



***Transmission, Distribution, Substation,  
LRT & MORE!!!***

**WELCOME**

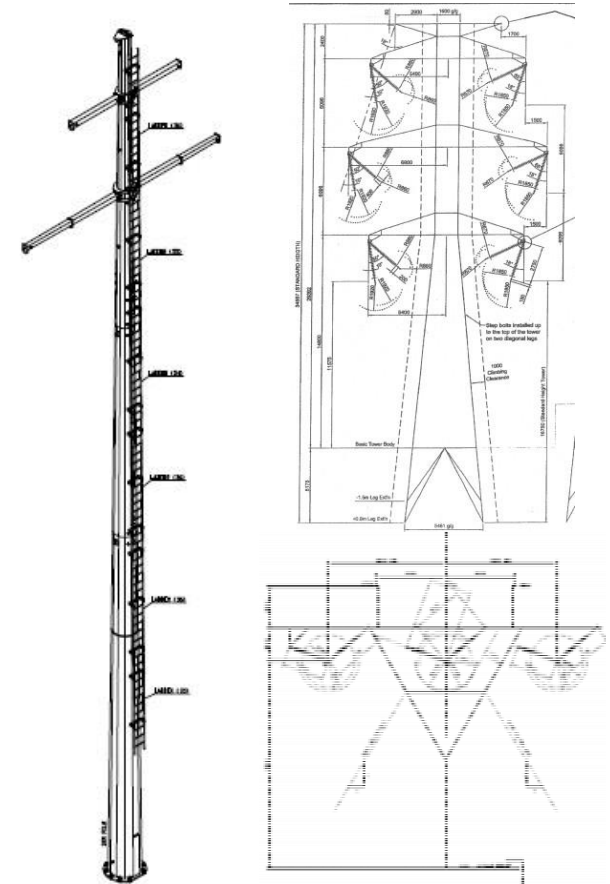
# Who is MVA Power?

- Founded in 1991 by Marc Hadid, P.ENG
- Based in Montreal, Quebec
- Operates all over North America and Internationally
- MVA Power focuses in 3 main sectors of the Power Industry:
  - Transmission
  - Distribution
  - Substation
- And also in the Communications Sector
  - Supply of Fiber Optic Cable and Accessories
- Specializes in:
  - The Detailed Design and Manufacturing of T&D and Substation Structures
  - Supply of T&D and Substation Hardware and Materials
  - Supply of HV & MV Equipment

- Provides added value services required for a project to run smoothly, on time and on budget
  - Optimization
  - Logistic Support
  - Consolidation
- Provides part or a FULL TURNKEY PACKAGE
- **YOUR ONE STOP SHOP FOR ALL YOUR HV & MV NEEDS!!!**

# Transmission, Distribution & Substation

- Structures are Designed and Selected Based on the Client's Engineer Specification
  - On Time
  - On Budget
  - Using the Latest Design Techniques and Design Software
  - Assist/Hardware & Insulator String Designs & Components
- MVA Power has a *strategic* Alliance with Manufacturers All Over North America in Order to MANUFACTURE/SUPPLY
  - Steel Lattice Towers (Power and Telecom)
  - Steel Tubular Poles (Power and Telecom)
  - Concrete Poles
  - Wood Poles (DF, WRC, RP, YP) Treated or Untreated
  - Substation Structures

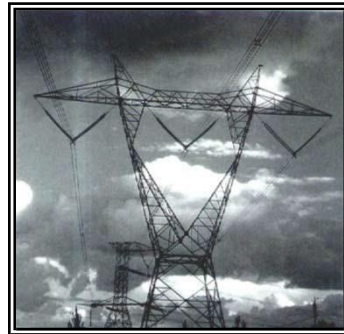
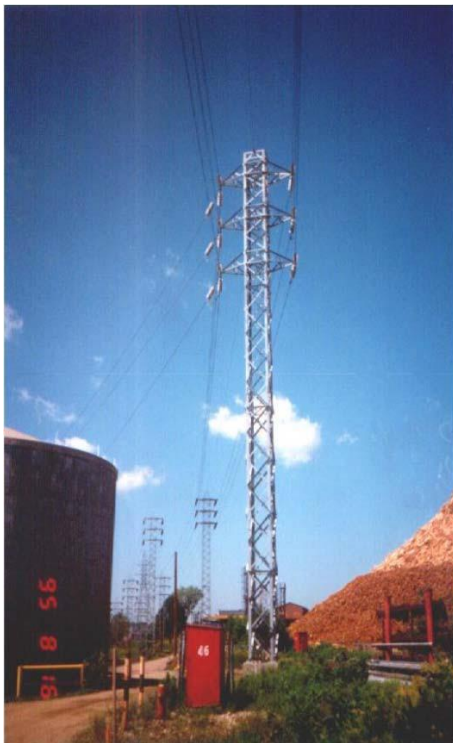


