



ELTMAN

MARKETS

Hydroelectric Power Plants

Thermoelectric Power Plants

Substations

ELECTRIC ENERGY

Electrical Studies

Transmission Lines

Oil Drilling Platforms



BASIC PROJECTS

ACTIVITIES

ELECTRIC ENERGY

BASIC
PROJECTS

EXECUTIVE
PROJECTS

PROPRIETOR
ENGINEERING

SERVICE

BASIC PROJECTS

- Electrical
- Mechanical
- Civil Engineering
- Automation
- Telecommunication

- Electrical Studies
- Single Line Diagrams
- Dimensioning of Equipment/Devices
- Technical Specifications
- Plans and Sections - Electromechanical and Civil
- Digital Systems Architecture
- Calculation Memoranda
- Cost Estimates
- Purchasing Advisory Service

EXECUTIVE PROJECTS

- **Electrical**
- **Mechanical**
- **Civil Engineering**
- **Automation**
- **Telecommunication**

- Single Line diagrams, Electric and Logic diagrams
- Control and Safety Systems Work Statement
- Digital Control Systems Configuration (SCADA)
- Electromechanical Installation Project
- Civil Engineering Project
- Grounding Mesh Project
- Electric Duct Project
- Project for Equipment Bases and Structures
- Architectural Project
- Metal Structure Project
- Tubing Project

PROPRIETOR ENGINEERING

- Electrical Study/Research Analysis
- Control and Safety Systems Consultancy
- Basic Projects Consolidation
- Elaboration of Technical Specifications
- Electrical, Civil Engineering, and Mechanical Executive Project Analysis
- Equipment Purchasing Advisory Service
- Technical Coordination of Suppliers
- Advisory Service for Factory Acceptance Tests (TAF)
- Installation Supervision
- Field Test Coordination (TAC - Commissioning)



SERVICE – CONTROL AND SAFETY SYSTEMS

- Technical Consultancy
- Control and Safety Systems Tests
 - *Factory Acceptance Test (TAF)*
 - *Field Acceptance Test (TAC)*
- IED Parametrization
 - *Safety Relays*
 - *BAY Control Units*
- Supervision Systems Project (SCADA)
- PIT Elaboration for TAF and TAC
- Control and Safety Systems Retrofit
- Control and Safety Systems Operational and Maintenance Training



EXECUTIVE PROJECTS

ELECTRICAL PROJECTS

● Research:

- Load Flow;
- Short circuit;
- Stability;
- Selectivity;
- Transitory Electromagnetic Events;

- Insulation Coordination;
- Reactive Compensation;
- Harmonic Filter Calculation;
- Energy Quality.

- Safety, Measuring, and Control;
- Supervision Systems Project (SCADA)
- Wiring/Cabling Project;
- Control Panel Project
- Transmission Lines;
- Installation and layout;
- Systems Grounding Calculation and Project;
- Lighting Project;
- Equipment Installation.



MECHANICAL PROJECTS

- Technical Equipment Specifications
- Industrial Tubing
- Ventilation and Air Conditioning
- Fire Detection and Fire Fighting Systems
- Metal Structure Project
- Layout and Project for Mechanical Installation
- Mechanical Instrumentation



CIVIL ENGINEERING PROJECTS

- Civil engineering layout
- Foundations for equipment and porticos
- Structural projects for buildings
- Metal structure project
- Drainage project
- Concrete Specification
- Architectural Project
- Civil Engineering Instrumentation



TELECOM PROJECTS

- Technical Specifications
- Telecom Systems Architecture
- Transmission Systems: Optical (OPGW), OPLAT, RADIO, etc.
- Fiber Optics Network Project
- Basic and Executive Projects
- Installation Project
- Factory Acceptance Test (TAF)
- Telecom Systems Commissioning (TAC)



SERVICE – CONTROL AND SAFETY SYSTEMS

- **Equipment and Software Know-how:**
 - Safety Relays from SIEMENS, GE, ABB, AREVA, SEL;
 - Remote devices from GE, ABB, SIEMENS, AREVA, STD;
 - PLCs from GE, SIEMENS, ALTUS;
 - Supervision Software by Intouch, PACIS, Fix, Factory Link, WinCC, and SAGE;
 - REASON Oscillographs;
 - Power Meters from ION, ACTARIS, and SIEMENS.



