



# Estimating current and future transformers markets

**W**ith the increasing globalisation of markets and manufacturers keen to explore the attractiveness of less familiar markets, there has never been a greater need for reliable and accurate data and market intelligence to assist in making important marketing decisions. The development of the internet has meant that there has never been more information readily and easily accessible, which has inevitably resulted in a variety of sources of varying

degrees of reliability that should assist in the decision making process.

As the volume has increased, so has the need for a filtering or pre-digesting process to interpret that huge volume of information and turn it into actionable data. One way in which this filtering process is delivered is in the form of published market research reports, and this is particularly the case for transformer markets which are the subject of a plethora of published reports.

## Published research vs tailored research

Published market research is inevitably a compromise between providing information that is of interest to a wide base of customers and yet targeted enough to answer specific questions of any purchaser. The benefit is that its cost is much lower than that of the tailored research – by a factor of 10 to 20 times – while the drawback is that it has to be used intelligently, or interpreted to ensure the best use of the infor-

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mation provided in the report. A market research project which is targeted on one specific country can cost the purchaser

as much as a published report covering an entire region or even one with global coverage. So, how does that trade-off

between cost and depth of information work in practice?

**The globalisation of the transformers market and the increase of available market data has presented manufacturers with a new twist on an old problem – how to obtain accurate information on current and future markets**

A tailored research project should be designed to provide a large enough budget for a researcher to develop a detailed specification and project plan that will encompass international travel to conduct face-to-face interviews with the senior decision makers who specify, purchase and/or supply transformers. The results of those interviews will be analysed and collated into very detailed market size

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and market share tables showing suppliers market position and competitive intelligence for the market segment being surveyed. A published report cannot provide the same level of detail, but it can provide sufficient data and competitive information which is detailed enough to provide reliable working data suitable for most marketing needs. Some of the indirect data sources that are available to the authors of published reports are listed below.

Sources of information on transformer market size include:

- Utility companies published capital and operational expenditure plans
- National development plans
- Transmission company reliability assessments
- Industrial production statistics
- Published trade statistics
- National generating capacity statistics

Sources of information on market shares include:

- Suppliers published annual financial reports
- Investor presentations
- Detailed import data
- Industry trade organisations
- Anti-trust enquiry reports

The usefulness, reliability and value-for-money that can be obtained from a published report is dependent entirely on the knowledge, skill and professionalism with which it is produced. A professionally produced market report will have taken months of diligent research, analysis and experience to produce and it will provide reliable data which can save the purchaser much wasted time and effort, measured not only in terms of the effort required to search through the huge volume of information which is of variable quality, often unsourced, may be contradictory and of questionable reliability; but which may

additionally equate to thousands of man-hours and dollars or euros in misguided market initiatives.

An example of the data which can be obtained from a published report which can be interpreted to provide detailed information is shown below, and it relates to trade data.

Power and distribution transformers are only produced in meaningful quantities in some 50 countries, which means that the market in the other 150 countries is satisfied by imports. By analysis of the annual import statistics of these countries, the market size and market shares of the suppliers can be assessed.

Table 1 illustrates the market share of imports by country of origin into Qatar over the period 2011 to 2013. These figures not only show that the market is worth \$97 million, but also clearly indicate the largest supplier countries. By applying the knowledge of the manufacturing companies in each of these countries, the market shares by supplier company can be deduced. Additionally, these aggregated figures can easily be deconstructed by size of transformer, to illustrate which companies are supplying which types of transformer to Qatar.





The market size calculation for the 50 or so countries that produce power and distribution transformers is a little more complicated. The formula is: production + imports - export = market size. As illustrated in Table 1, trade statistics can be analysed and a similar process will reveal the production data. Most countries collate and publish manufacturing data, but it is usually aggregated at too high a level to be of use. Such data will usually show the value of electrical engineering products produced in a country, but will not show the value of power or distribution transformers produced. This has to be “extracted” from within the broader heading. This process requires a large input of market knowledge and experience, which is too detailed for inclusion here, but a knowledgeable and professional researcher can deconstruct the data and provide meaningful data.

