Ohio Valley Electric Corporation – Indiana-Kentucky Electric Corporation
Approved Contractors and Major Equipment Vendors

Since its inception in the 1950's, Ohio Valley Electric Corporation (OVEC) and its wholly-owned subsidiary, Indiana-Kentucky Electric Corporation (IKEC, both companies together referred to collectively as OVEC), has contracted with American Electric Power Service Corporation (AEP) to perform certain engineering services, including transmission planning, on OVEC's behalf. Because of this close relationship, OVEC follows the AEP recommendations for Approved Contractors and Major Equipment Vendors.

On December 1, 2018, OVEC was integrated into the PJM RTO as a Transmission Owning member. As such, OVEC also complies with all PJM Interconnection requirements.

For additional information on OVEC's Approved Contractors and Major Equipment Vendors, contact:

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The remainder of this document contains the AEP Interconnection Requirements.

Transmission Engineering Services

Approved Contractors and Major-Equipment Vendors

Effective Date: 6/24/2022

Rev. 5

Supersedes Revision 4 of this document

Description: List of currently approved contractors and major-equipment vendors for use by all AEP affiliates.

Note: Printed copies of this document are uncontrolled and may be obsolete. This document has been prepared by, and is the property of, American Electric Power Company, Inc.

Document Control

Implementation

Effective Date	6/24/2022
Review Frequency	Annual

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1.0 Purpose

This document provides a list of AEP Transmission's currently approved contractors and major-equipment vendors that provide materials and services. The list is intended for use by Interconnection Customers exercising an option to build transmission facilities as part of an Interconnection project.

> **Note:** AEP Transmission's contractor and vendor relationships can change at any time. Once the Interconnection Customer has entered into an interconnection agreement, the Interconnection Customer should contact AEP Transmission to review the most up-to-date list.

2.0 Requirements for Transmission-Connected Facilities to be Owned and Operated by AEP

Approved contractors and vendors are subject to change. Additional AEP equipment specifications will apply based on the nature and location of the project. Please consult AEP for any updates prior to material procurement. Detailed standards, specifications, warranty terms, and related terms and conditions are available upon request subject to appropriate agreements. Upon request from an Interconnection Customer, AEP will evaluate candidate contractors and vendors not listed below.

3.0 Approved Option to Build Contractors

3.1 Engineer, Procure and Construct (EPC) Contractors

Contractor Name
Beta Engineering
Black and Veatch Corp.
Burns and McDonnell
Dashiell
Electrical Consultants Inc. - EPC Services Company
Kiewit Corp.
Mesa and Associates, Inc.[1]
Mortenson

[1] Diverse Supplier

MYR Energy Services
RCM Technologies
Quanta EPC

3.2 Station and Transmission Line Engineering and Design Contractors

Contractor Name
Beta Engineering, LLC
Black and Veatch Corp.
Burns and McDonnell Engineering Company, Inc.
Commonwealth Associates, Inc.
Dashiell Corp.
DiGioia Gray
Electrical Consultants, Inc.
HDR Engineering, Inc.
Kiewit Engineering Group, Inc.
Mesa and Associates, Inc. [2]
Power Engineers, Inc.
RCM Technologies (USA), Inc.
Sargent and Lundy, LLC
TRC Engineers, Inc.

3.3 Substation Construction Contractors

Contractor Name
Bruce & Merrilees
Cianbro
Great Southwestern Construction, Inc.
Irby Construction Company
Kent Power, Inc.
The L. E. Myers Company
Michels Corp.