SERVICE – CONTROL AND SAFETY SYSTEMS

● Main Construction Commissioning:

- Safety and Control Systems for more than 150 substations in Brazil's Basic Power Grid;
- Supervision Systems for 64 Substations and Power Plants of the SINOCON Project (ONS), within the SIN Basic Power Grid (Lots 2 and 3);
- Safety and Control Systems for Oil Drilling Platforms - PETROBRÁS;
- Safety System for Nova Unidade Propenoda REPLAN – PETROBRÁS;
- Safety System for FAFEN - PETROBRÁS;
- Control and Safety Systems SE 138 kV for UTE Santa Cruz;
- Control and Safety Systems for SE Charrua-500 kV-TRANSELEC (Chile);
- Control System for Mineradora Escondida (Chile).



CONSTRUCTION WORK

HYDROELECTRIC POWER PLANTS

- UHE Salto - 2x64.8 MVA – TPI
- UHE Verدينho – 2x52.7 MVA –CBA
- UHE Rondon II – 3x27 MVA
- UHE Suissa – 3x27 MVA
- UHE P. Afonso I, II, and III – 1500 MVA - CHESF
- UHE Itaipú – Units 9A and 18A - 2X700 MVA ITAIPU BI-NACIONAL
- UHE Sta. Branca – 2x29.5 MVA - LIGHT
- UHE Xingó – 6x550 MVA – CHESF
- UHE Miel – 3x50 MVA - HIDROMIEL
- UHE Capim Branco I – 3x85 MVA – CCBE
- UHE Capim Branco II – 3x74 MVA – CCBE
- UHE Quebra Queixo – 3x50 MVA – CE CHAPECÓ
- UHE Jaurú – 3x50 MVA – QUEIROZ GALVÃO
- UHE Juba I and Juba II – 2x(4x12.5) MVA – ITACEL
- UHE Costa Rica – 3x18 MVA – ENERSUL
- UHE San Ignacio – 1x35MVA – COLBÚN (Chile)
- UHE Três Irmãos – 5x160 MVA - CESP



SUBSTATIONS

- SE Santa Bárbara d'Oeste – 440/138 kV – ISA - CTEEP
- SE Campos Novos and Machadinho - 500/230 kV - ELETROSUL
- Interligação Norte-Sul II - 6 Substations of 500 kV - NOVATRANS
- Proketo SINOCON – Lots 2 and 3 (ONS) - 64 Basic Power Grid Installations
- SEs Charrua, Polpaico, Nogales – 500 kV and 220 kV – TRANSELEC (Chile)
- SEs Rio do Sul, Lages, and Barra Grande - STC
- SEs Teresina II, Sobral III, and Jardim - 500 kV - CHESF
- SEs Mossoró, Pau Ferro, and Pici II – 230/69 kV - CHESF
- SEs Senhor do Bonfim II and Catú – 230/69 kV – CHESF



SUBSTATIONS

- **SE Santa Bárbara d'Oeste – 440/138 kV – ISA - CTEEP**
 - Implementation of 440/138 kV – 100 MVA transformer;
 - Implementation of 2 Capacitor Banks with 138 kV;
 - Complete project: Electrical, Electromechanical and Civil Installation.



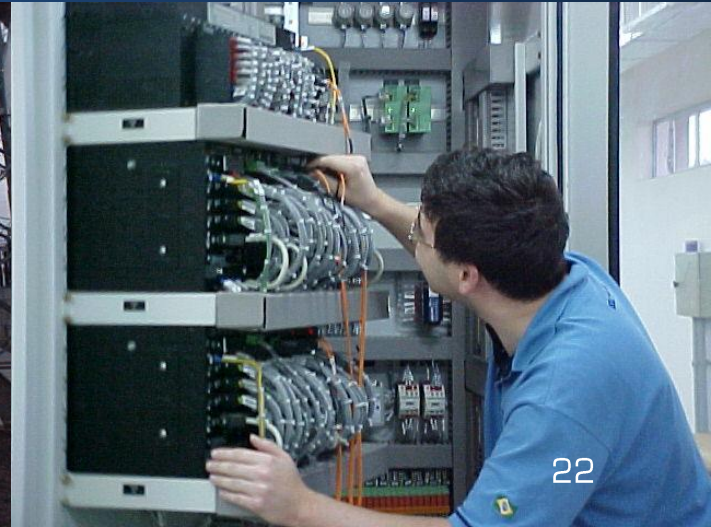
SUBSTATIONS

- **SEs da Interligação Norte-Sul II – 500 kV – NOVATRANS Complete Electrical Control and Safety Systems Project for 6 Substations of 500 kV, including:**
 - Single Line diagrams, Electrical and Logic diagrams;
 - Electromechanical Project for control panels;
 - Control and Safety Systems Commissioning.



