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ETAP
12.6.0H

Study Case: ULF

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Bus Input Data

| Bus | | | | | | Initial Voltage | | Generation | | Load | | Mvar Limits | |
|-------|---------|-------|--------|---------|----|-----------------|--------|------------|-------|-------|-------|-------------|-------|
| ID | Conn. | Type | kV | Sub-sys | Ph | % Mag. | Ang. | MW | Mvar | MW | Mvar | Max. | Min. |
| Bus1 | 3-Phase | Swing | 33.000 | 1 | A | 100.0 | 0.0 | 1.071 | 0.452 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 1.038 | 0.474 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 1.035 | 0.435 | 0 | 0 | | |
| Bus2 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus3 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus4 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus5 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.018 | 0.009 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.009 | 0.004 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.014 | 0.007 | | |
| Bus6 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus7 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus8 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.037 | 0.025 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.033 | 0.025 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.053 | 0.019 | | |
| Bus9 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus10 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus11 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus12 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.009 | 0.004 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.008 | 0.004 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.036 | 0.017 | | |

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| Bus | | | | | Initial Voltage | | | Generation | | Load | | Mvar Limits | |
|-------|---------|------|--------|---------|-----------------|--------|--------|------------|------|-------|-------|-------------|-------|
| ID | Conn. | Type | kV | Sub-sys | Ph | % Mag. | Ang. | MW | Mvar | MW | Mvar | Max. | Min. |
| Bus13 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus14 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.012 | 0.005 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.007 | 0.003 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.011 | 0.004 | | |
| Bus15 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus17 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus18 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus19 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.007 | 0.004 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.007 | 0.003 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.009 | 0.005 | | |
| Bus20 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.034 | 0.014 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.032 | 0.014 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.031 | 0.015 | | |
| Bus21 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus22 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.024 | 0.008 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.023 | 0.008 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.025 | 0.006 | | |
| Bus24 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus25 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.008 | 0.004 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.009 | 0.004 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.010 | 0.005 | | |
| Bus26 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus27 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.008 | 0.004 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.009 | 0.004 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.010 | 0.005 | | |
| Bus28 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |

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| Bus | | | | | Initial Voltage | | | Generation | | Load | | Mvar Limits | |
|-------|---------|------|--------|---------|-----------------|--------|--------|------------|------|-------|-------|-------------|-------|
| ID | Conn. | Type | kV | Sub-sys | Ph | % Mag. | Ang. | MW | Mvar | MW | Mvar | Max. | Min. |
| Bus30 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.021 | 0.006 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.019 | 0.004 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.016 | 0.005 | | |
| Bus31 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus32 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus34 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.038 | 0.011 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.038 | 0.011 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.041 | 0.013 | | |
| Bus35 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus37 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.008 | 0.004 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.008 | 0.005 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.007 | 0.005 | | |
| Bus38 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus41 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.068 | 0.027 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.050 | 0.015 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.063 | 0.021 | | |
| Bus42 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus43 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus44 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus46 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.018 | 0.006 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.019 | 0.004 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.017 | 0.003 | | |
| Bus47 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus51 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |

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| Bus | | | | | Initial Voltage | | | Generation | | Load | | Mvar Limits | |
|-------|---------|------|--------|---------|-----------------|--------|--------|------------|------|-------|-------|-------------|-------|
| ID | Conn. | Type | kV | Sub-sys | Ph | % Mag. | Ang. | MW | Mvar | MW | Mvar | Max. | Min. |
| Bus52 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.004 | 0.001 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.006 | 0.002 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.004 | 0.002 | | |
| Bus53 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus54 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus56 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.006 | 0.002 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.005 | 0.002 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.006 | 0.002 | | |
| Bus57 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus59 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.068 | 0.027 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.050 | 0.015 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.063 | 0.021 | | |
| Bus60 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus62 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.023 | 0.011 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.027 | 0.012 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.022 | 0.011 | | |
| Bus63 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus64 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus66 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.041 | 0.018 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.036 | 0.014 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.038 | 0.018 | | |
| Bus68 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.023 | 0.009 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.026 | 0.007 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.020 | 0.005 | | |
| Bus69 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus70 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |

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| ID | Conn. | Type | kV | Sub-sys | Ph | % Mag. | Ang. | MW | Mvar | MW | Mvar | Max. | Min. |
| Bus72 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.038 | 0.011 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.038 | 0.011 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.041 | 0.013 | | |
| Bus73 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus75 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.020 | 0.008 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.015 | 0.006 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.011 | 0.005 | | |
| Bus76 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus78 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.006 | 0.005 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.004 | 0.003 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.005 | 0.004 | | |
| Bus79 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus81 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.018 | 0.005 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.014 | 0.002 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.020 | 0.006 | | |
| Bus82 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus83 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus85 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.018 | 0.006 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.019 | 0.004 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.017 | 0.003 | | |
| Bus86 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus87 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus89 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.019 | 0.007 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.013 | 0.004 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.015 | 0.006 | | |
| Bus90 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |

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| Bus | | | | | Initial Voltage | | | Generation | | Load | | Mvar Limits | |
|--------|---------|------|--------|---------|-----------------|--------|--------|------------|------|-------|-------|-------------|-------|
| ID | Conn. | Type | kV | Sub-sys | Ph | % Mag. | Ang. | MW | Mvar | MW | Mvar | Max. | Min. |
| Bus92 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.028 | 0.008 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.031 | 0.013 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.026 | 0.012 | | |
| Bus93 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus95 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.008 | 0.004 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.008 | 0.005 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.007 | 0.005 | | |
| Bus96 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus98 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.021 | 0.006 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.019 | 0.004 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.016 | 0.005 | | |
| Bus99 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus101 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.022 | 0.022 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.026 | 0.026 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.020 | 0.027 | | |
| Bus102 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus103 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus105 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.020 | 0.008 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.015 | 0.006 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.011 | 0.005 | | |
| Bus106 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus108 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.022 | 0.007 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.020 | 0.008 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.025 | 0.006 | | |
| Bus113 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus114 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |

