

PEL Engineering Services

PEL has an advanced engineering services that uses state-of-the-art electronic equipment operated by highly skilled and experienced engineers to provide utility and industrial customers with a fast, non-invasive health check of the electrical equipments.

The services department of PEL brings together the ability, skills and associated product knowledge to provide a comprehensive range of services. These services provide the best possible solutions for you and allow you to have the peace of mind in the knowledge that your electrical power and distribution assets are being effectively working



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We Provide Services In

- Power Transformers
- Distribution Transformers
- MV Instrument Transformers
- Control & Protection Panels
- MV & LV Panels



Services Include

- Diagnostic and assessment services
- Preventive and corrective maintenance
- Remanufacturing services
- Installation and commissioning services
- Engineering Consultancy and services
- Customer Training
- Other services



On Site Services

PEL can provide the necessary services either in the field of operation or in our manufacturing facility. On-site services provides tools to identify problems before they become catastrophic.



Factory Services

When it is not possible to repair equipment in the field PEL offers a factory base solution. PEL possess comprehensive manufacturing facilities manned by professional personnel for repairing and overhauling equipment . These facilities are supported by technical and project functions to achieve complete customer satisfaction





Preventive & Corrective Maintenance of Transformers



PEL provides the experienced personnel to perform following transformer field services

- Spare parts
- Leak repair or gasket replacement
- Radiator repair
- Component Replacement
- Oil processing or replacement
- Tap-changer inspections & overhauls
- Cooler equipment replacement
- Calibration of gauges
- Re-clamping
- Re-painting

PEL Typical transformer factory services offered include

- Tank replacement
- Winding rewind
- Core replacement
- Tap-changer overhaul
- Transformer up-rating
- HV testing

Factory based facilities of the PEL include

- Workshops with cleaning facilities and vacuum drying ovens
- Modern machining and fabrication facilities
- Coil and core manufacturing facilities
- Assembly workshops including large capacity craneage
- High voltage test facility





Diagnostic & Assessment Services of Transformers

PEL has a range of diagnostic techniques to assess the overall condition of the transformer

Electrical Commissioning & Maintenance Testing

- Transformer Turn Ratio
- Winding Resistance
- Insulation Resistance
- Capacitance & Dissipation Factor
- Core Excitation Current
- Sweep Frequency Response Analysis
- Sound Measurement
- Leakage Reactance
- Power Factor (Bushing & Winding)
- Core Ground Test
- Thermography (Thermal Imaging)

PEL can help read the pulse of the transformer with its latest oil analysis techniques

- Colour & Appearance
- Dielectric Breakdown
- Moisture Content
- Acidity (Neutralization Number)
- Viscosity
- Flash Point
- Interfacial tension
- Dielectric Dissipation Factor
- Pour Point

Special techniques include:

- Dissolved Gas Analysis
- Furan Analysis (Furfural Content)
- Degree of Polymerization
- Sulphur Content (Corrosive Sulphur)
- Oxidation Stability
- PCB Content





Installation & Commissioning Services



PEL provides large number of retrofit solutions of various makes and models of circuit breakers. We also provide solutions for the life extension of switchgear which include

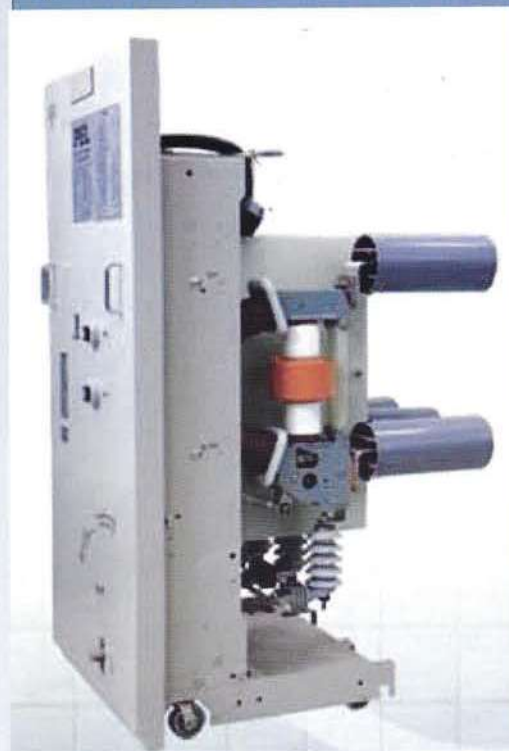
- Circuit Breaker mechanism exchange
- Retrofit from oil breakers to vacuum or SF6 breakers
- Retrofit from double pressure to self blast technology.
- Replace disconnecter and breaker by disconnecting breaker
- Replacement of old gap arrester by modern MO arrester

We take care of installation of all power and distribution transformers supplied through out Pakistan. We provide these services for any make of equipment.

