

Table 32

The Top 25 Exporters of Transformers, over 10,000kVA 2015 to 2017 (US\$ Thousands)

Country	2015 to 2017 Av.	Value 2017	% Total 2017
China			
Korea, South			
Germany			
Turkey			
Austria			
Italy			
Mexico			
Croatia			
India			
Brazil			
Netherlands			
Japan			
Sweden			
Portugal			
United Kingdom			
Belgium			
Finland			
Canada			
Taiwan			
Poland			
Spain			
USA			
Colombia			
Russia			
Ukraine			
Others			
Total			

Source: Goulden Reports and United Nations

Table 33

The Top 25 Exporters of Dry Transformers, up to 500kVA 2015 to 2017 (US\$ Thousands)

Country	2015 to 2017 Av.	Value 2017	% Total 2017
Mexico			
USA			
Germany			
China			
Canada			
Italy			
Denmark			
India			
France			
Korea, South			
Japan			
Czech Rep.			
Turkey			
South Africa			
Australia			
New Zealand			
Singapore			
Spain			
United Kingdom			
Switzerland			
Sweden			
Israel			
Bulgaria			
Norway			
Finland			
Others			
Total			

Source: Goulden Reports and United Nations

Table 34

The Top 25 Exporters of Dry Transformers over 500kVA 2015 to 2017 (US\$ Thousands)

Country	2015 to 2017 Av.	Value 2017	% Total 2017
Germany			
China			
Italy			
Spain			
Korea, South			
Denmark			
Malaysia			
France			
USA			
Mexico			
Belgium			
Japan			
Canada			
Switzerland			
Turkey			
Singapore			
Hungary			
India			
Taiwan			
Brazil			
South Africa			
Poland			
Belarus			
Indonesia			
Czech Rep.			
Others			
Total			

Source: Goulden Reports and United Nations

7.2 TOP 25 IMPORTERS

Table 35

The Top 25 Importers of Power & Distribution Transformers, 2015 to 2017 (US\$ Thousands)

Country	Value 2017	2015 to 2017 Av	% Total 2017
USA			
Canada			
United Arab Emirates			
Germany			
Russia			
China			
Malaysia			
France			
Pakistan			
Mexico			
Sweden			
Denmark			
Indonesia			
Algeria			
Philippines			
Spain			
Egypt			
Korea, South			
Norway			
South Africa			
Japan			
Oman			
Switzerland			
Italy			
India			
Others			
Total			

Source: Goulden Reports and United Nations

Table 36

The Top 25 Importers of Transformers up to 650kVA 2015 to 2017 (US\$ Thousands)

Country	Value 2017	2015 to 2017 Av	% Total 2017
USA			
Russia			
United Arab Emirates			
France			
Indonesia			
Mexico			
Germany			
Canada			
Finland			
Philippines			
Sweden			
Czech Rep.			
China, Hong Kong SAR			
Malaysia			
Austria			
Chile			
Belgium			
Netherlands			
Greece			
Italy			
Japan			
Bolivia			
Algeria			
Dominican Rep.			
Romania			
Others			
Total			

Source: Goulden Reports and United Nations

Table 37

The Top 25 Importers of Transformers 650-10,000kVA 2015 to 2017 (US\$ Thousands)

Country	Value 2017	2015 to 2017 Av.	% Total 2017
USA			
Germany			
Denmark			
Russia			
United Arab Emirates			
Canada			
South Africa			
Malaysia			
France			
Sudan			
Austria			
Sweden			
China, Hong Kong SAR			
Spain			
Japan			
Oman			
Switzerland			
Philippines			
Jordan			
Czech Rep.			
Indonesia			
Norway			
Mexico			
Egypt			
Finland			
Others			
Total			

Source: Goulden Reports and United Nations

Table 38

The Top 25 Importers of Transformers over 10,000kVA 2015 to 2017 (US\$ Thousands)

Country	Value 2017	2015 to 2017 Av.	% Total 2017
USA			
Canada			
China			
United Arab Emirates			
Algeria			
Pakistan			
France			
Indonesia			
Sweden			
Korea, South			
Norway			
Germany			
Oman			
India			
Malaysia			
Switzerland			
Mexico			
Spain			
Paraguay			
Philippines			
South Africa			
Belgium			
Chile			
Argentina			
Kazakhstan			
Others			
Total			

