

- ANSI FUNCTIONS**
- 2 TIME DELAY CLOSING RELAY
  - 25 SYNCH CHECK RELAY
  - 27 UNDERVOLTAGE RELAY
  - 32 DIRECTIONAL POWER
  - 50 PHASE INSTANTANEOUS OVERCURRENT RELAY
  - 50N GROUND INSTANTANEOUS OVERCURRENT RELAY
  - 51 PHASE TIME OVERCURRENT RELAY
  - 51N GROUND TIME OVERCURRENT RELAY
  - 52 CIRCUIT BREAKER
  - 59 OVERVOLTAGE RELAY
  - 59G ZERO SEQUENCE OVER VOLTAGE (3V0)
  - 69 PERMISSIVE CONTROL DEVICE
  - 74 RELAY FAILURE ALARM
  - 79 RECLOSING RELAY
  - 81/0 UNDER/OVER FREQUENCY RELAY
  - 86 LOCKOUT RELAY (MANUAL RESET)

| INTEGRATED INVERTER SETTINGS |                |             |                  |
|------------------------------|----------------|-------------|------------------|
| VOLTAGE SETTINGS             |                |             |                  |
| ANSI NO.                     | TRIP           | PICKUP (%)  | TIME DELAY (SEC) |
| 27-1                         | UNDERVOLTAGE   | 50          | 0.16             |
| 27-2                         | UNDERVOLTAGE   | 88          | 5                |
| 59-1                         | OVERVOLTAGE    | 110         | 1                |
| 59-2                         | OVERVOLTAGE    | 120         | 0.16             |
| FREQUENCY SETTINGS           |                |             |                  |
| ANSI NO.                     | TRIP           | PICKUP (HZ) | TIME DELAY (SEC) |
| 81/U-1                       | UNDERFREQUENCY | 56.5        | 0.16             |
| 81/U-2                       | UNDERFREQUENCY | 58          | 180              |
| 81/O-1                       | OVERFREQUENCY  | 61          | 180              |
| 81/O-2                       | OVERFREQUENCY  | 62          | 0.16             |

- NOTE 1:** RELAY FAILURE TRIP IS NOT REQUIRED IF TWO REDUNDANT UTILITY GRADE RELAYS ARE USED
- NOTE 2:** IF DTT REQUIRED BY LIPA
- NOTE 3:** IF SCADA RTU REQUIRED BY LIPA
- NOTE 4:** DIRECTIONAL POWER RELAY (32) MAY BE REQUIRED TO LIMIT OR PREVENT EXPORT POWER FLOW TO CONTRACTUAL AGREEMENT
- NOTE 5:** ACTUAL FUSE SIZE TO BE DETERMINED BY LIPA
- NOTE 6:** SYNCH CHECK RELAY (25) MUST BE SHOWN FOR GRID FORMING INVERTERS

