



# KyMEA

## Delivery Points and Metering

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ECONOMICS

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# KyMEA Transmission Service Includes 22 Delivery Points

Line No.	Existing Delivery Point Name
1	BARBOURVILLE CITY
2	BARDWELL CITY 4KV
3	BEREA 2
4	BEREA NORTH
5	BENHAM CITY 4KV
6	CORBIN 1 NORTH
7	CORBIN 2 SOUTH
8	FALMOUTH 4KV
9	EAST FRANKFORT (To Myrick Main 1)
10	EAST FRANKFORT (To Myrick Main 2)
11	MADISONV GE 12KV

Line No.	Existing Delivery Point Name
12	MADISONV WEST 12KV
13	MADISONVL EAST 12KV
14	MADISONV HOSPITAL 12KV
15	MADISONV NORTH 12KV
16	MCCOY AVE 12KV
17	PARIS CITY 3 (Vine Street)
18	PARIS CITY 1 (Scott Street)
19	PARIS CITY 2 (Claysville)
20	PARIS CITY 4 (Weaver)
21	PROVIDENCE 4KV
22	PROVIDENCE EAST

# Metering Requirements

- Network Customer is responsible for the installation of all required metering equipment
- Transmission Owner and Network Customer shall review the metering equipment to ensure its conformance with standards or practices
- Meter point must be at point of interconnection (POI). For existing meters located at any other point than the POI, suitable adjustment for losses must be agreed upon between the Transmission Owner and Network Customer
- Meters and instrument transformers must meet metering accuracy standards
- Network Customer's meters will be tested at least biennially by the Network Customer; Transmission Owner will be afforded an opportunity to witness tests
  - Test accuracy requirement of +/- 1%;
  - Adjustments are to be made if as-found test is inaccurate

Source: NITSA, NOA, Facility Interconnection Requirements, and Business Practices documents

# Telecommunication Requirements

- Network Customer is responsible for installation, operation and maintenance of all data acquisition and telecommunication equipment
- Transmission Owner and Network Customer shall review the telecommunication equipment to ensure its conformance with standards or practices
- Metered data must be telemetered to one or more locations designated by Transmission Owner
- The Network Customer must consult with the Balancing Authority regarding the necessary data and telemetry needed for reliability, security, economics, and/or monitoring of system operations

Source: NITSA, NOA, Facility Interconnection Requirements, and Business Practices documents

# Transmission Service – Delivery Point Metering Assessment

Line No.	KyMEA Member	Number of Delivery Points	Transmission or Primary Voltage (kV)	Distribution or Secondary Voltage (kV)	Substation Transformer Ownership
	(a)	(b)	(c)	(d)	(e)
1	BARBOURVILLE	1	69	12	Member
2	BARDWELL	1	69	4	LGE/KU
3	BENHAM	1	69	4	LGE/KU
4	BEREA	2	69	12	Member
5	CORBIN	2	69	12	Member
6	FALMOUTH	1	69	4	LGE/KU
7	FRANKFORT	2	69	13.8	Member
8	MADISONVILLE	6	69	12	LGE/KU
9	PARIS	4	69	4	Member
10	PROVIDENCE	2	69	4	LGE/KU

Line No.	Existing Delivery Point Name	LGE/KU Delivery Point ID	Transmission or Primary Voltage (kV)	Distribution or Secondary Voltage (kV)	Power Transformer Ownership	Metering PT/CT Location	Meter Location	Check Meters?
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1	BARBOURVILLE CITY	9964	69	12	Customer	69kV / meter point	Outdoor cabinet	No
2	BARDWELL CITY 4KV	7581	69	4	LGE/KU	4kV / substation	Outdoor cabinet	No
3	BEREA 2 (Oak Street)	9986	69	12	Customer	69kV / substation	Outdoor cabinet	Yes
4	BEREA NORTH (Rash Road)	9992	69	12	Customer	69kV / substation	Outdoor cabinet	Yes
5	BENHAM CITY 4KV	4932	69	4	LGE/KU	4kV / substation	Outdoor cabinet	No
6	CORBIN 1 NORTH	9899	69	12	Customer	69kV / meter point	Outdoor cabinet	Yes
7	CORBIN 2 SOUTH	9999	69	12	Customer	69kV / substation	Outdoor cabinet	Yes
8	FALMOUTH 4KV	7961	69	4	LGE/KU	4 kV / substation	Outdoor cabinet	No
9	EAST FRANKFORT (To Myrick Main 1)	1362	69	13.8	Customer	12kV / substation	Indoor panel (KU)	Yes
10	EAST FRANKFORT (To Myrick Main 2)	1363	69	13.8	Customer	12kV / substation	Indoor panel (KU)	Yes
11	MADISONV GE 12KV	4431	69	12	LGE/KU	12kV / substation	Outdoor cabinet	Yes
12	MADISONV WEST 12KV	5301	69	12	LGE/KU	12kV / substation	Outdoor cabinet	Yes
13	MADISONV EAST 12KV	6201	69	12	LGE/KU	12kV / substation	Outdoor cabinet	Yes
14	MADISONV HOSPITAL 12KV	7551	69	12	LGE/KU	12kV / substation	Outdoor cabinet	Yes
15	MADISONV NORTH 12KV	8871	69	12	LGE/KU	12kV / substation	Outdoor cabinet	Yes
16	MCCOY AVE 12KV	8161	69	12	LGE/KU	12kV / substation	Outdoor cabinet	Yes
17	PARIS CITY 3 (Vine Street)	9875	69	4	Customer	4kV / substation	Outdoor meter base	Yes
18	PARIS CITY 1 (Scott Street)	9976	69	4	Customer	4kV / substation	Indoor cabinet	Yes
19	PARIS CITY 2 (Claysville)	9977	69	4	Customer	4kV / substation	Outdoor meter base	Yes
20	PARIS CITY 4 (Weaver)	proposed	69	4	Customer	69kV / substation	Outdoor cabinet	Yes
21	PROVIDENCE 4KV	4531	69	4	LGE/KU	4kV / substation	Outdoor meter base	No
22	PROVIDENCE EAST	6161	69	4	LGE/KU	4kV / substation	Outdoor meter base	No