Source: Goulden Reports and United Nations

Table 39

The Top 25 Importers of Dry Transformers up to 500kVA 2015 to 2017 (US\$ Thousands)

Country	Value 2017	2015 to 2017 Av.	% Total 2017
USA			
Mexico			
Canada			
Germany			
China			
Malaysia			
United Arab Emirates			
Japan			
Philippines			
France			
Egypt			
Australia			
Switzerland			
Sweden			
Algeria			
Spain			
Italy			
Sri Lanka			
Singapore			
Pakistan			
Norway			
Russia			
India			
Korea, South			
Honduras			
Others			
Total			

Source: Goulden Reports and United Nations

Table 40

The Top 25 Importers of Dry Transformers Over 500kVA 2015 to 2017 (US\$ Thousands)

Country	Value 2017	2015 to 2017 Av.	% Total 2017
USA			
Pakistan			
Russia			
Malaysia			
Egypt			
Denmark			
Italy			
United Arab Emirates			
Germany			
Spain			
China			
Australia			
Japan			
Sweden			
Singapore			
Mexico			
France			
Algeria			
Korea, South			
Canada			
South Africa			
Serbia and Montenegro			
Kazakhstan			
India			
China, Hong Kong SAR			
Others			
Total			

Source: Goulden Reports and United Nations

7.3 EXPORT VALUES

Table 41

The Top 25 Exporters of Transformers to Principal Destinations, Austria-Brazil, 2017 (US\$ Thousand)

	Austria		Belgium		Brazil
USA		Japan		Korea South	
Denmark		Denmark		USA	
Germany		India		Argentina	
Switzerland		USA		Bolivia	
United Kingdom		France		Chile	
Egypt		Saudi Arabia		Germany	
Canada		Germany		Colombia	
France		Spain		Paraguay	
Iraq		United Kingdom		Peru	
Spain		Sweden		Canada	
Ireland		Netherlands		Taiwan	
UAE		Italy		Mexico	
China		Bahrain		China	
Thailand		Ireland		Venezuela	
Angola		Russia		Ecuador	
Sri Lanka		Indonesia		Suriname	
Portugal		Algeria		South Africa	
Netherlands		Angola		France	
Vietnam		UAE		Angola	
Malta		Australia		Indonesia	
Russia		Mexico		Panama	
Belgium		Iraq		Uruguay	
Italy		Canada		Russia	
Saudi Arabia		Malaysia		Thailand	
Australia		Senegal		Algeria	
Others		Others		Others	
Total		Total		Total	

Source: Goulden Reports and United Nations

Table 42

The Top 25 Exporters of Transformers to Principal Destinations,
Canada-Croatia, 2017 (US\$ Thousand)

	Canada		China		Croatia

Source: Goulden Reports and United Nations

Table 43

**The Top 25 Exporters of Transformers to Principal Destinations,
Denmark-France 2017 (US\$ Thousand)**

	Denmark		Finland		France

Source: Goulden Reports and United Nations

Table 44

**The Top 25 Exporters of Transformers to Principal Destinations,
Germany-India 2017 (US\$ Thousand)**

	Germany		Hungary		India

Source: Goulden Reports and United Nations

Table 45

The Top 25 Exporters of Transformers to Principal Destinations,
Italy-S. Korea, 2017 (US\$ Thousand)

	Italy		Japan		S Korea

Source: Goulden Reports and United Nations

Table 46

**The Top 25 Exporters of Transformers to Principal Destinations,
Mexico-Poland 2017 (US\$ Thousand)**

	Mexico		Netherlands		Poland

Source: Goulden Reports and United Nations

Table 47

**The Top 25 Exporters of Transformers to Principal Destinations,
Portugal-Sweden 2017 (US\$ Thousand)**

	Portugal		Spain		Sweden

Source: Goulden Reports and United Nations

Table 48

**The Top 25 Exporters of Transformers to Principal Destinations,
Switzerland -Turkey 2017 (US\$ Thousand)**

	Switzerland		Turkey

Source: Goulden Reports and United Nations

Table 49

**The Top 25 Exporters of Transformers to Principal Destinations,
UK-USA, 2017 (US\$ Thousand)**

	UK		USA

Source: Goulden Reports and United Nations

7.4 EXPORT PERCENTAGES

Table 50

The Top 25 Exporters of Transformers to Principal Destinations,
Austria-Brazil, 2017 (%)

