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THE POWER OF POWER

MAKING YOUR PLACE IN THE FUTURE



By 2040, world net electricity generation will increase 69%, from 21.6 trillion kilowatt-hours (kWh) in 2012 to 36.5 trillion kWh. How will you support customer expectations that rise with their consumption? How will you provide reliable electric power to the 1.2 billion people who don't have it today? What does the increasing interconnectedness of the grid mean for your future?

Today, global issues are meeting electric generation providers on their front doorstep. At Valmont Utility, we help power generation leadership around the world understand how those global issues impact them today and tomorrow. It requires a shift in thinking from poles and components to long-term solutions. We deliver on those solutions by tailoring our broad array of products and services into the custom solution that's best for you:

- Custom engineering
- Innovative pole designs and materials
- World-class fabrication
- Pre-packaged substations
- Extending pole and component life
- On-demand inventory
- Onsite delivery

And we're available anytime you need us. Anywhere on the planet.

We are an integral part of Valmont Industries, Inc. which today boasts over 10,500 employees, with over 80 manufacturing facilities spread across 23 countries and 6 continents. Valmont Industries is a \$2.6 billion company that conducts business in over 100 different countries, and its shares are traded on the NYSE (VMI).

When you work with Valmont Utility, you have a 70-year legacy and the entire Valmont organization behind you. That's **The Power of Power.**



THE RIGHT PARTNERSHIP AT THE RIGHT TIME

In the spring of 2015, the state of Oklahoma (USA) experienced record rainfall, which saturated the soil and redirected a Canadian River channel, washing away a lattice tower that was on a tie line between power plants.

Initially, it was determined that replacing the lattice structure with a single pole structure was the best option. However, it would require a new location, away from the unpredictable river. Next, rerouting the line was considered, but uncooperative land owners made that option unrealistic.

Then, Valmont Utility recommended the PyraMAX™ structure. Like a lattice tower, it carries vertical, longitudinal and transverse loads. The lighter weight, multiple foundation sizes, and reduction in time between design and installation made it the perfect choice, and proved the power of the right partnership at the right time.

A GLOBAL REPUTATION FOR EXCELLENCE



No two environments are the same. No two regulatory requirements are the same. No two sets of public expectations are the same. In the end, that means that no two lines are the same. We have embrace that challenge. It's helped us build a global reputation for engineering leadership and innovation.

While we know no two lines are the same, we know one thing that is the same — your customers' expectations for reliable power. That's why our work for you begins before we ever start discussing possible solutions. Through our ongoing research and development of structure designs, advanced manufacturing methods, and real-world testing methods (including in-house Ansys Analysis), our team of engineers has developed some of the most innovative products in power delivery today. This gives you the confidence to know that when you contact us, you'll get a custom-engineered solution based on industry-leading innovation.

You also get the thinking behind that innovation focused on you. No matter the solution we work with you to create, it will come from hundreds of years of collective engineering wisdom, a vast network of global resources and the confidence that Valmont structures can stand up to any environment challenges — anywhere in the world.



EMBRACING THE EXTREMES

Transmission poles aren't designed for the average day. They're designed to stand tall when local environmental conditions – weather, temperatures, soil, terrain – are at their worst. That's when your customers rely on you most to deliver the electric power they need.

At Valmont Utility, we embrace the extremes. We always have. That philosophy has helped us remain a global leader for decades. It's also why Alaska's Golden Valley Electric called us to help erect a 530-structure, 230 kV transmission line to run the 100+ miles from Fairbanks to Healy, Alaska. The Golden Valley project required structures designed to overcome a rare combination of environmental extremes, including:

- **Weather** – Withstanding the wind, ice, snow and other weather anomalies of interior Alaska.
- **Temperature** – Performing despite air temperatures that fluctuated between -75° and over 100° Fahrenheit.
- **Terrain** – Mounting on pilings to overcome the unpredictability of rocky, uneven and swampy ground conditions.
- **Topography** – Adapting to landscapes that range from blustery mountaintops to lowland bogs to crossing the Chena River.

