

ACTOM ENERGY PROFILE



ACTOM SOLUTIONS BUSINESS

ACTOM ENERGY
A division of ACTOM (Pty) Ltd

ACTOM

ACTOM Energy

“ In response to market demands, it is a great pleasure to introduce ACTOM’s new Solutions Business and its team.

ACTOM Energy works in close collaboration with the various divisions within the ACTOM Group in order to address the increasing demand for comprehensive solutions for small and medium plants and equipment”

Christian Baret
Divisional CEO: ACTOM Energy

Summary list of our services

- Power and Distribution Transformers
- MV Switchgear
- MV Mini Substations
- LV and MV Motors & Drives
- Black Start Emergency Power
- Motor Control Centers
- Energy Storage
- Industrial UPS
- Protection and Controls
- Power Generation
- Mobile / Containerised Substations
- HVAC
- Lighting
- Cathodic Protection
- Safety and Security
- HPU's
- Oil Lubrication System Hydrodynamic Cleaning & Flushing
- Electrical Installations
- Condition Monitoring
- Motor and Transformer Repairs
- Transformer Oil Analysis & Filtration
- Boilers Auxiliaries
- Maintenance, Inspection & Repairs

By integrating the ACTOM Group's locally manufactured electrical equipment, repairs and services with ACTOM Energy's front-end engineering and project management capabilities, ACTOM Energy are able to provide the customer with customised solutions for the lifecycle of various plant and equipment.

Who is ACTOM Energy

ACTOM Energy is a project business with front end engineering capabilities and technical expertise. ACTOM has technology, distribution and value added reseller agreements with leading local and international suppliers. We are able to provide customers with optimal solutions through the integration of these and ACTOM's wide range of locally manufactured products.



From Control & Instrumentation, Protection and Control, Automation, Electrical Installations, Commissioning, Auxiliaries, Power Generation, MV Sub-stations, Condition Monitoring including remote Data Logging, Maintenance and Repairs just to name a few, ACTOM Energy can assist clients across a wide spectrum of industries in South Africa, Sub-Saharan Africa and Internationally with most of their existing or new plants' requirements.

ACTOM Products and Services Integration

Over the years ACTOM Energy has developed solid front end engineering and project management expertise in the Oil & Gas Offshore sector where stringent requirements govern performance, efficiency, quality and safety. Today, ACTOM Energy can integrate products and services from our Group Divisions to provide clients with system solutions such as:

- Integrated Plant Instrumentation
- Boiler and Auxiliary Electrical Installations
- Industrial MV Substations
- Black Start Emergency Power Generation
- Island Power Generation
- Desalination and Demineralisation Plants
- Energy Storage (UPS)
- Hydraulic Pressure Units (HPUs)
- Pump Stations
- Ventilation Plants
- Compressors
- HVAC Installations
- Lighting Installations
- Fire Detection and Prevention to NFPA 20 & NFPA70



Battery Charging Hall



Boiler Electrical Installations

Utilising the ACTOM Group's extensive Repairs and Service capabilities, ACTOM Energy can now also support your plant and equipment through its life cycle by providing the following services:

- General Maintenance - Medium and Low Voltage
- Motor and Transformer Repairs
- Transformer Oil Monitoring and Purification
- Mechanical Oil System Cleaning and Flushing
- Motor Unit Exchanges
- Periodic Surveys
- Remote Data Logging and Condition Monitoring
- Emergency 24/7 Repairs



Mobile Oil Filtration Plant

Control and Instrumentation

From design to installation and commissioning, ACTOM Energy's C&I capabilities range from Medium Voltage Substations, Boilers, Power Generation, Lighting, HVAC in various processes and core industries such as: Steel, Defense, Water, Mining, Cement, Petro-chemical, Paper, Sugar, Marine, Oil & Gas and others in accordance with IEC 60051 and IEC 60546 specifications. Our services include:

- General plant process instrumentation and controls
- Data acquisition and telemetry
- Protection and controls
- Flow and level measurement and controls
- Gas measurement
- Remote condition monitoring
- Mobile / On line monitoring
- Operator interfaces, SCADAs, HMIs
- Impressed Current Cathodic Protection Systems
- Fire Detection & Protection to NFPA & SANS Families of standards