# TRANSMISSION & DISTRIBUTION

## STEEL LATTICE TOWERS

Power

Telecom



# TRANSMISSION & DISTRIBUTION

## Steel Tubular Poles



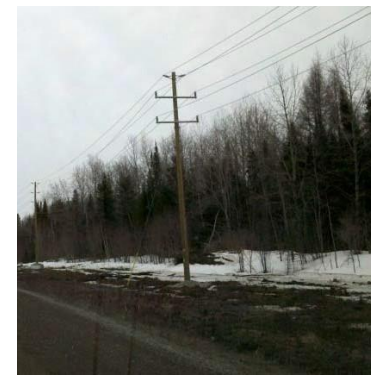


# TRANSMISSION & DISTRIBUTION

## Concrete Poles



## Wood Poles



# SUBSTATION

## STRUCTURES/PACKAGES

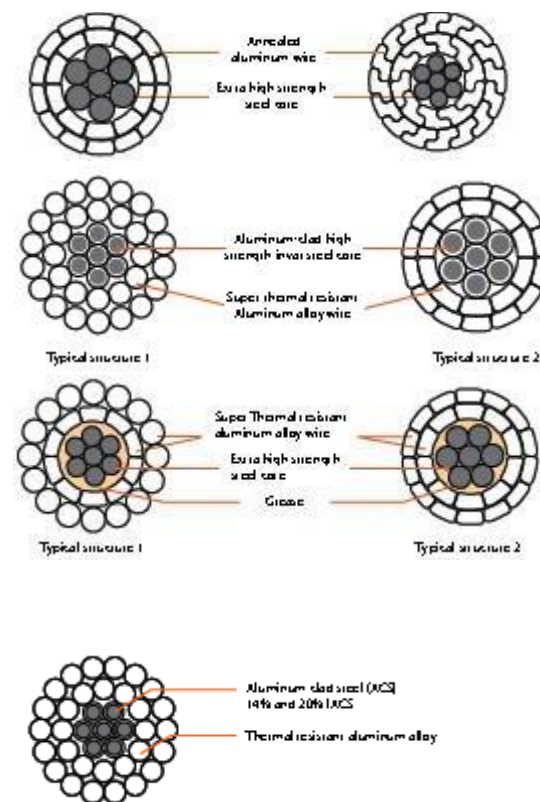




# TRANSMISSION & DISTRIBUTION

## OVERHEAD CONDUCTOR

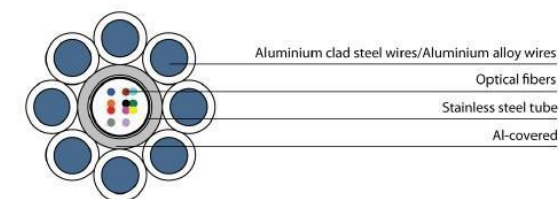
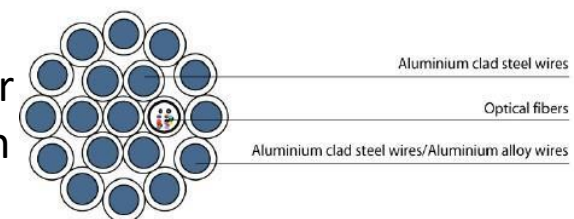
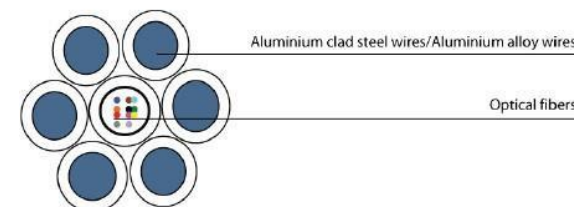
- AAC/ASC, ACSR, ACSR/TW, ACAR, AACSR
- UPRATING CONDUCTORS  
ACSS, ACSS/TW, INVAR, GAP type, TACSR/AW
- Class A, B, C, High Strength Galfan Core, etc...
- As per ASTM, IEC, CSA
- ISO 9001 & ISO 14001 Certified
- Testing Lab
- Supplied All Across North America and the WORLD



# TRANSMISSION & DISTRIBUTION

## OPGW CABLE

- Central Stainless Steel Tube
  - Small Dia, Lightweight and Short Circuit Capacity
- Stranded Stainless Steel
  - Large Cable Dia, Higher Fiber Count, High Tensile Strength and Fault Current Capacity
- Central Core, Aluminum Covered Stainless Steel Tube
  - Better Fault Current and Lightning Resistance by Increasing Aluminum Cross Section, Small Dia
  - Single/Double Armor Layers
  - Good Anti-Corrosion Performance
- As per IEEE, ASTM, IEC, CSA
- ISO 9001 & ISO 14001 Certified
- Testing Lab
- Supplied All Over North America and the WORLD

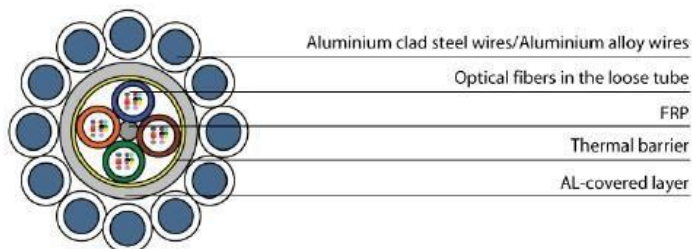


# TRANSMISSION & DISTRIBUTION

## OPGW CABLE

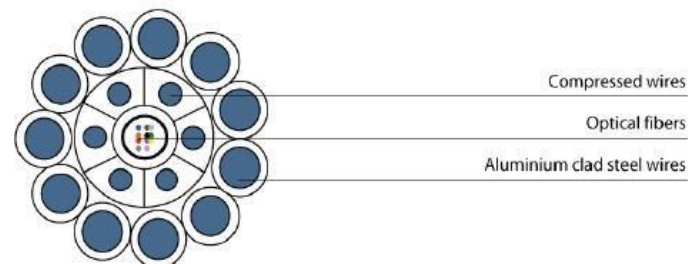
### - Aluminum Tube

- Aluminum Tube with Optical Fibers in Individually Packed Loose Tubes
- Good Anti-Corrosion and Anti-Lightning Performance
- Material Structure is Uniform Offering Good Resistance to Vibration Fatigue
- Short Circuit Current has Low Effect on Optical Fiber Transmission Properties



### - Lightning Resistant Central Wire

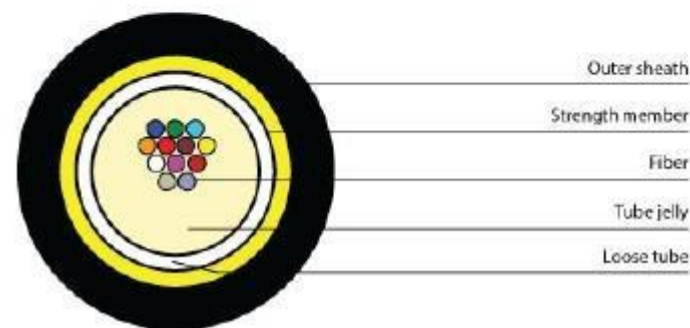
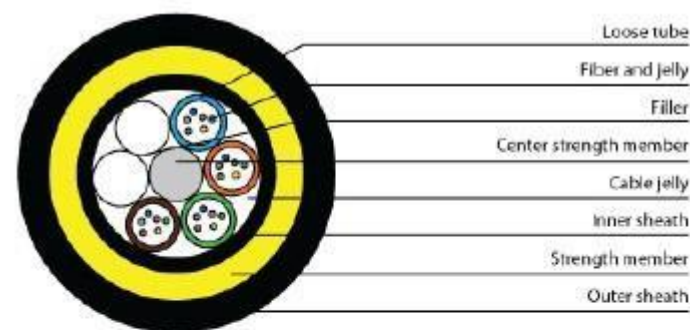
- Central Layer of ACS Compressed into TW Shape, Increasing Fault Current Capacity but Maintaining Shape
- Applied to Transmission Lines that Need Small Diameter OPGW but High Short Circuit Protection
- Used in HIGH Thunderstorm Areas



# TRANSMISSION & DISTRIBUTION

## ADSS

- Stranded Layer and Central Tube Type
- Installed on Existing Lines up to 220 kV Under the Phases
- Layer or Central Tube Design
- Aramid Yarn Used as Supporting Member (Designed Based on Span Length & Loading up to 1500m)
- Outer Sheath is Classified into PE and Tracking Resistance PE Corresponding to Space Potential +/- 12 kV
- Max Fiber Count 312
- Customizable to Customer Needs
- Partner with DUPONT

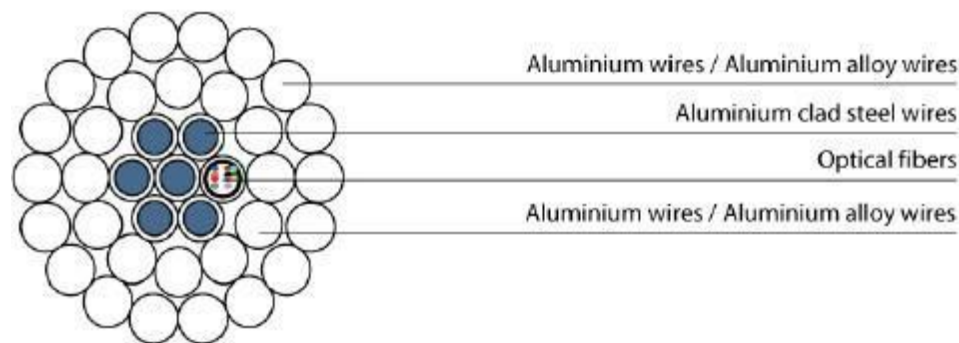




# TRANSMISSION & DISTRIBUTION

## OPPC CABLE

- Combine Stranded OPGW Cable as Core with Aluminum Conductor
- Replace One Phase Only
- Designed to Mechanically and Electrically Match Adjacent Phase Properties
- Can Match High Temperature Resistance which is Verified by Temperature Cycling and Short Current Tests
- Applied to MV and HV Lines Without Ground Wires (10kV+)
- Offers Telecommunications for MV & MV Lines for Urban and Rural Areas
- Providing Optical Cables for Building Distribution and Automation Stations
- Customizable to Customer Needs

