

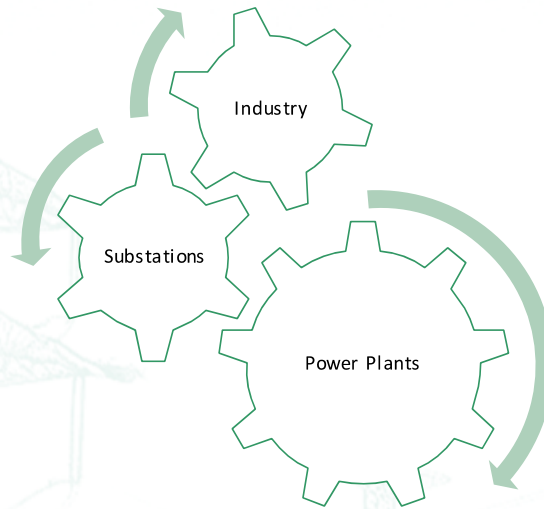


Generation

Transmission & Distribution

Industry Power System

- Turbine/Engine Controls
- Generator Controls
- GT Protection
- Speed & Voltage Regulation
- Power Plant SCADA
- Control & Relay Panel (CRP)
- Substation Automation System (SAS)
- SLDC Gateways
- Disturbance Recording (DR)
- Power Monitoring Unit (PMUs)
- Plant SCADA
- Load Management System
- Intelligent Load Shedding System
- Energy Management System (EMS)
- Power Quality solutions



Welcome to Nelumbo Group!

Nelumbo Technologies Pvt Ltd, an ISO9001, ISO14001 & ISO45001 certified company provides end to end solutions for design & development of Power System Automation solutions for various power plants, transmission & distribution systems and industries at core. Nelumbo also provides technical skill development services on Electrical & Automation systems to various industries & corporates.

The portfolio includes:

- PLC, HMI, RTUs & SCADA systems
- Turbine/Engine control systems
- Digital Governing control systems
- Digital Excitation control systems
- Generator Protection & Synchronizing systems
- Auto & Manual Synchronizing systems
- Control & Relay Panels up to 400kV Substations
- Substation Automation System (SAS)
- Data telemetry over IEC protocols to LDC
- SCADA for Renewable & Conventional power plants
- Industry SCADA solutions
- Load Management System (LMS)
- Intelligent Load Shedding systems
- Energy Management System (EMS)
- Power Quality Solutions
- Power System Studies

We are also authorized System Integrator of Schneider Electric, Masibus & Deif



Mission:

- Nelumbo Group is deeply committed to providing innovative, cutting edge Electrical, Control & Automation solutions and life cycle support to its customers through ethical means.

Vision:

- Our goal is to create the optimal outcomes in Electrical, Controls & Automation application and services; thus, enabling our stakeholders to create sustainable values in industry, society and environment.

Core Values:

- Promote safety and environmental performance
- Passion to innovative technologies
- Practice ethical business means

Quality Policy:

The objective of Nelumbo Group is to provide cutting edge high quality Electrical & Control solutions and allied products & services, conforming to the latest technological trends, specifications & standards of the company and the industry. Above all, meeting customer's requirements at optimal cost and delivering exactitude solutions is our prime motto.

Control Panels



Technological innovation and the development of state-of-arts products are key dynamics in delivery of highly efficient control & automation solutions which are being assembled at our works:

- Turbine/Engine Control Panel
- Generator protection panels
- Transformer protection panels
- Control & Relay Panels (up to 400kV)
- Synchronizing control panels
- Mimic & Instrumentation panels
- NGR/NGT panels
- MV & LV Panels



- Schneider's factory built Active Power Correction Solutions:

- Harmonic compensation
- Electronic VAR control
- Load balancing



Excitation Control Systems



Digital excitation control systems for synchronous machines, ranging mini to large size

According to machine type:

- Static Excitation System
- Brushless Excitation System

According to application:

- Single Channel
- Dual Channel

According to the power supply:

- AC auxiliary sourced
- DC auxiliary sourced
- Auto-powered from the machine

Static Excitation System:

- Redundant Hot Standby Controllers
- Redundant Thyristor Modules
- 10"/15" HMI, Capacitive Touch
- Temperature Monitoring
 - ✓ Generator Winding & Bearings
 - ✓ Thyristor Modules
- Rotor EF Protection Relay
- Field Flashing & Discharge Circuits
- 3rd party/Remote com port, Modbus TCP/IP