	Austria		Belgium		Brazil
USA		Japan			
Denmark		Denmark			
Germany		India			
Switzerland		USA			
United Kingdom		France			
Egypt		Saudi Arabia			
Canada		Germany			
France		Spain			
Iraq		United Kingdom			
Spain		Sweden			
Ireland		Netherlands			
UAE		Italy			
China		Bahrain			
Thailand		Ireland			
Angola		Russia			
Sri Lanka		Indonesia			
Portugal		Algeria			
Netherlands		Angola			
Vietnam		UAE			
Malta		Australia			
Russia		Mexico			
Belgium		Iraq			
Italy		Canada			
Saudi Arabia		Malaysia			
Australia		Senegal			
Others		Others			
Total		Total			

Source: Goulden Reports and United Nations

Table 51

**The Top 25 Exporters of Transformers to Principal Destinations,
Canada-Croatia, 2017 (%)**

	Canada		China		Croatia

Source: Goulden Reports and United Nations

Table 52

**The Top 25 Exporters of Transformers to Principal Destinations,
Denmark-France 2017 (%)**

	Denmark		Finland		France

Source: Goulden Reports and United Nations

Table 53
The Top 25 Exporters of Transformers to Principal Destinations,
Germany-India 2017 (%)

	Germany		Hungary		India

Source: Goulden Reports and United Nations

Table 54

**The Top 25 Exporters of Transformers to Principal Destinations,
Italy-S. Korea, 2017 (%)**

	Italy		Japan		S Korea

Source: Goulden Reports and United Nations

Table 55

**The Top 25 Exporters of Transformers to Principal Destinations,
Mexico-Poland 2017 (%)**

	Mexico		Netherlands		Poland

Source: Goulden Reports and United Nations

Table 56

**The Top 25 Exporters of Transformers to Principal Destinations,
Portugal-Sweden 2017 (%)**

	Portugal		Spain		Sweden
Total	100.0%	Total	100.0%	Total	100.0%

Source: Goulden Reports and United Nations

Table 57

**The Top 25 Exporters of Transformers to Principal Destinations,
Switzerland-Turkey 2017 (%)**

	Switzerland		Turkey

Source: Goulden Reports and United Nations

Table 58

**The Top 25 Exporters of Transformers to Principal Destinations,
UK-USA, 2017 (%)**

	UK		USA

Source: Goulden Reports and United Nations

7.5 IMPORT VALUES & TYPICAL SUPPLIER PROFILES

Table 59

**Import Values By Importing Country,
Albania - Angola, 2015 – 2017 Averaged (US\$ Thousand)**

Albania	Value	Algeria	Value	Angola	Value
Italy		Italy		China	
China		Korea, S.		Portugal	
Turkey		Turkey		Italy	
Macedonia TFYR		India		Russia	
Bulgaria		Portugal		India	
		Germany		Spain	
		Spain		USA	
		China		Norway	
		Saudi Arabia		Mexico	
		France		Turkey	
		Croatia		South Africa	
		Lebanon		Brazil	
		USA		Denmark	
		Hungary			
		Egypt			
		Belgium			
Others		Others		Others	
Total		Total		Total	

Source: Goulden Reports and United Nations

Table 60

**Import Values By Importing Country,
Argentina - Australia, 2015 – 2017 Averaged (US\$ Thousand)**

Argentina	Value	Armenia	Value	Australia	Value

Source: Goulden Reports and United Nations

Table 61

**Import Values By Importing Country,
Austria - Bahrain, 2015 – 2017 Averaged (US\$ Thousand)**

Austria	Value	Azerbaijan	Value	Bahrain	Value

Source: Goulden Reports and United Nations

Table 62
Import Values By Importing Country,
Bangladesh- Belgium, 2015 – 2017 Averaged (US\$ Thousand)

