



2020 & 2024 Draft LCR Study Results Humboldt Area

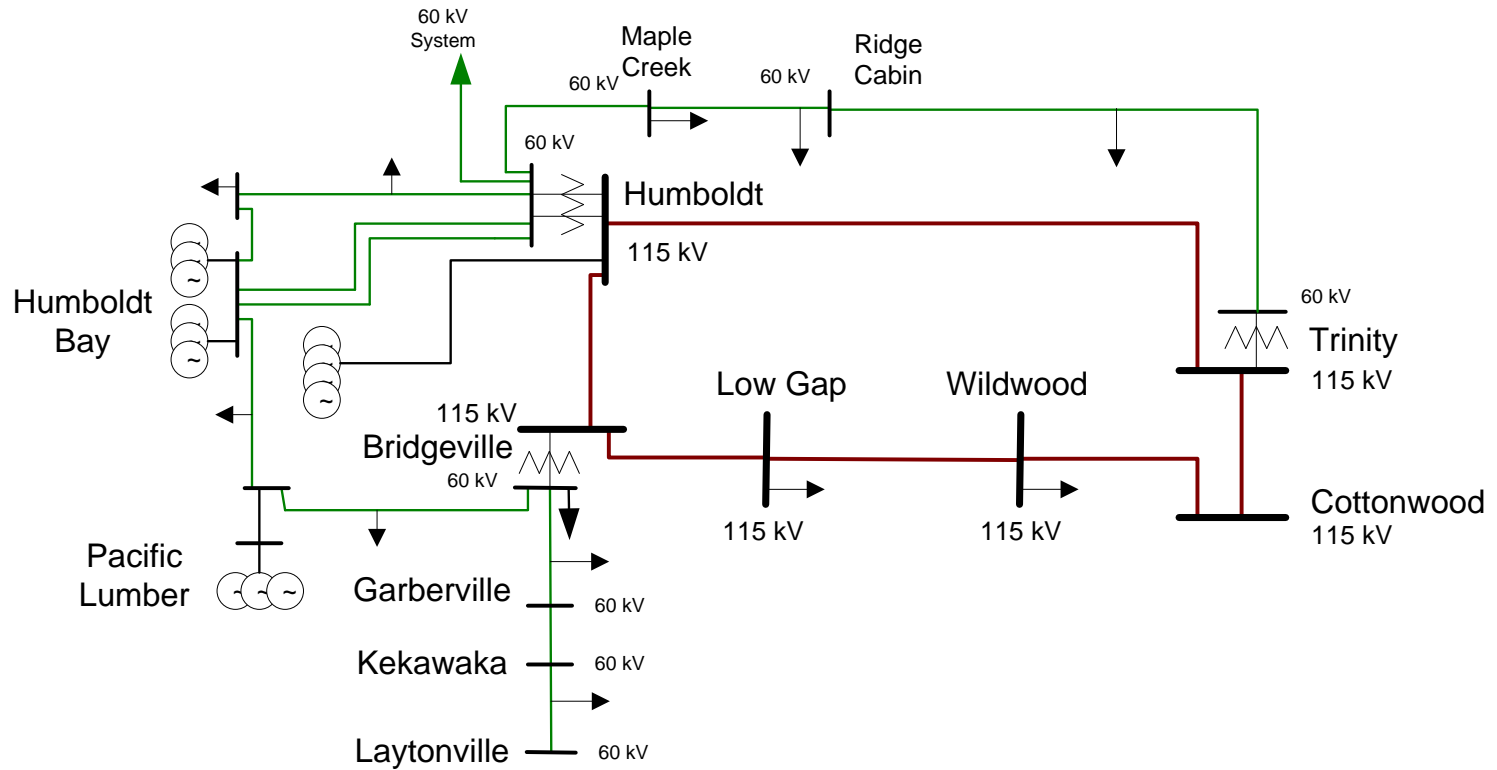
Lindsey Thomas

Regional Transmission Engineer

Stakeholder Meeting

March 14, 2019

Humboldt Area Transmission System & LCR Subarea



Topology changes

Transmission Additions:

- No new transmission additions

Resource Additions:

