



**Prescon  
Engineering  
Pvt Limited**

# **PRESCON ENGINEERING**

## **(Pvt) Ltd.**

Your Power Partner



# HISTORY

## PRESCON Engineering Private Limited

01

Formerly Precision Engineering Services and Consultancy.

02

PRESCON Started its journey in Feb 2006 as Consulting & Condition based Monitoring of Electrical Assets Company.

03

Represents World Renowned Asset Integrity Companies Like DOBLE USA, ETAP USA, ALL TEST PRO USA and DV POWER SWEDEN.

# PRESCON Engineering (Pvt) Ltd.

Design, Inspection, Construction, Installation, Testing Commissioning, Trading  
and Training Company



**15 Trained Engineers**



**500+ Jobs Has  
Been Done**



**20+ International  
Partners**



**25% Annual  
Growth Rate**



**Huge International  
Standards Data Bank**



**90 Clients Nation Wide  
(Critical Industry)**



**Own Testing &  
Commissioning  
Tools/Equipment**



**Sourcing Office In  
UK, USA**



**No# 1 Company In  
Asset Management**



**Quality Conscious**

## MISSION

To provide Reliable Asset Management Solutions, which best fit the industrial needs and to provide best support and maintenance services.

## OBJECTIVE

Contributes towards our nation's industrial growth.

Educate the industry professionals and introduce asset management concepts.

Propose complete solutions rather than just marketing products.

## VISION

The vision of PRESCON engineering is to provide best electrical and mechanical engineering related products and service in the domain of trading, training, inspection, testing, condition monitoring and diagnostics by using our ever growing knowledge, expert team, international consultants & suppliers and modern up to date equipment and facilities. Which will assure safety, quality and system reliability of critical assets of engineering industries in upcoming future.





doble®



Dv/power



etap®  
Thinking Power



AT  
PRO

TECHNICAL COLLABORATIONS  
WITH PARTNERS & MANY MORE



HEAR  
SDT  
MORE  
Ultrasound Solutions



cambridge  
sensotec  
advancing excellence  
in gas analysis



MS MORGAN®  
SCHAFFER




b2  
electronic gmbh



EAGLE EYE  
power solutions



CHAUVIN  
ARNOUX  
CHAUVIN ARNOUX GROUP



ENGINING  
MAKE SOLUTIONS



MAKSAN  
MALATYA MAKİNA SANAYİİ A.Ş.



ARBITER  
SYSTEMS



VIBROSYSTEM

# Equipment Asset of Prescon Engineering

<i>Equipment Name</i>	<i>Model</i>	<i>Make</i>
Insulation Analyzer, 12KV C&DF	M4100	Doble – U.S.A.
<i>Online Partial Discharge Surveyor (PDS) with HFCT</i>	PDS-100	Doble, U.K.
<i>Acoustic PD , SDT</i>	270	SDT, USA
<i>Circuit Breakers Test Set</i>	TDR900	Doble, U.S.A.
Motor Circuit Analyzer/Electrical Signature Analyzer (Complete Kit)	MD-III Kit	All Test Pro LLC ,USA
Turn Ratio Tester	TRT63AP	DV Power
IR Thermography Camera	CA-1886	Chauvin Arnoux, France
Power System Simulator (6 V/6 I, 12 current source ), Meter testing kit ,02 accuracy	F6150	Doble – U.S.A.
Resonator	C	Doble – U.S.A.
Battery Analyzer	EC 2000	GEI, South Africa

## Equipment Asset of Prescon Engineering

<i>Equipment Name</i>	<i>Model</i>	<i>Make</i>
Tap Changer Analyzer & Winding Ohm Meter	RMO40TDP	DV Power, Sweden
Insulation Resistance (15KV)	CA-6555	Chauvin Arnoux, France
<i>Leakage Reactance Test Set</i>	M4110	Doble, U.S.A.
Line Volt Amp Meter	240 V	Doble – U.S.A.
Doble Oil Cup (Power factor)	N/A	Doble – U.S.A.
Voltage Regulator 0-260V/25A	Model – 20C	Puma
Motor Rotation/3 Phase Tester		Promax
IR GUN	ST688	Sentry
Transducer for circuit brakers	TR3190	Doble – U.S.A.
Multimeter (DMM)	MX24B	Matrix, France
Multimeter (DMM)	99	Escort

