Global capital expenditure on generation, transmission and distribution is estimated at $749 billion in 2015, rising to a nominal value of $766 billion in 2016 and to $953 billion in 2020. In 2016 the total was composed of $430 billion for generation, $102 billion for transmission and $218 billion for distribution. In 2015 generation accounted for 57% of capex with a total of $430 billion, transmission for 14% at $102 billion and distribution and distribution for 29% with $218 billion. Generation's share fell from 67% in 2000 to 57% in 2015 and will fall to 55% in 2020.

Expenditure on generation totalled $2.4 trillion on generation between 2000 and 2010 and in the following decade from 2010 to 2020 it will almost double to $4.4 trillion, an increase of 88%. Transmission will grow even more, rising by 137% from $458 billion to $1,033 billion and distribution rising more slowly by 123% but in a greater value, from $1,014 billion to $2,205 billion.

In 2015 generation accounted for 57% of capex, transmission for 14% and distribution for 29%.

Chapter Overview:

1. Introduction To The Power Sector - The scale of the power sector is outlined as an introduction, in capacity and $ with commentary on its composition by the constituent sectors - generation, transmission and distribution (GTD).

2. Utility Sectors - The 135,000 electricity, gas and water & waste utilities are shown regionally on a global map and the 11,000 electrical utilities are analysed by region and major country, with a breakdown of public/private ownership. A table summarises the electrical utility sector in every country.

3. Other Utility Sectors, As Generators And Consumers - The other utilities are identified - oil, gas, water & waste, telecoms, railways - they are large generators and consumers of electricity, and some have dedicated transmission and distribution networks.

4. Industrial And Captive Generation - Industry is a significant generator of power and an even larger consumer, drawing from the grid more than it supplies in most but not all countries. Industry is an important owner of transmission and distribution assets such as transformers. “Hidden power “, mostly private generators under 1 MW, is a segment attracting increasing attention and has been underestimated in the past.

5. Consumers Of Electricity As Investors - Use by end-sector, with further analysis by type of industrial use and purpose of use.

6. Capital Expenditure - Capex is plotted globally from 2000 to 2015 and forecast to 2020, with analysis by segment; generation, transmission and distribution and summarised with analysis by energy source from 2000 to 2020; coal, gas, oil, nuclear, wind, utility solar PV, rooftop solar PV. The rapid growth of small solar PV is demonstrated. The composition of capex is analysed.

7. Generation Capex By Energy Source - Generating capex is analysed by energy source (see previous chapter details) for the world, 7 regions and 11 major countries, at eight intervals in the PDF - 1990, 2000 and annually from 2015 to 2020 - and in the Excel database annually from 1980 to 2020. The current status and prospects for each energy source are discussed.

8. Generation Technologies - The composition of plant for the various generating technologies is outlined and analysed by share of cost, for the following technologies; coal fired plants, gas turbine simple cycle (OCGT), gas turbine combined cycle (CCGT), oil-fired steam turbine plant, diesel engine-generator, wind turbine, solar photovoltaic, hydropower and nuclear power.

9. T&D Capex - Transmission and distribution capex is plotted for the world, 7 regions and 11 major countries, at eight intervals in the PDF for 1990, 2000 and annually from 2015 to 2020 - and in the Excel
10. Definition Of The Power Sector Equipment Market - The power sector is defined, with broad parameters to include electrical utilities, IPPS, industrial captive generation and small scale distributed generation. In the generating sector it is important to understand the overlap of mechanical equipment, which constitutes over ¾ of equipment expenditure in the power generation sector, between electrical uses and mechanical uses, such as heat and steam output in district heating and industrial process. Plants such as industrial boilers are a large component in fossil fuel power generation but they have even larger applications in other industries.

11. Regional And National Equipment Markets For Generation, Transmission And Distribution Equipment By Geography - Country markets are analysed by product, with sales of total generating, transmission and distribution equipment in nominal values in the PDF - for 1990, 2000 and annually from 2015 to 2020 - and in the Excel database annually from 1980 to 2020 for the world, 7 regions and 11 major countries. Generating products include: boilers, steam turbines, gas turbines, HRSG (heat recovery steam generators), diesel & HFO engines, wind turbines, hydro turbines, solar PV modules, solar PV inverters, FGD (flue gas desulphurisation), SCR/SNCR (selective catalytic reduction/selective non-catalytic reduction), PM (particulate matter removal; ESP, scrubbers, fabric filters/baghouses), CPP (coal preparation plant), fly ash handling plant, insulated cable, compressors, piping, instruments and control equipment, GSU generator transformers, GCB (generator circuit breakers), switchgear and power plant automation.