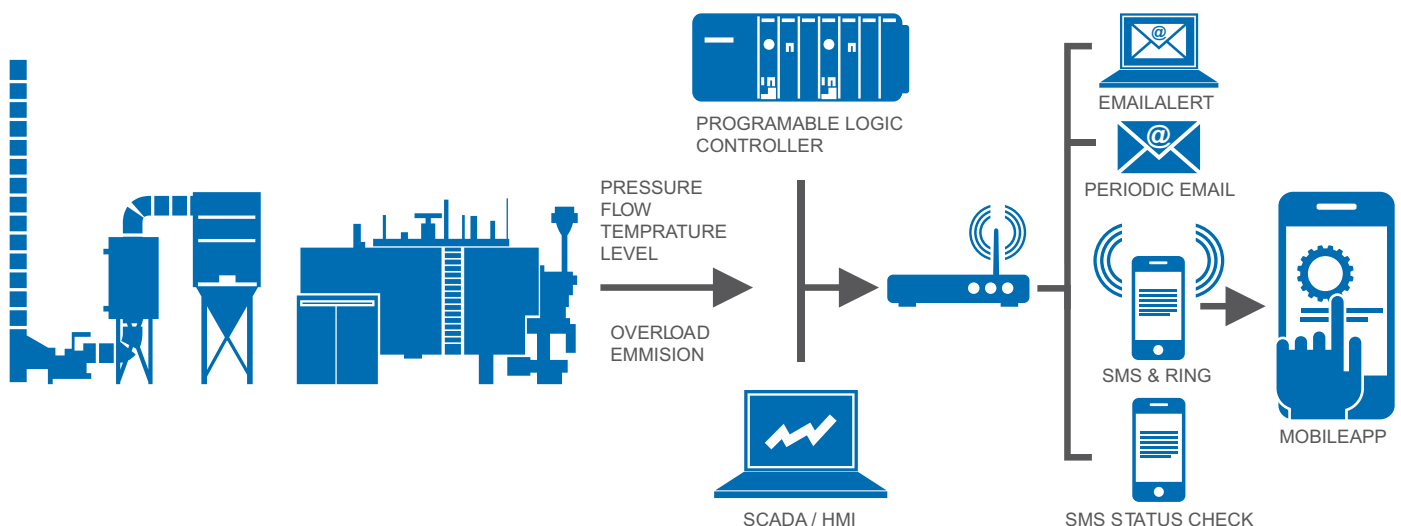
Operator Interface



Drilling Display

Condition Monitoring, Remote Data Logging

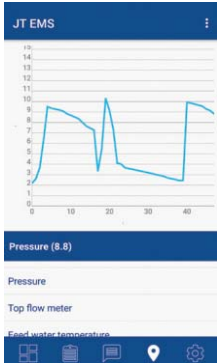
ACTOM Energy can provide real time direct online access to plant and equipment using off the shelf GSM transmission equipment. Fault diagnosis can be carried out remotely with trending of critical parameters giving an accurate understanding of developments on site before an emergency shutdown occurs, thereby providing you time to take proactive measures and avoid costly downtime.



Remote monitoring reduces the need for costly routine manual site inspections and data recording.



Monitoring of John Thompson firetube boiler at Lentegeur Hospital



Screen shot of Boiler Water pressure monitored through ACTOM Mobile App.



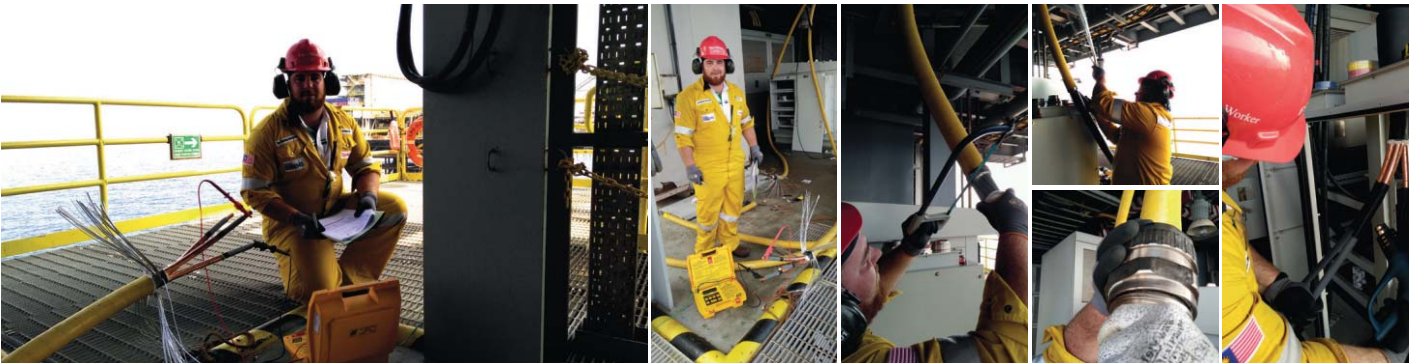
Monitoring of Black Start Start-up Generator required in the case of Island Power Generation