## Equipment Asset of Prescon Engineering

<i>Equipment Name</i>	<i>Model</i>	<i>Make</i>
Clamp on Meter	F65	Chauvin Arnoux, France
Clamp on Meter	F09	Chauvin Arnoux, France
Power Quality Analyzer, 3 Phase , 4 wire	CA8435 A196	Chauvin Arnoux, France
Power Data Logger PEL103 (Polarity Analyzer)	MA193	Chauvin Arnoux, France
Insulation Resistance (5KV)	CA-6549	Chauvin Arnoux, France
PD Tech	MICA MAXX	PD Tech
Current Clamp BK	PAC93	Chauvin Arnoux, France
Digital Meter (DMM)	MX0057CX	Chauvin Arnoux, France
HD 50KCTS TRMS DMM (Multimeter)	MX0059HD	Chauvin Arnoux, France
Multimeter Clamp	F205,F607	Chauvin Arnoux, France
RMS Leakage Current meter	F65	Chauvin Arnoux, France



## Equipment Asset of Prescon Engineering

<i>Equipment Name</i>	<i>Model</i>	<i>Make</i>
Tachometer	CA1727	Chauvin Arnoux, France
Hand scope Kit (2 channel, 100MHz oscilloscope)	2X40MHZ	Chauvin Arnoux, France
Measuring Kit isole 600V	HX0108	Chauvin Arnoux, France
Current Probe (Inst-RMS)	HX0102	Chauvin Arnoux, France
Infrared Probe	CA1871	Chauvin Arnoux, France
3i Tool for PD	3I	Dimrus
Repetitive Surge Oscillograph. (RSO)		SUMATRON, USA
Transformer Polarity Test Set	20030-000-00	PMT, Canada
Dehydration and purification machine	(6000 L)	GLOBECORE, UKRAINE
Oil Breakdown Voltage Test Set	80KV	KEP
Micro-Ohm Meter	MR 5 – 200C	Schuetz Messtechnik GmbH

# CONSULTING SERVICES

## Equipment & electrical system component

Design, Manufacture, And Installation Of Equipment



Review designs and drawings submitted by the EPC Contractor



Monitor and supervise on site testing of the all the major equipment



Supervise the installation of the electrical and mechanical equipment



Supervise in testing and commissioning of all equipment



Supervise in synchronization of solar power plant with the system



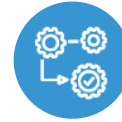
Measurement & verification of work quantities



Certification of EPC Contractor's invoices



Monitor the manufacturing and delivery of equipment



Prepare, process and issue variation orders



Make recommendations to the client regarding settlement of claims by the EPC Contractor



Update the cost of contract works every month



Assist the client in commissioning the Project upon completion

# PROJECT MANAGEMENT COMPONENT



Contract Procedures



Reports



Project Program



Project Relations



Commissioning of Works



Review of O&M  
Manuals

# E-Library

Strategy, Integrity, Compliance Adaptability & Sustainability



Knowing the importance of various testing standards, reference books and technical papers in our knowledge based services business, we have established an e-library for our personal use which include:

- IEC standards
- Cigre Standards
- IEEE/ANSI standards
- BS codes
- NETA standards
- NFPA codes
- ISA standards

## Memberships that we have

- IEEE
- NETA
- Doble Web Portal



## CONDITION ASSESSMENT SERVICES

We don't do testing, as others think it is, we provide condition assessment services

Since its inception in 2006, Prescon has added new tools, techniques and services in its portfolio. At present, Prescon services include, but not limited to, the following:

# OFFERED SERVICES DOMAIN

- Power Transformer Acceptance And Diagnostics Testing
- Transformer Oil Dehydration
- Transformer Maintenance Services
- Transformer DGA
- Generator Acceptance And Diagnostics Testing
- Motor Acceptance And Diagnostics Testing
- Circuit Breaker Testing
- Protection Relays Testing
- Instrument Transformers (CT/PT) Testing
- Energy Meters, Transducers Testing
- Calibration Services
- Surge Arrestor Testing
- Vibration Analysis
- Thermography
- Engineering Studies
- Power System Analysis Like Load Flow, Short Circuit, Relay Coordination, etc
- Maintenance And Repairs
- Trainings
- And Installation/Erection E&I, Commissioning, Procurement

# POWER TRANSFORMER



**Transformer Condition Assessment**



**Online Condition Assessment**



**Offline Condition Assessment**



**Preventive & Corrective Repairs**



**Design/Feasibility Services**



**Training Services**

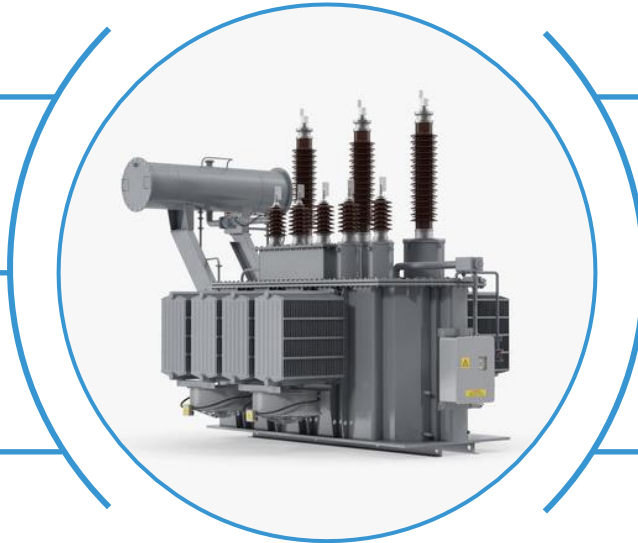
# ONLINE CONDITION ASSESSMENT OF POWER TRANSFORMER

LEVEL I – TCAP

VISUAL INSPECTION

THERMOGRAPHY SURVEY

RFI PD SURVEY



OIL ANALYSIS

HISTORICAL DATA REVIEW

ACOUSTIC SURVEY



# OFFLINE CONDITION ASSESSMENT OF POWER TRANSFORMER

## DIAGNOSTIC & ASSESSMENT

- Capacitance & Dissipation Factor (C&DF) or Power Factor or Tangent Delta
- Transformer Turns Ratio (TTR) Test
- Winding Resistance & DRM Test
- Vector group identification
- Partial Discharge testing (Acoustic based-Online Mode)
- Insulation Resistance (Megger) / Polarization Index (PI)
- Excitation Current Test (Open Circuit Test)
- Leakage Reactance Test (Short Circuit Test)
- Sweep Frequency Response Analysis (SFRA)



## LABORATORY SERVICES

- Dissolved gas analysis
- Furanic compounds in oil
- Water-in-oil analysis
- Degree of polymerization
- Oil quality screens
- Metals-in-oil
- Polychlorinated biphenyls (PCBs)



# DESIGN ASSESSMENT OF TRANSFORMER

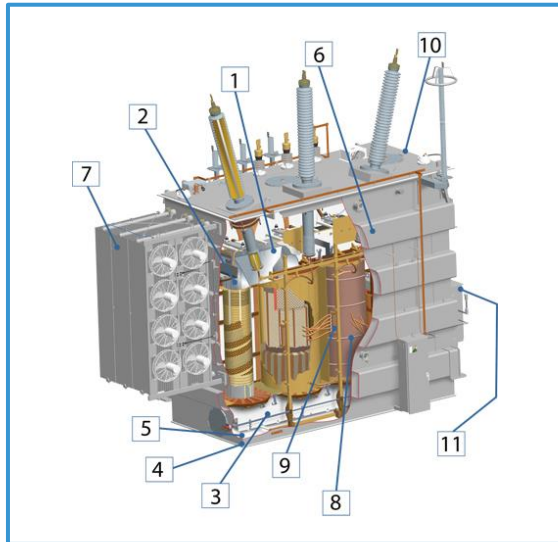
Prescon engineering have earned a reputation for quality and are custom designed to meet specific customer requirements. This process begins by accessing design data from one of the industry's largest computer-based libraries. Hundreds of alternative core and coil configurations are reviewed for each proposal.