[2] Diverse Supplier

Contractor Name
MJ Electric, LLC
New River Electrical Corp.
Newkirk Electric Associates, Inc.
North Houston Pole Line, L.P.
PAR Electrical Contractors, Inc.
Service Electric Company
Thompson Electric, Inc.
Vaughn Industries, LLC

3.4 Transmission Line Construction Contractors

Contractor Name
Cianbro
Great Southwestern Construction, Inc.
Irby Construction Company
Kent Power, Inc.
Michels Corporation
MJ Electric, LLC
New River Electrical Corp.
North Houston Pole Line, L.P.
PAR Electrical Contractors, Inc.
Service Electric Company
Vaughn Industries, LLC

3.5 Grading/Site Preparation/Access Road/Right of Way (ROW) Clearing Contractors

Contractor Name
BC Excavating, Ltd.
The Beaver Excavating Company
Bobcat Heavy Civil, LLC
Cecil Goodwin, Inc. d/b/a Good-One Excavating

Contractor Name
Cobalt Civil LLC
The Great Lakes Construction Company
Independence Excavating, Inc.
Johnson Construction
K&D Construction[3]
Kokosing Industrial, Inc.
Kwest Group, LLC
Newpark Mats & Integrated Services
Zemba Brothers

3.6 Protection and Control (P&C) Field Testing and Commissioning Contractors

Indiana, Kentucky, Michigan, Ohio, Tennessee, Virginia, West Virginia:

Contractor Name
American Electrical Testing
High Voltage Maintenance
Point on Wave
PowerGrid Engineering
TRC Companies

Arkansas, Louisiana, Oklahoma, Texas:

Contractor Name
National Field Services
Oklahoma Electric Supply Company
Point on Wave
Tidal Power Services
TRC Companies

[3] Diverse Supplier

All States: Approved EPC P&C Contracting Companies:

Contractor Name
Burns and McDonnell, Inc.
Dashiell Corporation
EPC Services

Note: Interconnection Customer must use fully vetted P&C leads and assistants. All contractor and subcontractor personnel working on the project testing and commissioning activities shall be preapproved by AEP Transmission. The contractor and/or subcontractor doing the testing and commissioning shall engage AEP Transmission's Transmission Field Services (TFS) P&C team no less than 90 days before arrival on-site to assess the abilities and seek approval for the individuals assigned to the project. AEP Transmission will meet personally with all the testing and commissioning contractor's and subcontractor's employees who will be working on the project. AEP Transmission reserves the right to approve or reject individual contractor and subcontractor employees. Interconnection Customers should work with the approved contractor to ensure their staff has met this requirement.

3.7 Station Testing and Commissioning Contractors

Transformers:

Contractor Name
Delta Star
GE Grid Solutions
MVA Services
North American Substation Services
OTC Services, Inc.
RMS Energy
Siemens Energy, Inc.
SPX Transformer
Reinhausen

Circuit Breakers:

Contractor Name
Electric Power Systems International, Inc.
Hitachi
North American Substation Services
RMS Energy
Siemens Energy, Inc.
Tidal Power Services

4.0 Approved Vendors for Major Equipment

4.1 Substation Equipment

4.1.1 Switches

4.1.1.1 Center Break: 15kV–230kV

Vendor	Approved Factory Location(s)
Hubbell Power Systems, Inc.	Leeds, AL
Pascor Atlantic Corp.	Bland, VA
Royal Switchgear Manufacturing Company Inc.	Bessemer, AL

4.1.1.2 Center Break: 345kV

Vendor	Approved Factory Location(s)
GE Grid Solutions	Noventa di Piave, Italy
Pascor Atlantic Corp.	Bland, VA
Royal Switchgear	Bessemer, AL
Southern States LLC[4]	Hampton, GA

4.1.1.3 Double-End Break: 230kV–500kV

Vendor	Approved Factory Location(s)
GE Grid Solutions	Noventa di Piave, Italy

[4] Diverse Supplier

Vendor	Approved Factory Location(s)
Pascor Atlantic Corp.	Bland, VA
Royal Switchgear Manufacturing Company Inc.	Bessemer, AL
Southern States LLC[5]	Hampton, GA

4.1.1.4 Mega-Switch (Phase-to-Phase Clearance): 138kV–765kV

Vendor	Approved Factory Location(s)
GE Grid Solutions	Noventa di Piave, Italy
Hubbell	Leeds, AL
Southern Electrical Equipment Company	Charlotte, NC
Southern States LLC[6]	Hampton, GA