Transmission and distribution products include transformers, switchgear, circuit breakers, circuit protectors, surge arresters, distribution panels, fusegear, switches, disconnectors, protection relays, lightning arresters, isolators, energy cable - insulated and uninsulated conductors, insulators and bushings, spacers and dampers, HVDC, AC filters for HVDC, steel towers, poles of wood, concrete, steel and composite, pole-top assemblies, meters and utility automation.

12. Sales Of Mechanical Generation Plant By Region - Individual product markets for mechanical generating equipment are analysed by country, in nominal values in the PDF - for 1990, 2000 and annually from 2015 to 2020 - and in the Excel database annually from 1980 to 2020 for the world, 7 regions and 11 major countries. Product markets include boilers, steam turbines, gas turbines, HRSG (heat recovery steam generators), diesel & HFO engines, wind turbines, hydro turbines, solar PV modules, solar PV inverters, FGD (flue gas desulphurisation), SCR/SNCR (selective catalytic reduction/selective non-catalytic reduction), PM (particulate matter removal; ESP, scrubbers, fabric filters/baghouses), CPP (coal preparation plant), fly ash handling plant, insulated cable, compressors, piping, instruments and control equipment, GSU generator transformers, GCB (generator circuit breakers), switchgear and power plant automation.

Vendor shares or rankings are provided for the individual categories/products and sections have marketing and technical commentary. Where available these have been supplemented with extracts from dedicated StatPlan product marketing reports, with higher levels of detail.

13. Mechanical And Electrical Equipment In Generation, Transmission And Distribution By Region - Product markets for mechanical generating equipment are analysed by country, in nominal values in the PDF - for 1990, 2000 and annually from 2015 to 2020 - and in the Excel database annually from 1980 to 2020 for the world, 7 regions and 11 major countries. Products include transformer, circuit breakers, energy cable - insulated and uninsulated conductors, utility automation and power plant automation.

Vendor shares or rankings are provided for the individual categories/products and sections have marketing and technical commentary. Where available these have been supplemented with extracts from dedicated StatPlan product marketing reports, with higher levels of detail.

14. Sales Of Transmission And Distribution Equipment Markets By Region - Product markets for T&D equipment are analysed by country, in nominal values in the PDF - for 1990, 2000 and annually from 2015 to 2020 - and in the Excel database annually from 1980 to 2020 for the world, 7 regions and 11 major countries. Products include switchgear, circuit protectors, surge arresters, distribution panels, fusegear, switches, disconnectors, protection relays, lightning arresters, isolators, insulators and bushings, spacers and dampers, HVDC, AC filters for HVDC, steel towers, poles of wood, concrete, steel and composite, pole-top assemblies, meters.

Vendor shares or rankings are provided for the individual categories/products and sections have marketing and technical commentary. Where available these have been supplemented with extracts from dedicated StatPlan product marketing reports, with higher levels of detail.
15. The Value Chain - From Materials To Capex - The cost of any product can be measured at various stages, from being a piece of unworked metal, to its installation in working order and finally as a share of capital expenditure. Different price levels apply through the supply chain, and the point of interest in the chain depends on the business to which the value is being applied. The report analyses the value chain at 6 levels, from BOM (bill of materials) to capex, with all market-ups included. In using the market information in this and other reports it is essential to specify which point in the value chain is being used. Capex can be 2½ times the factory gate price, over 3 times manufacturing cost and 5 times materials cost.

16. Price Trends And Factors Driving Prices - In recent years the prices of electrotechnical products have been volatile due to variations in many factors which affect them. Price trends are reviewed with commentary on PPI - Producer Price Index, industry trends, production capacity, and the manufacturing input cost composition.

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FGD Flue Gas Desulphurisation
SCR, Selective Catalytic Reduction/SCNR Selective Non-Catalytic Reduction
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