➤ Short Circuit Withstand

➤ Thermal Studies

➤ Electrical Studies

➤ Life Assessment



1. Core
2. Lamination
3. Coil assembly
4. Submerged-arc welding
5. Inside tank
6. Exterior tank
7. Galvanized radiators
8. Material-stabilized coils
9. Patented De-Energized Tap Changer
10. Load Tap Changer
11. NEMA 3R Control Box

# MOTOR CONDITION ASSESSMENT

1

Motor Circuit  
Analysis(MCA)

2

Electrical Signature  
Analysis(ESA)

3

Partial Discharge for  
6.6kv and above

4

C&DF

5

Vibrational Analysis

6

Acoustic PD

7

IR/PI

8

Winding Resistance

9

Thermography



# GENERATOR CONDITION ASSESMENT

- A.C/D.C Hi pot
- Partial Discharge Measurement
- RTD Insulation Resistance
- RTD resistance Measurements
- Transportation Voltage Comparison Test
- Air Gap Baffle Wedge Assembly Tightness
- Check Torque or Through & Building Blocks
- Visual Inspection of stator Components
- Wedge Tightness test
- Dielectric Absorption/ Polarization Index
- Insulation Resistance of Each Phase
- Thermocouple Continuity Test
- Phase resistance Measurement
- Doble Test- Power Factor Tip-up
- Loop Test
- ND test
- ELCID Examination of Generator Stator Core
- Corona Probe Testing





# CIRCUIT BREAKER

- Timing Test (of Contacts Opening/Closing)
- Contact Resistance
- SF6 Gas Dew point Test
- SF6 Gas Purity Test
- SF6 gas decomposition test
- SF6 gas leak detection
- C&DF test

## Maintenance services

- SF6 Gas supply/ refilling
- Overhauling of complete circuit breaker
- Installation and commissioning of circuit breakers v

# CTs / PTs / CVTs

- Insulation resistance testing
- Polarity check
- TTR Test
- Excitation Current Test/ saturation curve verification
- Power Factor Test
- Phase Angle measurement



# BATTERY CONDITION ASSESSMENT

- **Battery Voltage**
- **Battery impedance Testing**
- **Battery Sulphation & Dry out testing**
- **Battery Load bank testing**
- **Battery Specific gravity & temperature**
- **Cell to Cell resistance Testing**
- **Online battery Management System**



# SURGE ARRESTER



- **Insulation resistance testing**
- **Watt-Loss Test**
- **Surge counter functional check**
- **Leakage Current measurement**

# POWER CABLE CONDITION ASSESSMENT

- Insulation Resistance
- Cable Sheath testing
- Online & Offline Partial Discharge, (Electrical Acoustic)
- Dielectrical Electroscopy
- Dc leakage current
- Polarization de polarization test
- Time Domain Reflectometry (TDR)
- AC, DC Tan delta
- Power frequency withstand
- Ac/dc hipot





# TRANSFORMER OIL Dehydration with Globe Core, Europe



## Oil Dehydration by using Relative Saturation Method

**PRESCON uses European oil dehydration machine with built in moisture content sensor.** Machine is best for field oil dehydration and filters under vacuum with oil heating. Machine is fitted with moisture sensor to efficiently remove moisture and client will not be fooled by instantaneous BDV improvement. Mostly we find degraded BDV and moisture soon after return to service as most moisture is in paper and wood which returns under service to oil. It's dangerous even in paper causing hydrolysis and reducing life of paper.

