



GLOBAL ELECTRICITY TRANSMISSION SYSTEM OPERATOR PROFILES AND BENCHMARKING REPORT 2025

The sixth edition of the Global Transmission TSO Profiles and Benchmarking Report will be released in January 2025. The report will provide detailed profiles of over 200 transmission system operators (TSOs) and developers operating in over 95 countries in six regions — North America, Latin America, Asia, Europe, the Middle East and Africa. The report will have seven distinct sections.

Part 1 of the report will be the executive summary.

Part 2 of the report will discuss the key trends in the global electricity transmission sector. It will analyse the past growth in the network, evaluate the operational and financial performance of TSOs and examine past and future trends in capital expenditure.

Part 3 of the report will compare the growth in transmission line length and transformer capacity of leading TSOs from 2019 to 2023. This section will also analyse the future trends in network expansion from 2024 to 2030 for these TSOs.

Part 4 of the report will compare the operational and financial performance of leading TSOs. The operational performance of TSOs will be compared on parameters such as transmission losses, T-SAIFI, and T-SAIDI. The financial performance of the TSO will be compared using parameters such as revenue, net profit, return of equity, debt-equity ratio, and profit margin.

Part 5 of the report will analyse the past and future capital expenditure programmes of leading TSOs.

Part 6 of the report will comprise detailed profiles of leading 200 TSOs and developers operating in over 95 countries in six regions — North America, Latin America, Asia, Europe, the Middle East and Africa. Each profile will provide historical data from 2019 to 2023 and future projections up to 2030.

Each TSO profile will have information and data on:

- Size and growth in the transmission network, 2019-23
 - Line length, by voltage
 - Substation capacity, by voltage
 - Number of substations/transformers, by voltage

The report will be indispensable for any organisation interested in the global electricity 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 will be released in January 2025. It will be available in a PPT and Excel database format.

The report is priced at USD5,000. There is a special “early bird” discount. The price of the report is USD 3,750 (25 per cent discount) for orders and payments received on or before October 25, 2024 and USD 4,375 (12.5 per cent discount) for orders and payments received on or before November 22, 2024.

For further inquiries, please contact:

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Website: www.globaltransmission.info

- Operational indicators, 2019-23
 - Annual transmitted electricity
 - Total unserved power transmission per year
 - Network availability
 - Transmission losses
 - Average interruption time
 - T-SAIFI
 - T-SAIDI
- Financial indicators, 2019-23
 - Revenue
 - Net income
 - Capex/Investment in the transmission network
 - Operational expenditure
 - Return on equity
 - Debt to equity ratio
 - Profit margin
- Future plans and investment, 2024-30
 - Expected trends in network expansion
 - Expected capex/investment
 - Key planned projects
- Recent contract awards
- Key contacts

Part 7 of the report will be an appendix and comprise a note on the research methodology along with citations of sources. It will also provide a list of acronyms. A note on key definitions will also be included in this section.

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PART 1: EXECUTIVE SUMMARY

PART 2: KEY GLOBAL TRENDS

- Growth in network
- Trends in operational and financial performance
- Trends in capital expenditure
- Expected growth in network

PART 3: INTER-TSO COMPARISON: NETWORK SIZE AND EXPECTED GROWTH

- Operational structure
- Growth in the transmission network, 2019-23
 - Line length
 - Substation capacity
- Expected trends in network expansion, 2024-30

PART 4: INTER-TSO COMPARISON: OPERATIONAL AND FINANCIAL PERFORMANCE

- Operational performance
 - Transmission losses
 - T-SAIFI
 - T-SAIDI
- Financial performance
 - Revenue
 - Net profit
 - Return on equity
 - Debt-equity ratio
 - Profit margin

PART 5: INTER-TSO COMPARISON: PAST AND FUTURE CAPEX

- Trends in capital expenditure, 2019-23
- Expected trends in capital expenditure/investment

PART 6: TSO PROFILES (~200 TSOs) (INDICATIVE LIST)

Each TSO profile will have information and data on:

- Size and growth in the transmission network, 2019-23
 - Line length, by voltage
 - Substation capacity, by voltage
 - Number of substations/transformers, by voltage
- Operational indicators, 2019-23
 - Annual transmitted electricity
 - Total unserved power transmission per year
 - Network availability
 - Transmission losses
 - Average interruption time
 - T-SAIFI
 - T-SAIDI
- Financial indicators, 2019-23
 - Revenue
 - Net income
 - Capex/Investment in the transmission network
 - Operational expenditure
 - Return on equity
 - Debt to equity ratio
 - Profit margin
- Future plans and investment, 2024-30
 - Expected trends in network expansion
 - Expected capex/investment
 - Key planned projects
- Recent contract awards
- Key contacts