4.1.1.5 Semi-Pantograph: 345kV–765kV

Vendor	Approved Factory Location(s)
GE Grid Solutions	Noventa di Piave, Italy

4.1.1.6 Vertical Break: 69kV–161kV

Vendor	Approved Factory Location(s)
Hubbell Power Systems, Inc.	Leeds, AL
Pascor Atlantic Corp.	Bland, VA
Royal Switchgear Manufacturing Company Inc.	Bessemer, AL
Southern States LLC[7]	Hampton, GA

4.1.1.7 Vertical Break: 765kV

Vendor	Approved Factory Location(s)
GE Grid Solutions	Noventa di Piave, Italy
Pascor Atlantic Corp.	Bland, VA

[5] Diverse Supplier
[6] Diverse Supplier
[7] Diverse Supplier

4.1.2 Arresters

Vendor	Approved Factory Location(s)	Comment
Eaton	Olean, NY	4kV-230kV
Hitachi-ABB Power Grid	Mt. Pleasant, PA Ludvika, Sweden	All kV
Siemens Industry, Inc.	Berlin, Germany	All kV

4.1.3 Capacitor Banks

Vendor	Approved Factory Location(s)
Eaton	Greenwood, SC
GE Grid Solutions, LLC	Clearwater, FL

4.1.4 CCVTs

Vendor	Approved Factory Location(s)
GE Grid Solutions	Waynesboro, GA
Pfiffner Instrument Transformers, LTD	Hirschthal, Switzerland
Trench Limited	Pickering, ON, Canada

4.1.5 Circuit Breakers

4.1.5.1 Circuit Breakers: 69kV, 40kA

Vendor	Approved Factory Location(s)
GE Grid Solutions	Charleroi, PA
Mitsubishi Electric Power Products, Inc.	Warrendale, PA
Siemens Energy, Inc.	Jackson, MS

4.1.5.2 Circuit Breakers: 138kV, 40kA

Vendor	Approved Factory Location(s)
GE Grid Solutions	Charleroi, PA
Hitachi-ABB Power Grids	Mount Pleasant, PA
Mitsubishi Electric Power Products, Inc.	Warrendale, PA
Siemens Energy, Inc.	Jackson, MS

4.1.5.3 Circuit Breakers: 138kV, 63 kA

Vendor	Approved Factory Location(s)
GE Grid Solutions	Charleroi, PA
Mitsubishi Electric Power Products, Inc.	Warrendale, PA
Siemens Energy, Inc.	Jackson, MS

4.1.5.4 Circuit Breakers: 138kV, 80kA

Vendor	Approved Factory Location(s)
Hitachi-ABB Power Grids	Mount Pleasant, PA
Mitsubishi Electric Power Products, Inc.	Warrendale, PA
Siemens Energy, Inc.	Jackson, MS

4.1.5.5 Circuit Breakers: 170kV, 40 kA

Vendor	Approved Factory Location(s)
GE Grid Solutions	Charleroi, PA
Hitachi-ABB Power Grids	Mount Pleasant, PA
Mitsubishi Electric Power Products, Inc.	Warrendale, PA
Siemens Energy, Inc.	Jackson, MS

4.1.5.6 Circuit Breakers: 170kV, 63 kA

Vendor	Approved Factory Location(s)
GE Grid Solutions	Charleroi, PA
Mitsubishi Electric Power Products, Inc.	Warrendale, PA
Siemens Energy, Inc.	Jackson, MS

4.1.5.7 Circuit Breakers: 170 kV, 80kA

Vendor	Approved Factory Location(s)
Hitachi-ABB Power Grids	Mount Pleasant, PA
Mitsubishi Electric Power Products, Inc.	Warrendale, PA
Siemens Energy, Inc.	Jackson, MS

4.1.5.8 Circuit Breakers: 230kV 50kA

Vendor	Approved Factory Location(s)
GE Grid Solutions	Charleroi, PA
Siemens Energy, Inc.	Jackson, MS