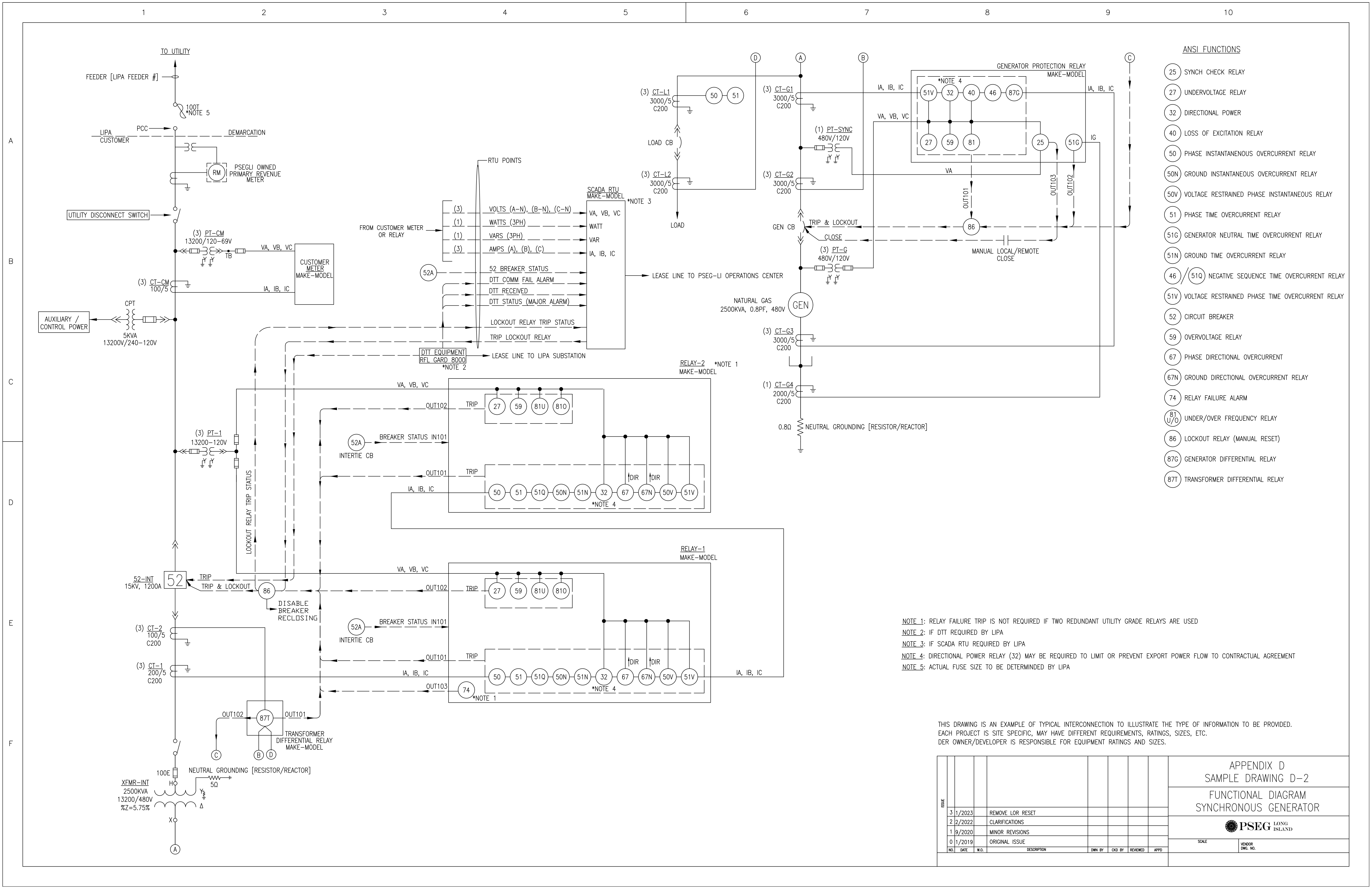
THIS DRAWING IS AN EXAMPLE OF TYPICAL INTERCONNECTION TO ILLUSTRATE THE TYPE OF INFORMATION TO BE PROVIDED. EACH PROJECT IS SITE SPECIFIC, MAY HAVE DIFFERENT REQUIREMENTS, RATINGS, SIZES, ETC. DER OWNER/DEVELOPER IS RESPONSIBLE FOR EQUIPMENT RATINGS AND SIZES.

| ISSUE | DATE   | DESCRIPTION      | OWN BY | CHK BY | REVIEWED | APPD |
|-------|--------|------------------|--------|--------|----------|------|
| 3     | 1/2023 | REMOVE LOR RESET |        |        |          |      |
| 2     | 2/2022 | CLARIFICATIONS   |        |        |          |      |
| 1     | 9/2020 | MINOR REVISIONS  |        |        |          |      |
| 0     | 1/2019 | ORIGINAL ISSUE   |        |        |          |      |