Embracing extremes helped make us a world leader in design. It also made us the world's most trusted partner. We know your next transmission line may not seem extreme to rest of the world, but it is to you. And we're ready to help you embrace it.

TRANSMISSION POLES: Proving Performance Around the Globe



You have a lot riding on your power transmission poles. In fact, you could say you have everything riding on them. That means attributes like trust, experience, and dependability become as important as design, manufacturing, delivery and durability. We understand that. It's how Valmont® Utility became the world's leading provider of high-quality steel poles for power transmission applications.

From steel tapered and H-frames, to concrete and patented steel/concrete hybrid, Valmont Utility transmission poles are backed by:

- **Real-World Testing** — Ensure optimal designs that yield both the highest value and the most reliable solutions to support any voltage class.
- **Design Flexibility** — Design any line segment with structures that are more cost effective, aesthetically pleasing, durable, and aligned for optimum structure spacing. Valmont Utility transmission poles are customizable to fit your exact needs.
- **Exceptional Ease of Installation** — Valmont Utility steel, concrete and hybrid poles are industry leaders for speed and ease of installation. Our steel transmission poles can be pre-drilled upon request, to meet your specific requirements. Most concrete poles ship as a single piece directly to the pole site.
- **Uniform Material Strength** — Steel and concrete both have uniform material strength throughout the entire structure, providing more consistent and predictable results than wood.
- **Proven Reliability** — Steel and pre-stressed concrete allow for maximum flexibility in the field, reducing the chance of failure compared to other materials.
- **Maintenance Savings** — Concrete and steel both retain their shape, orientation, strength and are not susceptible to damage by woodpeckers, insects, rot or fire.
- **Corrosion Protection** — For direct embedded steel poles, Valmont Utility offers the TriFORCE™ coating system, which provides unsurpassed corrosion protection just above and below grade (ground level). TriFORCE combines an industry-leading duplex coating system with an advanced application process that creates an exceptionally high level of defense to combat corrosion.

PYRAMAX™:

Maximum Capability and Flexibility



An alternative to standard structures, PyraMAX™ is the ideal combination of structural integrity, scalable loads and substantial savings. The PyraMAX product design is inherently flexible, providing you maximum capacity while minimizing weight and footprint. PyraMAX is designed to provide you significant cost savings for projects requiring lattice, large spans, transposition, dead-end and crossing structures. These savings come from:

- Reducing labor costs through fewer connections
- Mitigating material costs through environmentally friendly, smaller scale foundations using less concrete, smaller equipment and shallower depths
- Eliminating full structural testing for new designs
- Generating multiple tower “families” from a single design
- Being the ideal choice for difficult terrain

STEEL TRANSMISSION TOWERS:

Unsurpassed in Strength and Versatility



The unique attributes of steel enable us to offer the ultimate flexibility in creating structure designs that can meet load requirements, all industry standards, environmental demands and customer expectations. Combining that with global resources and local expertise gives us the best opportunity to develop a custom power transmission solution for you, no matter what the challenge.

Steel can be shaped, welded and bolted into an infinite array of engineered structures, meeting your design challenges both efficiently and aesthetically. Each phase of design, fabrication, finishing and delivery is planned and executed to ensure you not only get the industry's best steel transmission poles, but that they are backed by:

- Seamless service
- On-time delivery
- Superior quality
- American Institute of Steel Construction (AISC) certification

SPUN CONCRETE TRANSMISSION POLES: Strong and Resilient



Our concrete poles offer the highest density, lowest weight and best strength-to-weight ratio in the industry. In short, spun concrete is the strongest concrete man can make. Our attention to design and manufacturing details, as well as the many material benefits, are leading a number of utilities just like yours to consider spun concrete poles.

The reason why is simple: **durability**. With virtually no degradation in even the most severe environments, you can expect your spun concrete poles to enhance the longevity and reliability of your power line. Even through the most severe hurricanes on record (dating back to Hurricane Andrew in 1992), our spun concrete poles remained standing. Today, tens of thousands of Valmont Utility spun concrete structures have proven their mettle against multiple hurricanes, many containing sustained winds of over 145 miles-per-hour (mph) and wind gusts of over 200 mph.