Bangladesh	Value	Belarus	Value	Belgium	Value

Source: Goulden Reports and United Nations

Table 63

**Import Values By Importing Country
Bolivia-Brazil 2015 – 2017 Averaged (US\$ Thousand)**

Bolivia	Value	Bosnia	Value	Brazil	Value

Source: Goulden Reports and United Nations

Table 65
**Import Values By Importing Country,
Cambodia-Cameroon, 2015 – 2017 Averaged (US\$ Thousand)**

Cambodia	Value	Cameroon	Value	Canada	Value

Source: Goulden Reports and United Nations

Table 66

**Import Values By Importing Country,
Chile - China HK, 2015 – 2017 Averaged (US\$ Thousand)**

Chile	Value	China	Value	China HK	Value

Source: Goulden Reports and United Nations

Table 67

**Import Values By Importing Country,
China Macao–Costa Rica, 2015 – 2017 Averaged (US\$ Thousand)**

China Macao	Value	Columbia	Value	Costa Rica	Value

Source: Goulden Reports and United Nations

Table 69
Import Values By Importing Country
Denmark – Ecuador 2015 – 2017 Averaged (US\$ Thousand)

Denmark	Value	Dom Rep	Value	Ecuador	Value

Source: Goulden Reports and United Nations

Table 70

**Import Values By Importing Country,
Egypt – Estonia, 2015 – 2017 Averaged (US\$ Thousand)**

Egypt	Value	El Salvador	Value	Estonia	Value

Source: Goulden Reports and United Nations

Table 71

**Import Values By Importing Country,
Ethiopia - Finland, 2015 – 2017 Averaged (US\$ Thousand)**

Ethiopia	Value	Fiji	Value	Finland	Value

Source: Goulden Reports and United Nations

Table 73

**Import Values By Importing Country,
Ghana - Guatemala, 2015 – 2017 Averaged (US\$ Thousand)**

Ghana	Value	Greece	Value	Guatemala	Value

Source: Goulden Reports and United Nations

Table 74

**Import Values By Importing Country,
Guinea - Hungary, 2015 – 2017 Averaged (US\$ Thousand)**

Guinea	Value	Honduras	Value	Hungary	Value

Source: Goulden Reports and United Nations

Table 75

**Import Values By Importing Country,
Iceland - Indonesia, 2015 – 2017 Averaged (US\$ Thousand)**

Iceland	Value	India	Value	Indonesia	Value

Source: Goulden Reports and United Nations

Table 77
Import Values By Importing Country,
Jamaica - Jordan, 2015 – 2017 Averaged (US\$ Thousand)

Jamaica	Value	Japan	Value	Jordan	Value

Source: Goulden Reports and United Nations

Table 78

Import Values By Importing Country
Kazakhstan - Kuwait 2015 – 2017 Averaged (US\$ Thousand)

Kazakhstan	Value	Korea, South	Value	Kuwait	Value

Source: Goulden Reports and United Nations

Table 79

**Import Values By Importing Country,
Kyrgyzstan - Latvia, 2015 – 2017 Averaged (US\$ Thousand)**

Kyrgyzstan	Value	Laos	Value	Latvia	Value

Source: Goulden Reports and United Nations

Table 80

**Import Values By Importing Country,
Lithuania - Mexico, 2015 – 2017 Averaged (US\$ Thousand)**

Lithuania	Value	Malaysia	Value	Mexico	Value

Source: Goulden Reports and United Nations

Table 81

**Import Values By Importing Country,
Mongolia - Mozambique, 2015 – 2017 Averaged (US\$ Thousand)**

Mongolia	Value	Morocco	Value	Mozambiquea	Value

Source: Goulden Reports and United Nations

Table 82

**Import Values By Importing Country,
Myanmar - Netherlands, 2015 – 2017 Averaged (US\$ Thousand)**

Myanmar	Value	Nepal	Value	Netherlands	Value

Source: Goulden Reports and United Nations

Table 83

**Import Values By Importing Country,
New Zealand - Nigeria, 2015 – 2017 Averaged (US\$ Thousand)**

New Zealand	Value	Nicaragua	Value	Nigeria	Value

Source: Goulden Reports and United Nations

Table 84

**Import Values By Importing Country
Norway - Pakistan 2015 – 2017 Averaged (US\$ Thousand)**

Norway	Value	Oman	Value	Pakistan	Value

Source: Goulden Reports and United Nations

Table 85
**Import Values By Importing Country,
Paraguay - Philippines, 2015 – 2017 Averaged (US\$ Thousand)**