4.1.5.9 Circuit Breakers: 230kV 80kA

Vendor	Approved Factory Location(s)
Mitsubishi Electric Power Products, Inc.	Warrendale, PA
Siemens Energy, Inc.	Jackson, MS

4.1.5.10 Circuit Breakers: 345kV 50/63kA

Vendor	Approved Factory Location(s)
GE Grid Solutions	Charleroi, PA
Mitsubishi Electric Power Products, Inc.	Warrendale, PA
Siemens Energy, Inc.	Jackson, MS

4.1.5.11 Circuit Breakers: 500kV

Vendor	Approved Factory Location(s)
GE Grid Solutions	Charleroi, PA
Mitsubishi Electric Power Products, Inc.	Warrendale, PA
Siemens Energy, Inc.	Jackson, MS

4.1.5.12 Circuit Breakers: 765kV

Vendor	Approved Factory Location(s)
HICO America Sales and Technology Inc.	Changwon, South Korea
Hitachi HVB	Suwanee, GA Hitachi City, Japan
Mitsubishi Electric Power Products, Inc.	Warrendale, PA Itami, Japan

4.1.5.13 Circuit Breakers: 765kV Reactor

Vendor	Approved Factory Location(s)
GE Grid Solutions	Charleroi, PA

4.1.6 Circuit Switchers

4.1.6.1 Capacitor Switching: 15kV

Vendor	Approved Factory Location(s)
Mitsubishi Electric Power Products, Inc.	Warrendale, PA
Siemens Energy, Inc.	Queretaro, Mexico Wendell, North Carolina
Southern States LLC[8]	Hampton, GA

4.1.6.2 Capacitor Switching: 38kV

Vendor	Approved Factory Location(s)
Mitsubishi Electric Power Products, Inc.	Warrendale, PA
Siemens Energy, Inc.	Queretaro, Mexico
Southern States LLC[9]	Hampton, GA

4.1.6.3 Capacitor Switching: 69kV

Vendor	Approved Factory Location(s)
Hitachi T&D Solutions, Inc.	Suwanee, GA
Southern States LLC[10]	Hampton, GA

4.1.6.4 Capacitor Switching: 145kV

Vendor	Approved Factory Location(s)
Hitachi T&D Solutions, Inc.	Suwanee, GA

4.1.6.5 Capacitor Switching: 161kV

Vendor	Approved Factory Location(s)
Southern States[11]	Hampton, GA

[8] Diverse Supplier
[9] Diverse Supplier
[10] Diverse Supplier
[11] Diverse Supplier

4.1.6.6 Capacitor Switching: 345kV

Vendor	Approved Factory Location(s)
GE Grid Solutions	Charleroi, PA

4.1.6.7 Transformer Switching: 69kV–138kV

Vendor	Approved Factory Location(s)
GE Grid Solutions	Charleroi, PA
Hitachi-ABB Power Grids	Mount Pleasant, PA
Mitsubishi Electric Power Products, Inc.	Warrendale, PA

4.1.7 GIS (Gas-Insulated Switchgear)

Vendor	Approved Factory Location(s)
HICO America Sales & Technology, Inc.	Memphis, TN
Hitachi-ABB Power Grids	Not specific
Mitsubishi Electric Power Products, Inc.	Not specific

4.1.8 Line Traps

Vendor	Approved Factory Location(s)
GE Grid Solutions LLC	Itajuba, MG, Brazil
Trench Limited	Scarborough, ON, Canada

4.1.9 Instrument Transformers

4.1.9.1 Instrument Transformers: 4kV-46kV

Vendor	Approved Factory Location(s)
Arteche	Tepeil Del Rio, Mexico
GE Grid Solutions	Clearwater, FL
Hitachi-ABB Power Grids	Pinetops, NC

4.1.9.2 Instrument Transformers: 69kV-345kV

Vendor	Approved Factory Location(s)
GE Grid Solutions	Waynesboro, GA
Hitachi-ABB Power Grids	Crystal Springs, MS