PEL offers a complete installation and commissioning services with unrivalled degree of professionalism, reliability and efficiency


- Receiving Inspection
- Offloading, moving and installation
- Complete Assembly
- Oil Filling
- Acceptance Testing
- Energization

Any power product need to properly installed and commissioned to achieve required performance. This requires expertise in product, right practices and qualified resources





Engineering Consultancy & Services



PEL provides services to check condition of existing power product of any make and model available in your plant. We undertake risk assessment and provide consulting services with objective to maintain or enhance the plant performance

- Fault Investigation
- Troubleshooting
- Life Management Solutions
- Risk Assessment
- Condition Assessment
- Design Assessment
- Feasibility Studies
- Technical Assistance & Supervision
- Failure Analysis
- Energy Audit

PEL curriculum is formalized to provide custom training programs, best practices and leading knowledge and procedures in the following fields

- Transformer

- > Transformer Components
- > On-site commissioning activities
- > Routine & preventive checks for in-service transformer
- > On-site testing
- > Storage of transformer accessories & their maintenance

- Electrical System Protection

- > Power system faults
- > Feeder protection
- > Transformer protection
- > Switchgear (Busbar) protection

- Switchgear

- > Identify switchgear and its ratings
- > Rack breakers into or out of connected position safely
- > Perform rack out/lock out/tag out procedure
- > Mechanical and electrical switchgear operation
- > Locate and replace close and trip coils and motors
- > Interpret schematics and wiring diagrams
- > Proper lubrication of circuit breaker and cubicle
- > Test insulation and vacuum integrity



Re-manufacturing Services



PEL is well equipped to carry out intricate designing and production processes, involved in transformer manufacturing

- Power Transformers
- Distribution Transformers
- Auto Transformers
- Dry Type Transformers
- Smart Transformers
- Furnace Transformers
- Instrument Transformers
- Special applications as well as large and sophisticated custom built units

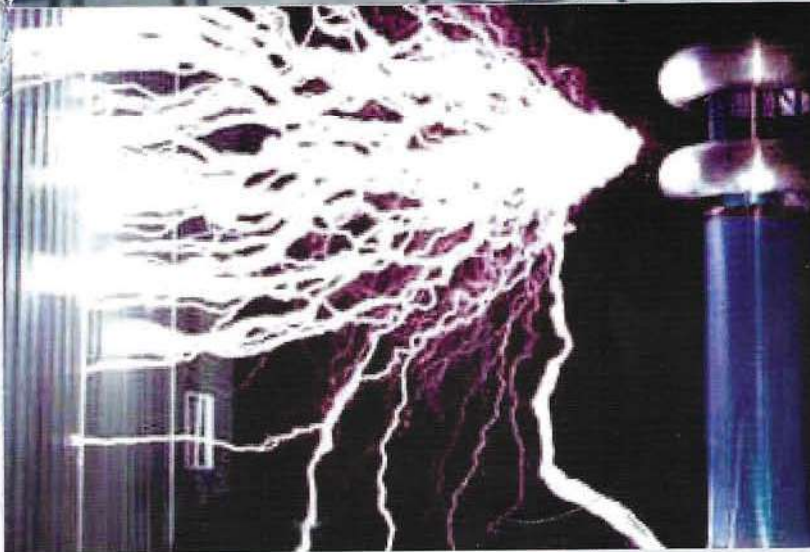
PELs switchboards are steel sheet fabricated, totally enclosed, floor mounting type and vermin and dust proof. All kind of Switchgears are produced for indoor and outdoor installations

- MV Switchgear
- MV Pad Mounted Transformers
- Kiosk Type Compact Sub-Stations
- Other MV Equipments
- LV Distribution Panel
- LV Power Factor Improvement Plant
- Motor Control Centre (MCC)
- Bus Tie Duct
- Other LV Equipments
- Relay & Control Panels
- AC/DC Auxiliary Panels
- Piano type control desks
- Distribution boards
- Feeder Pillars





Other Services



PEL HV laboratory is equipped with latest facilities to carry out some special and type tests

- Lightning impulse upto 800 kV
- Chopped wave impulse upto 380 kV
- Zero Sequence Impedance
- Short circuit impedance
- Temperature rise test upto 4 MVA
- HV AC withstand test
- Sound level test
- AC/DC Hipot
- Loss measurement
- Capacitance & loss angle measurement
- Partial discharge measurement

Equipment Tested

- Power Transformers
- Distribution Transformers
- Instrument Transformers
- MV & LV Switchgear
- Motors
- Generators
- Insulators
- Bushings
- Surge Arresters

Test Equipment

- Two impulse generators (400 kV & 800 kV)
- Two HV Transformers (100 kV & 300 kV)
- AC Hipot (130 kV)
- DC Hipot (80 kV)
- Three phase supply (400 kV)
- C&DF test set (12 kV)



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