6.1 NORTH AMERICA

6.1.1 Canada

- AltaLink
- ATCO
- BC Hydro
- Emera Incorporated
- ENMAX Power Corporation
- Hydro One
- Hydro-Québec
- Manitoba Hydro
- Nalcor Energy
- New Brunswick Power (NB Power)
- Nova Scotia Power Incorporated (NSPI)
- SaskPower

6.1.2 USA

- Ameren Corporation
- American Electric Power (AEP)
- American Transmission Company (ATC)
- Avangrid (Iberdrola USA)
- Bonneville Power Administration (BPA)
- CentrePoint Energy
- Consolidated Edison (ConEd)
- Dominion Resource
- Duke Energy
- Entergy Corporation
- Eversource Energy (Northeast Utilities earlier)
- Exelon Corporation
- FirstEnergy Corporation
- ITC Holdings
- MidAmerican Energy Company
- National Grid USA
- New York Power Authority (NYPA)
- NextEra Energy
- NorthWestern Energy
- NV Energy
- Oklahoma Gas and Electric Company (OG&E)
- Oncor Electric Delivery
- Pacific Gas and Electric Corporation (PG&E)
- PacifiCorp
- PNM Resources
- PPL Corporation
- Public Service Electric & Gas (PSE&G)
- Southern California Edison (SCE)
- Southern Company
- Tennessee Valley Authority (TVA)
- Xcel Energy

6.2 LATIN AMERICA

6.2.1 Argentina

- Compañía de Transporte de Energía Eléctrica en Alta Tensión Transener S.A. (Transener)

6.2.2 Bolivia

- Empresa Nacional de Electricidad (ENDE)
- ENDE Transmission
- ISA Bolivia S.A. (ISA Bolivia)

6.2.3 Brazil

- EDP Transmissão Goiás S.A. (EDP Goiás)

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- Companhia Hidro Elétrica do São Francisco (Chesf)
- Companhia Energetica de Minas Gerais (Cemig)
- Companhia Estadual de Transmissão Energia Elétrica SA (CEEE-T)
- Companhia de Transmissão de Energia Elétrica Paulista (CTEEP)
- Copel Geração e Transmissão S.A. (Copel GeT)
- Centrais Elétricas Brasileiras S.A. (Eletrobrás)
- Centrais Elétricas do Norte do Brasil S.A. (Eletronorte)
- Companhia de Geração e Transmissão de Energia Elétrica do Sul do Brasil (CGT Eletrosul)
- Furnas Centrais Elétricas S.A. (Furnas)
- State Grid Brazil Holding S.A. (SGBH)
- Transmissora Aliança de Energia Elétrica SA (TAESA)

6.2.4 Chile

- AES Gener S.A.
- ENGIE Energía Chile S.A
- Transelec S.A.
- Sociedad Austral de Electricidad S.A. (SAESA)

6.2.5 Colombia

- Grupo Energía Bogotá (GEB)
- Celsia Colombia S.A. E.S.P
- Empresas Públicas de Medellín E.S.P. (EPM)
- Interconexión Eléctrica S.A. (ISA)
- Transelca S.A.

6.2.6 Costa Rica

- Instituto Costarricense de Electricidad (ICE)

6.2.7 Ecuador

- TRANSELECTRIC S.A.

6.2.8 Guatemala

- Empresa de Transporte y Control de Energía Eléctrica (ETCEE)
- Fersa Sociedad Anónima (Fersa SA)
- Transportadora de Energía de Centroamérica S.A. (TRECSA)
- Transportista Eléctrica Centroamericana S. A. (TRELEC)

6.2.9 Honduras

- Empresa Nacional de Energía Eléctrica (ENEE)

6.2.10 Mexico

- Comisión Federal de Electricidad (CFE)

6.2.11 Paraguay

- Administración Nacional de Electricidad (ANDE)

6.2.12 Panama

- Empresa de Transmisión Eléctrica S.A. (ETESA)

6.2.13 Peru

- Abengoa Peru S.A.
- Consorcio Energético de Huancavelica S.A. (CONENHUA)
- Consorcio Transmantaro S.A. (CTM)
- Etenorte S.R.L.
- Eteselva S.R.L.
- ISA Perú S.A.
- Red de Energía del Perú S.A. (REP SA)
- Red Eléctrica del Sur S.A. (Redesur)

6.2.14 Uruguay

- Administración Nacional de Usinas y Trasmisiones Eléctricas (UTE)

6.3 ASIA PACIFIC

6.3.1 Australia

- AusNet Services (Transmission) Ltd
- ElectraNet Pty Ltd
- Powerlink Queensland
- Tasmanian Networks Pty Ltd (TasNetworks)
- TransGrid
- Western Power

