

# ELECTRICITY TRANSMISSION IN THE US REPORT

The electricity transmission sector in the US is set for very significant growth. The federal government has announced ambitious targets of achieving 100 per cent carbon-free electricity by 2035 and 30 GW of offshore wind energy by 2030. Expansion and modernisation of the nation's aging and integration of the regionally siloed electric transmission system will be critical to accommodate increasing levels of renewable energy. The federal government's recent legislation and funding support to modernise electricity grids, reduce congestion, and fast-track permitting will help create the needed grid infrastructure. Utilities are also gearing up to meet the clean energy challenge by formulating plans to improve the system resilience, security, and hardening to withstand adverse weather.

The **Electricity Transmission in the US Report** released in June 2022 analyses the historical network growth and future network development and investment plans. It provides an overview of the industry structure and discusses the policy and regulatory developments impacting grid investments, including offshore wind energy. The report profiles the leading transmission players, compares their financial performance and discusses their growth plans. It also includes a detailed and up-to-date database of upcoming transmission projects in the US.

The report has five distinct sections.

**Part 1** is the executive summary.

**Part 2** analyses the performance of the US' electric transmission industry over the five years (2017–21) and presents investment forecasts and expected network growth for 2022–26. It assesses the key policy and regulatory developments and trends shaping the sector. It covers the following topics:

- Industry structure and key players
- Sector size and growth
- Policy and regulatory developments
- Network growth and investment outlook
- Focus on offshore wind transmission

**Part 3** provides the detailed profiles of the top 30 transmission players and compares their network growth and financial performance. Each TSO profile includes:

- Size and growth in the transmission network, 2017–21
- Key operational indicators, 2017–21
- Key financial indicators, 2017–21
- Future plans and investment, 2022–26
- Key planned projects
- Recent contracts
- Key contacts

This report and database are indispensable for any organisation interested in the US' transmission industry – utilities, system operators, equipment manufacturers and suppliers, EPC contractors, service and technology providers, investors/lenders, research organisations, industry consultants, regulatory agencies, development institutions, etc.

The report is available in PDF format and database in Excel.

The package is priced at USD3,000. There is also an "early bird" discount – the price is USD2,700 (10 per cent discount) for orders and payments received on or before July 15, 2022.

**Part 4** consists of a database of key upcoming transmission projects (~160 projects). This section also analyses the project database in terms of voltage level, technology, type and status. For each project, the following information is provided:

- Description
- Developer(s)
- Route
- Rated voltage (kV)
- Technology (AC or DC)
- Type of project (new build, upgrade, expansion, extension)
- Line length (km)
- Substation capacity (MVA)
- Estimated cost
- Current status (announced/under development/under contractor selection/under construction)
- Key contractors
- Scheduled completion
- Contact details

**Part 5** comprises the appendix. It includes a note on sources and methodology and list of abbreviations.

**For further inquiries, please contact:**

## Americas

Yasmeen Chopra

Mobile: +1 905 228 6419

Email: [yasmeen.chopra@globaltransmission.info](mailto:yasmeen.chopra@globaltransmission.info)

## Rest of the world

Shruti Kumar

Mobile: +91 8447528984

Email: [Shruti.Kumar@globaltransmission.info](mailto:Shruti.Kumar@globaltransmission.info)

Website: [www.globalmasstransit.net](http://www.globalmasstransit.net)

