

# HVDC Converter Station Market by Configuration (Monopolar, Bi-Polar, Back-to-Back, Multi-Terminal), Technology (LCC, VSC), Component (Valve, Converter Transformer, Harmonic Filter, Reactor), Power Rating, and Region - Global Forecast to 2022

https://marketpublishers.com/r/H2C4600C9DEEN.html

Date: December 2017

Pages: 134

Price: US\$ 5,650.00 (Single User License)

ID: H2C4600C9DEEN

# **Abstracts**

"The HVDC converter station market is projected to grow at a CAGR of 7.92%, from 2017 to 2022"

The HVDC converter station market is projected to reach USD 11.57 billion by 2022 from USD 7.90 billion in 2017, at a CAGR of 7.92%, during the forecast period. The growth of the market is driven by certain parameters such as the increase in demand for cost-effective solutions for long distance power distribution, from major economies across the world. In addition to this, the capability of HVDC converter stations to integrate the renewable resource with the main grid is a market opportunity for HVDC converter stations.

Factors such as a lengthy process for approval of the project and the higher one-time installation cost can hinder the growth in the HVDC converter station market. The major advantage of HVDC converter stations is its capability to connect renewable power sources to the main grid and is also the driving force for the market.

"The 2,000 MW power rating segment, is expected to grow at the highest CAGR, from 2017 to 2022"

The 2000 MW power rating segment is likely to grow at the highest CAGR, from 2017 to 2022. The 2000 MW segment had the largest market share in 2016 and the trend is projected to continue till 2022.



The 2000 MW segment is driven by the development of the power transmission capacity of valves, because of which major economies such as India and China have led to a high demand for HVDC converter stations. Moreover, the European Union targets for power generation through renewable resources have created an increasing demand for connecting renewable power sources to the grid, which is further expected to drive the demand for HVDC converter stations in Europe.

"The LCC segment is expected to hold the largest share of the HVDC converter station market during the forecast period"

The LCC segment is expected to lead the HVDC converter station market, by technology from 2017 to 2022. The development of thyristor valves in the recent years have provided an edge for HVDC converter stations to transfer bulk power over long distances. Due to this, the LCC technology finds application in UHVDC projects proposed in major economies in Asia Pacific for bulk power transport.

"Asia Pacific: The fastest growing market for HVDC converter stations"

The market in Europe is currently the largest market for HVDC converter stations, followed by Asia Pacific. The market in Asia Pacific is primarily driven by China and India as these are the major economies in the region which have a huge demand for efficient power transmission systems. Asia Pacific has the largest installation of HVDC converter stations in the world owing to the requirement of bulk power transport. Moreover, China has a number of regional players as NR Electric and C-EPRI, among others in the HVDC converter station market to meet the requirement of its large UHVDC projects. China is planning to connect different power grids to a central line, driving the market for HVDC converter stations.

#### Breakdown of Primaries:

In-depth interviews have been conducted with various key industry participants, subject matter experts, C-level executives of key market players, and industry consultants, among other experts, to obtain and verify critical qualitative and quantitative information, as well as to assess future market prospects. The distribution of primary interviews is as follows:

By Company Type: Tier 1- 60%, Tier 2- 27%, and Tier 3- 13%



By Designation: C-Level- 35%, Manager Level- 25%, and D-Level- 40%

By Region: North America- 60%, Europe- 30%, Asia Pacific- 10%,

Notes: The tier for companies has been defined on the basis of their total revenue, as of 2016: Tier 1=USD 5 billion, Tier 2=from USD 1 billion to USD 5 billion, and Tier 3=USD 1 billion

Leading players in the HVDC converter station market include ABB (Switzerland), Siemens (Germany), General Electric (US), Mitsubishi (Japan), Toshiba (Japan), NE Electric (China), and C-EPRI (China).

# Research Coverage:

The report defines, describes, and forecasts the global HVDC converter station market by technology, configuration, component, power rating, and region. It also offers a detailed qualitative and quantitative analysis of the market. The report provides a comprehensive review of major market drivers, restraints, opportunities, challenges, and key issues. It also covers various important aspects of the market.

Why buy this report?

The report identifies and addresses key technology providers for HVDC converter stations which would help service providers, review the growth in the demand for services.