In addition to durability during the most trying times, spun concrete also offers:

- Long-term savings
- Low lifetime costs
- No rusting or rotting
- Height options exceeding 60 meters (200 feet)

HYBRID POLES:

The Best Of Steel and Concrete



Custom-engineered hybrid poles (a steel pole top with a concrete pole base) offer you the combined benefits of steel and spun concrete in one structure. The hybrid offers both the exceptional height, strength and light weight of steel (in the air) with the quick installation and impermeability of concrete (in the ground). Its versatility enables the hybrid to be an ideal solution for a wide variety of harsh soil conditions, swampy rights-of-way and demanding installation environments. Hybrid poles are ideal when you need a customized solution that is cost-effective, aesthetically pleasing and durable by:

- Reducing costs over conventional tubular steel structures (with drilled pier foundations)
- Eliminating below-grade corrosion problems
- Offering same-day assembly
- Providing easy installation in remote areas



THE POWER OF RELATIONSHIPS

The relationship between most electric utilities and their customers is based on the expertise and reliability that builds trust. The same can be said for the relationships electric utilities have with their suppliers. Relationships — more than lines, generation plants or poles — are why many of the world's electric grids perform at over 99% reliability.

Imagine the type of relationship where you can collaborate with a trusted supplier on a shared vision or a new substation solution. You have the confidence in that partner to do all design, engineering and testing; check the design against your own performance standards and specifications; and then store, manage and update all the final designs in your engineering design library. All before a single component is ever fabricated.

We do that for customers every day. It's what partners do. And, we're proud to do it.

The delivery of electric power has a timeless quality to it. Your customers expect it will always be there for them. We want you to feel the same way about us. With a 70-year history, and well-earned global reputation for engineering and service excellence, "always there for you" is a promise we know we can keep.

SUBSTATION:

Connecting Leadership and Innovation



While reliable transmission of your power from the generating facility is critical, the dissemination of that power among your multiple distribution lines is just as important. That makes substations the backbone of any grid. Because of their crucial role, you need more than a partner that can provide substation structures and components, you need one that provides leadership, too.

We believe that leadership begins with innovation. Your needs are changing. We have a duty to provide solutions to anticipate, or at the very least meet, the challenge of change. But we also have a responsibility to think broader. Substations are a prime example of how we found a better way.

Understanding that traditional structural shape substation structures have their place, Valmont Utility has invested in new technology to improve its ability to manufacture and supply these structures. But what if there was another way? A simpler way that offered the same strength with lighter weight, easier installation and less maintenance. There is. Our tubular substation termination and dead-end structures simplify substation operations with:

- The same strength as traditional structures
- Reduced costs, up to 40% in some cases, over standard shapes
- Lighter weight (up to 50%) requiring less material than standard shapes
- Simple connections with fewer joints for faster assembly
- Fewer foundations and reduced number of members



START WITH A BETTER POLE

No question that hardening circuits and boosting system resiliency are top of mind. But, before you decide that bigger poles, placing poles closer together or moving susceptible lines is the answer, let us show you a better way.

Steel, concrete or hybrid distribution poles offer a more durable path to hardening and resiliency than the wood poles you're using today. They stand up to the elements, bend but don't break in extreme conditions, maintain consistent strength and shape over time, and are strong enough to resist the cascading effect that comes when one pole falls. They are also a better long-term value, lasting longer than wood poles.

Today, over 100,000 electric distribution poles from Valmont Utility are standing in the face of record-setting hurricane winds (both sustained and gusting) and flooding. They are the pole of choice for areas susceptible to wild fires. And they are the preferred replacement pole when the ground shifts, but the line must remain in place.

A hardened line and greater resiliency start with a better pole. And finding a better pole starts with a call to Valmont Utility.

