

# SWITCHGEAR REPORT 2015 Ed 1 – SAMPLE PAGES



## 1. GLOBAL SWITCHGEAR MARKET

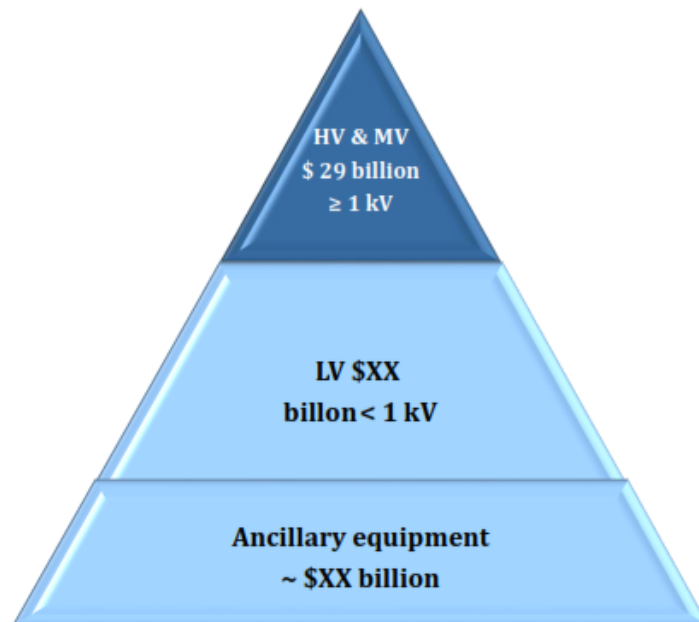
### 1.1. THE SWITCHGEAR MARKETS – POSITION AND SIZE

Switchgear markets are often rather loosely defined in terms of voltage, and in terms of the component that constitute switchgear. We propose three segments for the total market of ~ \$116 billion in 2014 at ex-factory prices which can be portrayed as a three tier pyramid. \$XX billion are in the clearly defined category of switchgear and \$XX billion are more loosely associated ancillary equipment.

4. At the pinnacle of the pyramid, the first tier is the HV & MV segment, which is defined as the market for switchgear components rated 1 kV and over. These correspond to the voltage levels in the transmission and distribution networks of the electric utility industry. Market size in 2014 - \$29 billion.
5. The second tier is LV, under 1 kV and this this corresponds to the endpoints served by the electric supply industry, with voltages corresponding to the secondary voltages of the final network distribution transformers. Market size in 2014 - \$XX billion.
6. Finally, a range of ancillary equipment support the switchgear sector in either segment but are not switchgear components. Market size in 2014 ~ \$XX billion.

**This report is primarily concerned with the top segment, the HV and MV switchgear market > 1 kV.**

Figure 1: The switchgear market pyramid- demand in the three voltage segments; HV/MV, LV and ancillary equipment



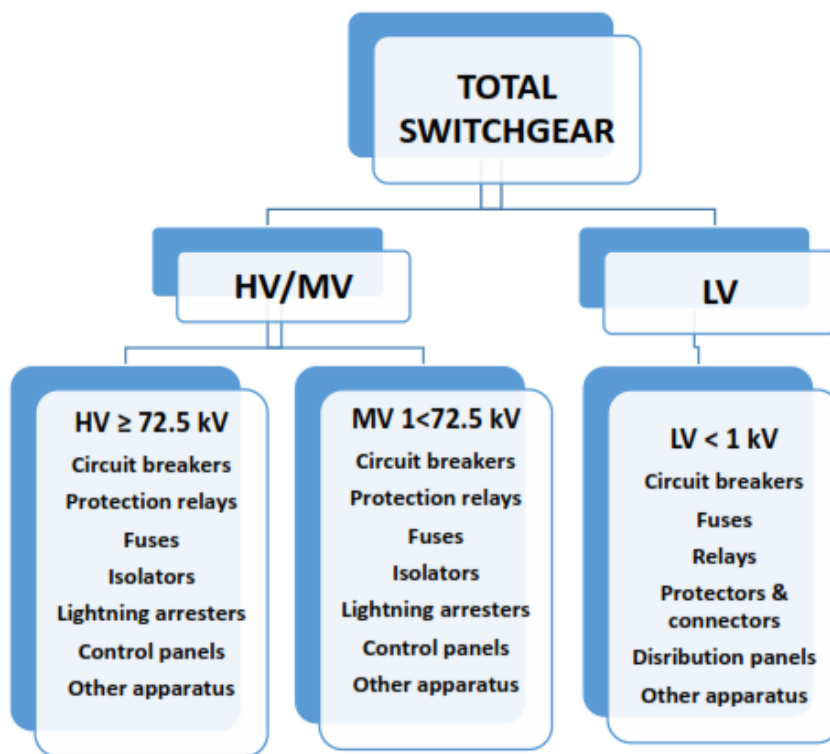
## 1.2. COMPOSITION OF THE MARKET

Although this report is concerned with the HV/MV segment of switchgear we have included some overall figures to illustrate the position of the HV/MV segment within the total switchgear population, in terms of market size and product categories. Sometimes the top segment which we term HV/MV is called HV, which is the IEC definition of all electrical products  $\geq 1$  kV, while LV is  $< 1$  kV.