Most ACTOM products can be equipped with the relevant sensors to suit condition monitoring requirements:

LV and MV motors	Speed, vibration, temperature, loading
Power Transformers & Distribution Transformers	Dissolved gas, water content, temperature, tap changer position, bushing health status
Switchgear	Tripping battery health, battery charger, trip
Boilers	Pressure, temperature, flow
Lighting	Energy consumption, temperature, switching, scheduling
HVAC	Energy consumption, switching, temperature

Electrical Installations

From design, protection grading, AutoCad drawings, 3D raceway and reporting to installation and commissioning, ACTOM Energy can provide most of the customer's electrical installation requirements using competent and CompEX certified personnel.



Medium Voltage Electrical Installations to SANS 10198/10142-2 up to 33000V, 20MVA

- Switchgear
- Distribution transformers
- Control panels
- Power cables and terminations
- Protection and control panels
- Metering panels
- Grid connection
- Turnkey substations up to 20MVA
- Hazardous area installations



Low Voltage Electrical Installations to SANS 10142-1/1973 & IEC 61557 up to 1000V AC and DC

- Sizing and protection
- LV, control, electronic & fiber optic cabling
- Power generators
- UPS units
- Switchboards
- SCADA, HMI systems
- Lighting
- HVAC
- Distribution boards
- Access control
- Security and Safety
- Power Factor Correction



MV Sub-Stations: Balance of Plant

Together with ACTOM Group Divisions, ACTOM Energy can provide turnkey Medium and Low Voltage Substations up to 20MVA for conventional outdoor Substation use, fabricated substations and containerized mobile substations to IEC/SANS 60076, 60726, 61363, 61892, 60694 & 62271 standards. Our services include:

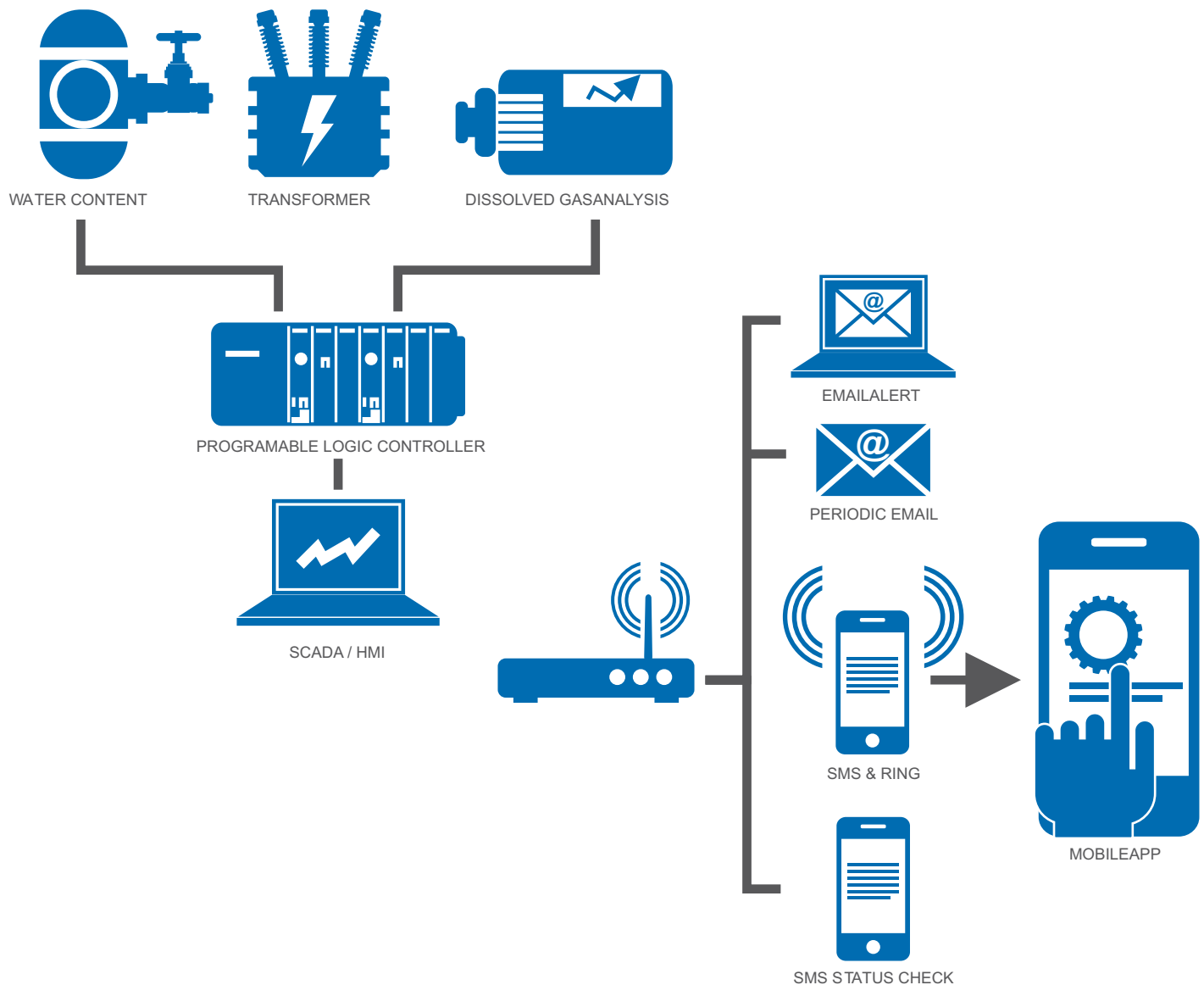
- Designs, AutoCAD drawing
- Manufacturing
- Civil
- Installation and Commissioning
- Maintenance
- Remote condition monitoring
- Oil analysis and filtration



