

AUTOMATING EMERGENCY POWER AT MOSAIC'S K2 PLANT

Implementing an SEL RTAC-Based Generator Transfer System

Dynamo partnered with The Mosaic Company's K2 Potash Plant to modernize the facility's emergency power transfer capabilities.

The new SEL RTAC-based automation system improves reliability, enhances visibility, and automates critical switching sequences, reducing operator intervention during power outages.



50
BREAKER
CIRCUITS
UPGRADED



33
PROTECTION
RELAYS
INTEGRATED



21
ADDITIONAL
BREAKERS VIA
AXION I/O



1500+
REAL-TIME
DATA POINTS
MONITORED

THE CHALLENGE

During loss of utility power, operators were required to manually execute a complex sequence of load-shedding and generator transfer steps. This process increased the risk of human error, delayed recovery time, and limited visibility into system status.



MANUAL OPERATIONS

Operators had to perform multiple manual and time consuming switching steps under high-stress conditions where every second counts



INCREASED RISK

Manual operations increased the likelihood of misoperations during critical events.



LIMITED VISIBILITY

System status, alarms, and event information were not centralized.



LIVE-SITE CONSTRAINTS

Upgrades needed to be implemented with minimal disruption to ongoing plant operations

THE SOLUTION

Dynamo implemented an SEL RTAC-based automation system that detects utility loss and automatically executes load-shedding and generator transfer sequences. Two HMI workstations provide operators with a single, intuitive interface for monitoring, control, and event analysis.



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The system coordinates automated transfer actions across 50 breaker control circuits and 33 integrated relays, ensuring reliable power when it matters most.

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IMPLEMENTATION & SYSTEM OVERVIEW

IMPLEMENTATION PHASES

1

BREAKER CONTROL UPGRADE

Upgraded 50 breaker control circuits with SEL-2730M and SEL-841 relays.



2

RELAY INTEGRATION

Integrated 33 protection relays into the SEL RTAC platform for centralized monitoring and control.



3

HMI DEPLOYMENT & TESTING

Deployed two HMI workstations, completed end-to-end testing, and operator training.

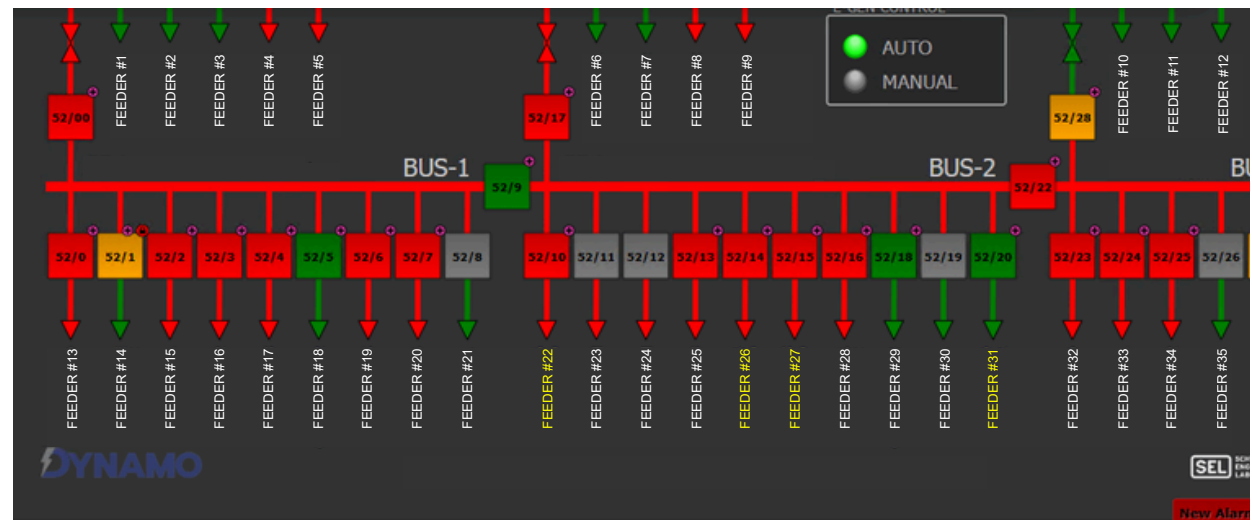


SYSTEM HIGHLIGHTS

- * **SEL-3555 RTAC**
Centralized automation and control platform
- * **SEL-2240 AXION**
Remote I/O for 21 additional non-SEL breakers
- * **SEL-2730M & SEL-841**
Breaker control and monitoring
- * **SEL-2488 GPS CLOCK**
Precise time synchronization for relays and event logging

SYSTEM ARCHITECTURE

The SEL RTAC communicates with field devices over a secure network infrastructure, providing real-time visibility and control across the entire electrical system.



RESULTS



AUTOMATED OUTAGE RESPONSE

Utility loss detection automatically initiates load-shedding and generator transfer sequences, eliminating manual switching steps and reducing outage recovery time.



ENHANCED MONITORING & CONTROL

Two HMI workstations provide real-time visibility of ~1,500 data points, alarms, Sequence of Events (SOE), metering, and breaker status, improving situational awareness and response.



SCALABLE, FUTURE-READY ARCHITECTURE

A modular SEL-based design and standardized integration approach support long-term maintainability and a clear path for future expansion.



REDUCED RISK IN EMERGENCY OPERATIONS

Automated sequencing, interlocks, and permission-based control actions reduce reliance on manual intervention and help lower the likelihood of mis-operations.



PROJECT SUMMARY



LOCATION

Saskatchewan, Canada



CLIENT

The Mosaic Company



SYSTEM VOLTAGE

138kV / 15kV



HMI STATIONS

2



BREAKERS INTEGRATED

50



RELAYS INTEGRATED

33



REMOTE I/O POINTS

21



AUTOMATION PLATFORM

SEL RTAC



Dynamo builds smart, reliable electrical solutions that power critical operations. We design, integrate, and support automation systems that improve performance, safety, and peace of mind.

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