The categories included in the HV/MV and LV segments of the switchgear market are listed below. Peripherals is a more loosely defined category and may include some products which are not strictly classifiable as switchgear but are loosely adjuncts to it.

Note: The comparison with the utility industry is used as a convenient benchmark. The utility industry is only one segment of the switchgear end-user market, others include industry, rail and other utilities.

Figure 2: Switchgear devices in each voltage category

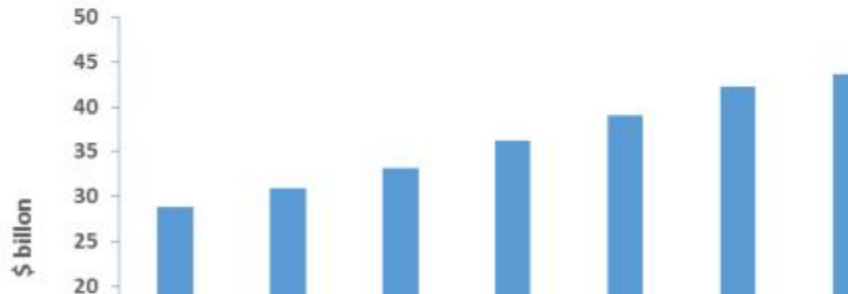


The category HV/MV corresponds to transmission and distribution over 1 kV in the electrical utility market. 72.5 kV is the conventional break point used in official statistics for switchgear  $> 1$  kV and it corresponds approximately but not exactly to the breakpoint between transmission and distribution. There is no fixed voltage for the transfer from transmission to distribution and Europe is a good example

### 1.3. GLOBAL DEMAND - MARKET SIZES AT EX FACTORY COST

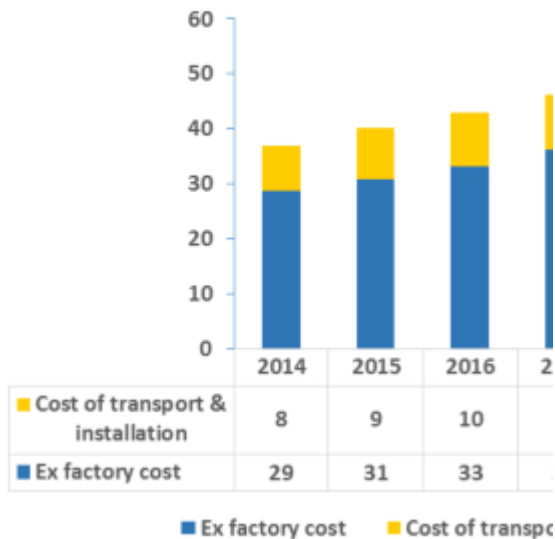
The global market for HV and MV switchgear at ex-factory (factory gate) cost is projected to rise from \$28.5 billion in 2014 to \$43.5 billion in 2020, rising at a real cagr of 1.5% and a nominal cagr of 1.5% to \$43.5 billion in 2020.

Figure 4: World demand for HV/MV switchgear at ex factory cost, nominal



The installed cost of the switchgear market, which includes the ex-factory cost plus the cost of transport and installation, is projected to rise from \$36.5 billion in 2014 to \$46.5 billion in 2020, rising at a real cagr of 1.5% and a nominal cagr of 1.5% to \$46.5 billion in 2020.

Figure 5: World demand for HV/MV switchgear, ex factory cost and cost of transport & installation



#### 1.4. DEMAND FOR SWITCHGEAR BY TYPE - WORLD

The largest segment of the switchgear market is distribution panels, with a market demand of \$XX in 2014, followed by circuit breakers at \$XX billion, protection relays with just over \$XX billion, isolators at \$XX billion and lightning arresters with \$XX billion. HV/MV Fuses are estimated at just under \$XXX million.

Figure 7: Demand for switchgear by type at ex factory cost, nominal \$ billion, World, 2014 to 2020

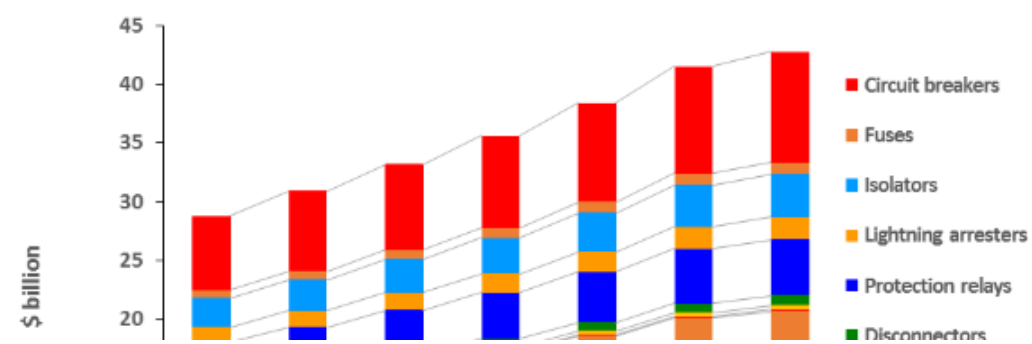


Table 4: Europe, demand for HV/MV switchgear by country, nominal \$ million, 2014 to 2020