The report helps system providers understand the pulse of the market and provide insights into drivers, restraints, and challenges.

The report will help key players understand the strategies of their competitors better and will help in making strategic decisions.



# **Contents**

#### 1 INTRODUCTION

- 1.1 OBJECTIVES OF THE STUDY
- 1.2 MARKET DEFINITION
- 1.3 MARKET SCOPE
  - 1.3.1 MARKETS COVERED
  - 1.3.2 REGIONAL SCOPE
  - 1.3.3 YEARS CONSIDERED FOR THE STUDY
- 1.4 CURRENCY
- 1.5 LIMITATIONS
- 1.6 STAKEHOLDERS

#### 2 RESEARCH METHODOLOGY

- 2.1 RESEARCH DATA
  - 2.1.1 SECONDARY DATA
    - 2.1.1.1 Secondary sources
  - 2.1.2 PRIMARY DATA
    - 2.1.2.1 Key data from primary sources
    - 2.1.2.2 Key industry insights
  - 2.1.2.3 Breakdown of primaries
- 2.2 MARKET SIZE ESTIMATION
  - 2.2.1 BOTTOM-UP APPROACH
  - 2.2.2 TOP-DOWN APPROACH
- 2.3 MARKET BREAKDOWN & DATA TRIANGULATION
- 2.4 RESEARCH ASSUMPTIONS
  - 2.4.1 ASSUMPTIONS OF THE RESEARCH STUDY

#### **3 EXECUTIVE SUMMARY**

#### **4 PREMIUM INSIGHTS**

- 4.1 ATTRACTIVE OPPORTUNITIES IN THE HVDC CONVERTER STATION MARKET
- 4.2 HVDC CONVERTER STATION MARKET, BY COUNTRY
- 4.3 EUROPE HVDC CONVERTER STATION MARKET, BY CONFIGURATION & COUNTRY
- 4.4 HVDC CONVERTER STATION MARKET, BY TECHNOLOGY



# 4.5 HVDC CONVERTER STATION MARKET, BY COMPONENT

### 4.6 HVDC CONVERTER STATION MARKET, BY POWER RATING

#### **5 MARKET OVERVIEW**

- 5.1 INTRODUCTION
- 5.2 MARKET DYNAMICS
  - 5.2.1 DRIVERS
- 5.2.1.1 Increasing demand for cost-effective solutions for long distance power transmission
  - 5.2.1.2 Integration of the VSC technology across grids enables system security
  - 5.2.1.3 Liberalization in energy policies in Europe
  - 5.2.1.4 High initial capital to establish the HVDC converter station
- 5.2.1.5 Lengthy approval processes for transmission projects affect the growth of the HVDC substation
  - 5.2.2 OPPORTUNITIES
- 5.2.2.1 Favorable government policies bring opportunities for growth in offshore wind transmission projects
  - 5.2.2.2 Rapid adoption rate for the UHVDC technology in China
  - 5.2.3 CHALLENGES
- 5.2.3.1 Maintaining uniformity in the standards of HVDC transmission equipment and systems
  - 5.2.3.2 Controlling congestion & instability in HVDC systems

# **6 HVDC CONVERTER STATION MARKET, BY CONFIGURATION**

- **6.1 INTRODUCTION**
- **6.2 MONOPOLAR**
- 6.3 BI-POLAR
- 6.4 BACK-TO-BACK
- 6.5 MULTI-TERMINAL

#### 7 HVDC CONVERTER STATION MARKET, BY TECHNOLOGY

- 7.1 INTRODUCTION
- **7.2 LCC**
- 7.3 VSC

#### 8 HVDC CONVERTER STATION MARKET, BY COMPONENT



- 8.1 INTRODUCTION
- 8.2 VALVE
- 8.3 CONVERTER TRANSFORMERS
- 8.4 HARMONIC FILTERS
- 8.5 REACTORS
- **8.6 CIRCUIT BREAKERS**
- **8.7 SURGE ARRESTERS**
- 8.8 OTHERS