SUBSTATIONS

- **SE Campos Novos – 500 kV – ALUSA**
Installation of a 500 kV Line Bay – Machadinho - C2 Outlet
 - Projects: Electromechanical, Electrical, and Civil Installations
 - Electrical Studies:
 - Load Flow
 - Insulation Coordination
 - Short circuit
 - 500 kV Circuit Breaker TRV



SUBSTATIONS

- **SE Charrua – 500/220 kV – TRANSELEC**
Control and Safety Systems
 - Projects for Control and Safety Systems (SIEMENS);
 - Commissioning (GE).



SUBSTATIONS

- **SE USIMINAS – 230 KV – USIMINAS**
 - Installation of 2 transformers of 100 MVA, 230/69 kV, 11 transformers of 35 MVA, 69/13,8 kV, and complete replacement of Control and Safety Systems.
 - Complete projects: Electrical, Electromechanical and Civil Engineering.



OIL DRILLING PLATFORMS

- OIL DRILLING PLATFORMS PRA, P50, P52, P53, and P54 – PETROBRAS
 - Control and Safety Systems Commissioning Test;
 - Selectivity Study.



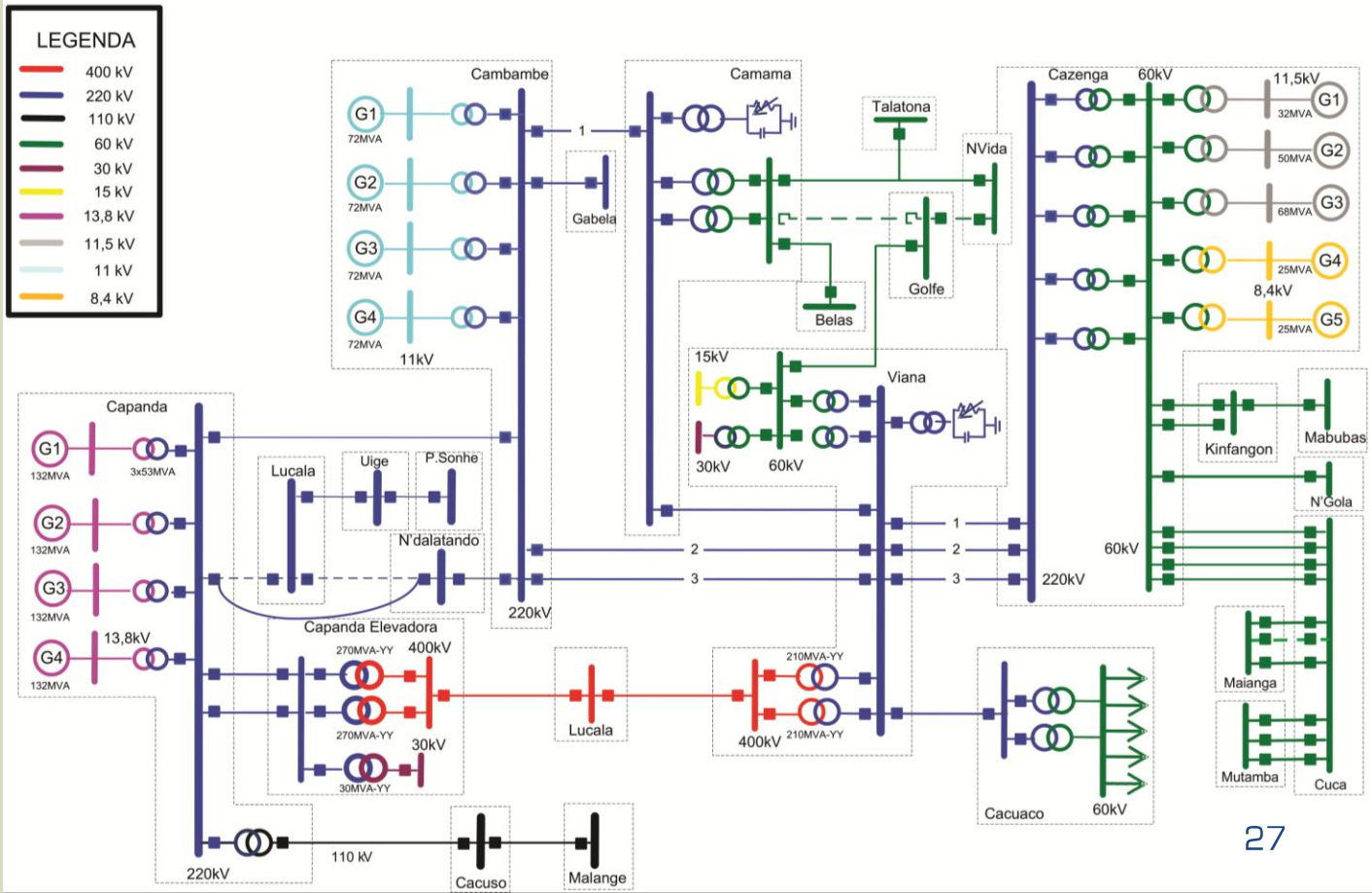
ACTIVITIES IN ANGOLA (ENE)

