



## **Policy**

# **Wholesale Customer Connections To The AmerenIL Electric Distribution Systems (69 kV, 34 kV, 12 kV and 4 kV)**

## **FACILITY REQUIREMENTS**

Rev No.	Date	Revisions
0	12/18/09	Original Issue

## **Scope**

This document provides guidance for wholesale connections to AmerenIL electric systems at the distribution level (69 kV, 34.5 kV, 12 kV and 4 kV). The guide is limited to the facilities and the types of protection required for making the connection.

## **Disconnect Switches**

Three line disconnect switches are required for the establishment of a new tap on an existing high voltage distribution 69kV or 34kV circuit. Two three-phase gang-operated disconnect switches will be located in the main line (shown as #101 and #102 on the diagram), and one switch (Customer Tap Switch) will be located on the tap owned by the Customer. The two switches located within the main line are required unless Ameren waives the requirement due to existing switches located in close proximity and the customer realizes the need for maintenance and is willing to accept additional outages and outage duration. On a radial line or feeder that is not designed for loop operation, only one main line switch is required on the downstream side of the tap to facilitate sectionalizing to restore service following an outage or to perform system maintenance.

The Customer Tap Switch is required to be three phase gang-operated and is used to isolate the Customer's facilities from Ameren electrical system. The Customer's Tap Switch will have a means for locking the device in the open position with Ameren padlocks and can typically be operated by either entity. The Customer Tap Switch shall be given its own unique identifying number and placed on the switch structure. The number should be confirmed by Ameren to avoid potential duplication. All identifying maps (system maps, one-lines, line data sheets, etc) shall include this number.

Distribution System Planning is responsible for analyzing the 69 kV and 34 kV switching duties at each location to determine if standard air-break switches can break loop or charging current, and whether or not full load break capability is needed at each location. Because the system can change over time, the switches should be capable of adding full load break capability in the future.

The Customer is responsible for all costs associated with the main line switches. Ameren will own and operate the mainline switches. The purchase, construction and maintenance of the Customer Tap Switch are the Customer's responsibility.

Ameren will maintain exclusive jurisdictional authority over the main line switches and the customer tap switch. Ameren will maintain exclusive functional authority over the main line switches. The customer will maintain functional authority over the customer tap switch. Ameren and the Customer will honor any hold tags or other clearances given to the switch. Jurisdictional Authority shall mean the Party with the sole authority to direct and coordinate operation of the system equipment. Functional Authority shall mean the Party that specifically performs or directs someone else to perform detailed switching operations, provided such Party has secured the necessary authorization from the Party with the Jurisdictional Authority.

The Customer Tap Switch shall normally be located within two spans of the Ameren tap pole. The Customer will extend the line conductor from Ameren's tap pole to the Customer Tap Switch. The Customer will own and maintain the line conductor and intervening poles from the tap pole to the Customer Tap switch. The point of ownership changes at the dead-end clamp at the Ameren Tap Pole. Ameren is responsible to make the connection at the dead-end clamp on Ameren's Tap pole.

The Customer Tap Switch shall be installed at a location accessible to Ameren personnel on a 24 hour basis.

### **Metering**

The metering will be located on the source side of the Customer Tap Switch for connections made to high voltage distribution lines. The metering facilities will be built to Ameren Specifications, and it is preferred that the meter be connected directly to Ameren's high voltage distribution system. At the sole discretion of Ameren, the meter may be located on the secondary side of the customer's transformer. If the meter is located on the secondary side of a distribution transformer, compensation for line and transformer losses shall be incorporated into the energy and demand readings.

The meter and associated instrument transformers shall be provided and owned by Ameren, and the Customer will reimburse Ameren for equipment and installation costs. If the customer desires to install instrument transformers, design and installation of the transformers must be approved by Ameren and meet all Ameren requirements. Ameren will install the meters, perform final wiring connections and verify proper meter installation. All metering equipment will be sealed with Ameren seals, and only Ameren authorized personnel will have access to the metering equipment.

The meter readings will be incorporated into Ameren's present MV90 system or the subsequent replacement system. A cell phone or a land phone line will be needed to retrieve meter billing determinants. If metering is located in a customer substation and a land line is installed to retrieve metering data, the customer shall be responsible for providing a fully surge protected phone line to meet all requirements of the local phone company. Monthly costs for the land phone line shall be the customer's responsibility.

Ameren will be responsible for testing, programming and repairing metering equipment. Ameren will provide reasonable notice to the customer of scheduled meter testing so customer can witness the test.

The metering shall be installed at a location accessible to Ameren personnel on a 24 hour basis.

### **System Protection**

Ameren requires a fault isolating device at new customer connections to ensure the reliability and integrity of the distribution system. For a new connection, the Customer is required to install a protective device at the tap or within 500 feet of the tap.

The type of protection required at the tap is at the discretion of the Customer, subject to the approval of Ameren's System Protection Department.

Connections to an Ameren bulk substation will require a dedicated breaker in all instances. All equipment located within an Ameren substation will be owned and maintained by Ameren. The Customer is responsible for all costs associated with the breaker.