# 9 HVDC CONVERTER STATION MARKET, BY POWER RATING

- 9.1 INTRODUCTION
- 9.2 BELOW 500 MW
- 9.3 >500-1000 MW
- 9.4 >1000-1500 MW
- 9.5 >1500-2000 MW
- 9.6 ABOVE 2000 MW

# 10 HVDC CONVERTER STATION MARKET, BY REGION

- 10.1 INTRODUCTION
- 10.2 NORTH AMERICA
  - 10.2.1.1 US
  - 10.2.1.2 Canada
- 10.3 EUROPE
  - 10.3.1.1 UK
  - 10.3.1.2 Germany
  - 10.3.1.3 France
  - 10.3.1.4 Norway
  - 10.3.1.5 Rest of Europe
- 10.4 ASIA PACIFIC
  - 10.4.1.1 China
  - 10.4.1.2 INDIA
  - 10.4.1.3 Rest of Asia Pacific
- 10.5 REST OF THE WORLD
  - 10.5.1.1 South America
  - 10.5.1.2 Middle East & Africa



#### 11 COMPETITIVE LANDSCAPE

- 11.1 INTRODUCTION
- 11.2 MARKET RANKING ANALYSIS
- 11.3 COMPETITIVE SCENARIO
  - 11.3.1 CONTRACTS & AGREEMENTS
  - 11.3.2 INVESTMENTS & EXPANSIONS
  - 11.3.3 MERGERS & ACQUISITIONS
  - 11.3.4 JOINT VENTURES

#### 12 COMPANY PROFILES

(Overview, Products Offered, Recent Developments, SWOT Analysis, MnM View)\*

- 12.1 ABB
- 12.2 GE
- 12.3 SIEMENS
- 12.4 TOSHIBA
- 12.5 MITSUBISHI
- 12.6 BHEL
- 12.7 NR ELECTRIC
- 12.8 CHINA XIAN XD POWER SYSTEM
- 12.9 C-EPRI POWER ENGINEERING COMPANY
- 12.10 XJ ELECTRIC
- **12.11 HYOSUNG**
- 12.12 LSIS

#### 13 APPENDIX

- 13.1 INSIGHTS OF INDUSTRY EXPERTS
- 13.2 DISCUSSION GUIDE
- 13.3 KNOWLEDGE STORE: MARKETSANDMARKETS' SUBSCRIPTION PORTAL
- 13.4 INTRODUCING RT: REAL-TIME MARKET INTELLIGENCE
- 13.5 AVAILABLE CUSTOMIZATIONS
- 13.6 RELATED REPORTS
- 13.7 AUTHOR DETAILS

<sup>\*</sup>Details on Overview, Products Offered, Recent Developments, SWOT Analysis, MnM View might not be captured in case of unlisted companies.





# **List Of Tables**

#### LIST OF TABLES

Table 1 HVDC CONVERTER STATION MARKET SNAPSHOT

Table 2 HVDC CONVERTER STATION MARKET SIZE, BY CONFIGURATION, 2015–2022 (USD BILLION)

Table 3 MONOPOLAR: HVDC CNVERTER STATION MARKET SIZE, BY REGION, 2015–2022 (USD MILLION)

Table 4 BI-POLAR: HVDC CONVERTER STATION MARKET SIZE, BY REGION, 2015–2022 (USD MILLION)

Table 5 BACK-TO-BACK: HVDC CONVERTER STATION MARKET SIZE, BY REGION, 2015–2022 (USD MILLION)

Table 6 MULTI-TERMINAL: HVDC CONVERTER STATION MARKET SIZE, BY REGION, 2015–2022 (USD MILLION)

Table 7 HVDC CONVERTER STATION MARKET SIZE, BY TECHNOLOGY, 2015–2022 (USD BILLION)

Table 8 LCC: HVDC CONVERTER STATION, BY REGION, 2015–2022 (USD MILLION)

Table 9 VSC: HVDC CONVERTER STATION MARKET SIZE, BY REGION, 2015–2022 (USD MILLION)

Table 10 HVDC CONVERTER STATION MARKET SIZE, BY COMPONENT, 2015–2022 (USD BILLION)

Table 11 VALVE: HVDC CNVERTER STATION MARKET SIZE, BY REGION, 2015–2022 (USD MILLION)

Table 12 CONVERTER TRANSFORMERS: HVDC CONVERTER STATION MARKET SIZE, BY REGION, 2015–2022 (USD MILLION)