ACTOM Mobile Substation

MV Substations, Transformers, Condition Monitoring

ACTOM Energy offers monitoring and control solutions for power and distribution transformers which can be tailored to each customer's specific requirements. Our range of solutions varies from very simple load recording devices to full monitoring and control solutions for power transformers. Our condition based asset management solutions maximize the availability and reliability of electrical networks in a cost effective manner.



- Cooling system monitoring & control
- Direct winding temperature measurement
- Dynamic rating
- On-load tap-changer monitoring & control
- Transformer moisture monitoring
- Bushing health monitoring
- Continuous partial discharge monitoring (IEC 60270)
- On-line dissolved gas analysis
- Data consolidation and recording
- Multi-mode communications
- Fail-safe systems

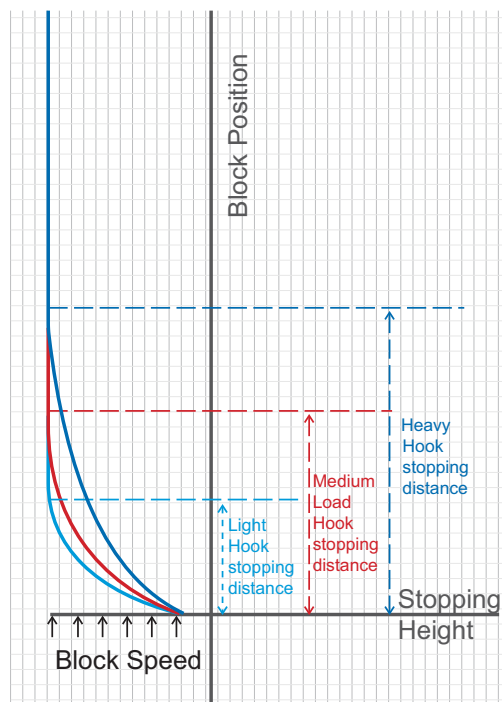
LV and MV Power Automation and Controls

ACTOM Energy has developed an extensive track record with LV, MV and DC VSD projects. Using the extensive range of ACTOM LV and MV Motors from ACTOM Power Conversion, ACTOM Energy has the expertise to provide the customer with the optimal Motor-VSD matching using Variable Speed Drives from leading suppliers to suit specific needs and installed equipment architecture. Our services include:

- Fault diagnostics and repairs
- Brown field upgrades
- Green field installations
- Motor-VSD matching
- Fieldbus communication systems
- Dynamic Load sharing
- Dynamic Safety functions, such as:
 - Brake Escort
 - Last Minute Braking
- Online Condition Monitoring
- Ancillary equipment
- MCCs
- Starters



ACTOM Unibox motor



Transocean 1200 ton Drawworks SCR upgrade, including "Brake Escort" and "Last Minute Braking" functions.