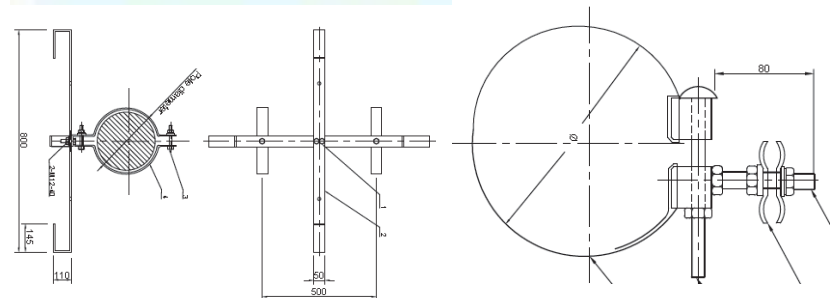


# TRANSMISSION & DISTRIBUTION

## ACCESSORIES FOR OPGW/ADSS & OPPC



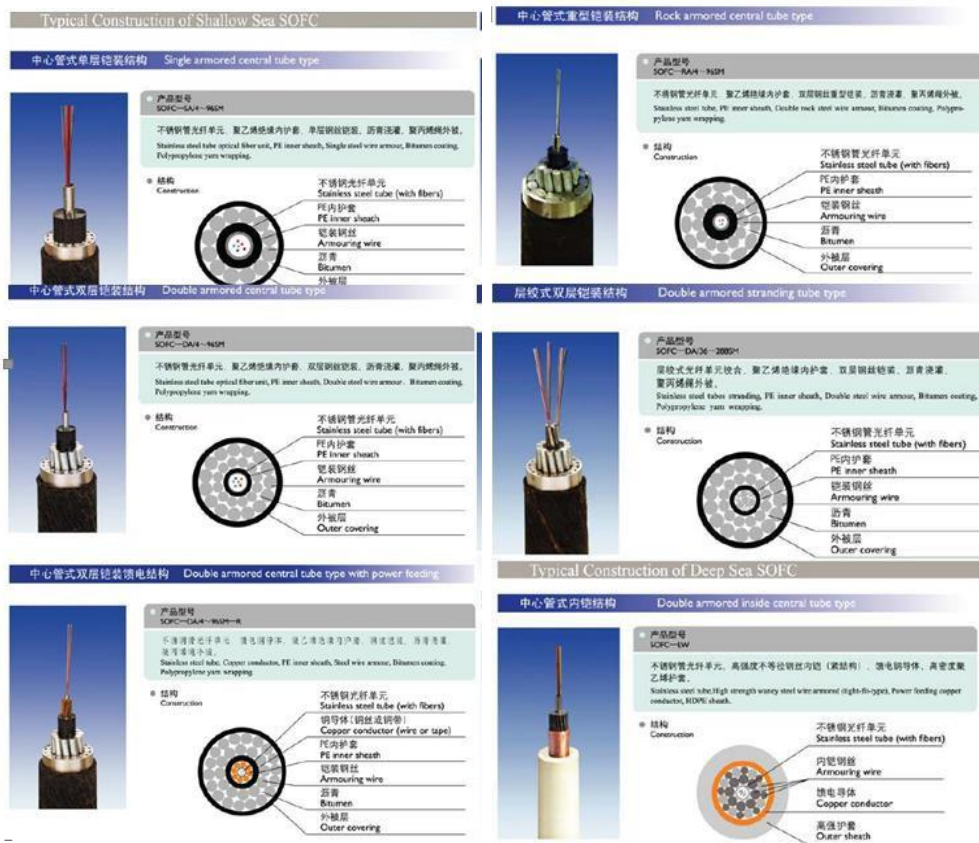
- Splice Box, IP64 Rated
- Easier to Install than Other Manufacturer Designs
- Can be Mounted on Lattice or Round Poles



# TRANSMISSION & DISTRIBUTION

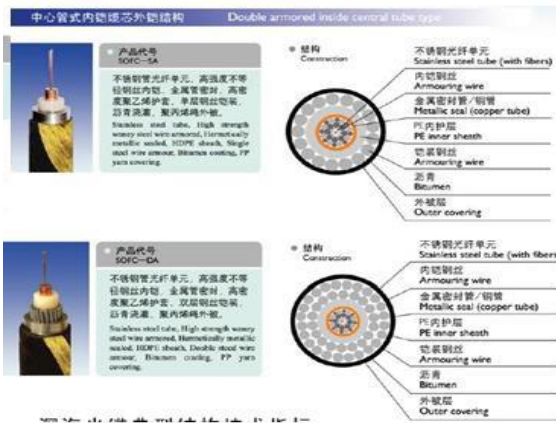
## UNDERGROUND & SUBMARINE CABLE

- Underground Power Cable 1kV to 345 kV
- Underground Submarine Cable 1kV to 345 kV
- Combination POWER AND FIBER OPTIC CABLE
- Armored or Unarmored, CUSTOMIZED TO CUSTOMER NEEDS
- Splice and Terminations

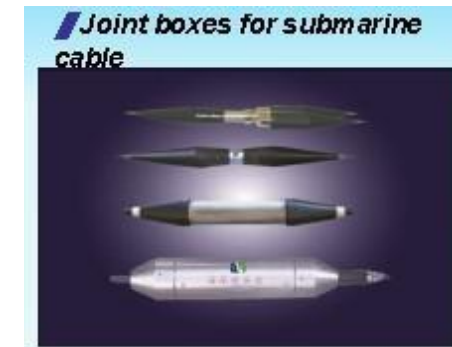


# TRANSMISSION & DISTRIBUTION

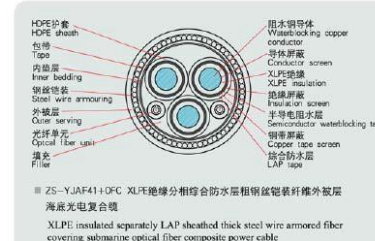
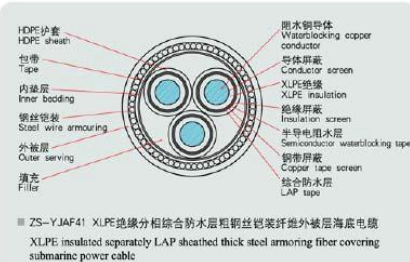
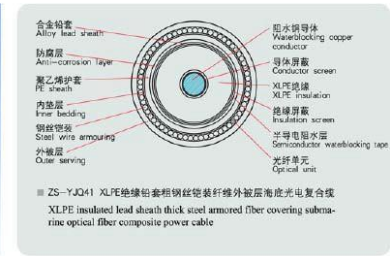
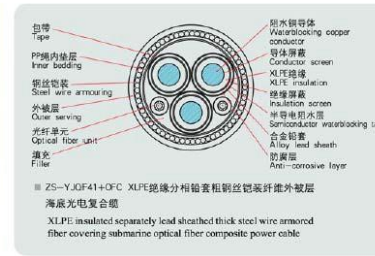
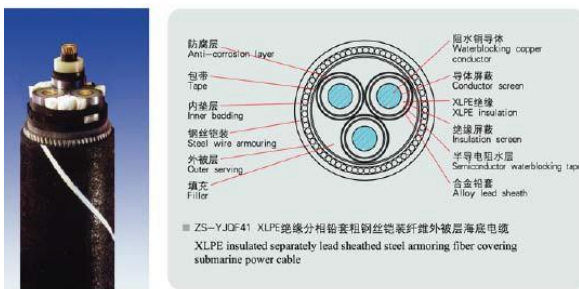
## UNDERGROUND & SUBMARINE CABLE