Table 13 HARMONIC FILTER: HVDC CONVERTER STATION MARKET SIZE, BY REGION, 2015–2022 (USD MILLION)

Table 14 REACTORS: HVDC CONVERTER STATION MARKET SIZE, BY REGION, 2015–2022 (USD MILLION)

Table 15 CIRCUIT BREAKER: HVDC CONVERTER STATION MARKET SIZE, BY REGION, 2015–2022 (USD MILLION)

Table 16 SURGE ARRESTER: HVDC CONVERTER STATION MARKET SIZE, BY REGION, 2015–2022 (USD MILLION)

Table 17 OTHERS: HVDC CONVERTER STATION MARKET SIZE, BY REGION, 2015–2022 (USD MILLION)

Table 18 HVDC CONVERTER STATION MARKET SIZE, BY POWER RATING, 2015–2022 (USD BILLION)



Table 19 BELOW 500 MW: HVDC CONVERTER STATION, BY REGION, 2015–2022 (USD MILLION)

Table 20 >500-1000 MW: HVDC CONVERTER STATION MARKET SIZE, BY REGION, 2015-2022 (USD MILLION)

Table 21 >1000-1500 MW: HVDC CONVERTER STATION MARKET SIZE, BY REGION, 2015-2022 (USD MILLION)

Table 22 >1500-1000 MW: HVDC CONVERTER STATION MARKET SIZE, BY REGION, 2015-2022 (USD MILLION)

Table 23 >2000 MW: HVDC CONVERTER STATION MARKET SIZE, BY REGION, 2015–2022 (USD MILLION)

Table 24 HVDC CONVERTER STATION MARKET, BY REGION 2015–2022 (USD BILLION)

Table 25 NORTH AMERICA: HVDC CONVERTER STATION MARKET SIZE, BY COUNTRY, 2015–2022 (USD MILLION)

Table 26 NORTH AMERICA: HVDC CONVERTER STATION MARKET SIZE, BY TECHNOLOGY, 2015–2022 (USD MILLION)

Table 27 NORTH AMERICA: HVDC CONVERTER STATION MARKET SIZE, BY COMPONENT, 2015–2022 (USD MILLION)

Table 28 NORTH AMERICA: HVDC CONVERTER STATION MARKET SIZE, BY POWER RATING, 2015–2022 (USD MILLION)

Table 29 NORTH AMERICA: HVDC CONVERTER STATION MARKET SIZE, BY CONFIGURATION, 2015–2022 (USD MILLION)

Table 30 US: HVDC CONVERTER STATION MARKET SIZE, BY TECHNOLOGY, 2015–2022 (USD MILLION)

Table 31 CANADA: HVDC CONVERTER STATION MARKET SIZE, BY TECHNOLOGY, 2015–2022 (USD MILLION)

Table 32 EUROPE: HVDC CONVERTER STATION MARKET SIZE, BY COUNTRY, 2015–2022 (USD MILLION)

Table 33 EUROPE: HVDC CONVERTER STATION MARKET SIZE, BY TECHNOLOGY, 2015–2022 (USD MILLION)

Table 34 EUROPE: HVDC CONVERTER STATION MARKET SIZE, BY COMPONENT, 2015–2022 (USD MILLION)

Table 35 EUROPE: HVDC CONVERTER STATION MARKET SIZE, BY POWER RATING, 2015–2022 (USD MILLION)

Table 36 EUROPE: HVDC CONVERTER STATION MARKET SIZE, BY CONFIGURATION 2015–2022 (USD MILLION)

Table 37 UK: HVDC CONVERTER STATION MARKET SIZE, BY TECHNOLOGY, 2015–2022 (USD MILLION)

Table 38 GERMANY: HVDC CONVERTER STATION MARKET SIZE, BY



TECHNOLOGY, 2015-2022 (USD MILLION)

Table 39 FRANCE: HVDC CONVERTER STATION MARKET SIZE, BY

TECHNOLOGY, 2015–2022 (USD MILLION)

Table 40 NORWAY: HVDC CONVERTER STATION MARKET SIZE, BY

TECHNOLOGY, 2015–2022 (USD MILLION)

