Main Focus:

- Renewable (Wind, Solar, Biomass) Energy and Infrastructures
- Line Rebuild, Upgrades and Evaluation
- Transmission Line Design
- Design and Engineering of Power Delivery Structures
- Manufacturing and Supply of Electric Power Structures
- Professional Engineering and Technical Consulting

- Maintenance, Quality Control and Inspection
- Design-Build/EPC
- Information Technology Support
- Drafting & Detailing

- Environmental and LiDar Survey
- Owner’s Engineer
- Project Management
- Management Consulting

SANPEC is the most reliable source to bring industry-best talents, experience, knowledge, equipment and technology to design and build sustainable, reliable and affordable electric grid infrastructures with innovative solutions.

We have extensive, varied and progressive experience in developing, executing and managing transmission, substation and renewable projects successfully worldwide.

Our services is always delivered in responsive, cooperative and reliable manner, which gives high confidence in utility customers that we will meet or exceed their expectations with best possible value added solutions.

S – Sustainable Reliable Structures
A – Affordable Services
N – New Innovative Technology
P – Perfection
E – Engineering Excellence
C – Commitment

Renewable Energy and Infrastructures

Our ‘Green Team’ consists of experienced industry leaders, various international companies and professional engineers who are committed to develop truly sustainable and renewable sources of Energy Supply and implement ‘Smart Grid Technologies’ to improve the grid interconnection and information control system.
We have experience and capability to design and supply the wind towers (small and large). All tower designs are based on the specification, IEC 61400-1 and wind turbine manufacturer.

Our Commitment is:

- To re-design and upgrade existing aging power grid infrastructures with better information management and automation systems and utilize the renewable sources of energy (Wind, solar) as generation alternatives.
- To save costs and help generate clean and affordable power to everyone.
- To meet the growing demands of electricity by implementing Smart Grid Technologies
- To research and develop new and advanced grid modernization technologies.

Line Rebuild, Upgrades and Evaluation

Due to increasing demand for power and higher cost for new Transmission Line, it is always recommended to perform the feasibility study for upgrading the capacity of an existing Transmission Line.

Our experienced Engineers are capable to fully investigate and analyze the feasibility of an upgrading existing Line based on electrical system load requirements, sound design practices, environmental considerations, economics of construction and operation.

Our main steps include:

- Electrical Clearance requirements
- ROW width & its easements
- Analysis of overhead transmission structures
- Evaluation of Reconductor
- Environmental considerations
- Cost factors
- Reliability Assessments
**Transmission Line Design**

- Transmission line design services, structural loading calculations and electrical clearances
- 3D Modeling and Analysis of Electrical Systems
- PLS-CADD® / PLS-POLE® / PLS-TOWER® Computer Modeling
- 3-Dimensional Terrain Modeling
- Structural loading calculation
- Strength and Clearance Modeling
- Sag and Tension Data / Stringing Charts
- Plan and Profile Drawings Development
- Material Lists for Construction
- Substation Design and Engineering

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**Design and Engineering of power delivery structures**

**Transmission and Distribution Structures**

We have over 55 years of combined extensive experience in engineering and design, full scale load testing and manufacturing of overhead transmission poles. We utilize state-of-the art design tools and technologies, such as PLS-POLE, PLS-TOWER, i-TOWER, Finite Element Method (FEM), and in-house developed custom softwares, to optimize the design. All steel poles are designed based on standard ASCE/SEI 48-05.

Our teaming members represent in several ASCE technical committees including standard for Design of Steel Transmission Pole Structures (ASCE/SEI-48-05). Our Engineers have been providing the engineering services to almost all the utility customers in the USA.

We are very familiar with commonly used design standard and specifications such as ASCE/SEI 48-05, NESC-ANSI/IEEE C2-2007, ASCE/SEI 7-05, ASCE Manual 91, REA Bulletin, ANSI-05-1, and IBC.

**Transmission Lattice Towers**

- Self Supported Lattice Structures
Guyed Lattice Structures
- Towers for 345kV, 400kV, 500kV, 765kV, 800kV Transmission Line
- Road Crossing Lattice Towers
- River Crossing Lattice Towers
- Custom Engineered Lattice Structures

**Transmission Pole Structures**

- Single Pole Structure
- 2 Poles Structure
- 3 Poles Structure
- Guyed Pole Structure
- H-Frame Structure Riser & Switch Structure
- Poles for upto 500kV Transmission Line
- Custom Engineered Steel Poles

**Distribution Pole Structures**

- H Series Pole
- C Series Pole
- Poles for lower voltage line such as 32.5kV, 69kV

**Substation Structures**

Our experienced professional engineers have been providing economical layout and design solutions for Substation Support Structures including Steel Lattice and tubular Poles.

We offer the comprehensive engineering and design services for the following type of structures:

- A-Frames Structure
- H-Frame Structure
- DE Structure
- Lightening Mast
- Bus Support Structure
- Equipment Support Structure
Custom Engineered Structures and Foundations

Our experienced professional engineers can take up any complex design challenges and find the best and cost effective solutions for our utility customers.

- Tubular Poles (Steel, Concrete, Wood, Composite)
- Lattice Towers (Steel)
- Y-frame (Steel)
- Hybrid Structures (Steel, Concrete, Composite)
- Drilled piers, footings, slabs, retaining walls, underground transformer vaults, splicing vaults etc

Foundations (Steel Poles)

We offer cost-effective and optimum foundation design based on available soil boring data and past similar projects. Our engineers have extensive knowledge and experience in designing foundation for steel poles and lattice towers.

