



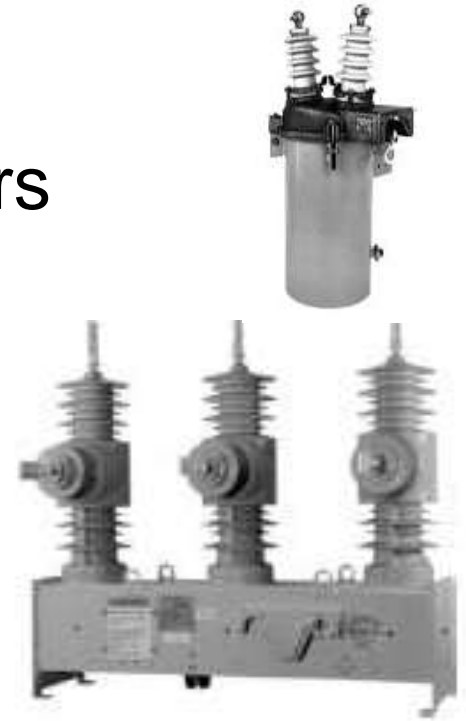
Authorized Distributor & Service
provider for:
**EATON'S
COOPER POWER SYSTEM**

Engineering a Brighter Africa



Auto-Recloser

- NOVA Range 11kV, 22kV & 33kV
- Retro-fit new controls to old breakers
 - F6 for transformer protection
 - F4D direct replacement for F4C
- Integrated Remote Comms
 - SCADA
 - Remote Engineering



COOPER Voltage Regulators

- 10-15% Boost/Buck
- Single/Three Phase Tapping
- Local service and support



Pole Mount Capacitors

- Voltage Support Applications
- Voltage & VAR Control
- Edison Capacitive Switch



New Generation Controls

- Common Software Interface – Proview NXG
- Common User Interface:
 - CL-7 : Voltage Regulator Control
 - F4D : Auto Recloser Control
 - CBC-8000 : Capacitor Bank Control



COOPER Surge Arresters

- Distribution Class
 - From 3kV to 36kV
- Station Class
 - 6kV to 275kV
- Stocked Locally



DO YOU HAVE ANY OF THESE IN YOUR NETWORK?



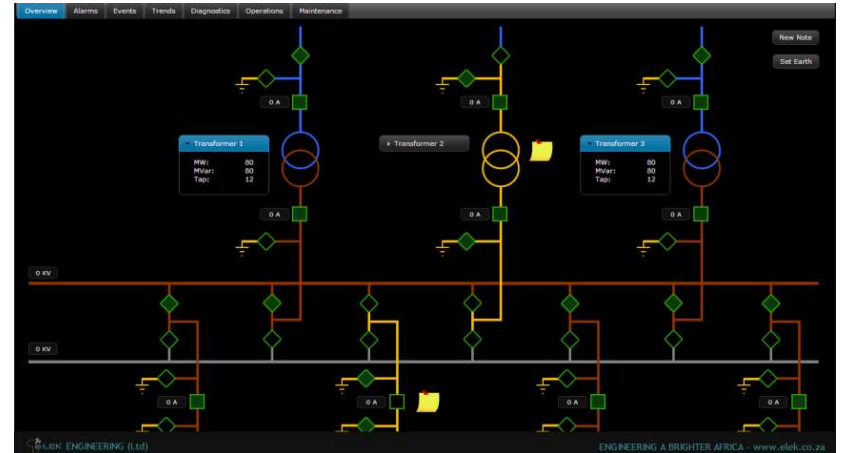
WESTERN CAPE BRANCH

- **PROVIDES**
 - **Service & Repair Facilities**
 - **On/Off site technical support**
 - **Training facilities**
 - **Innovative Substation Solutions**



Innovative Substation Solutions

- Substation HMI
- Substation Gateway
- Mobile Solutions
- Support for:
 - DNP3
 - IEC68150
 - IEC60870-5 (101 & 104)
 - MODBUS



THANK YOU



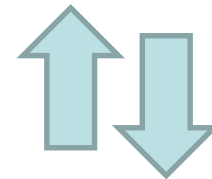
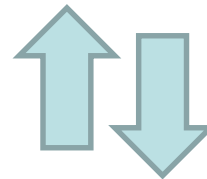
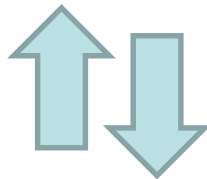
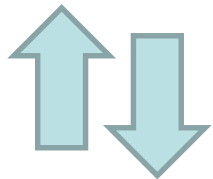
Innovative Substation Solutions