Typical Construction of Submarine Optical Fiber Composite Power Cable



Submarine Optical Fiber Composite Power Cable





# TRANSMISSION & DISTRIBUTION

## FIBER OPTIC CABLE



- Optical Fiber
- **Fiber optical Cable**
- Mobile system
- Submarine optical fiber cable
- Accessories
- FTTH



**Annual capacity**

- 12 Million Fiber km

**Product**

- Duct cable
- Buried cable
- Aerial cable
- Flat Drop cable
- Armored indoor cable
- FTTH cable





# TRANSMISSION & DISTRIBUTION

## MOBILE/RF CABLE (UL certified)

- ☐ Optical Fiber
- ☐ Fiber optical Cable
- ☒ **Mobile system**
- ☐ Submarine optical fiber cable
- ☐ Accessories
- ☐ FTTX





**Annual capacity**

- ☒ 70,000km

**Product**

- ☐ RF cable
- ☐ Leaky coaxial cable
- ☐ Control cable
- ☐ Accessories



# TRANSMISSION & DISTRIBUTION

## FTTX SYSTEM

- Optical Fiber
- Fiber optical Cable
- Mobile system
- Submarine optical fiber cable
- Accessories
- **FTTX**

**Products provided in FTTX system**

- Typical application



# TRANSMISSION & DISTRIBUTION

## GLASS INSULATORS

- Making Insulators for 50+ Years
- ANSI, CSA and IEC Compliant
- ANSI & IEC Tested
- With and Without Zinc Sleeve
- Many Advantages and Reliability of Glass Over Porcelain and Polymer, Especially in the 230kV + Range
- Internal Test Lab as well as International Lab Associations (KEMA)
- ISO Certified