### Guaranteed oil parameters achieved with the plant after 1 pass

Oil Parameter	Unit	Test Method	Before Treatment	After Treatment
Dissolved Gas Content	%	ASTM D-2945-71	↑ 12%	↓ 0.1%
Water Content	ppm	ASTM D-1744-64	↑ 100 ppm	↓ 5 ppm
Dielectric Strength	kV	IEC 60156	↓ 20 kV	↑ 60 kV

# Oil Analysis Services From DOBLE USA



- Dissolved Gas-in-oil Analysis (ASTM D3612/IEC 60567)
- Corrosive Sulfur
- Furanic Compounds-in-oil Analysis (ASTM D5837/IEC 61198)
- Degree of Polymerization of Paper (ASTM D4243/IEC 60450)
- Wear Metals In Oil (Doble Test Method)
- Dissolved Metals in Oil (ASTM D7151)
- Load Tap Changer Program
- Breaker Analysis Program
- **Oil Quality & Water Content**
  - Color (ASTM D1500)
  - Dielectric Breakdown Voltage (ASTM 1816)
  - Interfacial Tension (ASTM D971)
  - Neutralization Number (ASTM D974/IEC 62021)
  - Visual (ASTM D1524)
  - Water Content (ASTM D1533/IEC 60814) & Relative Saturation
  - Power Factor @ 25°C & 100°C (ASTM D924/IEC 60247)
  - Specific Gravity (ASTM D1298)



# POWER SYSTEM STUDIES

Services of Prescon Engineering

ETAP electrical engineering software is a solution for all of your power system operation need. ETAP is an innovative power systems enterprise solution for the design, analysis, simulation, prediction, optimization, automation, and control in power generation, transmission , distribution and industrial power systems. ETAP electrical software include short circuit , Arc flash and load flow software can be found in more then 3000 companies worldwide exposing it to wide range of industries.



# PRESCON DONE STUDIES AND MANY MORE

List of major plant wide studies carried out by PERSCON is as follows:

## 01 Packages-Bulleh Shah Paper Mills with National Grid

Load flow analysis, short circuited analysis, relay coordination

## 02 Agha Khan Grid

Relay settings and parameterization

## 03 FFC3 plant

Complete modeling for Schneider

## 04 BYCO Refinery through ABB

Load flow analysis, short circuited analysis, relay coordination

## 05 FFBL Karachi

Load flow analysis, short circuited analysis, relay coordination

## 06 FECTO-Cement Complete and Power plant with National Grid

Load flow analysis, short circuited analysis

## 07 Emporium Mall Lahore

Load flow analysis, short circuited analysis, relay coordination and relay setting for Schneider

## 08 Descon International Limited

Power system study

## 09 Best way Cement Limited Hattar

Power system study

## 10 MOL(Oil Field)

Complete modeling for Schneider

A large industrial facility, likely a refinery or chemical plant, featuring several tall, cylindrical distillation columns connected by a complex network of pipes, walkways, and structural steel. The sky is blue with scattered white clouds. The foreground shows a grassy area and a fence line.

# PLANT MANAGEMENT SERVICES

# PLANT MANAGEMENT

FIRST THIRD PARTY/ INDEPENDENT TESTING SERVICES BACKED BY DOBLE (USA) and ETAP

PRESCON presence is to provide reliable Asset Management Solutions, which best fit the industrial needs and to provide best support and maintenance services.