### Lies, damned lies and statistics

One aspect of interpreting data can be summarised by – don’t just take published facts as being set in stone, 100 % accurate. GDP growth rates for a country may be based on three-year-old estimates; population figures for some countries – even UN figures – can be based on a census that was conducted 10 years ago.

**Much of the data freely available claims to be current or up-to-date, but even hard facts must be viewed with caution and interpreted to ensure that the appearance is not misleading**

Table 1. Qatar transformer imports, 2011-2013

Qatar imports 2011 to 2013 averaged	
Source country	\$ millions
Korea South	26.9
Croatia	22.9
Turkey	12.2
Italy	9.8
France	4.8
Germany	4.7
USA	3.1
Indonesia	3.0
Spain	2.9
Denmark	1.8
Brazil	1.5
Austria	1.2
<b>Other</b>	<b>2.4</b>
<b>Total</b>	<b>97.1</b>

Source: Data from UN Comtrade database

## At first sight, a large geographical market may appear to offer the best opportunities for a new entrant, but appearances may be deceiving, because the most open market and hence the best potential may not be the largest

A web source shows that the global installed generating capacity increased from 5,624 GW in 2013 to 5,699 GW in 2014, which indicates that the global demand for GSU transformers was 75 GVA in 2014 (not including replacement for retired plant). In reality, these transformers would have been ordered in 2011 for delivery between 2012 - 2013, for commissioning in 2014, so depending on whether you count the market as at the time of order, time of delivery, time of payment, or time of commissioning, these 2014 figures may actually have been a part of the transformer market as far back as 2011. Just to further confuse the issue, the 2014 data quoted was accessed from the EIA database in 2014, in which the latest year for which hard data is listed is 2012, so the basis of the analysis slips back six years in the past towards 2009 or 2010.

Many of the smaller countries do not produce reliable import statistics and a more reliable source is the sum total of

exporting countries statistics to the target country. Certainly there are often large variations between what exporting countries and the recipient importing countries record. Table 1 illustrated the averaged imports into Qatar as recorded by the countries exporting products to Qatar. For comparison, Table 2 shows imports as recorded by Qatar.

There are some large discrepancies between the two sets of figures. It is not unusual, and perfectly understandable, for there to be variations from one year to another. For example, a large order may be supplied and recorded in the exporting country data in one year, but it may not appear in the recipient country until the year after. It is for that reason that three-years figures have been averaged to iron out the effects of any single year; however, \$30 million versus \$97 million probably illustrates systematic differences in recording protocols between the two sets and a judgement has to be made as to which

figures to rely on. This judgement requires knowledge and industry experience.

### Identifying opportunities

It can be misleading to assume that a large market means plenty of opportunity for a new entrant. It can be, and often is argued when assessing a new market entry, that even a small share of a large market is worthwhile pursuing. This may well be the case, but the more important and less often asked question is how accessible that market is. The Asian (including China) market for transformers is worth a little under US\$17 billion annually, however over 91 % of the market is satisfied by goods used in the country of manufacture. The total import market share of all Asian countries is 8.65 % or US\$1.5 billion, of which 5.1 % are from other Asian countries. Therefore, manufacturers from every other country are fighting for a share of the US\$0.5 billion extra-regional business. The same analysis for Western Europe shows that a similar value (US\$0.5 billion) is available to non-European suppliers out of a total market of US\$3.6 billion. The region with the largest available free market is North America, where from a total market of US\$5.5 billion, 36 % or US\$2.0 billion is supplied by non-North American countries.