- No new resource additions

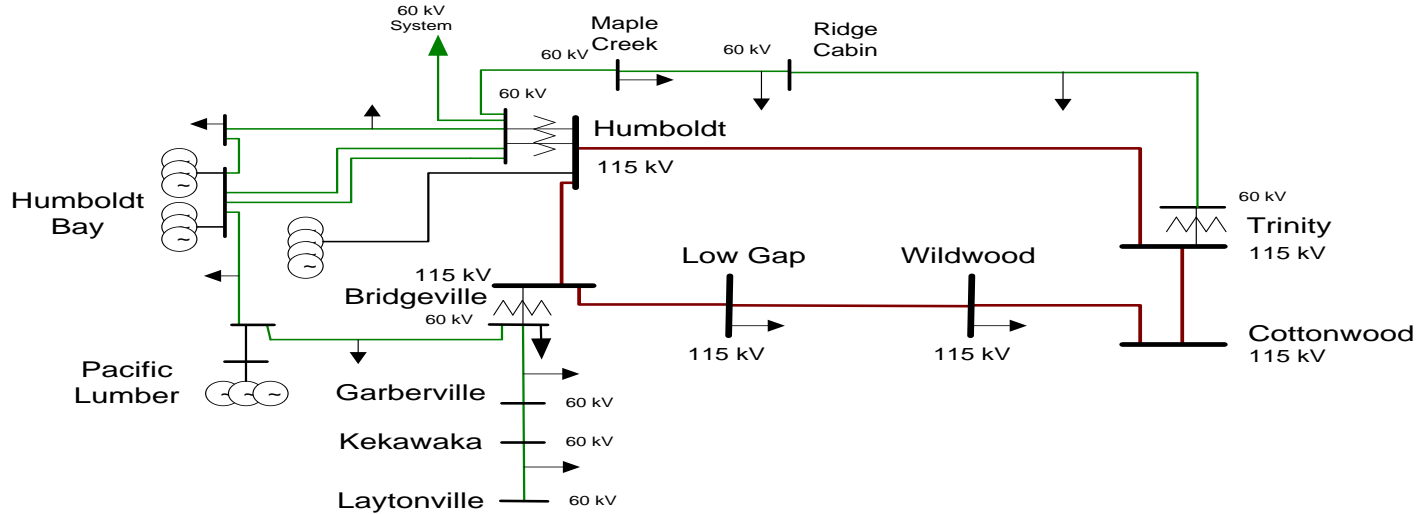
Resource Retirements:

- No new retirements

Humboldt: Load and Resources

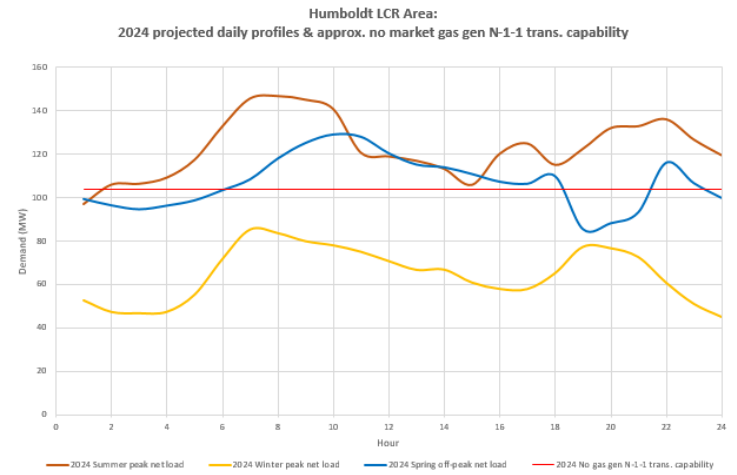
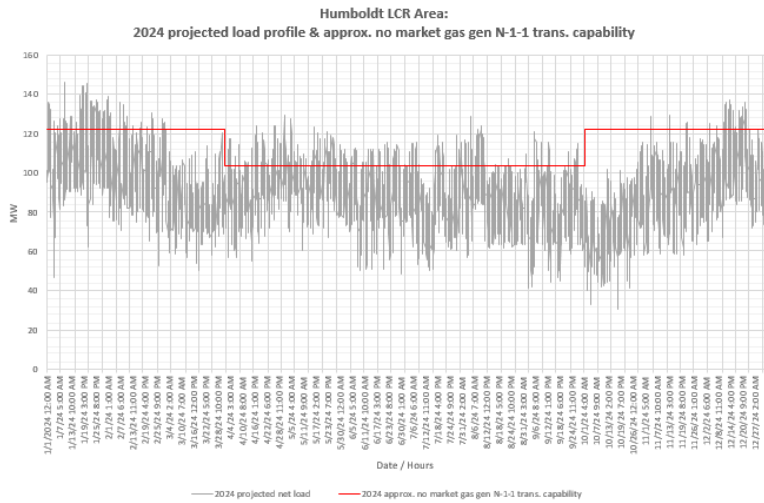
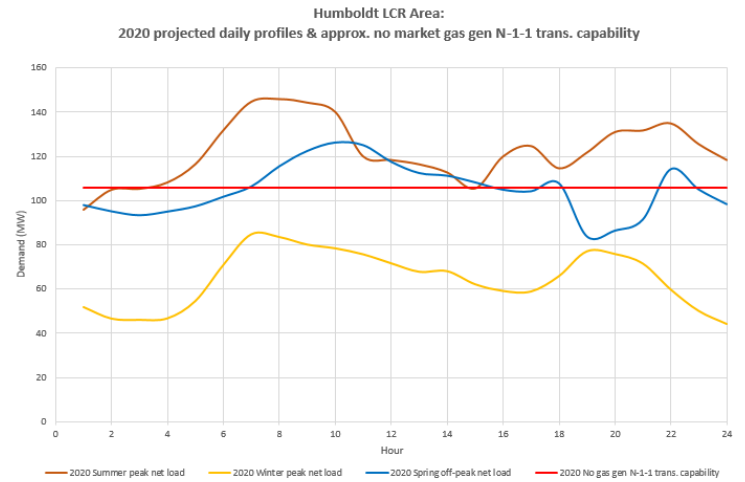
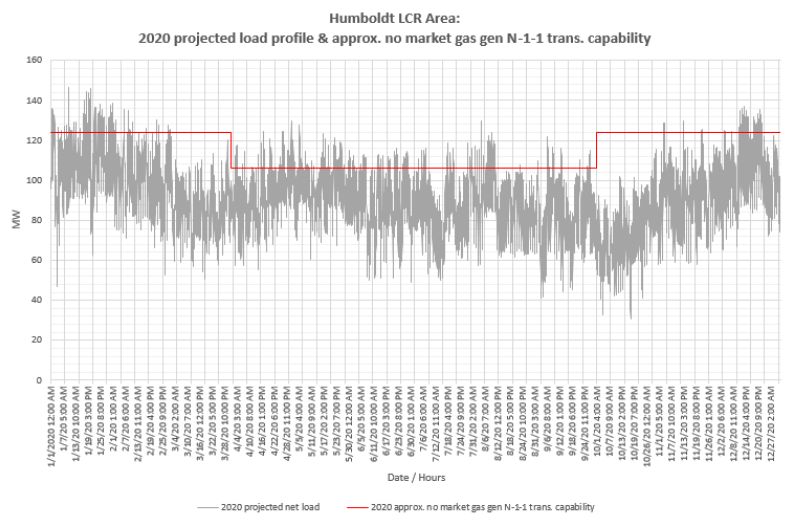
| Load (MW) | 2020 | 2024 | Generation (MW) | 2020 | 2024 |
|----------------------------------|------------|------------|---|----------|------------|
| Gross Load | 151 | 151 | Market/ Net Seller | 197 | 197 |
| AAEE | -8 | -8 | Solar | 0 | 0 |
| Behind the meter DG | 0 | 0 | Wind | 0 | 0 |
| Net Load | 143 | 143 | Muni | 0 | 0 |
| Transmission Losses | 10 | 10 | QF | 0 | 0 |
| Pumps | 0 | 0 | Future preferred resource and energy storage | 0 | 0 |
| Load + Losses + Pumps | 153 | 153 | Total Qualifying Capacity | 0 | 197 |