APPENDIX D  
SAMPLE DRAWING D-1  
FUNCTIONAL DIAGRAM  
INVERTER BASED DER

**PSEG** LONG ISLAND

SCALE: \_\_\_\_\_ VENDOR DWG. NO. \_\_\_\_\_



- ANSI FUNCTIONS**
- 25 SYNCH CHECK RELAY
  - 27 UNDERVOLTAGE RELAY
  - 32 DIRECTIONAL POWER
  - 40 LOSS OF EXCITATION RELAY
  - 50 PHASE INSTANTANENOUS OVERCURRENT RELAY
  - 50N GROUND INSTANTANEOUS OVERCURRENT RELAY
  - 50V VOLTAGE RESTRAINED PHASE INSTANTANEOUS RELAY
  - 51 PHASE TIME OVERCURRENT RELAY
  - 51G GENERATOR NEUTRAL TIME OVERCURRENT RELAY
  - 51N GROUND TIME OVERCURRENT RELAY
  - 46 / 51Q NEGATIVE SEQUENCE TIME OVERCURRENT RELAY
  - 51V VOLTAGE RESTRAINED PHASE TIME OVERCURRENT RELAY
  - 52 CIRCUIT BREAKER
  - 59 OVERVOLTAGE RELAY
  - 67 PHASE DIRECTIONAL OVERCURRENT
  - 67N GROUND DIRECTIONAL OVERCURRENT RELAY
  - 74 RELAY FAILURE ALARM
  - 81 U/O UNDER/OVER FREQUENCY RELAY
  - 86 LOCKOUT RELAY (MANUAL RESET)
  - 87G GENERATOR DIFFERENTIAL RELAY
  - 87T TRANSFORMER DIFFERENTIAL RELAY

**NOTE 1:** RELAY FAILURE TRIP IS NOT REQUIRED IF TWO REDUNDANT UTILITY GRADE RELAYS ARE USED  
**NOTE 2:** IF DTT REQUIRED BY LIPA  
**NOTE 3:** IF SCADA RTU REQUIRED BY LIPA  
**NOTE 4:** DIRECTIONAL POWER RELAY (32) MAY BE REQUIRED TO LIMIT OR PREVENT EXPORT POWER FLOW TO CONTRACTUAL AGREEMENT  
**NOTE 5:** ACTUAL FUSE SIZE TO BE DETERMINED BY LIPA