Local HMI

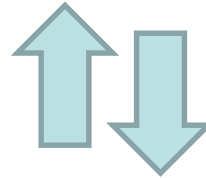
SCADA

Logging and Reporting

Mobile Applications



e-LEK Engineering Substation Automation Server



SUBSTATION



Innovative Substation Solutions

- Locally developed and supported
- Future proof technology
- Competitive prices
- In person support
- Customer requested functionality
- Scales from small substation to control center capabilities
- It works first time all the time



Modern Technology

- Full security capabilities
- Logging and trending for 10+ years
- Full diagnostic and performance analysis of the system
- Full automation capabilities
- Integrated Protocol support for new standards such as IEC 61850, along with protocol analysis

Traditional SCADA

- Traditional SCADA Protocol Support (DNP, IEC 60870-5, MODBUS)
- Trending
- Eventing
- Interlocking
- Control
- Protocol Converter

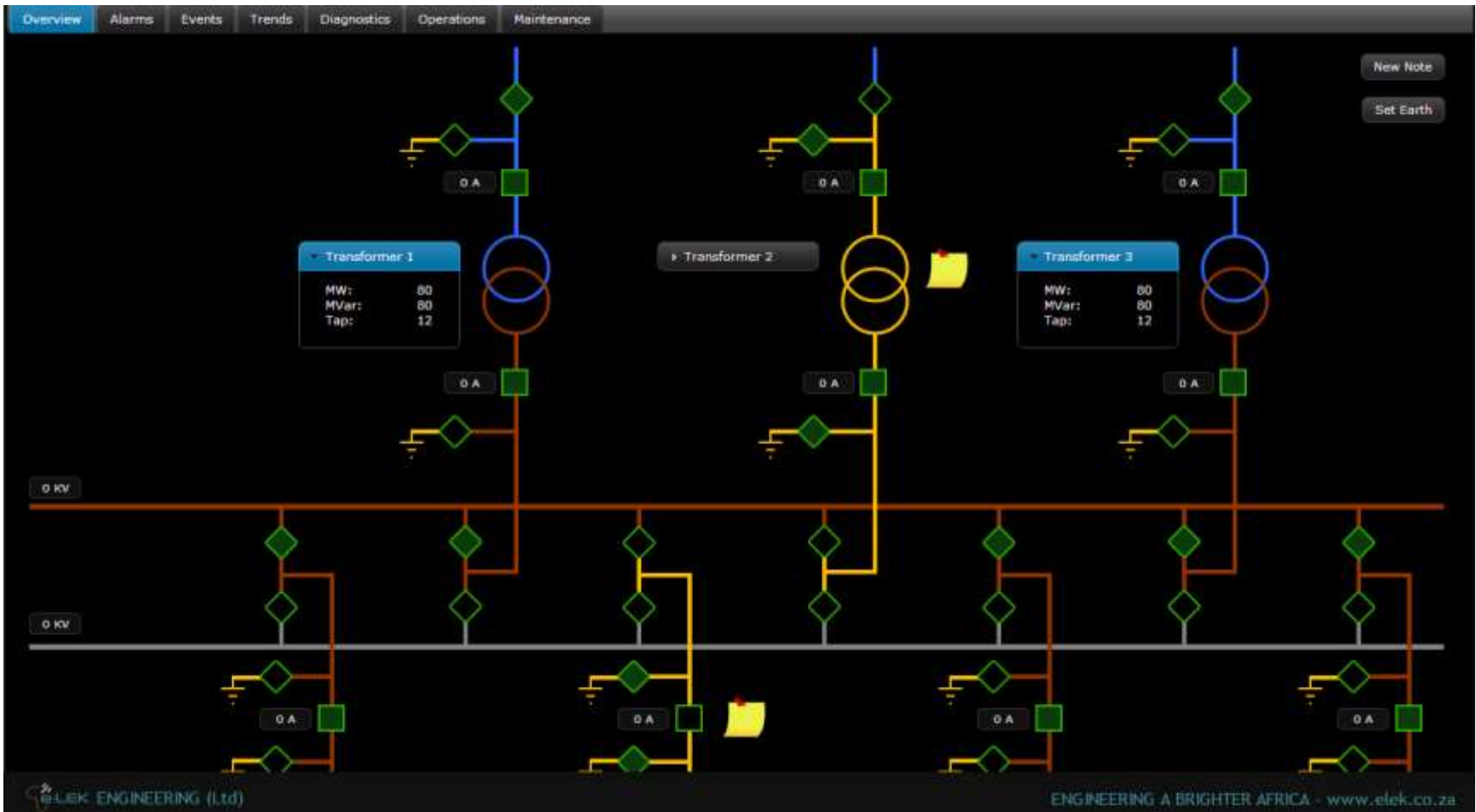
Non-Traditional SCADA

- SMS and Email Alerts
- Daily, Weekly, Monthly Reports Automatically Generated and Emailed/Uploaded
- Remote Access
- Distributed SCADA System instead of Central Control Center
- Full Access to all data from anywhere

Safety

- Dynamic Network Coloring helps prevent incorrect operations
- Portable Earth Supervision
- Automatic Interlocking to prevent incorrect operations
- User access and monitoring to prevent unauthorized access