The project, completed in Singapore, included an iba PDA data remote monitoring, diagnostics and archiving system

Power Generation

Offering Emergency Black Start (EBS) power generation using diesel or gas engines, “island” and/or ‘hybrid” power generation to existing diesel or gas power generation plant optimization, ACTOM Energy can provide you with a customised Power Generation solution to suit your specific requirement between 250kW and 20MW.

Our services include:

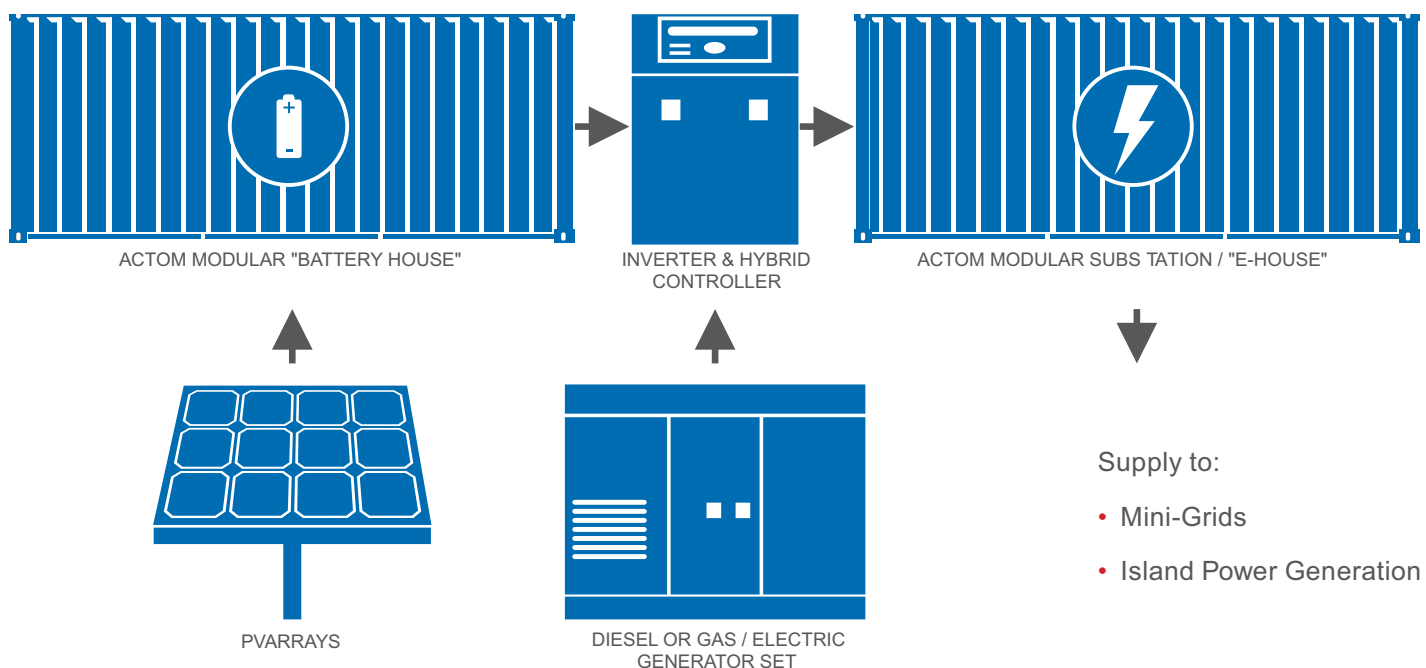
- Load profiling
- Design
- AutoCAD drawings
- Diesel / Reciprocal Engine
- Generator sets (IEEE387, ISO8528)
- Containerized Energy Storages
- PV Arrays and Inverters
- Hybrid Controllers
- Modular E-Houses
- LV and MV Substations
- Grid Tie Connection & Metering
- Remote Monitoring
- Maintenance



Main generator sets for the SA NAVY Drakensberg



Containerized Diesel Generator set for Armscor



Fluid Technology

As an official Parker Distributor we offer a wide range of Parker products and Services ranging from:

- Pumps & Motors
- Industrial Valves
- Cylinders
- Filtration
 - Oil Systems Hydrodynamic Cleaning & Flushing
 - Hydraulic, Lubrication and Coolant filtration
 - Racor fuel conditioning and filtration
 - On line system contamination monitoring
 - Piping System design & Installation
 - Stainless steel
 - Flexible High pressure Hoses
 - Parker EO, A-Lock, Triplock
 - Hoses Registers
- Pneumatics
- Training
 - Filtration
 - High Pressure Hoses management

Our services include system design, manufacturing, site installation and commissioning using our mobile workshops which can be deployed anywhere in the world.