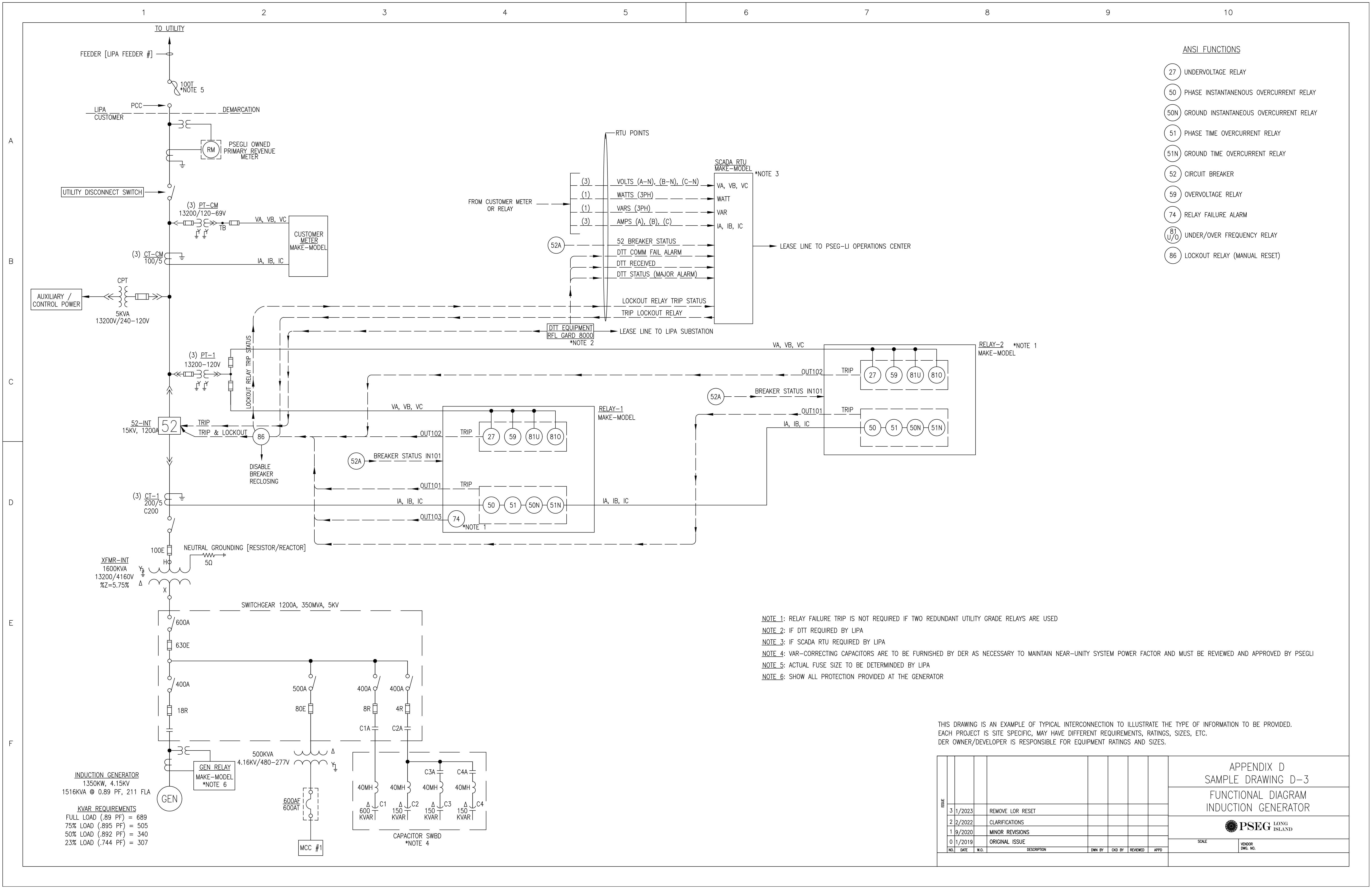
THIS DRAWING IS AN EXAMPLE OF TYPICAL INTERCONNECTION TO ILLUSTRATE THE TYPE OF INFORMATION TO BE PROVIDED. EACH PROJECT IS SITE SPECIFIC, MAY HAVE DIFFERENT REQUIREMENTS, RATINGS, SIZES, ETC. DER OWNER/DEVELOPER IS RESPONSIBLE FOR EQUIPMENT RATINGS AND SIZES.

| NO. | DATE   | W.O. | DESCRIPTION      | OWN BY | CKD BY | REVIEWED | APPD |
|-----|--------|------|------------------|--------|--------|----------|------|
| 3   | 1/2023 |      | REMOVE LOR RESET |        |        |          |      |
| 2   | 2/2022 |      | CLARIFICATIONS   |        |        |          |      |
| 1   | 9/2020 |      | MINOR REVISIONS  |        |        |          |      |
| 0   | 1/2019 |      | ORIGINAL ISSUE   |        |        |          |      |

APPENDIX D  
SAMPLE DRAWING D-2  
FUNCTIONAL DIAGRAM  
SYNCHRONOUS GENERATOR

**PSEG** LONG ISLAND

SCALE: \_\_\_\_\_ VENDOR Dwg. NO. \_\_\_\_\_



- ANSI FUNCTIONS**
- (27) UNDERVOLTAGE RELAY
  - (50) PHASE INSTANTANENOUS OVERCURRENT RELAY
  - (50N) GROUND INSTANTANEOUS OVERCURRENT RELAY
  - (51) PHASE TIME OVERCURRENT RELAY
  - (51N) GROUND TIME OVERCURRENT RELAY
  - (52) CIRCUIT BREAKER
  - (59) OVERVOLTAGE RELAY
  - (74) RELAY FAILURE ALARM
  - (81U/O) UNDER/OVER FREQUENCY RELAY
  - (86) LOCKOUT RELAY (MANUAL RESET)

