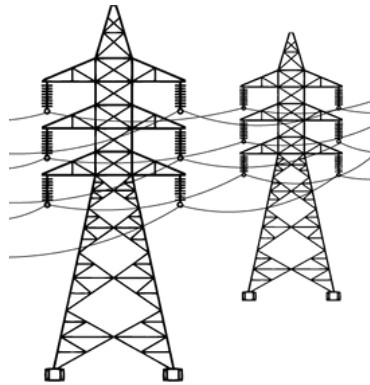


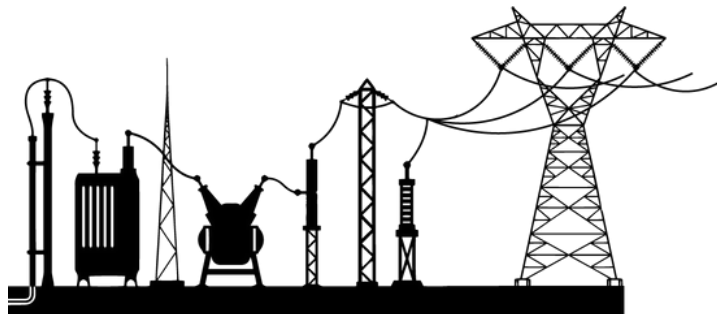
HELICAL PILE FOUNDATIONS

for the Power and Energy Markets

A principal focus of Cyntech is taking the time to understand the needs of our clients and providing them with the optimal, project-specific solution.



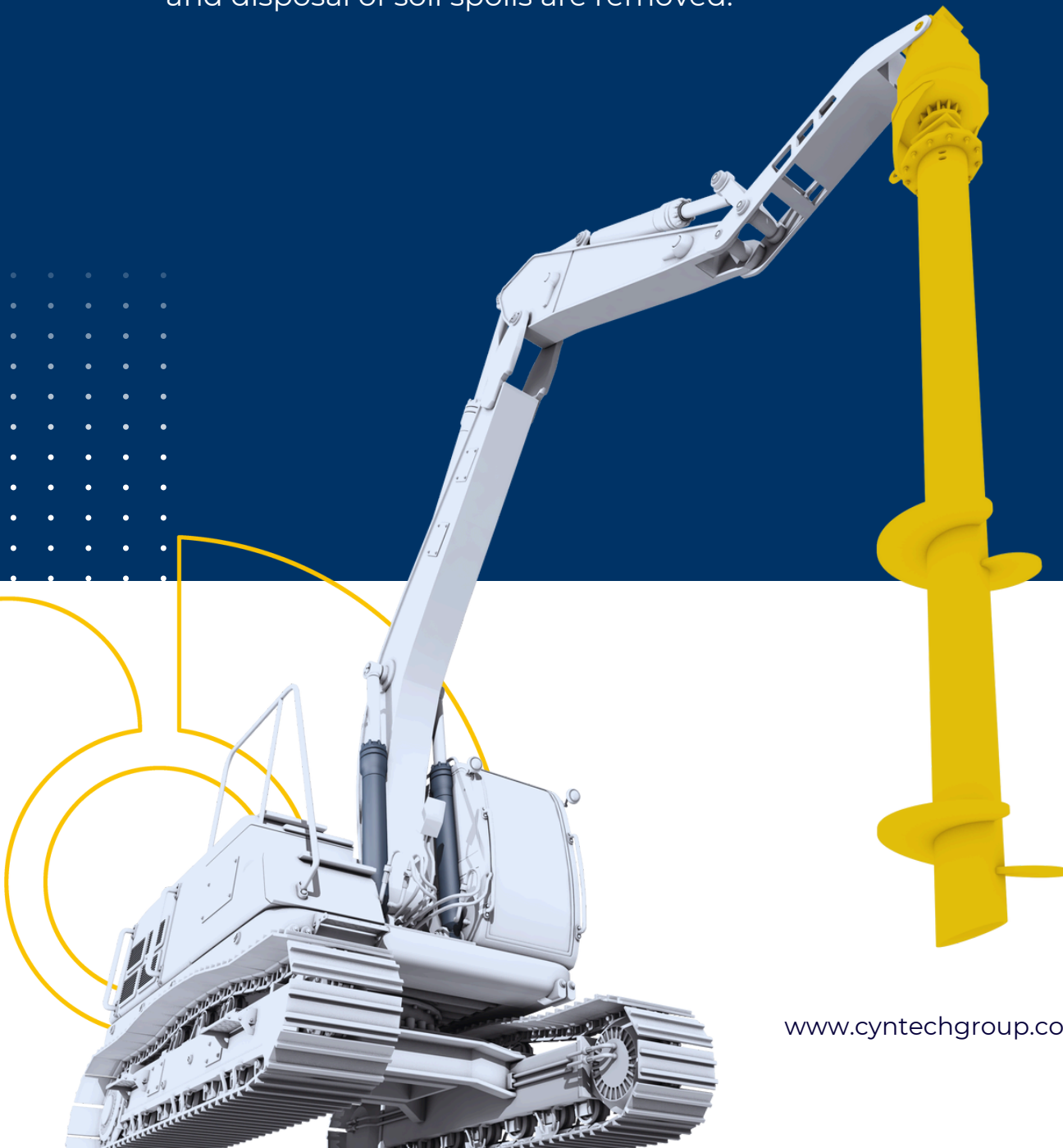
By using helical pile foundations for Transmission lines, Substations, Battery Storage projects, our clients can reduce their man-hour and equipment footprint, minimize environmental impact, expedite their construction schedule, resulting in total project cost-savings while reducing risks.