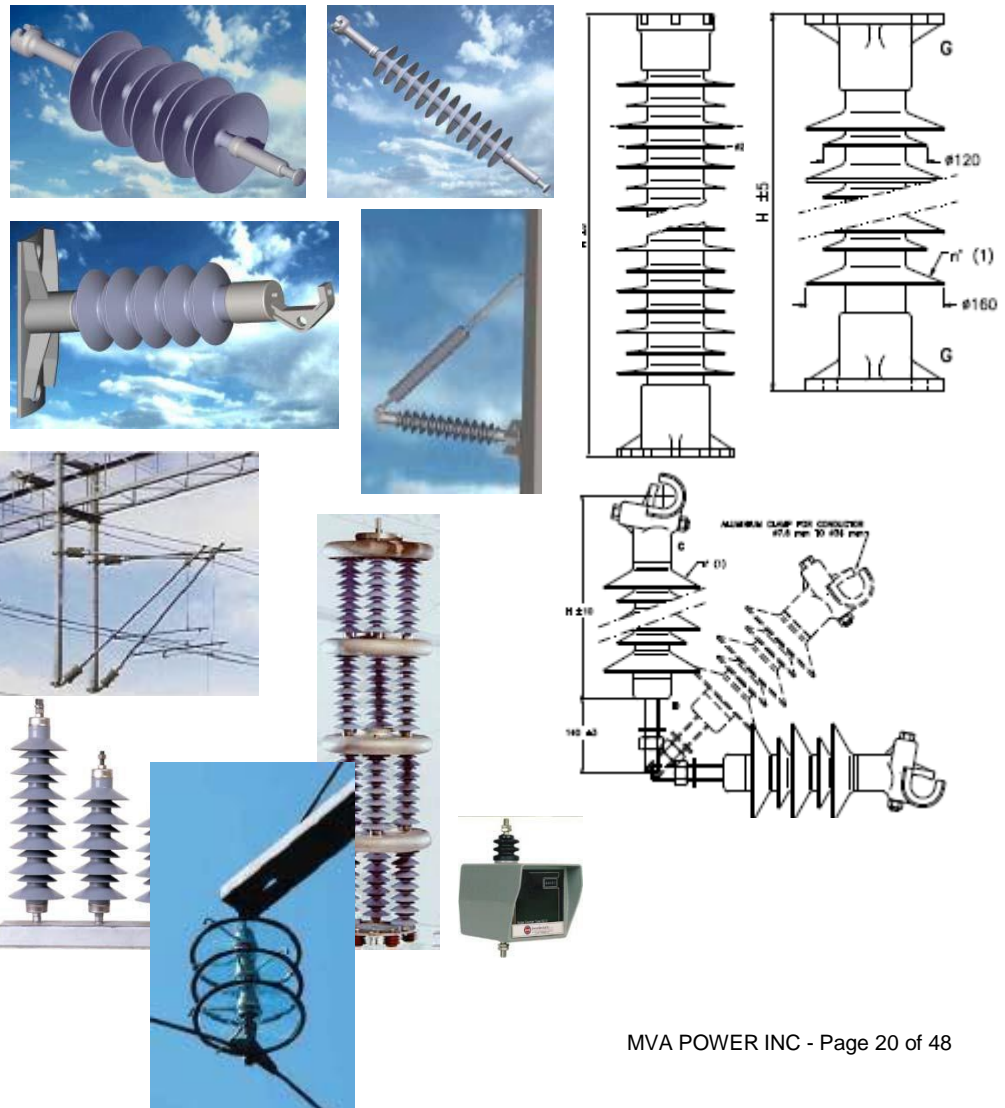




# TRANSMISSION, DISTRIBUTION & SUBSTATION

## Polymer Insulators

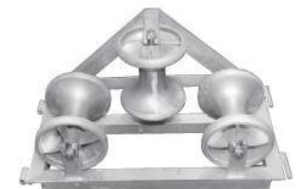
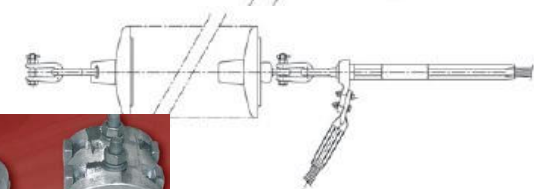
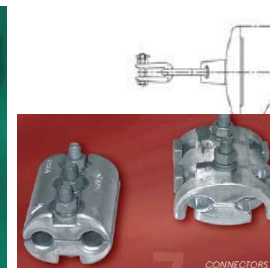
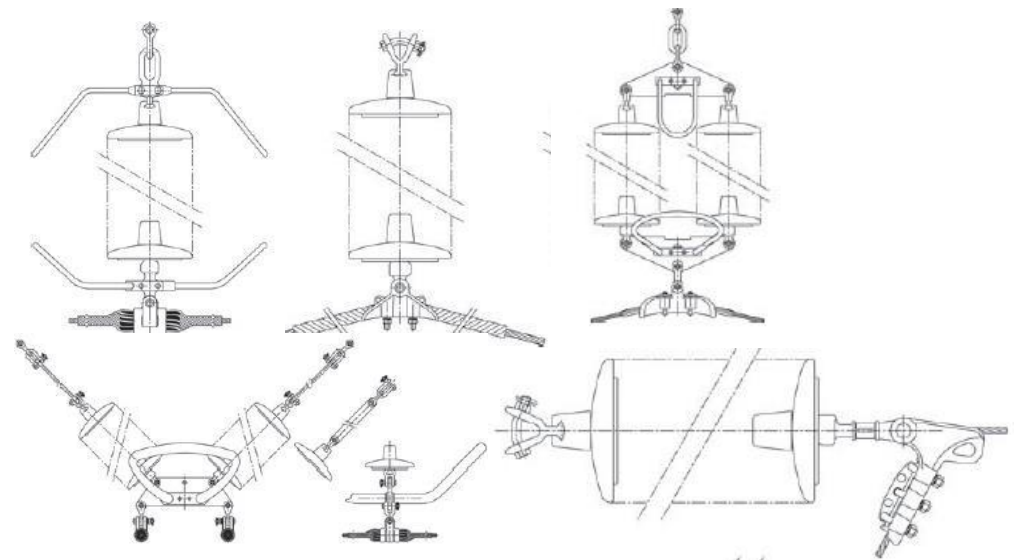
- Making Insulators for 50+ Years
- ANSI and IEC Rated up to 765 kV
- ANSI & IEC Tested
- 5000 hr UV Rated/Tested
- Many Configurations/Designs
  - Deadend/Suspension
  - Pin
  - Station Post
  - Line Post
  - Catenary
  - Surge Arresters
- Internal Test Lab as well as International Lab Associations (KEMA)
- ISO Certified



# TRANSMISSION & DISTRIBUTION

## TLINE HARDWARE

- ANSI, CSA, IEC Designs
- Charpy Compliant Hardware
- HI TEMP Compliant Hardware
- Corona Free Hardware
- Can Assist in Design of Strings (Single, Double, Triple, Quad)
- In-House and University Test Lab
- Wide Range of Products
- ISO Certified, Part of CIGRE



# OVERHEAD RAIL

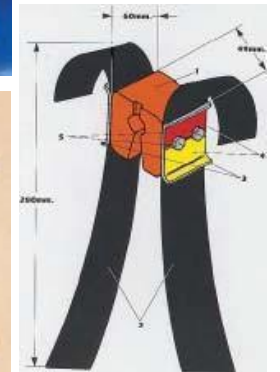
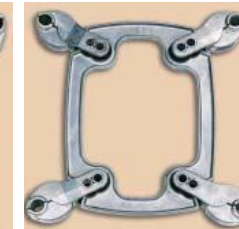
- Light Rail
- Tramway
- Rigid Catenary
- 
- Can Assist in Design of Strings
- In-House and University Test Lab
- Wide Range of Products
- ISO Certified, Part of CIGRE





# TRANSMISSION & DISTRIBUTION

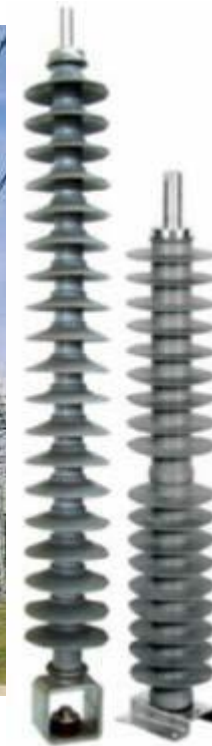
- Stockbridge Dampers
  - OH
  - OPGW
  - ADSS
- Spacer Dampers (Double, Triple, Quad)
- Preformed
  - Armor Rods
  - Dead Ends (Guy, Alum, Copper)
  - Insulator Ties
- OPGW/ADSS Hardware
- Conductor Warning Lights
- Tower Beacon
- Bird Protection
- Vibration Measuring Equipment
- HI TEMP Compliant Hardware
- In-House and University Test Lab
- ISO Certified





# TRANSMISSION, DISTRIBUTION & SUBSTATION SURGE ARRESTERS

- Transmission, Distribution and Substation Class Arresters up to 800 kV
  - HV Polymer
    - Wrap Design
    - Cage Design
    - Tube Design
  - HV Porcelain (Design 0,I,II)
  - MV Polymer
  - DC Arresters
- Polymer and Porcelain Designs
- Based on IEC standards, Equivalent to ANSI/CSA



# SUBSTATION

# Subx Connectors

- Copper/ Bronze, Bi-Metallic and Aluminum Connectors
- Corona-Free and Non-Corona Free Connectors (up to 500 kV)
- Bolted, Welded & Compression Type
- Grounding Connectors
- VERY WIDE Range of Designs/ Possibilities to Provide Efficient/ Minimize # of Connectors
- Quick Lead Times
- ISO Certified, Internal and University Test Labs



# SUBSTATION

## Subx Connectors

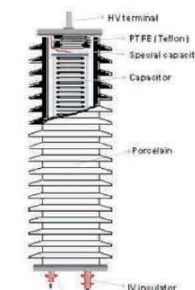
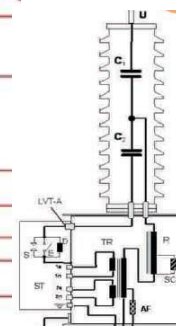
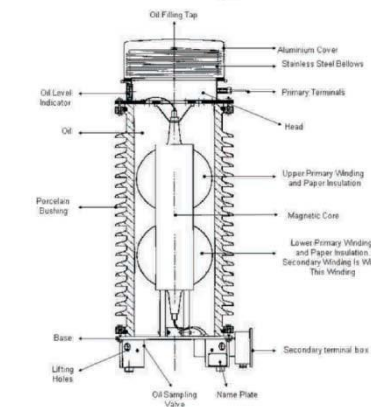
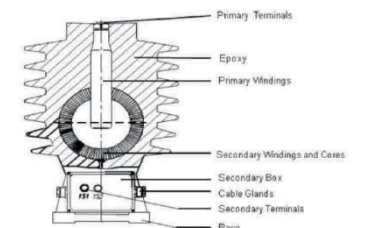
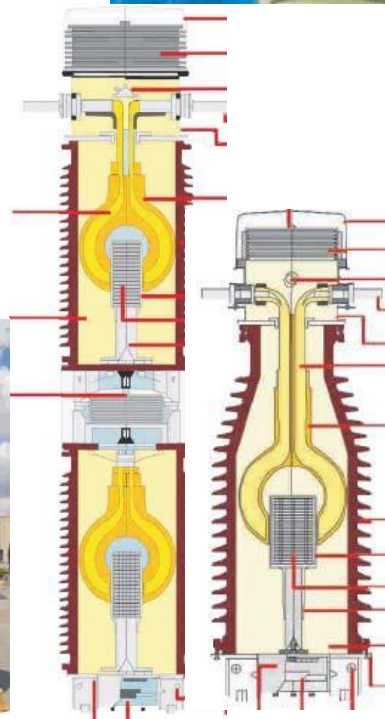