Mobile workshop

HPU Manufacturing

Containerised HPUs in excess of 1MW can be designed and manufactured to suit your specific needs.



797Kw HPU designed and manufactured by ACTOM Power Fluid & Motion

High Pressure Hoses and Fittings

Parker has the widest range of High Pressure Hoses and Fittings in the world. ACTOM PF&M can manufacture High Pressure Hoses on site using portable crimping and testing equipment.

Our manufactured high pressure hoses are certified with testing data recorded. The data can be registered in a hose register to the client's requirements.

Hydraulic installations can be performed using EO & EO2 tubes and fittings with the option of Parflange piped and tube connectors to reduce labour content.

Oil Systems Cleaning and Flushing

Hydrodynamic Cleaning and Flushing with oil at turbulent flow rates can be done on site for Combustion Engines and Turbines using one of our containerised diesel or electric HPUs together with Parker Filtration and Monitoring equipment. Applications:

- Turbine and Turbo-Generators (Steam and Gas Turbines)
- Large Marine Diesel Engines
- Central Lube Oil Distribution System, HPUs
- Boiler Feed Pumps
- Hydraulic and Lubrication Oil System
- Large Industrial Diesel Engines



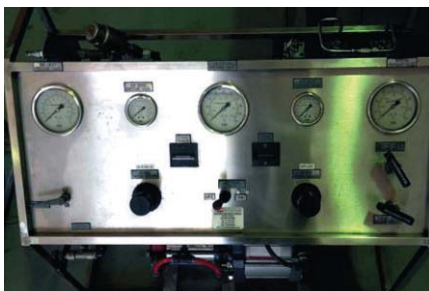
Particle Counter



Portable Filter Cart

On Site Turbine and Large Diesel Engine Oil Filtration

ACTOM Energy can provide diesel driven filter plant equipped with our Parker multiple filtration manifold. We can filter existing lubrication oil to a level that meets or exceeds the SAE Cleanliness Standards. With the exception of scorched or damaged oil, this filtration/reclamation process eliminates the need to replace the existing oil, thereby creating a tremendous saving in cost.



Nitrogen intensifier



High pressure water testing equipment



Flushing Pump



Accumulator Skid

Safety & Security

ACTOM Energy can provide Safety and Security systems to protect and safe-guard personnel and assets from hazards such as fire, theft, unauthorized access, vandalism, gas leakage, hazardous material ingress, etc. We can provide solutions which automatically initiate preventive actions to preserve human life and to limit damage to assets and plant equipment. Our services include:

- Emergency Black Start Power Generation
- Electrical & Radio Interferences Segregation
- Fire and Gas Detection
- Fire Suppression Systems
- Emergency Shutdown systems
- Customised UPS Options
- Telephone Systems
- Public Address Systems
- General Alarm System
- CCTV Systems
- Remote Monitoring Systems
- Access Control Systems
- Alarm annunciation via GSM remote monitoring
- Portable Appliance (PAT) Testing



UPS Systems



Fire & Gas Alarm



Remote Monitoring System



Manual Call Station



Radio & TV network



Ex CCTV Systems

Inspection, Maintenance and Repairs

ACTOM Energy provides support services to the ACTOM Electrical Repair Centers by adopting a systems approach going beyond the electrical motors and transformers. By including Protection, Control and Remote Condition Monitoring, we give the customer peace of mind that their equipment is working within the original OEM specifications and is adequately protected.

- CompEx Site Surveys
- System Failure Analysis
- Circuit Breaker Injection Testing (Primary up to 12kA)
- Protection Meter Calibration (V, I, W, var, Synch)
- Thermographic Surveys
- Condition Monitoring
- LV and MV Insulation Testing, including VLF Testing
- LV and MV Motor-Drive-MCC system appraisal
- LV/MV Substations
- Motors and Transformers, including protection & control system commissioning
- Transformer Site Filtration
- Turbine, engine and other lubrication filtration.