# Table of Contents

<b>PART 1 EXECUTIVE SUMMARY</b>	<b>13</b>	<b>PART 3 KEY TRANSMISSION PLAYERS AND THEIR PERFORMANCE (TOP 30 TSOS)</b>	<b>68</b>
<b>PART 2 SECTOR TRENDS, GROWTH AND INVESTMENT ANALYSIS</b>	<b>15</b>		
<b>2.1 Industry structure and key players</b>	<b>16</b>	<b>3.1 Trends in performance of leading TSOs</b>	<b>69</b>
• Industry structure	17	• Overview	70
• Regulatory framework and key institutions	18	• Growth in transmission network Line length	71
• Jurisdictional roles in electricity industry	22	• Financial performance	
• Key industry associations	23	- Revenue	74
• Transmission market structure and key players	25	- Net profits	77
		- Return on equity	79
		- Debt to equity ratio	80
		- Profit margin	81
		- Trends in past capex	82
<b>2.2 Sector size and growth</b>	<b>27</b>	<b>3.2 TSO Profiles</b>	<b>84</b>
• Industry structure	28	• Ameren Corporation	85
• Line length by voltage (kV)	28	• American Electric Power (AEP)	88
• Line length by technology (AC and DC)	30	• American Transmission Company (ATC)	91
• Growth in capital expenditure, 2017–21	31	• Bonneville Power Administration (BPA)	94
		• CentrePoint Energy	97
		• Consolidated Edison (Con Edison)	100
		• Dominion Energy	103
		• Duke Energy	106
		• Entergy Corporation	109
		• Evergy Incorporated	112
		• Exelon Corporation	115
		• FirstEnergy Corporation	118
		• ITC Holdings	121
		• MidAmerican Energy Company	124
		• National Grid USA	127
		• New York Power Authority (NYPA)	130
		• NextEra Energy	133
		• NorthWestern Energy	136
		• NV Energy	139
		• Oklahoma Gas and Electric Company (OG&E)	142
		• Oncor Electric Delivery	145
<b>2.3 Policy and regulatory developments</b>	<b>33</b>		
• Overview of key policy and regulatory announcements	34		
• Climate goals and net zero emissions targets	35		
• Federal-level initiatives for grid expansion	36		
• Key RTO/ISO-level initiatives for transmission	44		
<b>2.4 Network growth and investment outlook</b>	<b>48</b>		
• Key growth drivers	49		
• Future demand and expected generation mix, by 2026	50		
• Expected transmission network expansion	51		
• Transmission line length addition, 2022–26	51		
• Forecasted investment in the transmission network, 2022–26	53		
• Investment plans of leading TSOs	54		
<b>2.5 Focus on offshore wind transmission</b>	<b>55</b>		
• Offshore wind plans and targets	56		
• Policy and regulatory announcements at federal level	59		
• Offshore wind and transmission developments in key states	61		
• Upcoming offshore wind capacity and transmission projects	66		

# Table of Contents

• Pacific Gas and Electric Corporation (PG&E)	148	- Route	
• PacifiCorp	151	- Rated voltage (kV)	
• PNM Resources	155	- Technology (AC or DC)	
• PPL Corporation	157	- Type of project (new build, upgrade, expansion, extension)	
• Public Service Electric & Gas (PSE&G)	160	- Line length (miles)	
• Southern California Edison (SCE)	163	- Substation capacity (MVA)	
• Southern Company	166	- Estimated cost	
• Tennessee Valley Authority (TVA)	169	- Current status (announced/ under development/ under contractor selection/ under construction)	
• Xcel Energy	172	- Key contractors	
		- Scheduled completion	
		- Contact details	

## Each TSO profile includes:

- Size and growth in the transmission network, 2017–21
- Key operational indicators, 2017–21 Key financial indicators, 2017–21
- Future plans and investment, 2022–26
- Key planned projects
- Recent contracts
- Key contacts

## PART 5 APPENDIX 184

### 5.1 Sources and methodology 185

### 5.2 List of acronyms 186

## PART 4 UPCOMING TRANSMISSION PROJECTS (~160 PROJETS)175

### 4.1 Analysis of upcoming project pipeline 176

• Overview	177
• Project pipeline analysis	178
- by voltage level	179
- by technology	180
- by type of project	181
- by type of line	182
- by status	183

### 4.2 Upcoming projects database (Excel format)

The database provides detailed information on high-voltage transmission line and substation projects expected to come up in the US over the next decade. For each project, the following information will be provided:

- Description
- Developer (s)

## Sources and Methodology

**Global Transmission Research's** industry analysts have utilised various primary and secondary research sources in preparing this report.

Primary sources include data and statistics obtained through telephone and email questionnaires sent to various utilities, transmission companies, regional transmission operators, state utility commissions, regulators and industry associations. Extensive secondary research has been conducted by our analysts and research associates. These secondary sources include, but was not be limited to, websites of utilities; annual reports and financial reports of utilities; investor presentations; analyst reports; government documents, plans and statistical databases; websites of relevant ministries and regulators; websites of relevant industry associations; internal and external proprietary databases; news articles; and press reports. Wherever applicable, all research sources are appropriately cited within this report.

These primary and secondary research sources, combined with our industry expertise, have been synthesised into the qualitative and quantitative analysis which has been presented in this report. The historical capex data are actual figures obtained from the concerned utilities, agencies and associations. In a few cases, where this data was not available, we have used estimates based on information obtained from press/analyst reports or those based on past growth trends. For analysis of the expected investment, we have extensively researched the plan documents of various utilities and the government. Wherever these plans were not available, we have derived the projections based on past growth trends or based on projects planned by the utilities.

The future capital expenditure investment numbers include investments on both new build and renovation and modernisation projects.

To ensure comparability of financial ratios across utilities, we have adopted specific formulae for estimating these ratios for all utilities. Hence, the financial ratios estimated in the report may not match with those mentioned by utilities in their annual/financial reports. In some cases, totals may not match due to data being rounded off.

Please note that our data may have a  $\pm 5\%$  error margin due to lack of clear capex or investment break-up for many utilities. In some cases, totals may not match due to data being rounded off.