Paraguay	Value	Peru	Value	Philippines	Value

Source: Goulden Reports and United Nations

Table 86

**Import Values By Importing Country,
Poland - Qatar, 2015 – 2017 Averaged (US\$ Thousand)**

Poland	Value	Portugal	Value	Qatar	Value

Source: Goulden Reports and United Nations

Table 87

**Import Values By Importing Country,
Romania- -Rwanda, 2015 – 2017 Averaged (US\$ Thousand)**

Romania	Value	Russia	Value	Rwanda	Value

Source: Goulden Reports and United Nations

Table 88

**Import Values By Importing Country,
Saint Lucia – Senegal, 2015 – 2017 Averaged (US\$ Thousand)**

Saint Lucia	Value	Saudi Arabia	Value	Senegal	Value

Source: Goulden Reports and United Nations

Table 89

**Import Values By Importing Country,
Serbia - Slovakia, 2015 – 2017 Averaged (US\$ Thousand)**

Serbia	Value	Singapore	Value	Slovakia	Value

Source: Goulden Reports and United Nations

Table 90

**Import Values By Importing Country,
Slovenia–Spain, 2015 – 2017 Averaged (US\$ Thousand)**

Slovenia	Value	S Africa	Value	Spain	Value

Source: Goulden Reports and United Nations

Table 91

**Import Values By Importing Country,
Sri Lanka - Sweden, 2015 – 2017 Averaged (US\$ Thousand)**

Sri Lanka	Value	Sudan	Value	Sweden	Value

Source: Goulden Reports and United Nations

Table 92

Import Values By Importing Country
Switzerland – Tanzania, 2015 – 2017 Averaged (US\$ Thousand)

Switzerland	Value	Taiwan	Value	Tanzania	Value

Source: Goulden Reports and United Nations

Table 96

**Import Values By Importing Country,
USA - Zimbabwe, 2015 – 2017 Averaged (US\$ Thousand)**

USA	Value	Vietnam	Value	Zimbabwe	Value

Source: Goulden Reports and United Nations

8. TRADE IN TRANSFORMER PARTS

Table 97

Exports of Transformer Parts, by Country, 2013 to 2017 (US\$ Million)

Country	2013	2014	2015	2016	2017	Cagr 13-17

Source: Goulden Reports and United Nations

Exports of Transformer Parts from ChinaHong Kong by Country, 2015 to 2017 (US\$ Thousand)

China, Hong Kong	2015 to 2017 Averaged	China, Hong Kong	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 100

Exports of Transformer Parts from China, by Country, 2015 to 2017 (US\$ Million)

China	2015 to 2017 Averaged	China	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 101

Exports of Transformer Parts from Germany, by Country, 2015 to 2017 (US\$ Million)

Germany	2015 to 2017 Averaged	Germany	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 103

Exports of Transformer Parts from the USA, by Country, 2015 to 2017 (US\$ Million)

USA	2015 to 2017 Averaged	USA	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 104

Exports of Transformer Parts from Japan, by Country, 2015 to 2017 (US\$ Million)

Japan	2015 to 2017 Averaged	Japan	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 105

Exports of Transformer Parts from South Korea, by Country, 2015 to 2017 (US\$ Million)

South Korea	2015 to 2017 Averaged	South Korea	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 106

Exports of Transformer Parts from Italy, by Country, 2015 to 2017 (US\$ Million)

Italy	2015 to 2017 Averaged	Italy	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 107

Exports of Transformer Parts from Vietnam, by Country, 2015 to 2017 (US\$ Million)

Vietnam	2015 to 2017 Averaged	Vietnam	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 108

Exports of Transformer Parts from France, by Country, 2015 to 2017 (US\$ Million)

