## Reactors

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change

### **SEC Current Supplier Base**





## **Localization Opportunity Areas**













**Design & Engineering** 

Silicon steel

#### Sourcing

#### Manufacturing

- Core manufacturing
- Winding of Cu/ Al conductors
- Insulation wrapping
- Coil drying
- Tank fabrication etc.

#### **Assembly & Testing**

- Assemble the reactor with core, windings, and other accessories.
- Conduct required tests to ensure safety and performance standards are met.

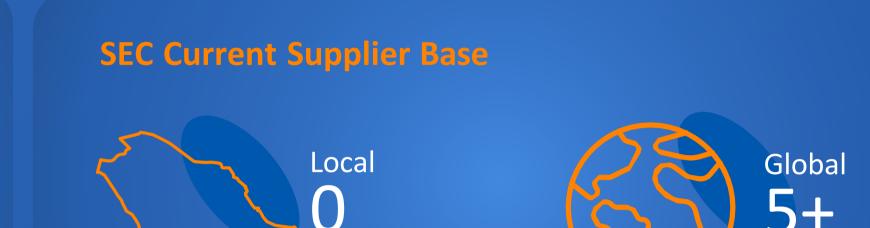
## **EHV Power Transformers**

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change



### **Localization Opportunity Areas**





Sourcing







**Design & Engineering** 

- Silicon steel
- Relays

## 曲

- Manufacturing
- Core manufacturing
- Winding of Cu/ Al conductors
- Insulation wrapping
- Coil drying
- Tank fabrication etc.

#### Assembly & Testing

- Assemble transformer tank with core and windings
- Fill insulation oil
- Connect bushings, tap changers and other accessories.
- Conduct required tests.

## **EHV Power Transformers**

Included in Mandatory List

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change

### **SEC Current Supplier Base**





### **Localization Opportunity Areas**





Sourcing









**Design & Engineering** 

- Silicon steel
- Relays

#### Manufacturing

- Core manufacturing,
- Winding of Cu/ Al conductors
- Insulation wrapping
- Coil drying
- Tank fabrication etc.

#### **Assembly & Testing**

- Assemble transformer tank with core and windings
- Fill insulation oil
- Connect bushings, tap changers and other accessories.
- Conduct required tests.

## **Distribution Transformers**

Included in Mandatory List

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change

### **SEC Current Supplier Base**





### **Localization Opportunity Areas**







Sourcing

- Silicon steel
- Relays



#### Manufacturing

- Create windings from aluminum wire / foil
- Fabricate the tank
- Surface treatment for corrosion



#### **Assembly & Testing**

- Assemble the core
- Fill tank with transformer oil
- Attach bushings, tap changers & other components
- Conduct required type tests.



### Extra High Voltage and High Voltage Gas Insulated Switchgear

# Included in Mandatory List



\* Demand numbers provided here are estimated and subject to change



### **Localization Opportunity Areas**











**Design & Engineering** 

Sourcing

Manufacturing

- Fabrication of the metallic enclosure
- Copper processing, Cast resin processing
- Surface treatment
- Manufacture SF6 circuit breakers

Assembly & Testing

- Assemble components and wiring
- Fill SF6 in the enclosure.
- Conduct required tests

## **Protection Panels**

Included in Mandatory List

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change

#### **SEC Current Supplier Base**





### **Localization Opportunity Areas**











**Design & Engineering** 

Sourcing

#### Manufacturing

- Fabricate enclosure
- Process busbars
- Surface treatment of metallic parts
- Other components of the control panel, specific to application

#### **Assembly & Testing**

- Assemble components, and wiring
- Perform quality tests to ensure safety and performance standards are met

### Medium Voltage Air Insulated / Gas Insulated Switchgear

# Included in Mandatory List





## **Localization Opportunity Areas**











**Design & Engineering** 

Sourcing

#### Manufacturing

- Manufacture busbar
- Fabricate the enclosures,
- Mold / cast insulation components
- Perform surface treatment for corrosion etc.

#### Assembly & Testing

- Assemble switchgear by integrating busbar, circuit breakers, disconnectors, control units within the enclosure.
- Conduct required tests.

# Capacitor Bank

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change

### **SEC Current Supplier Base**





### **Localization Opportunity Areas**











**Design & Engineering** 

Sourcing

Manufacturing

- Assemble the capacitor unit (Plates and Film)
- Impregnate the dielectric film
- Fabricate the enclosure for the components

Assembly & Testing

- Integrate the capacitors, reactors, circuit breakers, switches, and other components within the enclosure and
- Perform required tests

## **Unit Substation**

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change

### **SEC Current Supplier Base**





### **Localization Opportunity Areas**











**Design & Engineering** 

Sourcing

#### Manufacturing

- Fabricate the enclosure, transformer assembly, and assembly.
- switchgear
- Treat the surface
- Integrate a cooling system as required.

#### **Assembly & Testing**

 Assemble and perform quality assurance tests to ensure all performance and safety standards are met.

# Low Voltage Power Cables

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change

### **SEC Current Supplier Base**





### **Localization Opportunity Areas**











**Design & Engineering** 

Sourcing

Manufacturing

- Extrude insulation over stranded conductors
- Apply tapes and fillers if required
- Complete with sheathing and surface treatment.

 Assemble and perform quality assurance tests to ensure all performance and safety standards are met.

**Assembly & Testing** 

# Medium Voltage Power Cables

Included in Mandatory List

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change

### **SEC Current Supplier Base**





## **Localization Opportunity Areas**











**Design & Engineering** 

Sourcing

#### Manufacturing

- Extrude insulation over stranded conductors
- Apply semi conductive screens
- Add tapes and fillers if required
- Complete with sheathing and surface treatment.