Humboldt Area : Requirements



| Year | Category | Limiting Facility | Contingency | LCR (MW) (Deficiency) |
|------|----------|---|---|-----------------------|
| 2020 | B | Thermal overload on Humboldt -Trinity 115 kV line | Cottonwood-Bridgeville 115 kV line + one Humboldt PP units out of service | 83 |
| 2020 | C | Thermal overload on Humboldt -Trinity 115 kV line | Cottonwood – Bridgeville 115 kV line + Humboldt – Humboldt Bay 115kV line | 130 |
| 2024 | B | Thermal overload on Humboldt -Trinity 115 kV line | Cottonwood-Bridgeville 115 kV line + one Humboldt PP units out of service | 83 |
| 2024 | C | Thermal overload on Humboldt -Trinity 115 kV line | Cottonwood – Bridgeville 115 kV line + Humboldt – Humboldt Bay 115kV line | 132 |

Humboldt Area: Load Profiles



Changes between years

| Subarea | 2019 | | 2020 | |
|----------|------|-----|------|-----|
| | Load | LCR | Load | LCR |
| Humboldt | 187 | 165 | 153 | 130 |

| Subarea | 2023 | | 2024 | |
|----------|------|-----|------|-----|
| | Load | LCR | Load | LCR |
| Humboldt | 188 | 169 | 153 | 132 |

LCR decrease is mostly due to decrease in load forecast.

Humboldt Area Total LCR Need

| 2020 LCR Need | Existing Generation Capacity Needed (MW) | Deficiency (MW) | Total MW Need |
|-----------------------|--|-----------------|---------------|
| Category B (Single) | 83 | 0 | 83 |
| Category C (Multiple) | 130 | 0 | 130 |

| 2024 LCR Need | Existing Generation Capacity Needed (MW) | Deficiency (MW) | Total MW Need |
|-----------------------|--|-----------------|---------------|
| Category B (Single) | 83 | 0 | 83 |
| Category C (Multiple) | 132 | 0 | 132 |