France	2015 to 2017 Averaged	France	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 109

Exports of Transformer Parts from India, by Country, 2015 to 2017 (US\$ Million)

India	2015 to 2017 Averaged	India	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 110

Exports of Transformer Parts from Singapore, by Country, 2015 to 2017 (US\$ Million)

Singapore	2015 to 2017 Averaged	Singapore	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 111

Exports of Transformer Parts from Mexico, by Country, 2015 to 2017 (US\$ Million)

Mexico	2015 to 2017 Averaged	Mexico	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 112

Exports of Transformer Parts from Austria, by Country, 2015 to 2017 (US\$ Million)

Austria	2015 to 2017 Averaged	Austria	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 114

Exports of Transformer Parts from Slovakia, by Country, 2015 to 2017 (US\$ Million)

Slovakia	2015 to 2017 Averaged	Slovakia	2017	% of Total 2017

Source: Gouldeen Reports and United Nations

Table 116

Exports of Transformer Parts from Netherlands, by Country, 2015 to 2017 (US\$ Million)

Netherlands	2015 to 2017 Averaged	Netherlands	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 117

Exports of Transformer Parts from U.K., by Country, 2015 to 2017 (US\$ Million)

United Kingdom	2015 to 2017 Averaged	United Kingdom	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 118

Exports of Transformer Parts from Czech Republic, by Country, 2015 to 2017 (US\$ Million)

Czech Republic	2015 to 2017 Averaged	Czech Republic	2017	% of Total 2017

Source: Goulde Reports and United Nations

Table 119

Exports of Transformer Parts from Finland, by Country, 2015 to 2017 (US\$ Million)

Finland	2015 to 2017 Averaged	Finland	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 120

Exports of Transformer Parts from Philippines, by Country, 2015 to 2017 (US\$ Million)

Philippines	2015 to 2017 Averaged	Philippines	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 121

Exports of Transformer Parts from Turkey, by Country, 2015 to 2017 (US\$ Million)

Turkey	2015 to 2017 Averaged	Turkey	2017	% of Total 2017

Source: Goulden Reports and United Nations

Table 122

Exports of Transformer Parts from Romania, by Country, 2015 to 2017 (US\$ Million)

Romania	2015 to 2017 Averaged	Romania	2017	% of Total 2017

Source: Goulden Reports and United Nations

9. APPENDICES

9.1 COUNTRY PROFILES BY REGION

9.1.1 Western Europe

Table 124

W Europe – Country by Country Profiles

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Austria										
Belgium										
Cyprus										
Denmark										
Finland										
France										
Germany										
Greece										
Iceland										
Ireland										

Source: Goulden Reports

W Europe – Country by Country Profiles - continued

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Italy										
Luxembourg										
Malta										
Netherlands										
Norway										
Portugal										
Spain										
Sweden										
Switzerland										
United Kingdom										
W Europe										

Source: Goulde Reports

9.1.2 Eastern Europe

Table 125

E Europe – Country by Country Profiles

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Albania										
Bosnia										
Bulgaria										
Croatia										
Czech Republic										
Hungary										
Macedonia, TFYR										
Poland										
Romania										
Serbia										
Slovakia										
Slovenia										
E Europe										

Source: Goulden Reports

9.1.3 Former Soviet Union

Table 126
FSU – Country by Country Profiles

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Armenia										
Azerbaijan										
Belarus										
Estonia										
Georgia										
Kazakhstan										
Kyrgyzstan										
Latvia										
Lithuania										
Moldova										
Russia										
Tajikistan										
Turkmenistan										
Ukraine										
Uzbekistan										
FSU										

Source: Goulden Reports

9.1.4 North Africa

Table 127

N. Africa – Country by Country Profiles

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Algeria										
Egypt										
Libya										
Morocco										
Tunisia										
N Africa										

Source: Goulden Reports

9.1.5 West Africa

Table 128

W. Africa – Country by Country Profiles

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Benin										
Burkina Faso										
Cameroon										
Cote d'Ivoire										
Equatorial Guinea										
Gabon										
Gambia										
Ghana										
Guinea										
Guinea Bissau										
Liberia										
Mali										
Mauritania										
Nigeria										
Senegal										
Sierra Leone										
Togo										
W Africa										