- NOTE 1:** RELAY FAILURE TRIP IS NOT REQUIRED IF TWO REDUNDANT UTILITY GRADE RELAYS ARE USED  
**NOTE 2:** IF DTT REQUIRED BY LIPA  
**NOTE 3:** IF SCADA RTU REQUIRED BY LIPA  
**NOTE 4:** VAR-CORRECTING CAPACITORS ARE TO BE FURNISHED BY DER AS NECESSARY TO MAINTAIN NEAR-UNITY SYSTEM POWER FACTOR AND MUST BE REVIEWED AND APPROVED BY PSEGLI  
**NOTE 5:** ACTUAL FUSE SIZE TO BE DETERMINED BY LIPA  
**NOTE 6:** SHOW ALL PROTECTION PROVIDED AT THE GENERATOR

THIS DRAWING IS AN EXAMPLE OF TYPICAL INTERCONNECTION TO ILLUSTRATE THE TYPE OF INFORMATION TO BE PROVIDED. EACH PROJECT IS SITE SPECIFIC, MAY HAVE DIFFERENT REQUIREMENTS, RATINGS, SIZES, ETC. DER OWNER/DEVELOPER IS RESPONSIBLE FOR EQUIPMENT RATINGS AND SIZES.

| NO. | DATE   | W.O. | DESCRIPTION      | OWN BY | CHK BY | REVIEWED | APPD |
|-----|--------|------|------------------|--------|--------|----------|------|
| 3   | 1/2023 |      | REMOVE LOR RESET |        |        |          |      |
| 2   | 2/2022 |      | CLARIFICATIONS   |        |        |          |      |
| 1   | 9/2020 |      | MINOR REVISIONS  |        |        |          |      |
| 0   | 1/2019 |      | ORIGINAL ISSUE   |        |        |          |      |

APPENDIX D  
SAMPLE DRAWING D-3  
FUNCTIONAL DIAGRAM  
INDUCTION GENERATOR

**PSEG** LONG ISLAND

SCALE: \_\_\_\_\_ VENDOR: \_\_\_\_\_

**INDUCTION GENERATOR**  
1350KW, 4.15KV  
1516KVA @ 0.89 PF, 211 FLA

**KVAR REQUIREMENTS**  
FULL LOAD (.89 PF) = 689  
75% LOAD (.895 PF) = 505  
50% LOAD (.892 PF) = 340  
23% LOAD (.744 PF) = 307