6.3.2 Azerbaijan

- Azerenergy

6.3.3 Cambodia

- Electricité du Cambodge (EDC)

6.3.4 China

- China Southern Power Grid (CSG)
- State Grid Corporation of China (SGCC)

6.3.5 India

- Gujarat Electricity Transmission Company Limited (GETCO)
- Karnataka Power Transmission Corporation Limited (KPTCL)
- Madhya Pradesh Power Transmission Company Limited (MPPTCL)
- Maharashtra State Electricity Transmission Company Limited (MSETCL)
- Powergrid Corporation of India Limited (POWERGRID)
- Rajasthan Rajya Vidyal Prasaran Nigam Limited (RVPNL)
- Transmission Corporation of Andhra Pradesh Limited (APTransco)
- Transmission Corporation of Telangana Limited (TSTRANSCO)
- Tamil Nadu Transmission Corporation Limited (TANTRANSCO)
- Uttar Pradesh Power Transmission Corporation Limited (UPPTCL)
- Adani Power Transmission (APL)
- Sterlite Power Transmission Limited (SPTL)

6.3.6 Indonesia

- Perusahaan Listrik Negara (PLN)

6.3.7 Japan

- Chubu Electric Power Grid Company, Inc
- Chugoku Electric Power Company, Inc
- Hokkaido Electric Power Network Company Limited
- Hokuriku Electric Power Company, Inc
- J-POWER (Electric Power Development Company Limited)
- Kansai Electric Power Company, Inc
- Kyushu Electric Power Company, Inc
- Okinawa Electric Power Company, Inc
- Shikoku Electric Power Company, Inc
- Tohoku Electric Power Network Company, Inc
- TEPCO Power Grid, Inc

6.3.8 Kazakhstan

- Kazakhstan Electricity Grid Operating Company (KEGOC)

6.3.9 Laos PDR

- Electricite du Laos (EDL)

6.3.10 Malaysia

- Sabah Electricity SdnBhd (SESB)
- Syarikat SESCO Berhad (SESCO)
- Tenaga Nasional Berhad (TNB)

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6.3.11 Nepal

- Nepal Electricity Authority (NEA)

6.3.12 New Zealand

- Transpower

6.3.13 Pakistan

- K-Electric
- National Transmission and Despatch Company (NTDC)

6.3.14 Philippines

- National Grid Corporation of the Philippines (NGCP)

6.3.15 Singapore

- Singapore Power (SP)

6.3.16 South Korea

- Korea Electric Power Corporation (KEPCO)

6.3.17 Thailand

- Electricity Generating Authority of Thailand (EGAT)

6.3.18 Uzbekistan

- Uzbekenergo

6.3.19 Vietnam

- EVN National Power Transmission Corporation (EVN NPT)

6.4 EUROPE

6.4.1 Austria

- Austrian Power Grid AG (APG)
- TINETZ-TirolerNetze GmbH
- Vorarlberg Übertragungsnetz GmbH (VÜN)

6.4.2 Belgium

- Elia System Operator SA (Elia)

6.4.3 Bosnia

- Independent System Operator in Bosnia and Herzegovina (ISO B&H)

6.4.4 Bulgaria

- Electricity System Operator (ESO)

6.4.5 Croatia

- Hrvatskog operatora prijenosnog sustava d.o.o. (HOPS)

6.4.6 Czech Republic

- ČEPS A.S.

6.4.7 Denmark

- Energinet.dk

6.4.8 Estonia

- Elering OÜ

6.4.9 Finland

- FingridOyj

6.4.10 France

- Réseau de Transport d'Electricité (RTE)

6.4.11 Georgia

- Georgia State Electrosystem JSC (GSE)

6.4.12 Germany

- 50Hertz Transmission GmbH (50Hertz)
- Amprion GmbH
- TenneT TSO GmbH
- TransnetBW GmbH

6.4.13 Greece

- Anexartitos Diacheiristis Metaforas Ilektrikis Energeias A.E. (ADMIE)

6.4.14 Hungary

- MAVIR ZRt.

6.4.15 Iceland

- Landsnet HF

6.4.16 Ireland

- EirGrid Plc

6.4.17 Italy

- Terna S.p.A

6.4.18 Latvia

- Augstspriguma Tīkls AS (AST)

6.4.19 Lithuania

- Litgrid AB

6.4.20 Macedonia

- Makedonski Elektro Prenosen Sistem Operator A.D. (MEPSO)

6.4.21 Montenegro

- Crnogorski Elektroprenosni Sistem A.D. (CGES)

6.4.22 Netherlands

- TenneT TSO B.V.