Table 41 REST OF EUROPE: HVDC CONVERTER STATION MARKET SIZE, BY

TECHNOLOGY, 2015–2022 (USD MILLION)

Table 42 ASIA PACIFIC: HVDC CONVERTER STATION MARKET SIZE, BY

COUNTRY, 2015-2022 (USD MILLION)

Table 43 ASIA PACIFIC: HVDC CONVERTER STATION MARKET SIZE, BY

TECHNOLOGY, 2015-2022 (USD MILLION)

Table 44 ASIA PACIFIC: HVDC CONVERTER STATION MARKET SIZE, BY

COMPONENT, 2015–2022 (USD MILLION)

Table 45 ASIA PACIFIC: HVDC CONVERTER STATION MARKET SIZE, BY

CONFIGURATION, 2015–2022 (USD MILLION)

Table 46 ASIA PACIFIC: HVDC CONVERTER STATION MARKET SIZE, BY POWER

RATING, 2015–2022 (USD MILLION)

Table 47 CHINA: HVDC CONVERTER STATION MARKET SIZE, BY TECHNOLOGY,

2015-2022 (USD MILLION)

Table 48 INDIA: HVDC CONVERTER STATION MARKET SIZE, BY TECHNOLOGY,

2015-2022 (USD MILLION)

Table 49 REST OF ASIA PACIFIC: HVDC CONVERTER STATION MARKET SIZE, BY

TECHNOLOGY, 2015–2022 (USD MILLION)

Table 50 ROW: HVDC CONVERTER STATION MARKET, BY REGION, 2015-2022

(USD MILLION)

Table 51 ROW: HVDC CONVERTER STATION MARKET, BY TECHNOLOGY.

2015-2022 (USD MILLION)

Table 52 ROW: HVDC CONVERTER STATION MARKET SIZE, BY COMPONENT,

2015-2022 (USD MILLION)

Table 53 ROW: HVDC CONVERTER STATION MARKET SIZE, BY POWER RATING,

2015-2022 (USD MILLION)

Table 54 ROW: HVDC CONVERTER STATION MARKET SIZE, BY CONFIGURATION.

2015–2022 (USD MILLION)

Table 55 SOUTH AMERICA: HVDC CONVERTER STATION MARKET, BY

TECHNOLOGY, 2015-2022 (USD MILLION)

Table 56 MIDDLE EAST & AFRICA: HVDC CONVERTER STATION MARKET, BY

TECHNOLOGY, 2015-2022 (USD MILLION)