MCC #1

CAPACITOR SWBD \*NOTE 4

\*NOTE 1

\*NOTE 2

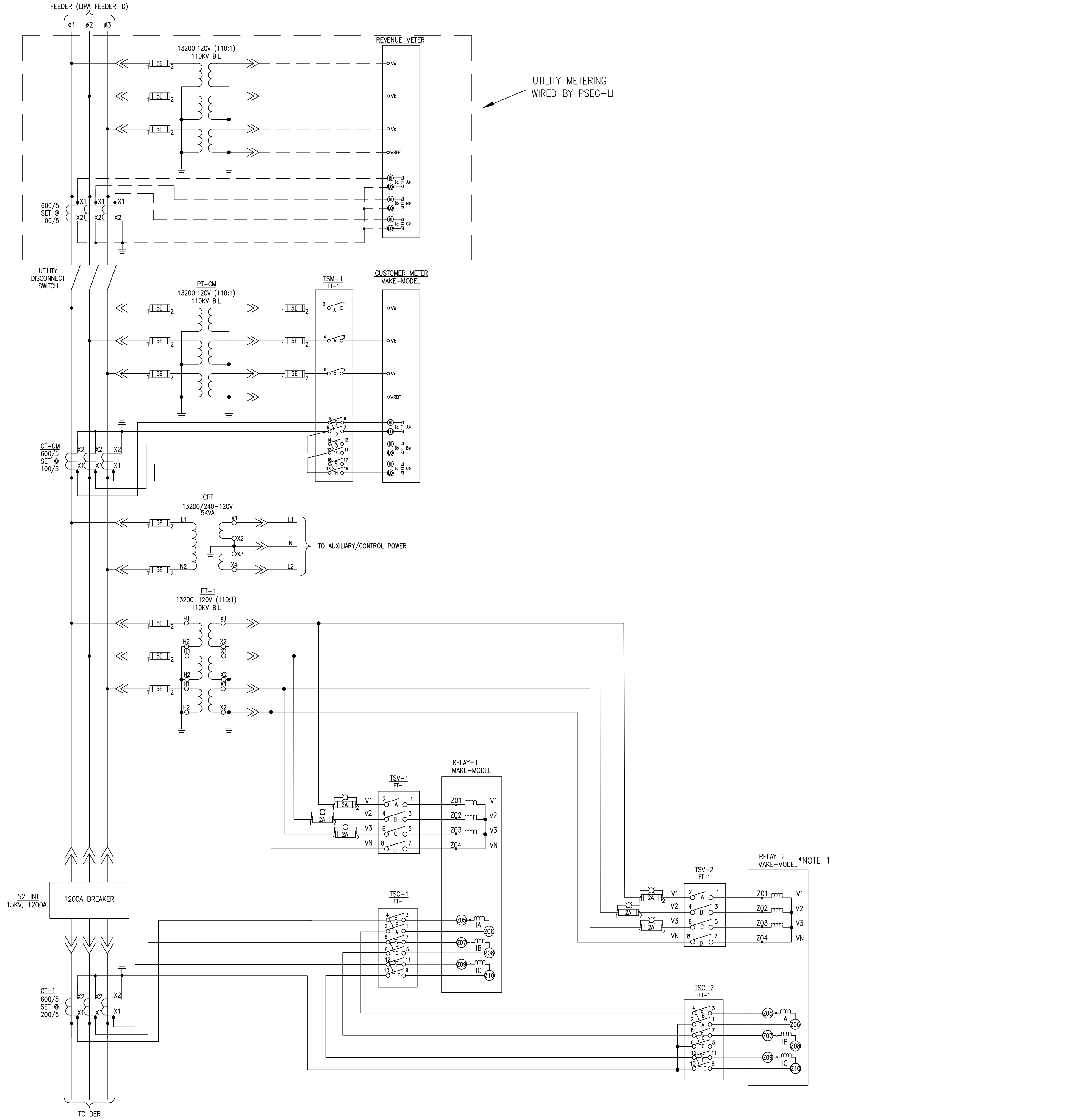
\*NOTE 3

\*NOTE 4

\*NOTE 5

\*NOTE 6

A  
B  
C  
D  
E  
F

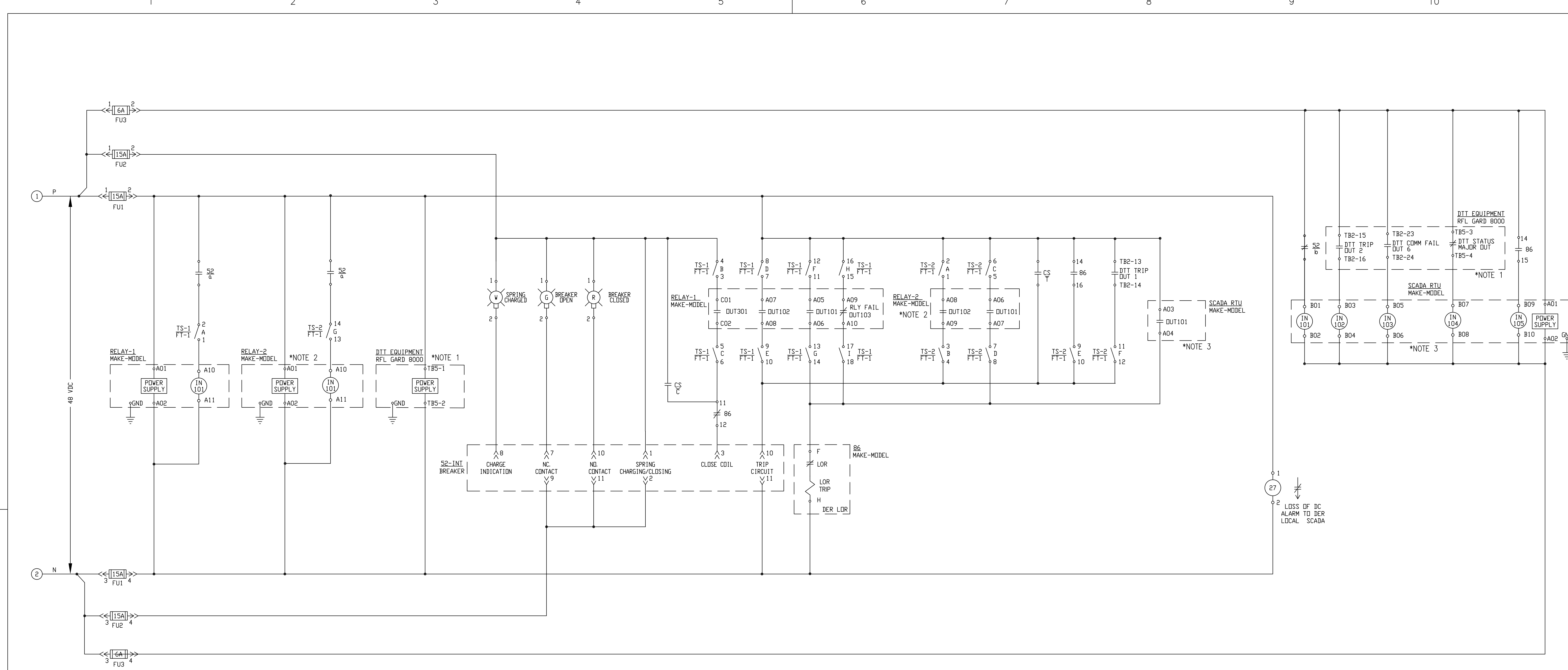


UTILITY METERING WIRED BY PSEG-LI

NOTE 1: IF USING REDUNDANT UTILITY GRADE RELAY

THIS DRAWING IS AN EXAMPLE OF TYPICAL INTERCONNECTION TO ILLUSTRATE THE TYPE OF INFORMATION TO BE PROVIDED. EACH PROJECT IS SITE SPECIFIC, MAY HAVE DIFFERENT REQUIREMENTS, RATINGS, SIZES, ETC. DER OWNER/DEVELOPER IS RESPONSIBLE FOR EQUIPMENT RATINGS AND SIZES.

|       |        |      |      |                 |        |                                  |          |      |       |                 |
|-------|--------|------|------|-----------------|--------|----------------------------------|----------|------|-------|-----------------|
|       |        |      |      |                 |        | APPENDIX D<br>SAMPLE DRAWING D-4 |          |      |       |                 |
|       |        |      |      |                 |        | THREE LINE DIAGRAM               |          |      |       |                 |
|       |        |      |      |                 |        |                                  |          |      |       |                 |
| ISSUE | NO.    | DATE | W.O. | DESCRIPTION     | OWN BY | CKD BY                           | REVIEWED | APPD | SCALE | VENDOR DWG. NO. |
| 1     | 9/2020 |      |      | MINOR REVISIONS |        |                                  |          |      |       |                 |
| 0     | 1/2019 |      |      | ORIGINAL ISSUE  |        |                                  |          |      |       |                 |