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| Bus | | | | | Initial Voltage | | | Generation | | Load | | Mvar Limits | |
|--------|---------|------|--------|---------|-----------------|--------|--------|------------|------|-------|-------|-------------|-------|
| ID | Conn. | Type | kV | Sub-sys | Ph | % Mag. | Ang. | MW | Mvar | MW | Mvar | Max. | Min. |
| Bus116 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.006 | 0.003 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.012 | 0.005 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.014 | 0.006 | | |
| Bus119 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.007 | 0.002 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.011 | 0.002 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.006 | 0.003 | | |
| Bus120 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus121 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus124 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus125 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.029 | 0.007 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.029 | 0.011 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.027 | 0.010 | | |
| Bus126 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus127 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus129 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.008 | 0.004 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.009 | 0.004 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.010 | 0.005 | | |
| Bus132 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus133 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.010 | 0.004 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.013 | 0.004 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.016 | 0.005 | | |
| Bus134 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus135 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus138 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |

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| Bus | | | | | Initial Voltage | | | Generation | | Load | | Mvar Limits | |
|--------|---------|------|--------|---------|-----------------|--------|--------|------------|------|-------|-------|-------------|-------|
| ID | Conn. | Type | kV | Sub-sys | Ph | % Mag. | Ang. | MW | Mvar | MW | Mvar | Max. | Min. |
| Bus139 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.022 | 0.012 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.022 | 0.011 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.022 | 0.011 | | |
| Bus142 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus143 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.024 | 0.008 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.023 | 0.008 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.025 | 0.006 | | |
| Bus145 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus146 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus148 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.019 | 0.009 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.019 | 0.013 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.019 | 0.009 | | |
| Bus150 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.006 | 0.002 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.005 | 0.002 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.006 | 0.002 | | |
| Bus151 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus152 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus154 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.002 | 0.001 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.002 | 0.001 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.003 | 0.001 | | |
| Bus155 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus157 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.006 | 0.002 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.005 | 0.002 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.006 | 0.002 | | |
| Bus158 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus159 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |

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| Bus | | | | | Initial Voltage | | | Generation | | Load | | Mvar Limits | |
|--------|---------|------|--------|---------|-----------------|--------|--------|------------|------|-------|-------|-------------|-------|
| ID | Conn. | Type | kV | Sub-sys | Ph | % Mag. | Ang. | MW | Mvar | MW | Mvar | Max. | Min. |
| Bus160 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus162 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.007 | 0.004 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.007 | 0.003 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.009 | 0.005 | | |
| Bus163 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus165 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.012 | 0.005 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.007 | 0.003 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.011 | 0.004 | | |
| Bus166 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus167 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus168 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus170 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.004 | 0.001 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.006 | 0.002 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.004 | 0.002 | | |
| Bus171 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus172 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus173 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus175 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.020 | 0.005 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.015 | 0.007 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.019 | 0.006 | | |
| Bus176 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus178 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.014 | 0.004 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.013 | 0.004 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.014 | 0.005 | | |

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| Bus | | | | | Initial Voltage | | | Generation | | Load | | Mvar Limits | |
|--------|---------|------|--------|---------|-----------------|--------|--------|------------|------|-------|-------|-------------|-------|
| ID | Conn. | Type | kV | Sub-sys | Ph | % Mag. | Ang. | MW | Mvar | MW | Mvar | Max. | Min. |
| Bus179 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus180 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus181 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus183 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.064 | 0.031 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.040 | 0.019 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.036 | 0.017 | | |
| Bus184 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus185 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus188 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.006 | 0.002 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.005 | 0.002 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.006 | 0.002 | | |
| Bus189 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus191 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.005 | 0.002 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.002 | 0.001 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.004 | 0.002 | | |
| Bus192 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus193 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus194 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus195 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus196 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |

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ETAP
12.6.0H

Study Case: ULF

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Date: 05-02-2017
SN:
Revision: Base
Config.: Normal

| Bus | | | | | | Initial Voltage | | Generation | | Load | | Mvar Limits | |
|----------------------------|---------|------|--------|---------|----|-----------------|--------|------------|-------|-------|-------|-------------|-------|
| ID | Conn. | Type | kV | Sub-sys | Ph | % Mag. | Ang. | MW | Mvar | MW | Mvar | Max. | Min. |
| Bus197 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus198 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus200 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.041 | 0.018 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.036 | 0.014 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.038 | 0.018 | | |
| Bus201 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus203 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.004 | 0.001 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.006 | 0.002 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.004 | 0.002 | | |
| Bus204 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus205 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus206 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus208 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.024 | 0.008 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.023 | 0.007 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.010 | 0.003 | | |
| Bus209 | 3-Phase | Load | 33.000 | 1 | A | 100.0 | 0.0 | 0 | 0 | 0 | 0 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -120.0 | 0 | 0 | 0 | 0 | | |
| | | | | | C | 100.0 | 120.0 | 0 | 0 | 0 | 0 | | |
| Bus211 | 3-Phase | Load | 0.400 | 1 | A | 100.0 | 30.0 | 0 | 0 | 0.029 | 0.009 | 0.000 | 0.000 |
| | | | | | B | 100.0 | -90.0 | 0 | 0 | 0.027 | 0.008 | | |
| | | | | | C | 100.0 | 150.0 | 0 | 0 | 0.036 | 0.011 | | |
| Total Number of Buses: 149 | | | | | | | | 3.143 | 1.361 | 3.117 | 1.245 | | |