Table 57 CONTRACTS & AGREEMENTS, 2014–2017

Table 58 INVESTMENTS AND EXPANSIONS, 2015–2017



Table 59 MERGERS & ACQUISITIONS, 2014–2017 Table 60 JOINT VENTURES, 2014–2017



# **List Of Figures**

#### LIST OF FIGURES

Figure 1 RESEARCH DESIGN

Figure 2 BOTTOM-UP APPROACH

Figure 3 TOP-DOWN APPROACH

Figure 4 DATA TRIANGULATION METHODOLOGY

Figure 5 HVDC CONVERTER STATION MARKET IN APAC IS EXPECTED TO GROW

AT THE HIGHEST CAGR BETWEEN 2017 AND 2022

Figure 6 VSC-BASED HVDC TECHNOLOGY IS EXPECTED TO GROW AT THE

HIGHEST CAGR DURING THE FORECAST PERIOD

Figure 7 VALVE AS A COMPONENT IS EXPECTED TO LEAD THE HVDC

CONVERTER STATION MARKET DURING THE FORECAST PERIOD

Figure 8 >2000 MW POWER RATING FOR THE HVDC CONVERTER STATION

MARKET IS EXPECTED TO LEAD THE HVDC CONVERTER STATION MARKET, BY

POWER RATING DURING THE FORECAST PERIOD

Figure 9 BI-POLAR CONFIGURATION IS EXPECTED TO HOLD THE LARGEST

SHARE OF THE HVDC CONVERTER STATION MARKET DURING THE FORECAST PERIOD

Figure 10 GROWING DEMAND FOR VSC TECHNOLOGY IS EXPECTED TO DRIVE

THE HVDC CONVERTER STATION MARKET DURING THE FORECAST PERIOD

Figure 11 CHINA IS EXPECTED TO LEAD THE HVDC CONVERTER STATION MARKET IN 2017

Figure 12 THE BI-POLAR CONFIGURATION IS EXPECTED TO DOMINATE IN EUROPE DURING THE FORECAST PERIOD

Figure 13 THE LCC-BASED TECHNOLOGY IS EXPECTED TO DOMINATE THE

HVDC CONVERTER STATION MARKET DURING THE FORECAST PERIOD

Figure 14 THE VALVES SEGMENT IS EXPECTED TO DOMINATE THE HVDC

CONVERTER STATION MARKET DURING THE FORECAST PERIOD

Figure 15 THE >2000 MW SEGMENT IS EXPECTED TO DOMINATE THE HVDC

CONVERTER STATION MARKET DURING THE FORECAST PERIOD

Figure 16 MARKET DYNAMICS: HVDC CONVERTER STATION MARKET

Figure 17 COST COMPARISON BETWEEN HVDC & HVAC

Figure 18 THE BI- POLAR CONFIGURATION SEGMENT IS EXPECTED TO HOLD

THE LARGEST MARKET SHARE DURING THE FORECAST PERIOD

Figure 19 THE LCC SEGMENT IS EXPECTED TO HOLD THE LARGEST MARKET

SIZE DURING THE FORECAST PERIOD

Figure 20 THE CONVERTER VALVE SEGMENT IS EXPECTED TO HOLD THE



LARGEST MARKET SIZE DURING THE FORECAST PERIOD

Figure 21 THE >2000 MW SEGMENT IS EXPECTED TO HOLD THE LARGEST

MARKET SHARE DURING THE FORECAST PERIOD

Figure 22 ASIA PACIFIC IS EXPECTED TO GROW AT THE HIGHEST CAGR

Figure 23 EUROPE: MARKET SNAPSHOT

Figure 24 ASIA PACIFIC: MARKET SNAPSHOT

Figure 25 KEY DEVELOPMENTS IN THE HVDC CONVERTER STATION MARKET,

2014-2017

Figure 26 MARKET RANKING BASED ON REVENUE, 2016

Figure 27 ABB: COMPANY SNAPSHOT

Figure 28 ABB: SWOT ANALYSIS

Figure 29 GE: COMPANY SNAPSHOT

Figure 30 GE: SWOT ANALYSIS

Figure 31 SIEMENS: COMPANY SNAPSHOT

Figure 32 SIEMENS: SWOT ANALYSIS

Figure 33 TOSHIBA: COMPANY SNAPSHOT

Figure 34 MITSUBISHI: COMPANY SNAPSHOT

Figure 35 BHEL: COMPANY SNAPSHOT

Figure 36 NR-ELECTRIC: SWOT ANALYSIS

Figure 37 CHINA XIAN XD POWER SYSTEM: COMPANY SNAPSHOT

Figure 38 C-EPRI ELECTRIC: SWOT ANALYSIS

Figure 39 XJ ELECTRIC: COMPANY SNAPSHOT

Figure 40 HYOSUNG: COMPANY SNAPSHOT

Figure 41 LSIS: COMPANY SNAPSHOT



#### I would like to order

Product name: HVDC Converter Station Market by Configuration (Monopolar, Bi-Polar, Back-to-Back,

Multi-Terminal), Technology (LCC, VSC), Component (Valve, Converter Transformer,

Harmonic Filter, Reactor), Power Rating, and Region - Global Forecast to 2022

Product link: https://marketpublishers.com/r/H2C4600C9DEEN.html

Price: US\$ 5,650.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer

Service:

info@marketpublishers.com

# **Payment**

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <a href="https://marketpublishers.com/r/H2C4600C9DEEN.html">https://marketpublishers.com/r/H2C4600C9DEEN.html</a>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:	
Last name:	
Email:	
Company:	
Address:	
City:	
Zip code:	
Country:	
Tel:	
Fax:	
Your message:	
	**All fields are required
	Custumer signature

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <a href="https://marketpublishers.com/docs/terms.html">https://marketpublishers.com/docs/terms.html</a>

To place an order via fax simply print this form, fill in the information below



and fax the completed form to +44 20 7900 3970