- User information logged for audit trail

Control Overview



Operations

Overview Alarms Events Trends Diagnostics **Operations** Maintenance

Breakers

Feeder 1 - Breaker

Total Operations	23
Last Operation	123 Days ago
Next Maintenance	2013-10-23
Average Trip Time	55ms
Compressor Rnn Time	12 Minutes

Feeder 2 - Breaker

Total Operations	23
Last Operation	123 Days ago
Next Maintenance	2013-10-23
Average Trip Time	55ms
Compressor Rnn Time	12 Minutes

Feeder 3 - Breaker

Total Operations	23
Last Operation	123 Days ago
Next Maintenance	2013-10-23
Average Trip Time	55ms
Compressor Rnn Time	12 Minutes

Feeder 4 - Breaker

Total Operations	23
Last Operation	123 Days ago
Next Maintenance	2013-10-23
Average Trip Time	55ms
Compressor Rnn Time	12 Minutes

Tap Changers

Transformer 1

LTC Pass through Neutral	Fail
LTC Max Range of Operation	17
Fail to Operate	Yes
Total Operations	23

Transformer 2

LTC Pass through Neutral	Fail
LTC Max Range of Operation	17
Fail to Operate	Yes
Total Operations	23

Transformer 3

LTC Pass through Neutral	Fail
LTC Max Range of Operation	17
Fail to Operate	Yes
Total Operations	23

Transformer

Transformer 1

Average Load	63 MW
Overload Alarm	Pass
Top Oil/LV Winding Temp	15 °C
Bushing PF Trending	95%

Transformer 2

Average Load	63 MW
Overload Alarm	Pass
Top Oil/LV Winding Temp	15 °C
Bushing PF Trending	95%