## Electrical

- Thermography
- Power Transformer Testing
- Generator Testing
- Motor Testing
- Relay & Control Panel Testing
- Switch Yard & Equipment
- Plant Partial Discharge Survey
- Residual Life Assessment



## Mechanical

- Thermography
- Vibration Analysis
- Generator Testing
- NDT Services
- Safety Valves Testing
- Exchanger Cleaning Service

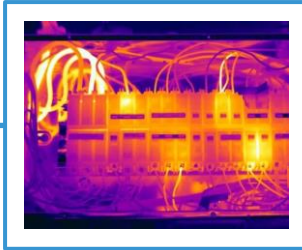




# THERMOGRAPHY SERVICES

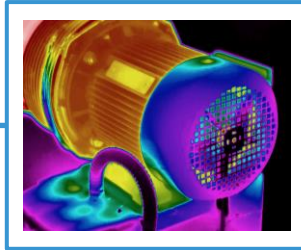
# THERMOGRAPHY SERVICES

THINK THERMALLY

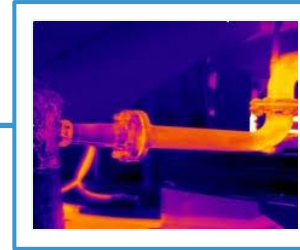


**Thermography of electrical panel & equipment**

- Electric switch gear, breakers, bus bars and contacts
- Transformer connections
- Mechanical coupling on rotating machine process piping and heat exchanger
- Motor and generator connection, winding feeder and exciters

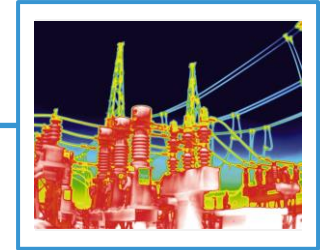


**Thermography of motor and generator**



**Thermography of piping works valves etc**

- Compressor heads
- Drive gear and drive belts
- Tank level insulation problem
- Steam trap and piping insulations
- Boiler, kilns



**Transformer & complete switchyard**

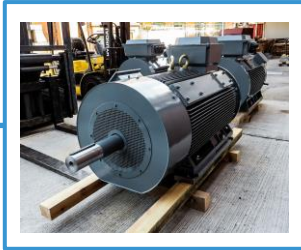


**DETECTION OF PARTIAL  
DISCHARGE SERVICES**

# DETECTION OF PARTIAL DISCHARGE



**Transformer**



**Motor**



**Generator**



**Complete Switchyard**

## Benefits

- Most effective method of PD Detection
- We can also identified the local defects by RFI Technology
- Its non intrusive techniques for survey
- Its really helpful for condition base maintenance (CBM)

# ULTRASOUND/ ACOUSTIC DETECTION



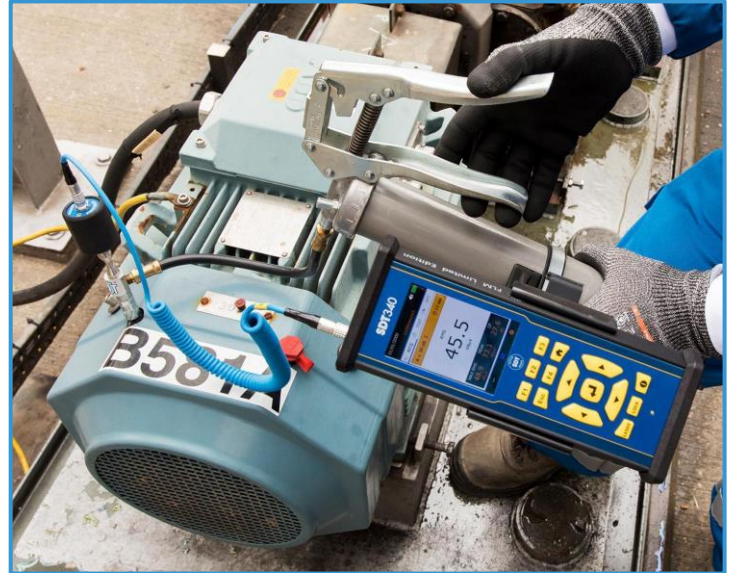
# ULTRASOUND/ ACOUSTIC DETECTION

All equipment requires maintenance and all equipment can fail. Being able to predict and prevent those failures is how the PRESCON gives you a competitive edge. We provides you with a greater understanding about the health of your assets. Helping you to control energy costs, predict failures, improve product quality and increase overall production uptime.