# SUBSTATION

## INSTRUMENT TRANSFORMERS

- Up to 500 kV
- Rated for use up to -50 deg C
- Porcelain (Brown or Grey) Housed Oil Insulated Instrument Transformers (Polymer Available)
- Dry Type (Indoor/Outdoor) Available for MV/LV
- CT – Current Transformer
- CVT – Capacitive Voltage Transformer
- IVT – Inductive Voltage Transformer
- ISO Certified





# SUBSTATION POWER TRANSFORMERS

- Large Power Oil Filled Transformer
  - Up to 550 kV
  - Up to 10-800MVA or 3-Phase
  - Up to 10-300MVA for Single Phase



# SUBSTATION

## LARGE TRANSFORMERS

- Large Power Oil Filled Transformer
  - Generator Step-Up
  - Station Auxiliary
  - Station Start-Up
  - Substation Transformer Feeder
  - Voltage Regulators Induction
  - Furnace Transformers Rectifier
  - Transformers
- Mobile Substation up to 230 kV 45MVA
- Core Type (30-200MVA or 3 p, 30-125MVA 1P)
- Shell TYPE (3ph 1000MVA 600MVA test, 1P 511MVA 350MVA Test up to 525kV 1675BIL)
- Transformer Repair



# DISTRIBUTION / OEM

## – Heat/ Cold Shrink Insulation & Terminations

- Heat Shrink Tubing
- Heat Shrink & Cold Shrink Terminations and Splice Kits up to 35 kV



# DISTRIBUTION/DOT ENCLOSURES



- 100% POLYMER CONCRETE MODULAR DESIGN (non dissimilar material)
- 100% INSULATING MATERIAL (Eliminate stray voltage due to improper grounding), Non corrosive, UV resistant, Fire resistant, moisture resistant, resistant to temperature fluctuations (freeze/thaw, Chemical Resistant
- **Lightweight, easy to install yet stronger than concrete (90% lighter)!**
- ANSI/SCETE 77 compliant UP TO TIER 22–22500lbs design load (Box & Cover)
- **UL Certified** (see catalog for details)
- Box Sizes (Rectangular, Round, straight/flared wall) from 6"x8"x6" to 48"x96"x48" deep (Stackable to height required)
- Box Min TIER15 load (Most are TIER 22)
- Terminators, knockouts, cable racks, dividers, terminations available
- Interchangeable covers(between any tier), different cover options (metering lids, vents, cable openings, LOGOS ...)
- Transformer/Switchgear/Telecom cabinet/Electrical Equipment Base Pads/Box PADS (Up to 93x93x36") – different configurations available, fits most sizes of electrical equipment (see catalog for details)
- Underground distribution Switchgear Enclosure
- Traffic signal/Battery backup Cabinet Base
- Median Barrier enclosure (Made Specifically for Jersey and
- **INDUSTRY TESTED AND APPROVED FOR 40 YEARS**
- **MOST SIZES IN STOCK!!**



# WIND POWER / DISTRIBUTION

## – Transformer Pads



- Lightweight, EASY TO INSTALL and RUGGED!
- Fire resistant, low moisture absorption, UV resistant, Chemical Resistant
- Polymer Concrete Equipment support Pads (Various sizes and options to fit any equipment size)
- Transformer & switchgear box pads (cover available)- Fiberglass reinforced Composite (FRC)
- FRC Transformer Box Pads with Tower Tunnel (Made for the Wind power industry!)
- FRC Ground Sleeves
- FRC Heavy duty Secondary Pedestals
- FRC Heavy Duty Cable loop Storage unit
- FRC HILL HOLDER

# WIND POWER / DISTRIBUTION

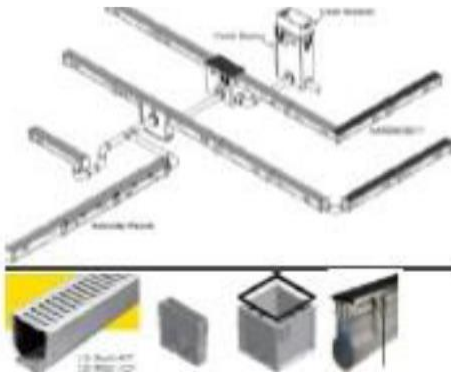
## — ABOVE GRADE ENCLOSURE



- Rust Proof, UV resistant, chemical resistant, ROBUST Fiberglass design
- Modular above grade Fiberglass enclosure up to 4.6x15x7 feet to protect equipment (transformers, generators, switchgear...) from the elements & tampering
- Complete Walk in enclosures for generator Control
- Primary Voltage Sectionalizing cabinets
  - single phase and 3-Phase constructions available
  - Gas Spring cover support
  - Stainless Steel Parking stands, Copper grounding lug, junctions, load break elbows
  - UP TO 35 kV 600 Amp 6 Way junction design
- Transformer Deferral cabinet
- Underground feed through Pedestals
- Secondary Pedestals (high back option available) – Fiberglass and Plastic (HDPE)
- Pole Line Hardware and Bracket arms
- Standoff and support brackets for conduits (multiple conduit option available)
- Gain brace for wood crossarms
- Mounting bracket for pole top Transmission insulators
- Fuse link Storage Cans

# DOT/COMMERCIAL/INDUSTRIAL/RESIDENTIAL

## – Polymer Concrete Trench Drain



- Polymer concrete or fiberglass presloped trench drain system
- UP TO 3000 GPM liquid flow rate!
- Chemically resistant, resistant to heavy loads, resists cracking
- Completely modular design
- Precast (no need to cast in place or use heavy machinery)
- LIGHTWEIGHT, EASY TO INSTALL!
- Can be used for any drainage application (road, plant, airport, park, garage ...)
- Many Plastic, steel, galvanized steel, stainless steel grating options available

# DOT/COMMERCIAL/INDUSTRIAL/RESIDENTIAL

## – ROAD PLATES, SHORING SYSTEM & TRENCH COVERS



- Lightweight Heavy duty locking manhole covers
- Lightweight CUSTOM trench covers
- Lightweight ROAD PLATES & SHORING SYSTEM (Exceeds OSHA Requirements for shoring - TYPE C soil)
  - Modular design
  - Can fit in a truck
  - No heavy trucks to lift and position
  - Road plates can be used in shoring system
- Polymer composite design (completely electrically neutral)
- Light weight (eliminate back strain)
- STRONG!!! (Up to 22500 lbs design load)
- UV & Temperature resistant