1 2 3 4 5 6 7 8 9 10

A

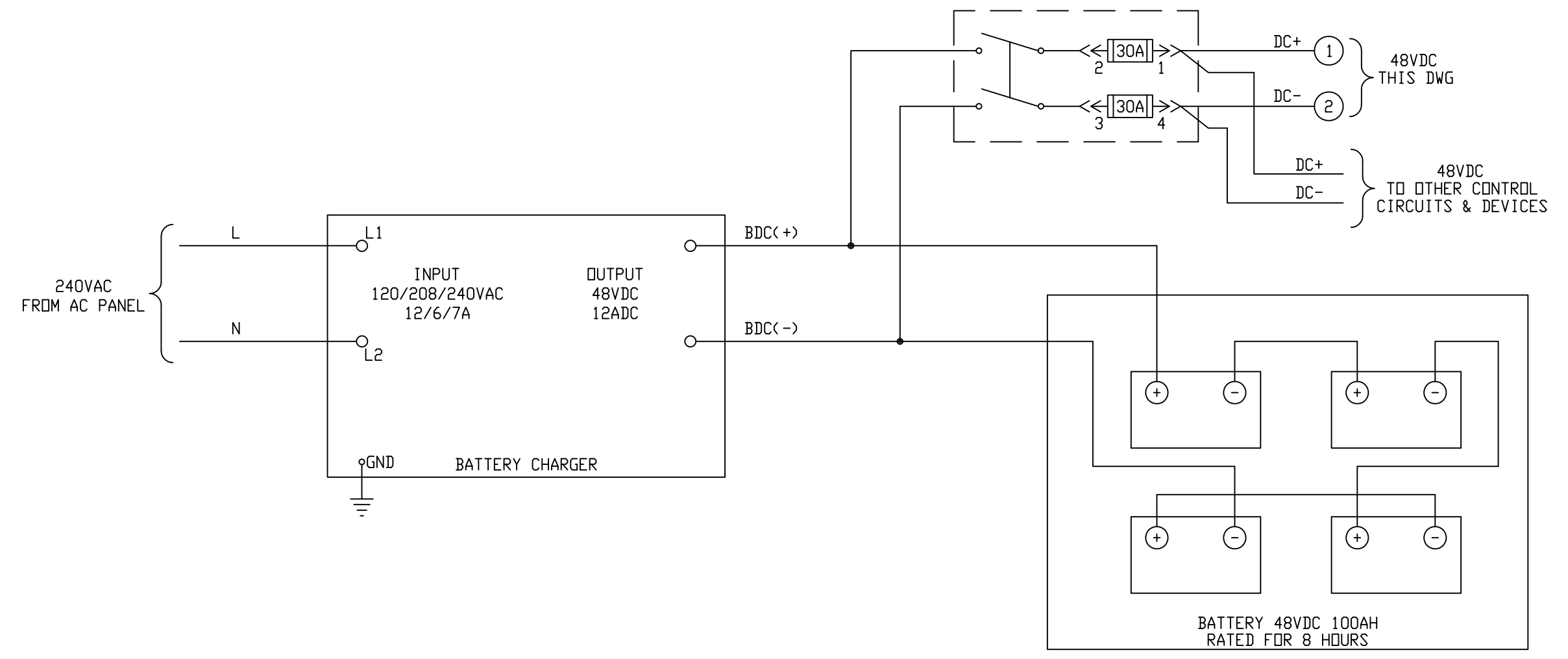
B

C

D

E

F



- NOTE 1: IF DTT REQUIRED BY LIPA
- NOTE 2: IF USING REDUNDANT UTILITY GRADE RELAY
- NOTE 3: IF SCADA REQUIRED BY LIPA

THIS DRAWING IS AN EXAMPLE OF TYPICAL INTERCONNECTION TO ILLUSTRATE THE TYPE OF INFORMATION TO BE PROVIDED. EACH PROJECT IS SITE SPECIFIC, MAY HAVE DIFFERENT REQUIREMENTS, RATINGS, SIZES, ETC. DER OWNER/DEVELOPER IS RESPONSIBLE FOR EQUIPMENT RATINGS AND SIZES.

| ISSUE |        |      |                  |        |        | APPENDIX D<br>SAMPLE DRAWING D-5 |                    |
|-------|--------|------|------------------|--------|--------|----------------------------------|--------------------|
|       |        |      |                  |        |        | DC SCHEMATIC                     |                    |
|       |        |      |                  |        |        |                                  |                    |
|       |        |      |                  |        |        | SCALE                            | VENDOR<br>DWG. NO. |
| NO.   | DATE   | W.O. | DESCRIPTION      | DWN BY | CKD BY | REVIEWED                         | APPD               |
| 3     | 1/2023 |      | REMOVE LOR RESET |        |        |                                  |                    |
| 2     | 2/2022 |      | CLARIFICATIONS   |        |        |                                  |                    |
| 1     | 9/2020 |      | MINOR REVISIONS  |        |        |                                  |                    |
| 0     | 1/2019 |      | ORIGINAL ISSUE   |        |        |                                  |                    |