Source: Goulden Reports

9.1.6 Central Africa

Table 129

Central Africa – Country by Country Profiles

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Central African Rep.										
Chad										
Congo										
Congo Dem. Rep (Zaire)										
Niger										
Central Africa										

Source: Goulden Reports

9.1.7 East Africa

Table 130

East Africa – Country by Country Profiles

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Burundi										
Djibouti										
Ethiopia										
Kenya										
Madagascar										
Mauritius										
Rwanda										
Somalia										
Sudan										
Tanzania										
Uganda										
E Africa										

Source: Goulden Reports

9.1.8 South Africa

Table 131

South Africa – Country by Country Profiles

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Angola										
Botswana										
Malawi										
Mozambique										
South Africa										
Zambia										
Zimbabwe										
S Africa										

Source: Goulden Reports

9.1.9 Middle East

Table 132

Middle East – Country by Country Profiles

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Bahrain										
Iran										
Iraq										
Israel										
Jordan										
Kuwait										
Lebanon										
Oman										
Qatar										
Saudi Arabia										
Syria										
Turkey										
United Arab Emirates										
Yemen										
Middle East										

Source: Goulden Reports

9.1.10 Indian Subcontinent

Table 133

Indian Subcon. – Country by Country Profiles

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Afghanistan										
Bangladesh										
Bhutan										
India										
Nepal										
Pakistan										
Sri Lanka										
Indian Subcon.										

Source: Goulden Reports

9.1.11 Asia

Table 134
Asia – Country by Country Profiles

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Brunei Darussalam										
Cambodia										
China										
China, Hong Kong SAR										
China, Macau SAR										
Indonesia										
Japan										
Korea, North										
Korea, South										

Source: Goulden Reports

Asia – Country by Country Profiles - continued

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Laos										
Malaysia										
Mongolia										
Myanmar										
Philippines										
Singapore										
Taiwan										
Thailand										
Vietnam										
Asia										

Source: Goulden Reports

9.1.12 South America

Table 135

South America – Country by Country Profiles

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Argentina										
Bolivia										
Brazil										
Chile										
Colombia										
Ecuador										
Guyana										
Paraguay										
Peru										
Suriname										
Uruguay										
Venezuela										
S America										

Source: Goulden Reports

9.1.13 Central America & Caribbean

Table 136

C. America & Caribb. – Country by Country Profiles

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Bahamas										
Barbados										
Belize										
Bermuda										
Costa Rica										
Cuba										
Dominica										
Dominican Republic										
El Salvador										
Guatemala										
Haiti										
Honduras										

Source: Goulden Reports

C. America & Caribb. – Country by Country Profiles - continued

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Jamaica										
Nicaragua										
Panama										
Puerto Rico										
Saint Lucia										
Trinidad & Tobago										
C America & Carrib.										

Source: Goulde Reports

9.1.14 North America

Table 137

North America – Country by Country Profiles

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Canada										
Mexico										
USA										
N America										

Source: Goulden Reports

9.1.15 Australasia

Table 138

Australasia – Country by Country Profiles

Country	Country Area (Sq.Km)	Population (Thousands) 2015	GDP (US\$ Millions) 2015	GDP per Capita (US\$) 2015	Load (GWh) 2014	Average Load (kWh/Capita) 2014	Installed Capacity MW 2014	Transmission cctkm 2015	Distribution cctkm 2015	Low Voltage cctkm 2015
Australia										
Fiji										
New Caledonia										
New Zealand										
Papua New Guinea										
Australasia										