Cyntech's helical pile foundations are screwed into the soil with an excavator and drive motor. One installation crew (three to five people and an excavator) typically install 20+ helical pile foundations per day.

Once installed, instant confirmation of load capacity allows for immediate use. With steel-to-steel connections, the costs and time associated with concrete mixing, transportation, labor, and disposal of soil spoils are removed.



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Peru - Substation

Helical Piles were selected as the deep foundation method for the control building and transformer piles on this substation located in Peru.

The loads needing to be supported were 1000Tons compression and 1000Tons lateral. To achieve the high lateral loads, Cyntech designed some of the helical piles to be battered and embedded into a concrete mat.



Transmission Line Reinforcement Project

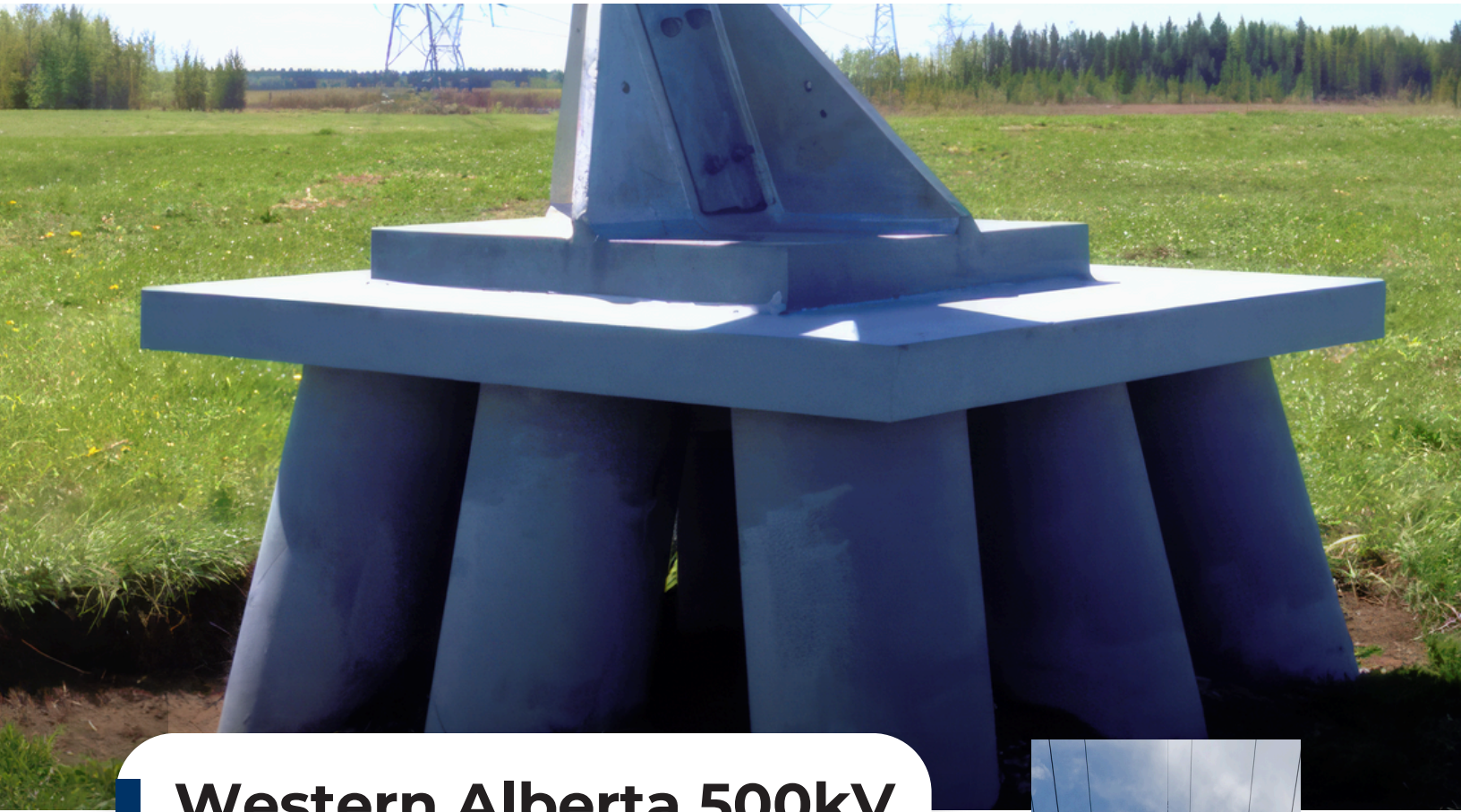
This project was a 138kV transmission line that was being upgraded to a 230kV transmission line.