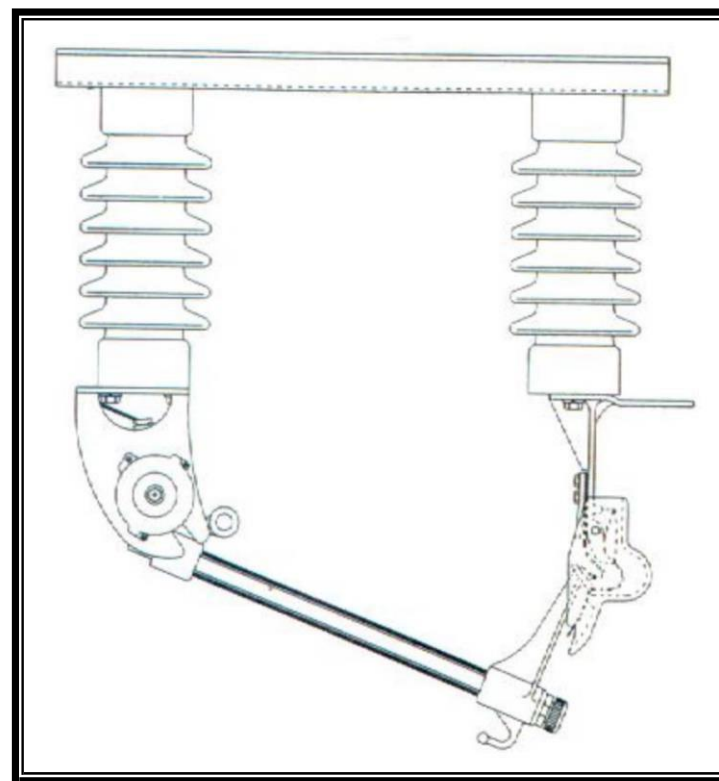


# **PRODUCTS**

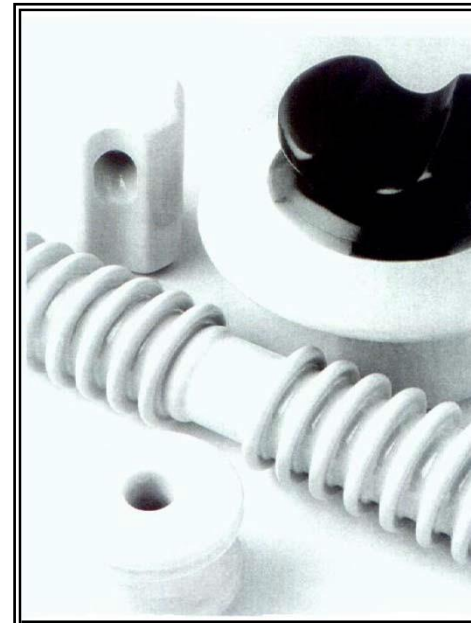
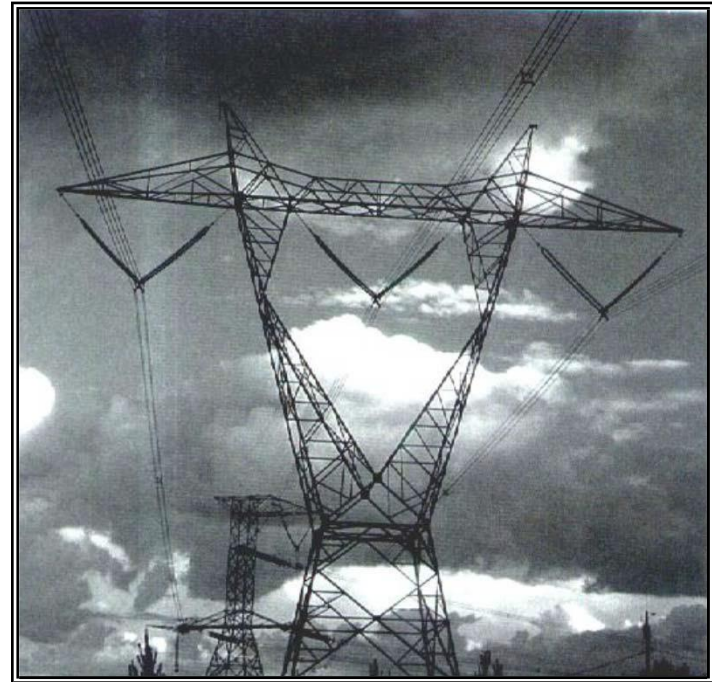
## **Substations**

### **Transmission Lines & Distribution Lines**

- *Medium & High Voltage Substation Packages*
- *Accessories & Hardware for Substations*
- *Air Core Current Limiting Reactors*
- *Batteries, Chargers & UPS*
- *Bus Duct, Cable Bus & Cable Trays*
- *Cables, Aluminum & Copper*
- *Conductor & Guy Wires*
- *Cables and Terminations, High Voltage*
- *Fiber Optic Cables & Accessories*
- *Energy Monitoring*
- *Indicators*



- ***KWH Meters***
- ***Capacitors & Capacitors Banks***
- ***Control Panels***
- ***Poles & Anchors, Cross Arms, Fiberglass & Wood***
- ***Disconnect & Load Break Switches***
- ***Electrical Connectors***
- ***Flex Braids***
- ***Ground Rods & Inspection Boxes***
- ***Ground Rods, Cables & Materials***
- ***High Voltage Testing Equipment***
- ***Indoor Station Equipment & Auxiliaries***
- ***Instruments***
- ***Insulators***
- ***Lightning / Surge Arresters & Counters***
- ***Line Traps***
- ***Photo Cells & Street Lightning***
- ***MCCB***



- ***Heat Shrink Tubing and Tape***
- ***Prefab Trenches & Boxes***
- ***Protection Relays and SCADA***
- ***Reactors, Resistors & Line Traps***
- ***Reclosers***
- ***Pylons***
- ***Service Platforms, Steel & Aluminum***
- ***Solar Energy Systems***
- ***Supports, Steel & Aluminum***
- ***Switchgear***
- ***Telecommunication Towers***
- ***Tower Structures***
- ***Transformers, Distribution***
- ***Transformers, Instrument***
- ***Transformers, Padmount***
- ***Transformers, Dry Type***
- ***Transmission Line Hardware***
- ***Trolley Systems & Accessories***



We Also Supply Spare Parts,  
Accessories & Components  
That are Hard to Find.  
Contact Us for Your Needs.

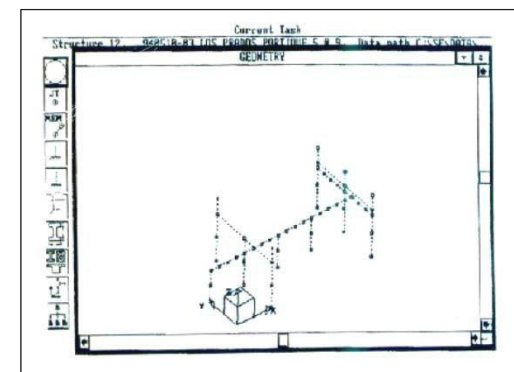
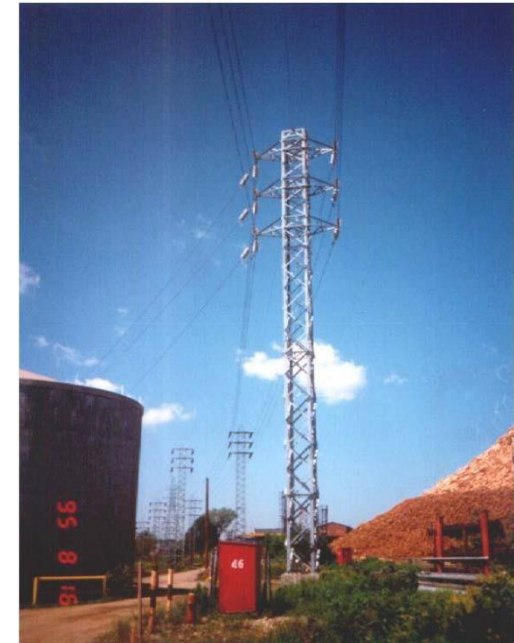
# **SERVICES**