Great care has been taken to ensure that all analysis is well supported by facts. Where facts are not available and assumptions are made, we have explained our assumptions and our methods of estimation

## About the Publishers

**Global Transmission Research** is a leading provider of information and analysis on the global electricity transmission industry. We publish newsletters and reports. We also organise conferences on crucial issues and topical themes relevant to the transmission industry. We publish the Global Transmission Report (a monthly newsletter) and the Global Transmission Weekly (a weekly update). We also operate the website [www.globaltransmission.info](http://www.globaltransmission.info). These products and services provide information on all the key developments, trends and issues in the sector. We have published several industry-focused research studies such as the Global Electricity Transmission Report, Global High Voltage Transmission Line Projects Report, Global Electricity Transmission Equipment Market Report, Global Electricity TSO Profiles Report, etc.

## Our Clients

Our clients include leading industry players across the world, both operators and technology providers such as **AcierProfilé SBB Inc.**, **AIC-USA**, **Alberta Electric**, **Alstom**, **AltaLink**, **AMEC**, **AREVA**, **ASTER**, **Axpo AG**, **Balfour Beatty**, **BCG**, **Brookfield**, **CIMA+**, **Copperbelt Energy**, **Crompton Greaves**, **CTEEP**, **Doble Engineering**, **Dow Chemicals**, **EDF**, **EFACEC Energia SA**, **EirGrid**, **Elia Engineering**, **Energinet**, **Energostroyaladka**, **Eskom**, **European Investment Bank**, **G&W Electric**, **GE Energy**, **Global Insulator Group**, **Hatch**, **Hitachi Energy**, **HSP Hochspannungsgeräte GmbH**, **Hyosung**, **ILJIN Electric Co.**, **International Energy Agency**, **InterconexionElectrica**, **Israel Electric**, **KEC International**, **LOCWELD**, **Maxwell Technologies**, **Micafil**, **Mott MacDonald**, **Nexans**, **Nexant**, **PFISTERER**, **PJM Interconnection**, **Powergrid**, **Pöyry Energy**, **PPC Insulators**, **RED ELECTRICA ESPAÑA**, **Reliance Energy**, **Richard Bergner Elektroarmaturen**, **RTE**, **SCLE SFE**, **Shanghai (MWB)**, **Siemens**, **SNC Lavalin**, **SO UPS JSC**, **Statnett**, **Sterlite**, **Suez-Tractebel**, **Suzlon**, **Swissgrid AG**, **Tata Power**, **Terna**, **Teshmont**, **Tesmec S.P.A.**, **TradeWind Energy**, **Trench Group**, **WORLDENERGY SA** and **Xcel Energy**.

# Order Form

Format (PDF)	Price on or before July 15, 2022	Price after July 15, 2022
Electricity Transmission in the US Report	<input type="checkbox"/> USD2,700	<input type="checkbox"/> USD3,000

Name (Block Letters) \_\_\_\_\_

Designation \_\_\_\_\_

Company \_\_\_\_\_

Mailing Address \_\_\_\_\_

Telephone \_\_\_\_\_ Mobile \_\_\_\_\_

Fax \_\_\_\_\_

E-mail \_\_\_\_\_

## Payment Options

### 1. Credit card:

a) **Visa/MasterCard:** To make payments with Visa/MasterCard, please visit [http://www.globalmasstransit.net/report\\_shopping\\_cart.php](http://www.globalmasstransit.net/report_shopping_cart.php)

b) **American Express:** To make payments with American Express card, please visit [http://www.globalmasstransit.net/amex\\_form\\_report.doc](http://www.globalmasstransit.net/amex_form_report.doc)  
Please download the AmEx authorisation form from the above link and email the completed form to [report@globalmasstransit.net](mailto:report@globalmasstransit.net)

*All credit card payments will be subject to standard credit card charges.*

### 2. Wire transfer:

Beneficiary : India Infrastructure Publishing Private Limited  
Bank Name : The Hongkong and Shanghai Banking Corporation Ltd  
Bank Address : R-47, Greater Kailash-1, New Delhi-110048, India  
Account No. : 094179587002  
Swift Code : HSBCINBB

*Global Mass Transit is a division of India Infrastructure Publishing Private Limited.*

### Terms and conditions:

Full payment must be received prior to the purchase. The exchange rate prevailing at the time of purchase will be applicable.

## Contact Details

### Americas

Yasmeen Chopra  
Mobile: +1 905 228 6419  
Email: [yasmeen.chopra@globaltransmission.info](mailto:yasmeen.chopra@globaltransmission.info)

### Rest of the world

Shruti Kumar  
Mobile: +91 8447528984  
Email: [Shruti.Kumar@globaltransmission.info](mailto:Shruti.Kumar@globaltransmission.info)

Website: [www.globalmasstransit.net](http://www.globalmasstransit.net)