4.1.10 Power Transformers

4.1.10.1 Small: 69kV and Below Primary Voltage

Vendor	Approved Factory Location(s)
Delta-Star Inc.	Lynchburg, VA San Carlos, CA
GE Prolec Transformers Inc.	Monterrey, Mexico
Hitachi-ABB Power Grids	Crystal Springs, MS
Niagara Transformer Corp.	Buffalo, NY

4.1.10.2 Medium: 138kV Primary Voltage, 50MVA and Below

Vendor	Approved Factory Location(s)
Delta-Star Inc.	Lynchburg, VA San Carlos, CA
GE Prolec Transformers Inc.	Monterrey, Mexico
Hitachi-ABB Power Grids	Crystal Springs, MS South Boston, VA

4.1.10.3 Auto Transformers: 138kV–161kV Primary Voltage, 51MVA and Above

Vendor	Approved Factory Location(s)
GE Prolec Transformers Inc.	Monterrey, Mexico
HICO America Sales & Technology Inc.	Memphis, TN
Hitachi-ABB Power Grids	South Boston, VA
Hyundai	Montgomery, AL

4.1.10.4 Auto Transformers: 230kV–345kV Primary Voltage

Vendor	Approved Factory Location(s)
GE Prolec Transformers Inc.	Monterrey, Mexico
HICO America Sales & Technology Inc.	Changwon, South Korea
Royal SMIT Transformers	Nijmegen, Netherlands

4.1.10.5 Auto Transformers: 500kV–765kV Primary Voltage

Vendor	Approved Factory Location(s)
HICO America Sales & Technology Inc.	Changwon, South Korea
Hitachi-ABB Power Grids	Ludvika, Sweden Cordoba, Spain
Mitsubishi Electric Power Products, Inc.	Ako, Japan
Royal SMIT Transformers	Nijmegen, Netherlands
Siemens Energy, Inc.	Weiz, Austria

4.1.11 Reactors

4.1.11.1 Air Core Reactors

Vendor	Approved Factory Location(s)
Coil Innovations	Eferding, Austria
GE Grid Solutions	Itajuba, MG, Brazil
Trench	Scarborough, ON, Canada

4.1.11.2 Oil-Filled Reactors: 230kV–345kV

Vendor	Approved Factory Location(s)
HICO America Sales & Technology, Inc.	Changwon, South Korea
Hitachi-ABB Power Grids	Ludvika, Sweden
Siemens Energy, Inc.	Weiz, Austria

4.1.11.3 Oil-Filled Reactors: 500kV–765kV

Vendor	Approved Factory Location(s)
HICO America Sales & Technology, Inc.	Changwon, South Korea
Hitachi-ABB Power Grids	Ludvika, Sweden
Royal SMIT Transformers	Nijmegen, Netherlands
Siemens Energy, Inc.	Weiz, Austria

4.2 Protection and Control Equipment

4.2.1 Relay Panels

Vendor	Approved Factory Location(s)
AZZ Enclosure Systems LLC	Millington, MD

Vendor	Approved Factory Location(s)
Crown Technical Systems[12]	Fontana, CA
Systems Control	Iron Mountain, MI

4.3 Other Substation Equipment

4.3.1 Control Buildings

4.3.1.1 Site-Built

Vendor	Approved Factory Location(s)
Parkline, Inc.	Eleanor, WV

4.3.1.2 Drop-In Control Modules

Vendor	Approved Factory Location(s)
AZZ Enclosure Systems LLC	Millington, MD
Crown Technical Systems[13]	Fontana, CA
Systems Control	Iron Mountain, MI

4.3.2 Insulators

4.3.2.1 Polymer: 4kV–161kV

Vendor	Approved Factory Location(s)
Lapp Insulator	Le Roy, NY
Maclean Power Systems	Not specific
NGK-Locke Insulator	Baltimore, MD