Steel Poles: (Most common foundations)

- Caisson Design (Embedded Pole)
- Pile Design (Anchor Based Pole)

Steel Lattice Towers: (Most common foundations)

- Grillage Foundation
- Pile Design
Manufacturing and Supply Electric Power Structures

- We are teamed up with the leading manufacturers of steel poles and towers to bring the best quality products, structural design excellence, competitive price and innovative manufacturing technology to Electric Utility Industry.

Professional Engineering and Technical Consulting

- Professional Engineering services to all US states
- Develop and/or review technical specification (civil and structural engineering), design standards, equipment seismic calculations and other latest codes and guidelines (design, construction and maintenance)
- All other expert-level technical guidance

Other consulting services include:

- Electric Transmission and Distribution System
- Preliminary and Conceptual Engineering
- Due Diligence and Site Selection
- Bid Specification and Contract Preparation
- Design Standard Development
- Structural Engineering Design and Software Training
- Computer Aided Engineering
- Renewable Technology Assessment
- Structural Failure Inspection and Safety Assessment
- Steel Pole Manufacturing Technology
- Plant Setup and Operation
- Production System Management

Maintenance, Quality Control and Inspection
We have knowledge, experience and equipments to perform the structural assessment of existing structures, which helps in preventing the risks of failure and loss of damage (if any)

**Our Major Steps for Inspection:**

- Visual Inspection in Field
- Root Cause Failure Analysis
- NDT (Non destructive Testing for Welding)
- Fatigue Analysis
- Detail Structural Analysis
- Detail Report and Recommendations
- Quality Control Program
- Corrosion studies, prevention and repair recommendations for steel and concrete structures
- Protective coatings and corrosion protection such as catholic protection, hot-dip galvanizing, powder coating, and painting
- H2S Corrosion on direct embedded steel galvanized poles

SANPEC has presented an extensive research paper with LCRA for “H2s Corrosion on Galvanized Embedded Steel Poles” in TSDOS 2009. [https://mavspace.uta.edu/kcox/TSDOS%20Brochure.pdf](https://mavspace.uta.edu/kcox/TSDOS%20Brochure.pdf)

**Design-Build/EPC**

- Our design firm provides design-build service to be a single contact for the project design and construction need. We utilize our world-class experience to provide faster, affordable and quality services.
- We are teamed up with world’s leading manufacturers of power structures to supply advanced, reliable, innovative, and affordable structures

**Information Technology Support**

- Software Application Support for PLS-CADD, PLS-POLE, TOWER, CAISSON, FAD, and Alcoa SAG 10
- In-house custom designed software and atomization support includes:
  - Engineering Design and Detailing Software
  - Lattice tower and Tubular pole detailing software
  - Existing Software Evaluation
  - 3D Animation and Visualization Technology
  - 2D- to 3D Conversion
  - CNC Programming
  - Material Nesting and Optimization
  - Truck Loading and Optimization
  - Auto Lisp Programming
  - ERP and CRM Softwares
  - Database and Portal Development
  - System Integration and Management
  - E-Commerce Applications
  - Flash Programming
  - Quality Assurance and Testing
Drafting & Detailing

- 3D view of all 2D drawings to better visualize the structures and accessories.
- Automatic generation of shop drawings for fabrication and code generation by 3D drafting software for CNC operation for manufacturing.
- In house software for foundation designing and construction drawings.
- In house software for development of sag templates and generation of sag tension charts for line stringing.
- PLSCADD software for development of 3D profile drawing facilitating automatic checking of clearances, optimization of tower quantities.
- Bid Drawings
- Fabrication Drawings
- Custom Drawings

Environmental and Survey

Our team has extensive experience in designing and conducting environmental studies, land and regulatory and survey for Transmission Industry.

Our comprehensive services include:
- Project Planning & Management
- Environmental Study
- Route & Site Selection
- Permitting
- Due Diligence
- R.O.W Acquisition
- Land And Aerial Survey (LiDar)
- GIS Mapping And Data Support

Owner’s Engineer

We offer extensive technical due diligence for any transmission project to ensure that contractors and other project execution team members adhere to the project specification and timescales.

In this role, as an agent for the owner, we bring world-class experience to verify and analyze project and product’s design requirements, standards, guidelines and specifications

Project Management

We work with electric utility customers to develop a vision for transmission infrastructure investments needed in the future to execute the transmission projects successfully, avoid risks, improve reliability, and enhance project performance.

One of our clients say that “SANPEC’s T&D project handling experience is not only safe and reliable, but also unbeatable”.

- We provide a meaningful input in the early stages of Transmission Planning and Design
o We help clients improve security and reliability of Electric Power Infrastructures through various value added solutions
o We manage overall project performance (scope, safety, quality, schedule, innovation, cost, and customer satisfaction) through out the project’s life cycle
o We bring the industry- best talents which include professional engineers, industry leaders, manufacturers, surveyors, constructors and hi-tech professionals, to better plan, define, design, build, manage and construct the most reliable transmission lines
o We have designed, invented and developed web based tools to improve communications and keep track of project updates 24/7
o We ensure that the transmission planning process is designed to provide a more expeditious review and certification of transmission projects in the public interest

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Management Consulting

o Risk & Asset Management
o Business and Strategy Development