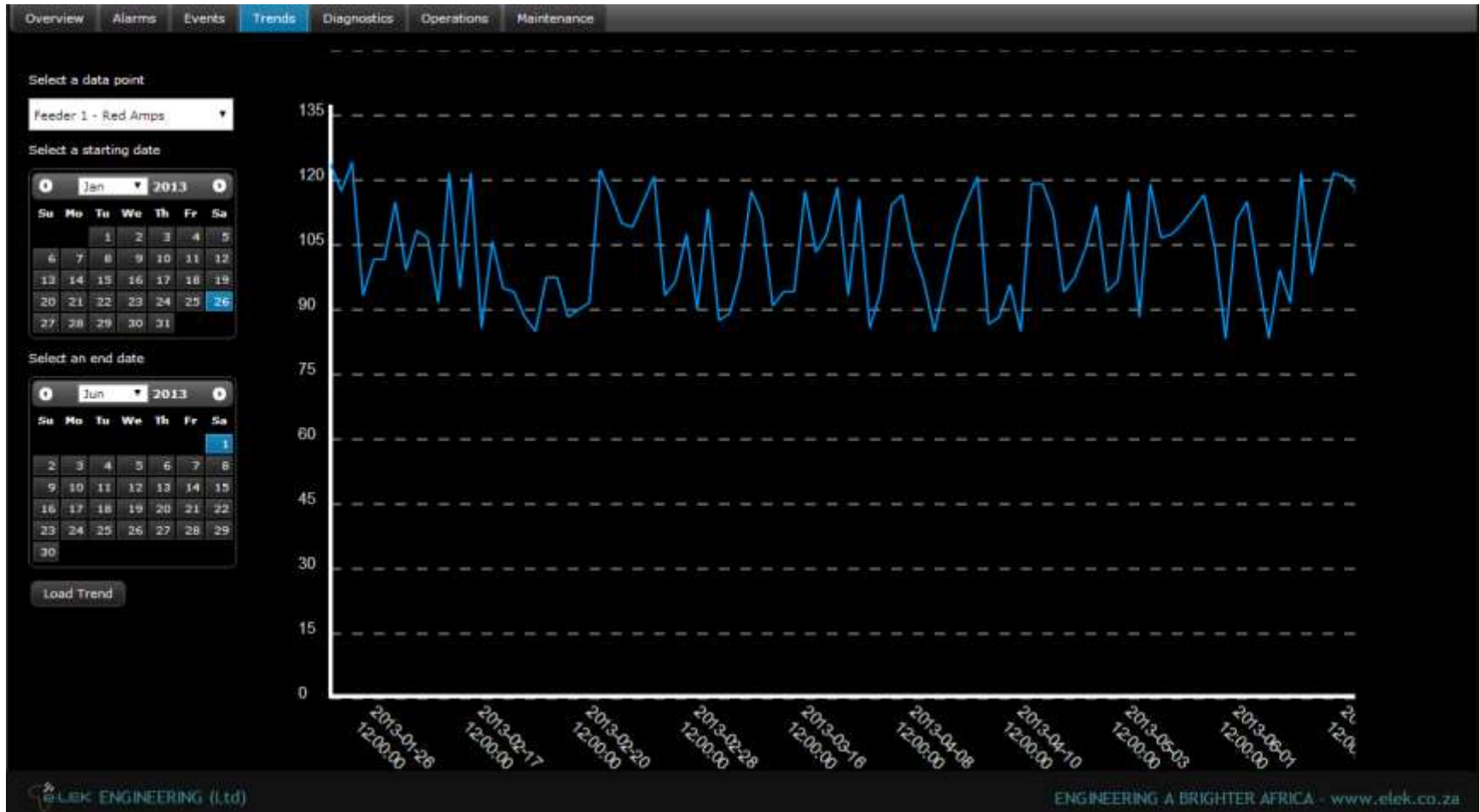
Transformer 3

Average Load	63 MW
Overload Alarm	Pass
Top Oil/LV Winding Temp	15 °C
Bushing PF Trending	95%

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Trends



Events

Overview Alarms **Events** Trends Diagnostics Operations Maintenance

Select a data point
All Events

Select a starting date
Feb 2014

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

Select an end date
Mar 2014

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Load Events
Export Events

Page 1

2014-02-19 14:47:29.478000	Feeder 1 - Feeder 1 - Breaker Open
2014-02-19 14:47:29.478000	Feeder 1 - Feeder 1 - Breaker Closed
2014-02-19 14:47:29.478000	Feeder 1 - Feeder 1 - Isolator 1 Open
2014-02-19 14:47:29.478000	Feeder 1 - Feeder 1 - Isolator 1 Closed
2014-02-19 14:47:29.479000	Feeder 1 - Feeder 1 - Isolator 2 Open
2014-02-19 14:47:29.479000	Feeder 1 - Feeder 1 - Isolator 2 Closed
2014-02-19 14:47:29.479000	Feeder 1 - Feeder 1 - Line Isolator Open
2014-02-19 14:47:29.479000	Feeder 1 - Feeder 1 - Line Isolator Closed
2014-02-19 14:47:29.479000	Feeder 1 - Feeder 1 - Busbar Earth Switch Open
2014-02-19 14:47:29.479000	Feeder 1 - Feeder 1 - Busbar Earth Switch Closed
2014-02-19 14:47:29.479000	Feeder 1 - Feeder 1 - Line Earth Switch Open
2014-02-19 14:47:29.479000	Feeder 1 - Feeder 1 - Line Earth Switch Closed
2014-02-19 14:47:29.479000	Feeder 1 - Alarm 1
2014-02-19 14:47:29.479000	Feeder 1 - Alarm 2
2014-02-19 14:47:29.479000	Feeder 1 - Alarm 3

Page 2
Page 3

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Control