Helical piles were selected as the deep foundation method due to the following challenges:

- Urban area - Noise and environmental disturbance was a concern
- Existing overhead power lines restricted size of equipment.
- The monopoles were adjacent to an active railway.

To accommodate the large shear and moment forces, Cyntech designed the helical piles to embed into a concrete pile cap. Helical piles allowed the contractor to utilize smaller installation equipment to execute the scope.

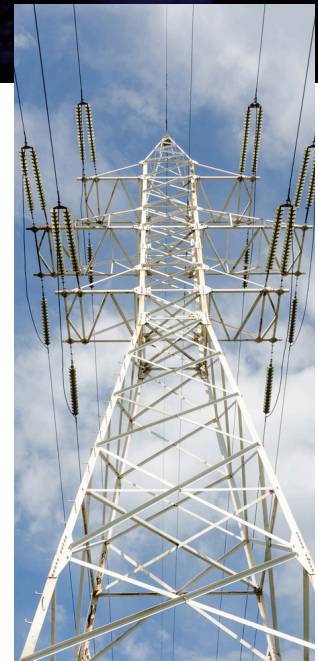




Western Alberta 500kV Transmission Line

Cyntech designed and fabricated over 1000 helical piles for WATL. The project consisted of hundreds of lattice towers and monopole tower foundations that spanned a route that had multiple unique soil profiles.

The largest loads (per tower leg = 9 piles) were 1,250 kips vertical (5560 kN) and 410 kips (1823 kN) shear.





Peru 138kV Transmission Line

In 2020, Cyntech began to mobilize to a remote site in a Peruvian jungle to begin the construction of 138kV transmission line that spanned 140km.

With no concrete plant in the area, traditional deep foundations were impractical and costly - Because of this, Cyntech's team was engaged to provide a helical pile foundation alternative for consideration. The client realized the cost savings and expedited construction schedule and chose Cyntech to design, fabricate, and supply 800 helical piles.

Local crews performed the installation of the helical piles with the technical support of Cyntech's Field Technicians.

After a brief hold due to the Covid 19 pandemic, the project started back up and was completed in September 2020, providing critical power infrastructure for the local population.





Battery Storage

Helical piles offer an ideal foundation solution for Battery Storage projects thanks to several key advantages:

No concrete required – eliminates the time and costs associated with concrete.

Fast installation – Helical piles allow for high daily installation rates to be achieved with small crews and equipment and help meet aggressive construction schedules.

Perfect for modular construction – their adaptability aligns seamlessly with the modular construction methods of BESS projects.





Manitoba Hydro's Wuskwatim to Herblet Transmission line (twin 230 kV)

- Helical piles were the chosen foundation solution because of the remoteness of the project (no easy concrete supply), light installation equipment able to be used on the frozen swamp, and speed of installs.
- Each tower had either 4 or 8 - 7"OD guy anchors and between 1 and 3 piles for the center foundation.
- The center foundation was designed in a way that allowed for a field-decision on how many piles were required based on what soil conditions existed at that exact location because they did not have a borehole at every structure location (additional cost savings).
- Cyntech designed and fabricated helical piles for ~260 guyed delta structures and provided onsite technical assistance with the installation.



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Contact our in-house engineering team or bring your own design. With over 90,000 helical piles designed and supplied worldwide, we have the proven experience to provide the specific solution to your project needs.