Source: Goulden Reports

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9.2 EXCHANGE RATES

Table 139

Exchange Rates for Major Currencies against US Dollar 2011-2017

Currency	2011	2012	2013	2014	2015	2016	2017
Argentinean Peso	4.12	4.53	5.46	8.55	9.00	12.94	16.1
Australian Dollar	0.97	0.97	1.04	1.23	1.42	1.41	1.32
Brazilian Real	1.67	1.95	2.16	2.68	3.78	3.80	3.29
British Pound	0.62	0.63	0.64	0.64	0.66	0.75	0.76
Canadian Dollar	0.99	1.00	1.03	1.16	1.33	1.41	1.33
Chinese Yuan	6.46	6.30	6.19	6.13	6.35	6.92	6.77
Czech Koruna	17.66	19.54	19.54	22.68	25.12	26.04	23.39
Danish Kroner	5.36	5.79	5.62	6.09	6.93	7.14	6.62
Egyptian Pound	5.92	6.03	6.84	7.13	8.00	12.96	18.08
Euro	0.72	0.78	0.75	0.75	0.93	0.96	0.89
Hong Kong Dollar	7.78	7.76	7.76	7.76	7.75	7.99	7.79
Indian Rupee	46.84	53.45	58.49	63.57	66.28	69.67	65.93
Indonesian Rupiah	8,724.71	9,328.00	10,397.60	12,420.00	13,624.00	14,242.78	13,527.24
Israeli Shekel	3.57	3.85	3.61	3.92	3.92	4.00	3.65
Japanese Yen	79.72	79.78	97.71	120.27	123.31	121.07	112.34
Malaysian Ringgit	3.05	3.08	3.14	3.49	4.37	4.51	4.27
Mexican Peso	12.42	13.15	12.75	14.69	16.82	19.46	19.31
New Zealand Dollar	1.26	1.23	1.22	1.29	1.53	1.50	1.42
Nigerian Nair	154.24	157.54	157.75	182.50	198.30	264.65	361
Norwegian Kroner	5.60	5.82	5.88	7.43	8.64	8.94	8.32
Polish Zloty	2.96	3.25	3.16	3.54	3.96	4.24	3.8
Russian Rouble	29.33	30.98	31.84	54.05	64.49	69.87	58.6
Saudi Riyal	3.75	3.75	3.75	3.75	3.75	3.87	3.75
South African Rand	7.23	8.20	9.65	11.60	14.22	15.10	13.58
South Korean Won	1,105.77	1,123.03	1,091.10	1,102.02	1,156.60	1,212.00	1134.31
Swedish Kroner	6.49	6.77	6.51	7.79	8.69	9.16	8.48
Swiss Franc	0.89	0.94	0.93	0.99	1.00	1.03	0.98
Taiwanese Dollar	29.26	29.49	29.65	31.73	32.77	33.31	30.67
Thai Baht	30.30	30.91	30.64	32.83	35.84	36.92	34
Turkish Lira	1.68	1.80	1.91	2.32	2.92	3.31	3.68

Average rates January to December

Source: OANDA, UK Gov and Goulden Reports

9.3 ESTIMATED PRODUCTION BY COMPANY BY COUNTRY

Table 140

Estimated Production by Company by Country Millions US Dollar 2017

Country	Company	Power Transformer	Distribution Transformers	Dry Transformers	2017 Production US\$ Million
WESTERN EUROPE					
Austria					
Belgium					
Denmark					
Finland					



France					
Germany					
Greece					
Ireland					

Italy					
Netherlands					
Norway					
Portugal					
Spain					
Sweden					

Switzerland					
United Kingdom					

EASTERN EUROPE					
Bulgaria					
Croatia					
Czech Republic					
Hungary					
Macedonia, TFYR					
Poland					

Romania					
Serbia					
Slovakia					
Slovenia					

FORMER USSR					
Armenia					
Azerbaijan					
Belarus					
Estonia					
Russia					
Ukraine					

Uzbekistan					
AFRICA					
Egypt					
Morocco					
Tunisia					
Tanzania					
South Africa					

MIDDLE EAST					
Iran					
Israel					
Lebanon					
Oman					
Saudi Arabia					
Turkey					

U A Emirates					
NEAR EAST					
India					
Pakistan					
Sri Lanka					
FAR EAST					

China	1					
	2					
	3					
Indonesia						

Japan					
Korea, North					
Korea, South					
Malaysia					

Philippines					
Singapore					
Taiwan					
Thailand					
Vietnam					
SOUTH AMERICA					

Argentina					
Brazil					
Chile					
Colombia					
Peru					
Venezuela					

Uruguay					
NORTH AMERICA					
Canada					
Mexico					
USA					