## **Substations**

### **Transmission Lines & Distribution Lines**

MVA Power uses the Latest Techniques and Computer Software for Detailed Design and Manufacturing. This Enables MVA to Design, Supply and Deliver On Time and Within Budget for Projects and Orders. Below is a List of Services that are Available within the Context of a Project:

- Foundation Shop Drawings
- Structural Shop Drawings
- Field Technical Services
- Field Supervision
- Ground Grid Studies & Calculations
- Bus Bar Calculations
- Layout Details & Bill of Materials
- Budget Pricing
- Telecom Network Schemes
- Span Calculations
- Used Materials
- Power Factor Correction Systems
- Voltage Regulation Systems
- Network Rehabilitation
- Street Lighting
- Rural Electrification
- Renewable Energy Systems
- Cable Thermal & Dynamic Loading





**MOBILE SUBSTATIONS 24 - 13.8 KV, 5000 KVA**

**JAMAICA PUBLIC SERVICE CO.**





# **CANADIAN PROJECTS**

Here Are Some Major Projects We Have Completed Recently:

**McCully Phase 2 Field Development Project** - 138kV Substation

Detailed Design, Manufacture & Supply Package

**Pulp Mill – Williams Lake, BC**

69kV Substation Package

**BCTC (BC Transmission Corp) – 69kV Clayburn Substation – Structural Steel (HSS)**

**UPC Wind Farm - 230kV Brown Hill Substation / 115kV Lent Hill Substation – Structural Steel (Tubular, HSS & TRX Platforms)**

**MB (Manitoba) Hydro – Red River Crossing Deadend Towers**

**SUNCOR Energy Inc** - Supply of 12 & 15MVA Power TRXs & NGRs

**BCTC (BC Transmission Corp) – Dokie Wind Farm Terminal Substation – Structural Steel (HSS) & Materials**

Fabrication, Manufacture & Supply of 260kV Major Dead End Incoming Tower & Structural SubX

Steel, 260kV Substation Material (including: Busswork, SubX Connectors, Grounding Equipment, Cables, etc...)

**BCTC (BC Transmission Corp) – Upper Harrison Terminal Substation -**

Fabrication, Manufacture & Supply of 260kV Major Dead End Incoming Tower & Structural SubX Steel

**Bear Mountain Wind Farm Project** - ZigZag Padmount Transformer & NGR

**BCTC (BC Transmission Corp) – 230Kv Bear Mountain Wind Farm Terminal Substation – Structural Steel (HSS)**

Fabrication, Manufacture & Supply of 230kV Major Dead End Incoming Tower & Structural SubX steel

**BCTC (BC Transmission Corp) – Tie-In 138Kv Substation – Structural Steel (HSS)**

Fabrication, Manufacture & Supply of 138kV Major Dead End Incoming Tower & Structural SubX Steel

**PowerStream (Markham Hydro) - 230Kv Switchyard - Markham TS#4 – Structural Steel (HSS) & Tapered Tubular Lightning Masts.**

Fabrication, Manufacture & Supply of 230kV Major Dead End Incoming Tower & Structural SubX Steel with Tapered Tubular Lightning Masts

**ExxonMobil (Imperial Oil Ltd – ESSO (Canada)) – Kearl Oil Sands Project - Telecom Tower**

Detailed Design, Fabrication, Manufacture & Supply of 90m Self-Supporting Tower & Mounting

Equipment for Telecom Hardware. **240 kV Transmission line** Supply of 70 240 kV Tubular Transmission Line Towers

**City of Red Deer – Design and Manufacture of Concrete Switchgear Base Pads**

**City of Medicine Hat – Design and Supply of Cable Bus System**



# **INTERNATIONAL PROJECTS**

Here are some Export Projects we have participated through CIDA, the World Bank and other Trading Companies, Consultants or Direct to Customers:

## **DOMINICAN REPUBLIC**

4 Substations 110 kV and 69 kV Rural Electrification Project



## **INDIA**

Kerala State: Power Factor Compensation on 16 Substations 132 kV and 69 kV



## **JAMAICA**

120 kV to 69 kV Substations



## **MEXICO**

400 kV Transmission Lines - Towers & Hardware



## **PAKISTAN**

Interconnection and Stability Improvement Feasibility Study



## **SENEGAL-M 'BUR**

Rural Electrification Project



## **TRINIDAD**

Equipment for 69 kV Substation



## **ZIMBABWE**

Interconnection, Design, Supply and Procurement Management



## **ALGERIA**

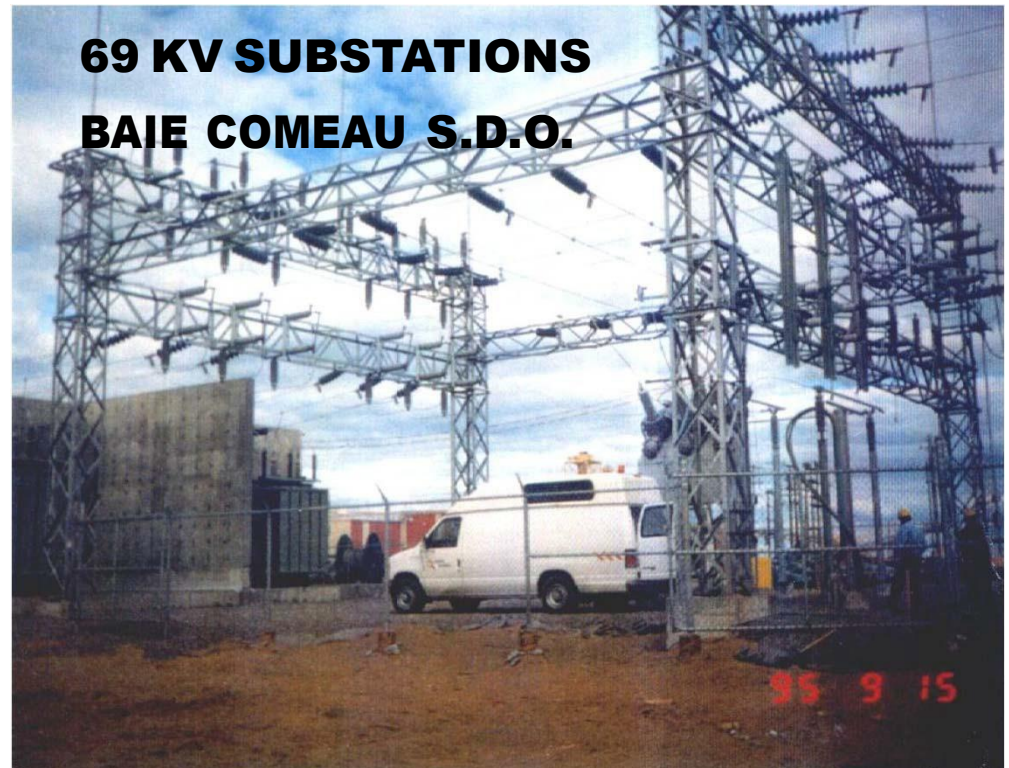
400kV Incoming Tower Lines, Substation Structures (Lattice), Conductor & Hardware (Fittings, Connectors, etc.) Equipment for a Thermal Power Plant





## Specialties

- Medium & High Voltage Substation Packages
- Electrical Apparatus
- Line Hardware & Insulators
- Protection & Control
- Energy Management
- Energy Generation & Accessories
- Telecommunication Components







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