	2014	2015	2016	2017	2018	2019	2020
Albania	6	6	7	7	7	7	8
Austria							
Belgium							
Bosnia Herzegovina	21	22	22	23	24	24	25
Bulgaria							
Croatia							
Cyprus							
Czech Republic							
Denmark							
Estonia							
Finland	19	19	20	21	21	22	22

## 11.1. HV SEGMENT

CIGRE, the International Council on Large Electric Systems, has conducted three worldwide surveys of circuit breaker populations between 1988 and 2007. There are some variations between the survey results but on average XX% of CBs  $\geq 1$  kV are under 72.5 kV and XX%  $> 75$  kV. The proportions decline the higher the voltage, from XX% in the range  $72.5 \leq 100$  kV to XX%  $500 \leq 700$  kV and XX%  $\geq 700$  kV.

Figure 45: Distribution of the MV and HV circuit breaker population by voltage within HV/MV sector by value

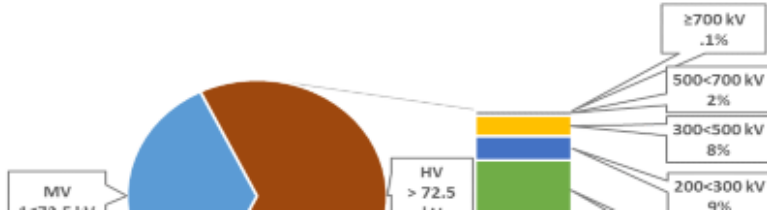


Figure 46: HV circuit breaker population by breaker type

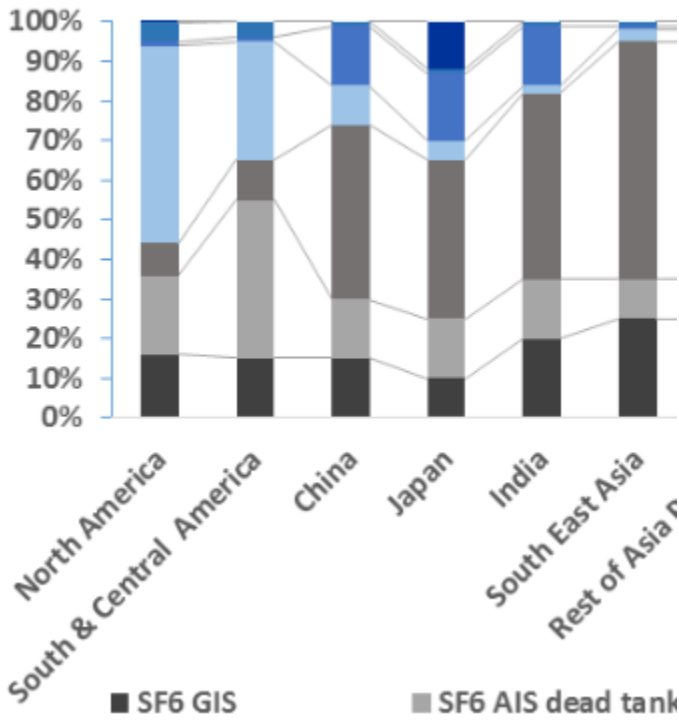
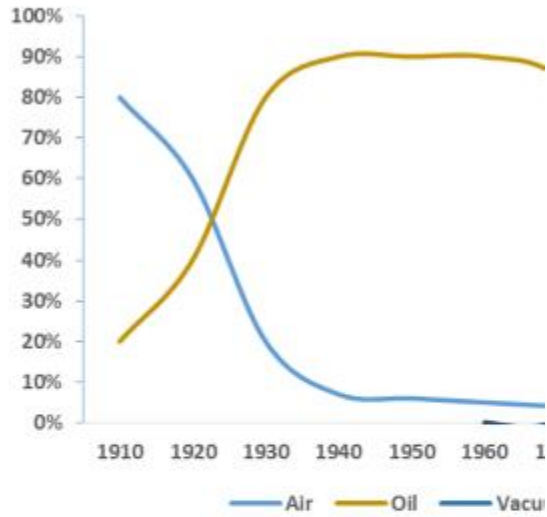




Figure 61: Development of MV switchgear techn



Source: Company and industry reports

### 13.3. VCBs – VACUUM CIRCUIT BREA

Because of the GHG pollutant problem facing S as an alternative, although it still has a long wa number of HV VCBs in use for some years. I vacuum circuit breakers with a single vacuum i recently Japan AE Power Systems Corporatio produced or are developing single Vacuum In approach immensely simplifies the construct economic.