Maintaining simplicity for those who need it, while providing sophistication for those who want it. We have has nearly limitless applications and innovations:

## Applications

- Leak detection
- Bearing monitoring
- Steam traps, pump and valve inspection
- Acoustic lubrication
- Electrical inspection
- Hydraulic systems inspection
- Tightness testing
- Measure ultrasound, vibration, RPM, humidity and temperature
- Unmatched accuracy in the detection and measurements





**TRAINING SERVICES**  
of PRESCON Engineering

# OFFERED COURSES

Realizing the importance of training we have developed separate portal

[www.prescontraing.com](http://www.prescontraing.com)

- 1 **Electrical safety**
- 2 **Power system analysis**
- 3 **Substation maintenance**
- 4 **Generator motor protection**
- 5 **Root cause failure analysis**
- 6 **Reliability entered maintenance**
- 7 **Failure mode and effect analysis**
- 8 **Relay coordination**
- 9 **Transformer maintenance**
- 10 **Generator maintenance and testing inspection**



# MARKET PENETRATION BY PRESCON



1

Thermal Power Plants



2

Hydra Power Plants



3

Wind Power Plants

Oil and Gas Sector

4



Fertilizers

5



Cement Industry

6



7

Chemical Industry



8

Sugar Industry



9

Textile Industry

# MAJOR SOLAR POWER PROJECTS



## 50 MW OURSUN UTILITY SOLAR PLANT

***49 Million USD Project***

PRESCON Engineering worked as  
an owner engineer



## 125 MW AMIN SOLAR POWER PROJECT OMAN

***90 Million USD Project***

125 MW Amin Solar Power Project  
Oman being done by CEO  
PRESCON Engineering Mr Irfan  
Akhtar.



## 100 MW QUAID E AZAM SOLAR POWER PLANT

***131 Million USD Project***

CEO PRESCON Engineering done  
100 MW Quaid e Azam Solar  
Project as a Manager Operations.

## SOME KEY CLIENTS NAMES

<b>Hubco, Baluchistan &amp; Narowal</b>	<b>Saif Power Plant</b>	<b>PARCO</b>	<b>FFC1</b>
<b>Akzonobel Pakistan</b>	<b>Siemens</b>	<b>FFBL</b>	<b>FFC3</b>
<b>Uch Power Plant 1</b>	<b>Schneider</b>	<b>ENAR Petroleum</b>	<b>Engro Polymer</b>
<b>Uch Power Plant 2</b>	<b>Wartisala</b>	<b>Gets Pharma</b>	<b>Engro Fertilizer</b>
<b>CCP Korange, K-Electric</b>	<b>DESCON</b>	<b>PEL</b>	<b>ICI Soda ASH</b>
<b>BQPS 1</b>	<b>GE (on four power plants)</b>	<b>MOL</b>	<b>ICI Polymer</b>
<b>BQPS2</b>	<b>ENI Exploration &amp; Production</b>	<b>NTDC</b>	<b>KAPCO</b>
<b>Fauji Foundation</b>	<b>ABB</b>	<b>BYCO Refinery</b>	<b>Nishat Chunia Power Limited</b>
<b>Liberty Power Plant</b>	<b>Nestle</b>	<b>Saphier Power Plant</b>	<b>ENI Pakistan</b>
<b>Engro Power Gen</b>	<b>Fauji Cement</b>	<b>Halmor Power Plant</b>	<b>OMV Pakistan</b>
<b>Nishat Power Limited</b>	<b>BESTWAY Cement</b>	<b>Nishat Power</b>	<b>Hamza Sugar</b>
<b>Andridz Hydro</b>	<b>Maple leaf Cement</b>	<b>Atlas MAN Diesel</b>	<b>Ibrahim Fibers</b>
<b>Laraib Energy</b>	<b>Pakistan Cement</b>	<b>Gul Ahmad</b>	<b>Saba Plant</b>
<b>Rousch Power plant</b>	<b>RYK Sugar</b>	<b>Agha Khan Hospital</b>	<b>Fatima Fertilizer</b>

# THANK YOU

