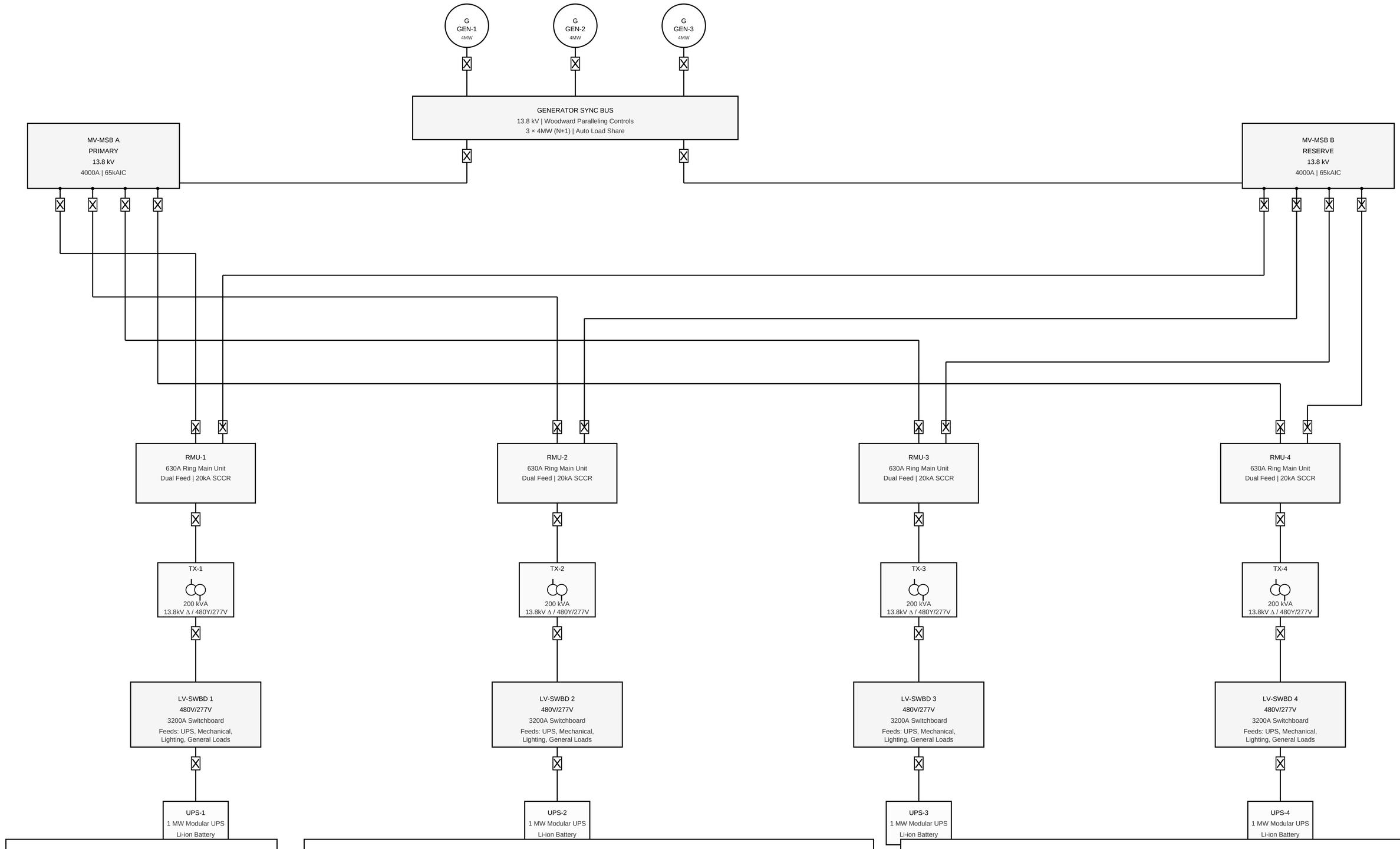
SAGA PRYOR DATA CENTER - 13.8kV Dual Ring Bus Distribution

Redundant Path Diagram | Generators → MV-SWBD A/B → Dual Ring → RMUs → Transformers → LV-SWBD

Date: 11/02/2025

Rev: 0

Symbols and conventions per IEEE Std 315-1975 / IEC 60617



LEGEND (IEEE Std 315):

- Power Line (2px)
- Bus (6px)
- Circuit Breaker (Closed)
- Circuit Breaker (Open)
- Transformer (Dual Winding)
- Connection Point

All symbols per IEEE Std 315-1975 and IEC 60617

DUAL RING REDUNDANCY:

1. MV-MSB A Feeds: 4 separate connections from bottom
2. MV-MSB B Feeds: 4 separate connections to bottom
3. Primary Path: MV-MSB A → BKR-A → RMU-IN → RMU (left connection)
4. Reserve Path: RMU (right connection) → RMU-OUT → BKR-B → MV-MSB B
5. Both paths enter/exit RMU from top with spatial separation
6. Downstream: RMU → TX-IN → Transformer → MAIN → LV-SWBD → UPS-IN → UPS
7. Complete protection: 7 breakers per path for full isolation capability
8. Breaker states shown represent normal operating configuration
9. All breakers SCADA-controlled with local manual override
10. Design permits concurrent maintenance without service interruption

SYSTEM CONFIGURATION:

- Utility: 2x Feeds 345kV to 13.8kV (25MVA each) to MV-MSB A & B
- Generation: 3x 4MW @ 13.8kV (N+1 redundancy, Woodward paralleling)
- Medium Voltage: 13.8kV dual switchboards (4000A, 65kAIC)
- Distribution: Dual ring bus topology with 4 RMUs (630A, 20kA SCCR)
- Transformers: 4x 200kVA, 13.8kV Delta / 480Y/277V
- Low Voltage: 4x 480V switchboards (3200A)
- UPS: 4x 1MW modular units with Li-ion battery
- Classification: Tier III (N+1 redundancy, concurrent maintainability)
- Protection: Ground fault detection, arc flash mitigation, SCADA monitoring
- Standards: IEEE Std 315-1975, IEC 60617, ANSI Y14.1

SAGA PRYOR DATA CENTER | Dual Ring Bus | 3 Generators, 2 MV-SWBDs, 4 RMUs, 4 Transformers, 4 LV-SWBDs, 4 UPS

7 Breakers per path (28 total) | All cable routes visible without overlap | Generated: 11/02/2025 16:13