### Future forecasts

For many product areas researchers rely on GDP growth forecast as the basis of their view of the future; however, for infrastructure products such as transformers, a heavy reliance on such indicators can be misleading. Transmission and distribution network development may be the result of increased economic activity in any country, but there are many other factors that impact market development. Electrical engineers do not wait until the economists say that GDP has increased by 2 percentage points and then write out an order for a new power station or several new substations. They are making much more complicated calculations involving load growth, changing load patterns, population development, industry investment, housing starts, maintenance requirements and even climate change. On top of this, they are balancing the demands of capital expenditure versus operational expenditure. Yes, a new transformer will be more efficient and will pay for itself inside 10 years, but without the capital

Table 2. Recorded transformer imports into Qatar, 2011-2013

Qatar imports 2011 to 2013 averaged	
Source country	\$ millions
Korea South	9.0
UAE	5.1
Germany	3.5
Italy	2.7
UK	1.2
USA	1.2
Turkey	1.1
Croatia	1.0
China	0.7
Saudi Arabia	0.6
<b>Other</b>	<b>4.1</b>
<b>Total</b>	<b>30.4</b>

Source: Data from UN Comtrade database

Table 3. A global transformer market overview

Regional market	Market size \$ million	Domestic share	Import share	Intra region share	Extra region share	Extra region available \$ million
Western Europe	3,596.0	36.72 %	63.28 %	83.64 %	16.36 %	588.2
Eastern Europe	913.8	69.29 %	30.71 %	78.55 %	21.45 %	196.0
FSU	2,192.9	58.42 %	41.58 %	80.62 %	19.38 %	424.9
Africa	2,158.5	45.64 %	54.36 %	48.28 %	51.72 %	1,116.4
Middle East	2,025.5	11.42 %	88.58 %	31.48 %	68.52 %	1,387.9
Indian Subcontinent	1,354.2	61.98 %	38.02 %	63.84 %	36.16 %	489.7
Asia	16,836.7	91.35 %	8.65 %	96.53 %	3.47 %	584.1
South & Central America	2,006.9	61.42 %	38.58 %	74.41 %	25.59 %	513.5
North America	5,501.1	55.29 %	44.71 %	63.85 %	36.15 %	1,988.6
Australasia	402.0	39.70 %	60.30 %	48.45 %	51.55 %	207.2

Source: UN Comtrade data & Goulden Reports Analysis

## Greater insight is required when forecasting future markets for power and distribution transformers than simply searching for the economic forecast with the highest GDP growth. It's not that easy.

expenditure budget to make the replacement, a 30-year-old unit may have to be left in place even if it is costing money in losses to do so. We have developed models to calculate these factors and to make judgements of future growth rates, but these only assist; they do not provide a definitive answer. When utility companies in some countries were preparing for privatization in the 1990s, theoretically they should have been replacing and enhancing their 40-year-old networks providing plenty of transformer orders. In practice, to conform with the needs of a beauty competition for investors, they cut back all unnecessary expense and dis-

tribution transformer markets declined instead of increasing.

Political decisions can also have a detrimental effect on transformer markets, but it is worth noting that the global market for transformers was \$40 billion in 2015. 18 % of that was generator transformers, 29 % were transmission transformers and 53 % were distribution transformers. Politicians only generally interfere with large newsworthy projects – usually a part of the generator and transmission transformer segments, a relatively small percentage of the total market. Meanwhile, the rest of the infrastructure engineering

community continues to make sure that the lights don't go out. Political inputs into infrastructure development decision making and all of the attendant delays that this causes to flagship projects must be a major annoyance to the constructors and the suppliers of the transformers which hang on those decisions. Nevertheless, overall this represents only a small percentage of the global market at any one time.

In conclusion, there is a great deal of information available to transformer manufacturers and their strategic planners, some of which is freely available, some of which is charged for. There are three categories:

- That which is free – which is probably too voluminous, may be contradictory, is of doubtful reliability and will require pre-digesting or at least prioritising by experienced staff; otherwise, it will take too long to assimilate.
- Published market research – which is charged for, but is not generally prohibitively expensive; however, it will need to be interpreted to meet individual needs and used selectively.
- Tailored specific research – which is highly targeted, but will need to be carefully designed to avoid wasted expenditure.

Some of the issues raised above will be explored in greater detail in future columns, and the intuitive and counter intuitive problems of sizing, forecasting and predicting market conditions will be discussed in greater detail.

### Author



Steve Aubertin is the Managing Director of Goulden Reports and following a first career in electrical engineering has spent the last 30 years researching and reporting on the global market for electrical products in both published and in the form of tailored research for specific clients.