6.4.23 Norway

- Statnett SF

6.4.24 Poland

- Polskie Sieci Elektroenergetyczne S.A. (PSE)

6.4.25 Portugal

- Rede Eléctrica Nacional (REN)

6.4.26 Spain

- Rede Eléctrica Nacional SA (REN)

6.4.27 Romania

- Transelectrica S.A.

6.4.28 Serbia

- Elektromreža Srbije (EMS)

6.4.29 Slovakia

- Slovenska Elektrizacna Prenosova Sustava AS (SEPS)

6.4.30 Slovenia

- ELES d.o.o

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 - Red Eléctrica de España S.A. (REE)
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 - Svenska Kraftnät
- 6.4.33 Switzerland**
 - Swissgrid AG
- 6.4.34 Turkey**
 - Türkiye Elektrik İletim A.Ş. (TEIAS)
- 6.4.35 United Kingdom**
 - National Grid Electricity Transmission Plc (NGET)
 - Scottish Hydro Electric Transmission Limited (SHETL)
 - Scottish Power Transmission Plc (SPT)
- 6.5 MIDDLE EAST**
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 - Electricity and Water Authority (EWA)
 - 6.5.2 Jordan**
 - National Electric Power Company (NEPCO)
 - 6.5.3 Kuwait**
 - Ministry of Electricity and Water (MEW)
 - 6.5.4 Oman**
 - Oman Electricity Transmission Company (OETC)
 - 6.5.5 Qatar**
 - Qatar General Electricity & Water Corporation (KAHRAMAA)
 - 6.5.6 Saudi Arabia**
 - Saudi Electricity Company (SEC)
 - 6.5.7 United Arab of Emirates (UAE)**
 - Dubai Electricity and Water Authority (DEWA)
 - Abu Dhabi Transmission and Despatch Company (TRANSCO)
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 - Société Algérienne de Gestion du Réseau de Transport de l'Electricité (GTRE)
 - 6.6.2 Angola**
 - Rede Nacional de Transporte de Electricidade (RNT)
 - 6.6.3 Botswana**
 - Botswana Power Corporation (BPC)
 - 6.6.4 Cameroon**
 - SONATREL
 - 6.6.5 Egypt**
 - Egyptian Electricity Transmission Company (EETC)
 - 6.6.6 Ethiopia**
 - Ethiopian Electric Power Corporation (EEPCo)
 - 6.6.7 Ghana**
 - Ghana Grid Company Limited (GRIDCo)
- 6.6.8 Ivory Coast**
 - Compagnie Ivoirienne d'Electricité (CIE)
- 6.6.9 Kenya**
 - Kenya Power
 - Kenya Electricity Transmission Company Limited (KETRACO)
- 6.6.10 Morocco**
 - L'Office National d'Electricité et de l'Eau Potable (ONEE)
- 6.6.11 Mozambique**
 - Electricidade de Moçambique (EDM)
- 6.6.12 Namibia**
 - Namibia Power Corporation (Proprietary) Limited (NamPower)
- 6.6.13 Nigeria**
 - Transmission Company of Nigeria (TCN)
- 6.6.14 Rwanda**
 - Rwanda Energy Group Limited (REG)
- 6.6.15 South Africa**
 - Eskom Holdings SOC Limited (Eskom)
- 6.6.16 Tanzania**
 - Tanzania Electric Supply Company (TANESCO)
- 6.6.17 Tunisia**
 - Société Tunisienne de l'Electricité et du Gaz (STEG)
- 6.6.18 Uganda**
 - Uganda Electricity Transmission Company Limited (UETCL)
- 6.6.19 Zambia**
 - ZESCO Limited

PART 7: APPENDIX

- 7.1 Sources and methodology**
- 7.2 List of abbreviations**
- 7.3 Key definitions**

The data in the report will be provided in both PPT and Excel formats.

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, transmission system operators and industry regulators. Extensive secondary research has been conducted by our analysts and research associates. These secondary sources include, but was not 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.

Wherever possible, the data and statistics for years 2019 to 2023 are actual figures obtained from the concerned utilities and ministries. 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 network addition and planned investment, we have extensively researched the plan documents of various utilities and governments. 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.

Also, in several countries, updated transmission plans were released in 2023 with revised investment figures. Hence the expected investment numbers mentioned in this report may vary from investment numbers mentioned in our previous reports. To ensure comparability of financial ratios across TSOs, 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.

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.

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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. 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 **ABB**, **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**, **Energostroynaladka**, **Eskom**, **European Investment Bank**, **G&W Electric**, **GE Energy**, **Global Insulator Group**, **Hatch**, **HSP Hochspannungsgeräte GmbH**, **Hyosung**, **ILJIN Electric Co.**, **International Energy Agency**, **Interconexión Eléctrica**, **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**, **WORLDERGY SA** and **Xcel Energy**.

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