Some examples of situations where the Customer will be required to install a fault isolating device at an existing connection are:

1. The line breaker located at the bulk substation cannot adequately clear a fault on the Customers' line section.
2. The extension to the existing connection will be lengthy or run through woods or other risky terrain likely to cause an interruption to the entire Ameren line.
3. The wholesale Customer's tap has a history of poor performance. Two or more permanent outages during 3-year period caused by events on the Customer's system shall be considered poor performance.

The Customer shall provide lightning protection in terms of a static wire or lightning arresters for any line section which would cause an outage for Ameren facilities. If lightning arresters are used as the primary means of lightning protection, the arrester installation shall meet or exceed Ameren's Distribution Construction Standards for the design and installation of lightning arresters.

### **Load Characteristic**

All equipment installed by the Customer shall have operating characteristics, which enable Ameren to maintain a satisfactory standard of service to both the Wholesale Customer being served and all other customers in the immediate area. In cases of high motors starting current, Customer loads resulting in harmonic distortions or significant loads with wide and/or frequent fluctuations, etc., the Customer shall install at their cost, on their side of Ameren's meter, all corrective equipment necessary to enable Ameren to maintain the integrity of its electrical system. For Customers not voluntarily complying with this requirement, Ameren, where practical, may install corrective equipment on its side of the meter and charge the Customer a lump sum amount for the cost of such equipment and the cost of any subsequent additions to or replacement of such equipment, whenever said future installations occur. Failure of Customer to install such corrective equipment or to pay for that installed by company currently or in the future shall be grounds for the disconnection of electrical service.

All Customer connections should comply with the recommended practices outlined in latest version of IEEE Standard 519 to limit harmonic voltage and current waveform distortion.

The Customer is expected to maintain a power factor in the range of .95 lagging and .95 leading during all periods of operation.

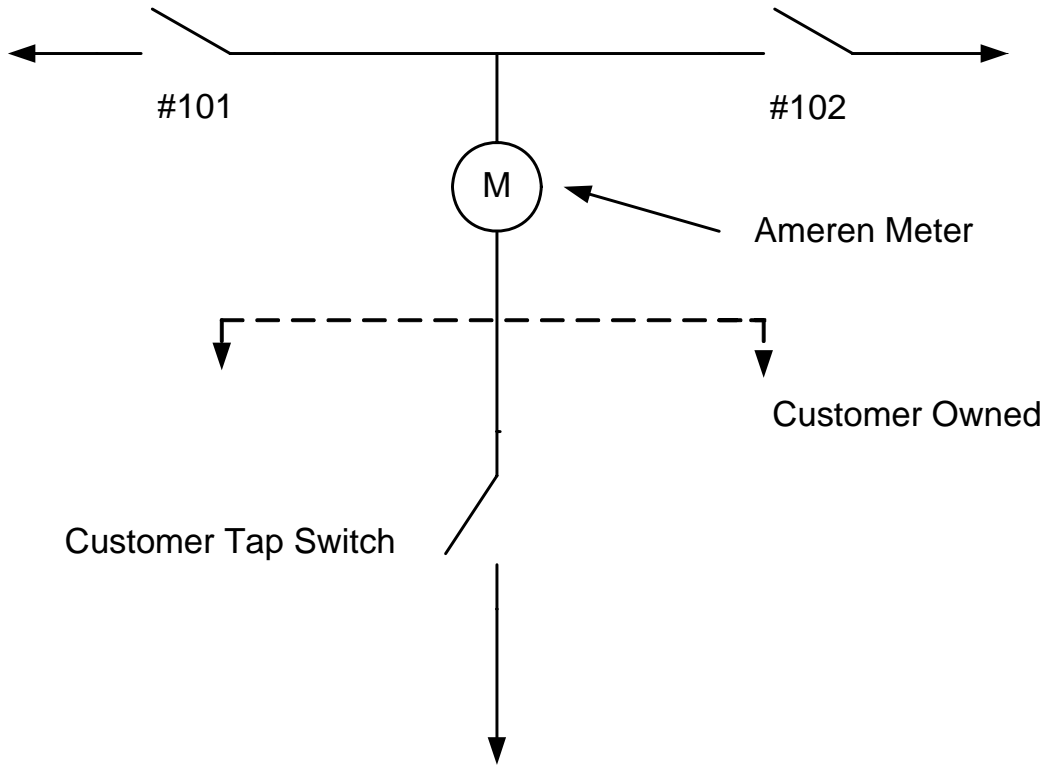
### **Generation**

Delivery points that will have generation facilities operating in parallel with Ameren's system, and located on the Customer side of the delivery point, are subject to additional Ameren requirements for generators. These requirements are to be provided by Ameren to the Customer upon request or as applicable.

### **Future Additions**

The Customer is expected to annually provide Ameren with a 10-year peak load forecast by delivery point. The Customer is also expected to notify Ameren of any load addition plans or generation plans so that the system impact can be evaluated to determine if system reinforcements are needed to serve the load.

# Wholesale Connections



**Issued by:**

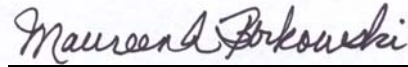
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