- Safety System Field Tests of the Angolan Basic Power Grid (ENE) – 400 kV and 220 kV Lines;
- Analyses of disturbances in the transmission system;
- Parametrization of line protections, transformers and reactors;
- Implementation of remote protection schemes.



ACTIVITIES IN ANGOLA (ENE)

- Northern System - Angola



CLIENTS

CLIENTS - ELECTRIC ENERGY

- AES Tietê
- ALUSA
- ALSTOM
- ANDRITZ
- AREVA
- CAMARGO CORREA
- CEEE
- CELG
- CERAN
- CESP
- CHESF
- CHILECTRA (Chile)
- COLBUN (Chile)
- COPEL
- CPFL
- DUKE ENERGY
- ELETROGOES
- ELETROPAULO
- ELETROSUL
- ENE (Angola)
- ENERSUL
- FURNAS
- GENERAL ELECTRIC
- ISA - CTEEP
- ITACEL
- LIGHT
- NOVATRANS
- PROMON
- SIEMENS
- TOSHIBA
- TRANSELEC (Chile)
- TRIUNFO
- UTC
- VOITH



CLIENTS – INDUSTRY AND TRANSPORTATION

- ACESITA
- ALBRÁS
- AMBEV
- ARACRUZ
- CARAIBA METAIS
- COPEBRÁS
- CPTM
- CST
- Navy Technology Center
- ECOPETROL
- EMURB
- GOODYEAR
- LINHA AMARELA
- MASISA
- METRO SALVADOR
- PETROBRÁS
- PIRELLI
- PROTISA (Chile)
- RHODIA
- SABESP
- SANEAGO
- SOLVAY
- USIMINAS
- WHITE MARTINS



CLIENTS - SERVICE

- AES
- CESP
- CEEE
- CERAN
- CPFL
- CHESF
- DUKE
- ELETRONORTE
- ELETROSUL
- FURNAS
- ISA - CTEEP
- LIGHT
- PETROBRÁS
- TRANSELEC (Chile)



THE COMPANY

São Paulo Offices



THE COMPANY

General View of the Offices

São Paulo Offices



Safety test laboratory



São Paulo Offices



THE COMPANY

Annual Sales - US\$
(MI)



THE COMPANY

IT infrastructure:

- No-break with 1.5 h power reserve;
- Data and internet servers;
- Automatic back-up for all servers;
- 50 workstation internal network;
- 50 notebooks for field service;
- Internet server with access control and firewall;
- Redundant 100 MB internet connection;
- Operational test facilities for safety relays and UTRs;
- 7 digital three-phase current test devices for safety relay testing;
- Printer and plotter network.

ENTREPRENEURIAL VISION

Dedication to Engineering Activities with a view to achieve technical excellence and professional realization of personnel.



MISSION OF THE COMPANY

Provide our clients with projects and commissioning services in accordance with their requirements while promoting personal achievements for our associates.



CONTACT

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