Parker Super dry cartridge system provides a cost effective alternative to the traditional heat vacuum filtration process, while keeping the transformer in operation.

- Online Transformer Oil Analysis and Cleaning
- Online Transformer Load Heavy Duty Tap Changer Constant Filtration
- Online Transformer Oil Dehydration

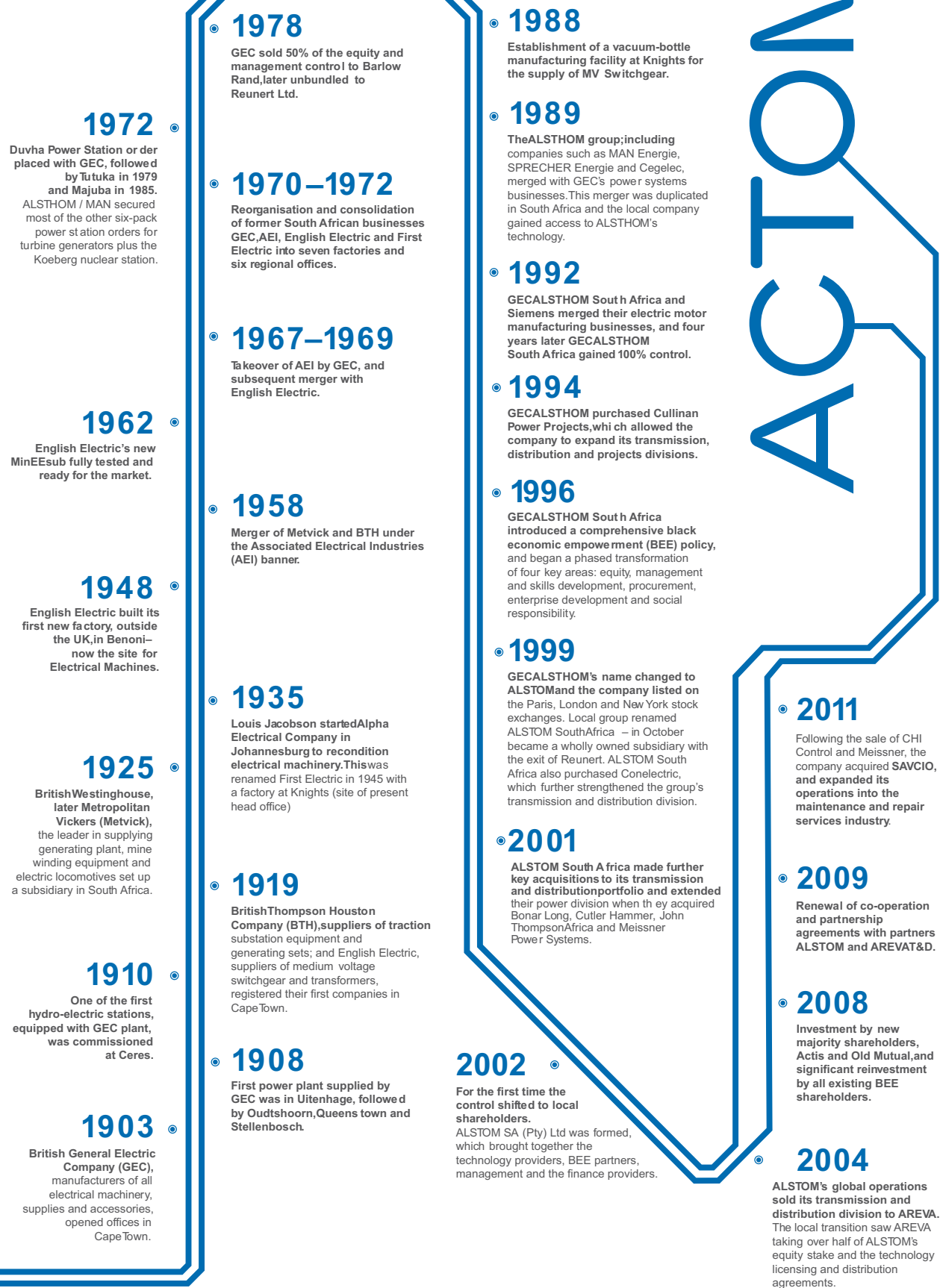


Benefits:

- Transformer remains in-service during process
- Reduces transformer dry-out costs
- Improve oil dielectric values
- Improve transformer power factor
- Operates continuously unattended
- Extend oil service life
- Extend transformer service life



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