Voltex
SYSTEMS & INTEGRATION

SUBSTATION AUTOMATION SYSTEM EXPERTS

POWER MANAGEMENT SYSTEMS

IED NETWORKS

IEC61850

Design

Integration

Commissioning

etap
Powering Success
SYSTEM INTEGRATOR
SI-13-02 REGISTERED

POWER MANAGEMENT SYSTEMS

We understand what you do

POWER MANAGEMENT SYSTEMS
Substation Automation Systems
IED Networks / VLAN
IEC 61850
Smart Grid

NETWORK PROGRAMMING
HSR – PRP
Switches
Gateways / Routers / Firewalls
Latency Mitigation

INTELLIGENT ELECTRONIC DEVICE
Multiple Units / Brands
SCL Files
Logic
Interlocking
Blocking Schemes

ETAP Real-Time™
PSMS™ – Power Management System
iLS™ – Intelligent Load Shedding
µGRID™ – Microgrid Controller
ePPC™– Power Plant Controller
eOTS™ – Operator Training Simulator

AEMO POWER SCADA
Remote Monitoring Equipment (RME)
Remote Control Equipment (RCE)
SCADA End to End Testing

Substation Automation Systems

Voltex Systems & Integration as a sister company to Voltex Power Engineers, provide consulting and commissioning services solely for Power Systems Automation.

Process Automation is a different discipline, and if these engineers are engaged without extensive experience and understanding of power systems operation and protection, the risks can quickly become catastrophic.

IED Networks

A critical component of effective SAS is the network design and architecture selection. VSI favour HSR – PRP, (High-availability Seamless Redundancy - Parallel Redundancy Protocol), which has proven to be reliable and generally prevalent among leading manufacturers.

VLANs (Virtual LANs) are usually preferred on multiple substations systems to mitigate potential latency issues, with communication paths limited to those necessary for operation. VLANs require "smart" switches which can be programmed to forward messages to the correct addresses.

IEC 61850

IEC 61850 is intended to provide interoperability between a variety of devices (IEC 61850-7-2). However, the Conformance Statements required by Annex A does not make ALL communication features mandatory – manufacturers can choose which optional features they adopt.

Designers must be very familiar with these conformance statements (often not supplied with a standard user manual) before commencing any network philosophy or IED programming, especially in networks combining more than one brand of equipment (individual OEMs will not usually be aware of their "interoperability" with other OEMs devices).

GOOSE / MMS / SMV are not all supported by all OEM's.

ETAP Real-Time™ and ETAP µGRID™

VSI are Registered System Integrators for ETAP Real-Time™ and ETAP µGRID™ Controllers with Software in the Loop (SIL) option.

AEMO Power SCADA

The Voltex Group's familiarity with AEMO, NSP (utility) operations and the National Electricity Rules (NER) support VSI's capabilities with AEMO RME / RCE and SCADA End to End testing.

VOLTEX EXPERTISE

Design

Power Systems Studies

- Protection Coordination
- Load Flow and Short Circuit
- Arc Flash
- Transient Studies

Integration

Substation Automation Design

- Monitoring and Control
- Power Management
- Load Shedding
- Event Logging

Power SCADA Systems

When you engage two unrelated contractors, one to provide HV Power System Design; the other to provide Power System Automation or "Power SCADA" System Design, you are actually duplicating much of the design, unnecessarily.

With the Voltex option of "2 Solutions – 1 Company !", our power system design team from **Voltex Power Engineers (VPE)** undertake modelling of your HV system (we call this the "digital twin"), then run various "What If ?" scenarios to ensure that equipment is not overloaded, protection settings minimise disruption in even of a fault, and if required, system performance under conditions such as loss of a feeder or generator, and provide a comprehensive report.

If you then engage another supplier to design a "Power Management System", they invariably collaborate with your team to develop a Functional Design Specification (FDS) and then program a bespoke system to deliver results (hopefully) in accordance with the FDS. Typically there can be an intensive commissioning process as several iterations are tested to ensure design intent.

Voltex Systems & Integration (VSI) would utilise much of the previous Power System Studies as a basis for Power SCADA Management design. As an example, with IEC 61850 systems, the IED Configuration Files combine Protection Settings (VPE), Logic elements (VPE) and Communications Network settings (VSI). No duplication in design!

For higher level Power Systems Management and Simulation, ETAP provides a Commercial-off-the-shelf (COTS) system Verified and Validated to the strict US Nuclear Industry standards. Your digital twin model is connected directly to the power system via existing or our own SCADA systems. Operators can then safely train off-line on an exact replica of their actual power network.

Design, Integration and Commissioning of Power SCADA Systems requires experience and expertise in two separate streams – Power Systems, and Communication Networks. Failure in design or integration of either can lead to catastrophic consequences.

Mitigate your risks with our Principals' combined 100 years of engineering industry knowledge and unique fusion of these skills and experience.

Voltex
POWER ENGINEERS

Voltex
SYSTEMS & INTEGRATION

VOLTEX SOLUTIONS

VOLTEX POWER ENGINEERS (VPE) specialise in HV Power, from Design to End-of-Life. We aim to be at the centre of your world - we call it the "Voltex Vortex".

By partnering with a select team of engineers committed to improving the bottom line throughout the lifecycle of your electrical assets, you gain the competitive advantage of our technical knowledge and experience during Design, Procurement, Selection, Engineering and Commissioning, through to Maintenance, Modernisation and Upgrade.

VOLTEX SYSTEMS & INTEGRATION (VSI) provide Advanced Power Management and Simulation for the growing demand for "smart" Substation Automation Systems with HV Networking, such as IEC61850 with GOOSE messaging. VSI also manage implementation of ETAP Real-Time™ systems, including Microgrid controllers with integrated Software in the Loop (SIL) verification.

VSI provide Design and Commissioning assistance and liaison with all Network Service Providers' requirements for SCADA interfacing with Generation plant Remote Monitoring Equipment and Remote Control Equipment.

The Voltex Group offer power and generation system design, management and control solutions, without the risks of contractual disagreements over scope or responsibility for system integration and commissioning.

www.voltex.com.au

BRISBANE
Level 19 AMP Place
10 Eagle St
Brisbane, QLD 4000
AUSTRALIA

t: +61 7 3303 0197
f: +61 7 3303 8637
e: info@voltex.com.au

Licence No: 72239

SYDNEY
Level 57, MLC Centre
19-29 Martin Place
Sydney, NSW 2000
AUSTRALIA

t: +61 2 9220 1755
f: +61 7 3303 8637
e: info@voltex.com.au

MELBOURNE
Level 2 Riverside Quay
1 Southbank Boulevard
Southbank, VIC 3006
AUSTRALIA

t: +61 3 9982 4522
f: +61 7 3303 8637
e: info@voltex.com.au

PERTH
Level 28 AMP Tower
140 St Georges Tce.
Perth, WA 6000
AUSTRALIA

t: +61 8 9278 2413
f: +61 8 9278 2414
e: info@voltex.com.au

SANTIAGO
Level 12, 40 El Golf Ave.
Las Condes
Santiago, 7550107
CHILE

t: +56 2 2594 7492

e: chile@voltex.com.au

etap Thinking Power
AUTHORIZED REPRESENTATIVE