#### **Assembly & Testing**

 Assemble and perform quality assurance tests to ensure all performance and safety standards are met.

# High Voltage Power Cables

Included in Mandatory List

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change

### **SEC Current Supplier Base**





## **Localization Opportunity Areas**











**Design & Engineering** 

Sourcing

#### Manufacturing

- Extrude insulation over stranded conductors
- Apply semi conductive screens
- Add tapes and fillers if required
- Complete with sheathing and surface treatment.

## Assembly & Testing

 Assemble and perform quality assurance tests to ensure all performance and safety standards are met.

# Extra High Voltage Power Cables

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change







### **Localization Opportunity Areas**











**Design & Engineering** 

Sourcing

Manufacturing

- Strand Copper Conductors
- Extrude semi-conductive layers
- Apply metallic screen and armor
- Extrude outer sheath

**Assembly & Testing** 

 Assemble and perform quality assurance tests to ensure all performance and safety standards are met.

# Ring Main Unit

Included in Mandatory List

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change

### **SEC Current Supplier Base**





### **Localization Opportunity Areas**











After Sales Services

**Design & Engineering** 

Sourcing

Manufacturing

- Fabricate the Enclosures
- Manufacture Cu/ Al busbar
- Mold/ cast insulation components etc.

Assembly & Testing

- Assemble the RMU by integrating the busbars, circuit breakers, disconnectors, earthing switches etc.
- Fill enclosure with SF6 gas.
- Conduct required tests.

# Conductors (Transmission)

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change







### **Localization Opportunity Areas**













**Design & Engineering** 

Sourcing

#### Manufacturing

- Aluminum and steel wire drawing
- Stranding of wires
- Heat treatment
- Cladding as required e.g., copper on steel
- Application of protective coatings

#### **Assembly & Testing**

- Combine stranded wires into the final conductor arrangement
- Apply protective coating
- Conduct tests to ensure standards are met

# Conductors (Distribution)

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change



## **Localization Opportunity Areas**











**Design & Engineering** 

Sourcing

#### Manufacturing

- Aluminium, Steel and Copper wire drawing
- Stranding for ACSR/AW conductors
- Application of protective coatings to enhance durability
- Heat treatment as required

#### **Assembly & Testing**

- Combine stranded wires into the final conductor arrangement
- Apply protective coating
- Conduct tests to ensure standards are met

# Optical Fiber Ground Wire (OPGW)







\* Demand numbers provided here are estimated and subject to change

### **SEC Current Supplier Base**





### **Localization Opportunity Areas**



**Design & Engineering** 



Sourcing

Galvanized steel



Manufacturing

- Process Aluminium and stainless steel for the outer layers and structural parts
- Fabricate the optical wires.



**Assembly & Testing** 

- Assemble the optical fibers and the metallic wires
- Add additional insulation and protection (e.g., PBT).
- Conduct optical, mechanical and electrical tests to ensure required standards are met.



# Insulators (Distribution)

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change

## SEC Current Supplier Base





## **Localization Opportunity Areas**







#### Sourcing

 Porcelain / Composite materials (Silicone rubber / EPDM etc.)



#### Manufacturing

- Form and shape insulator body (porcelain)
- Extrude / mold polymeric housings around fiberglass rods (polymer).
- Fix fasteners & other components before welding together different parts into tower sections.



#### **Assembly & Testing**

- Assemble metal end fittings to the insulator body.
- Conduct electric, mechanical, and environmental tests to ensure performance standards are met.



# Insulators (Transmission)

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change

### SEC Current Supplier Base





## **Localization Opportunity Areas**







#### Sourcing

 Porcelain / Composite materials (Silicone rubber / EPDM etc.) / Glass



#### Manufacturing

- Form the insulator body.
- For porcelain type, dry glaze, and fire in kilns.
- For glass type, anneal, and temper.
- For composite type, pultrude fiberglass rods, mold silicone rubber, and bond components.



#### **Assembly & Testing**

- Assemble metal end fittings and fasteners to the insulator body.
- Conduct tests to ensure performance standards are met.



## Towers

Included in **Mandatory List** 

Forecasted SEC Demand (2024 - 2030)\*





\* Demand numbers provided here are estimated and subject to change

### **SEC Current Supplier Base**





### **Localization Opportunity Areas**





Sourcing







**Design & Engineering** 

- Steel angles
- Steel plates



- Manufacturing
- Fabricate steel components for the tower structure
- Perform welding, joint preparation, surface treatment, etc.

#### **Assembly & Testing**

- Assemble the tower sections and joints
- Perform tests to ensure performance standards are met.

# Joints and Termination (Distribution)







\* Demand numbers provided here are estimated and subject to change

### **SEC Current Supplier Base**





### **Localization Opportunity Areas**





Sourcing









#### **Design & Engineering**

- Silicon rubber
- EPDM rubber

#### Manufacturing

- Mold and process the EPDM / Silicon rubber to create the body
- Fabricate the metallic lugs, connectors, mesh and insulating plugs.

#### Assembly & Testing

- Assemble the components to create joint / termination / elbow
- Conduct quality assurance tests to ensure performance standards are met.

# Joints and Termination (Transmission)







\* Demand numbers provided here are estimated and subject to change

### **SEC Current Supplier Base**





### **Localization Opportunity Areas**





Sourcing







#### **Design & Engineering**

- Silicon rubber
- EPDM rubber

### Manufacturing

- Mold and process the EPDM / Silicon rubber to create the body
- Fabricate the metallic lugs, connectors, mesh and insulating plugs.

#### **Assembly & Testing**

- Assemble the components to create joint / termination / elbow
- Conduct quality assurance tests to ensure performance standards are met.