DISTRIBUTION POLES:

A Proven, Reliable Alternative



Distribution poles represent more than the final leg of the journey for your transmitted power. They are how your customers feel connected with you. Distribution poles support the lines that run along neighborhood streets, and deliver the power you generate to their homes and businesses. That means there is more than power riding on your distribution lines. Reliability and trust move through with every kilowatt.

With even uniformity and outstanding durability, steel distribution poles offer you a superior alternative to wood poles. Our steel poles are designed to meet the same ANSI 05.1 height and class requirements as wood poles when the load factor is in accordance with the National Electrical Safety Code (NESC) Grade B construction design. But with steel poles, you get so much more.

- **Lower Weight** — Approximately 50-70% less than comparable wood poles.
- **Ease-of-Installation** — The lighter weight of steel, and the convenience of pre-drilling, mean steel distribution poles can be installed faster.
- **Uniform Material Strength** — Steel has uniform material strength throughout the entire structure, providing more consistent and predictable results.
- **Consistent Deflection** — Steel distribution poles have similar deflection characteristics to Douglas fir and improved stiffness compared to southern yellow pine wood poles.
- **Design Flexibility** — Steel poles can be custom-engineered and fabricated to support larger and heavier loads, longer spans and higher clearance requirements.
- **Corrosion Protection** — A variety of steel finishes are available, including galvanizing, paint over galvanizing (powder coat or liquid), dulled and weathering steel. The TriFORCE™ coating system offers added corrosion protection.

RAPID RESPONSE STEEL POLES: The Name Says it All



Sometimes you need a class pole. And, you need it now. The Rapid Response™ product line offers you the most comprehensive pre-engineered steel structures in the industry.

Rapid Response structures are manufactured to current industry standards, eliminating the guesswork involved in line design and system hardening. The new V-Series lineup includes tip loads up to 20,000 pounds (9,071 kg), with total pole heights extending to 140 feet (42 m). Complete catalog poles from Class 5 to V-20 are available in PLS-POLE for use in quick line design and emergency project response engineering.

CORROSION PROTECTION:

An Investment in Your Line and Your Reputation



As the demand for electric power grows, so do the demands on your grid. It's no longer enough to simply invest in the best transmission, distribution or substation structures and components. You have to protect that investment over the long term. When it comes to protecting the investment in your line, Valmont Utility offers industry-leading solutions—both above and below ground.

PROVEN COATINGS AND FINISHES

For above-ground protection of steel poles, hot-dip galvanizing is one of the most cost-effective ways to prevent against corrosion. However, a variety of other finishes are available, including paint over galvanizing (powder coat or liquid), dulled and darkened galvanizing and weathering steel. Regardless of the method, Valmont Utility offers a global network that can coat and deliver any of its structures worldwide.

EXCLUSIVE TRIFORCE™ PROTECTION

Below ground, stronger barrier protection is required for direct embedded steel structures. TriFORCE from Valmont Utility combines specialized coatings products with exclusive applications processes to provide the industry's best below-grade protection system:

- **CorroCote® II Ultra** — Already proven in the underground pipe market, CorroCote II Ultra increases adhesion; improves abrasion, impact and chemical resistance; reduces cathodic disbondment; and decreases water absorption and permeability.
- **Duraspar® UV Top Coat** — Applied over the above-ground portion of the coating, Valspar Duraspar® provides exceptional durability and UV stability, backed by decades of proven performance in commercial uses.
- **Shadow-Mask Chamfered Lip Top Edge** — This highly repeatable process creates a clean, rounded top edge, eliminating a place for moisture and contaminants to accumulate.
- **Dual Pass** — This application process rotates each structure twice, applying 50% of the target coating thickness each time to achieve full coating thickness. This dramatically reduces pin holes that penetrate the entire thickness of the coating thereby reducing the risk of premature corrosion.

See firsthand how TriFORCE will extend the life of your utility structures. View independent, third party test results at valmontutility.com/TriFORCE



WE'RE GOAL ORIENTED

No matter the challenge, Valmont Utility has the industry-leading engineering and world-class manufacturing expertise to bring nearly any vision to life.