4.3.2.2 Porcelain: 4kV–161kV

Vendor	Approved Factory Location(s)
Gamma-Cerisol	Europe, South America
Hubbell	Suzhou, China
Lapp Insulator	Le Roy, NY
NGK-Locke Insulator	Baltimore, MD
SEVES PPC	Europe, Thailand

[12] Diverse Supplier
[13] Diverse Supplier

4.3.2.3 Porcelain: 230kV–765kV

Vendor	Approved Factory Location(s)
SEVES PPC	Europe, Thailand

4.3.3 Steel, Anchor Bolts, and Anchor Cages

Vendor	Approved Factory Location(s)	Comments
Advance Industrial Manufacturing, Inc.	Grove City, OH	
Advanced Steel & Crane	Tulsa, OK	
DIS-TRAN	Pineville, LA	Prefabricated steel, equipment, and bus assemblies only
FABSCO	Calumet Park, IL	Anchor bolts only, no cages
Sabre/FWT	Fort Worth, TX	
TAPP[14]	Houston, TX	
Valmont Industries, Inc.	Tulsa, OK Valley, NE Monterrey, Mexico Columbus, NE Hazleton, PA Jasper, TN	
V&S Schuler	Canton, OH Muskogee, OK	

4.4 Transmission Line Equipment

4.4.1 Conductor: Bare Aluminum

Vendor	Approved Factory Location(s)
General Cable	Williamsport, PA
Nehring	Dekalb, IL
Southwire	Carrolton, GA Hawesville, KY

[14] Diverse Supplier

4.4.2 Conductor: Specialty

Vendor	Approved Factory Location(s)
3M	St. Paul, MN
CTC	Irvine, CA

4.4.3 Conductor Hardware

4.4.3.1 Bolted Clamp

Vendor	Approved Factory Location(s)
Hubbell Power Systems	Leeds, AL
Lindsey	Azusa, CA
Maclean Power Systems	Pelham, AL
Salvi	Milan, Italy

4.4.3.2 Compression

Vendor	Approved Factory Location(s)
AFL Global	Duncan, SC
Burndy	Manchester, NH
DMC Power	Gardenia, CA
Hubbell Power Systems	Leeds, AL

4.4.3.3 Spacer and Armor Rod

Vendor	Approved Factory Location(s)
AFL Global	Duncan, SC
Hubbell Power Systems	Leeds, AL
MacLean Power Systems	Pelham, AL
Preformed Line Products	Rogers, AR

4.4.4 Ground Wire

Vendor	Approved Factory Location(s)
AFL	Duncan, SC
General Cable	Malvern, AR
Southwire	Carrolton, GA

4.4.5 Insulators

4.4.5.1 Polymer

Vendor	Approved Factory Location(s)
Hubbell Power Systems	Aiken, SC
Lapp	LeRoy, NY
Maclean Power Systems	York, SC
NGK-Locke	Virginia Beach, VA

4.4.5.2 Porcelain Disc

Vendor	Approved Factory Location(s)
Lapp	LeRoy, NY
NGK-Locke	Baltimore, MD

4.4.5.3 Toughened Glass

Vendor	Approved Factory Location(s)
Global Group Co., LTD.	Chendgu City, Sichuan Province, China
SEVES PPC	Shanghai, China

4.4.6 Structures

4.4.6.1 Latticed Steel

Vendor	Approved Factory Location(s)
Brametal	Linhares, ES, Brazil
Falcon Steel	Kaufman, TX
Locweld	Candiac, QC, Canada
MITAS	Ankara, Turkey
SAE	Monterrey, Mexico

4.4.6.2 Tubular Steel

Vendor	Approved Factory Location(s)
Sabre/FWT	Alvarado, TX Fort Worth, TX Hicksville, OH Sioux City, IA
Valmont Industries	Columbus, NE Jasper, TN Monterrey, Mexico Tulsa, OK Valley, NE
TAPP[15]	Guadalajara, Mexico Monclova, Mexico

4.4.6.3 Wood Poles

Vendor	Approved Factory Location(s)
McFarland Cascade/ Stella-Jones Corporation	Not specific

[15] Diverse Supplier