# Paris Example

- NITS service begins May 1, 2017
- Paris has three existing 69kV delivery points
  - Meters installed at 4kV
  - PTs/CTs owned by Paris (2) and KU (1)
- One new delivery point
  - Meters to be installed at 69kV
- AMP to provide meters for each delivery point and generators
- LGE/KU radio equipment to be installed at each meter point for meter signal to LGE/KU (to be owned/maintained by LGE/KU)
- AMP cellular modem equipment to be installed at each meter point for meter signal to AMP

Existing delivery point arrangements are far from identical. KyMEA will need to work with Members and LGE/KU to develop a specific metering and telecommunication plan for Member delivery points.

# Direct Assignment Facilities



# Direct Assignment Facilities

- The Municipals' existing KU wholesale power supply agreements include a Direct Assignment Charge for distribution facilities including substations, capacitors, and metering equipment owned by KU and solely used to serve the individual municipal customer.
- Direct Assignment Facilities are not included in rates for bulk transmission under the LG&E/KU OATT. Instead, costs for Direct Assignment Facilities are recovered through separate cost-based charges (similar to the Municipals' existing wholesale power supply agreement)
  - 1.11 Direct Assignment Facilities – Facilities or portions of facilities that are constructed by the Transmission Owner for the sole use/benefit of a particular Transmission Customer requesting service under the Tariff. Direct Assignment Facilities shall be specified in the Service Agreement that governs service to the Transmission Customer and shall be subject to Commission approval.”
- The Network Customer's Service Agreement, including a NITS Agreement and a Network Operating Agreement (NOA), contain a description of Direct Assignment Facilities and associated charges (which are subject to FERC approval)

# OATT Charges Under Existing KU Power Supply Contract

- Under the KU power supply arrangement, LGE/KU OATT charges are recovered through
  - a) OATT Schedule 1 and Schedule 10 charges
  - b) A portion of Direct Assignment charges (Account 368 plant)
  - c) A portion of Demand and Energy Charges (for Schedule 2-6 ancillary charges)

# Direct Assignment Facilities

## Existing LGE/KU Plant Investment by Account

Municipal	Account 360 Land	Account 361 Structures & Improvements	Acct 362 Station Equipment	Acct 368 Regulators & Capacitors (A)	Acct 370 Meters & Devices
BARBOURVILLE				✓	✓
BARDWELL	✓	✓	✓	✓	✓
BENHAM		✓	✓	✓	✓
BEREA				✓	✓
CORBIN				✓	✓
FALMOUTH	✓	✓	✓	✓	✓
FRANKFORT				✓	✓
MADISONVILLE		✓	✓	✓	✓
PARIS				✓	✓
PROVIDENCE	✓	✓	✓	✓	✓

(A) Allocation of KU system Acct 368 plant balance based on contribution to 12-CP demand; included in LGE/KU OATT charges

# LGE/KU OATT Charges

Below is a summary of transmission service charges under the LGE/KU OATT. Schedule 1 & 2 must be purchased from LGE/KU. Other schedules can be purchased from LGE/KU or purchased/provided by others.

Schedule	Description	Charge
Schedule 10	Network Integration Transmission Service (NITS)	\$1.725/kW-mo
Schedule 1	Scheduling, System Control and Dispatch Service	\$0.078/kW-mo
Schedule 2	Reactive Supply and Voltage Control Service	\$0.108/kW-mo
Schedule 3	Regulation and Frequency Response Service	\$0.069/kW-mo
Schedule 4	Energy Imbalance Service	*
Schedule 5	Operating Reserve - Spinning Reserve Service	\$0.107/kW-mo
Schedule 6	Operating Reserve - Supplemental Reserve Service	\$0.107/kW-mo
	Total	\$2.194/kW-mo

\* Energy Imbalance charges are based on the difference between scheduled delivery and actual delivery of energy. Tier 1 charges (+/- 1.5%) are at 100% of incremental cost. Tier 2 charges (greater than +/-1.5% up to +/-7.5%) are at 110% of incremental cost. Tier 3 charges (greater than +/- 7.5%) are at 125% of incremental cost.

# Adjustments to Existing Direct Assignment Charges

- Adjustments to current Direct Assignment charges are necessary to reflect application of LGE/KU OATT
  - Removal of Direct Assignment charges for Account 368 (will be recovered through OATT charges for Reactive Supply and Voltage Control Service)
  - Removal of Direct Assignment charges for Account 370 Meters to reflect change in ownership of metering equipment

# Direct Assignment Facilities

## LGE/KU Plant Investment

Municipal	Account 360 Land	Account 361 Structures & Improvements	Acct 362 Station Equipment	Acct 368 Regulators & Capacitors (A)	Acct 370 Meters & Devices
BARBOURVILLE				✓	✓
BARDWELL	✓	✓	✓	✓	✓
BENHAM		✓	✓	✓	✓
BEREA				✓	✓
CORBIN				✓	✓
FALMOUTH	✓	✓	✓	✓	✓
FRANKFORT				✓	✓
MADISONVILLE		✓	✓	✓	✓
PARIS				✓	✓
PROVIDENCE	✓	✓	✓	✓	✓

(A) Allocation of KU system Acct 368 plant balance based on contribution to 12-CP demand; included in LGE/KU OATT charges

# Discussion / Questions