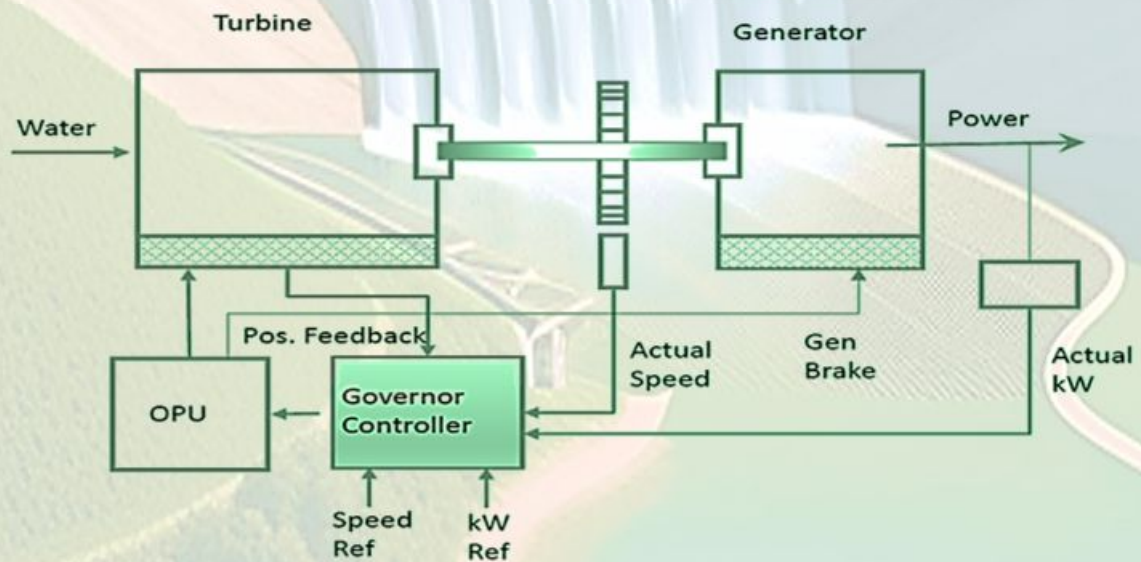


Digital Governing Control



Digital governing control systems for various types of turbines for power plants i.e. Francis, Pelton & Kaplan

- Speed Regulation
- Synchronizing
- Load Control

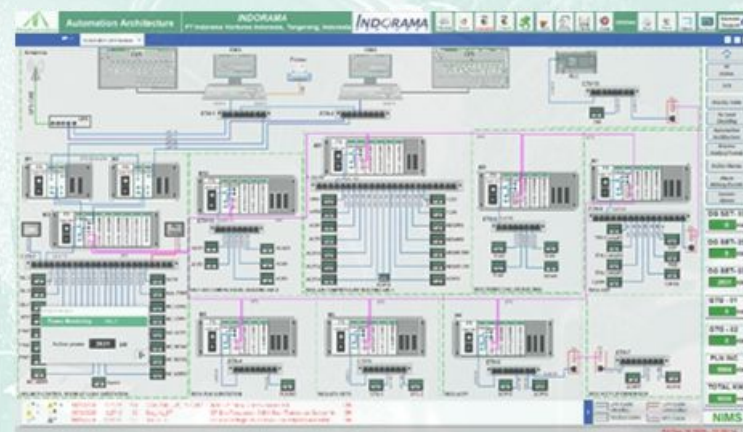
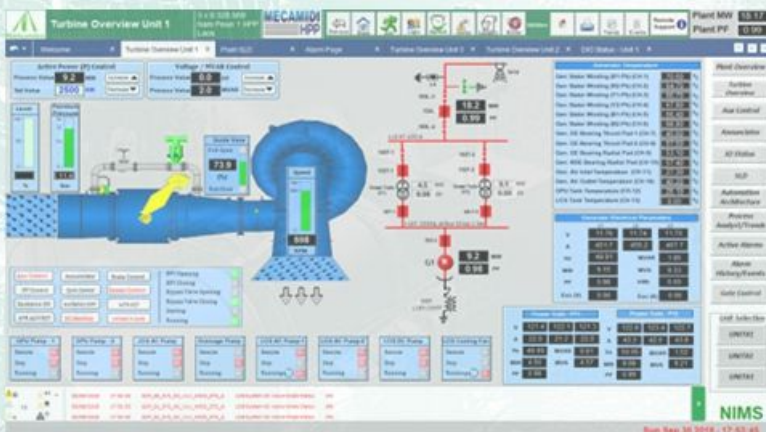
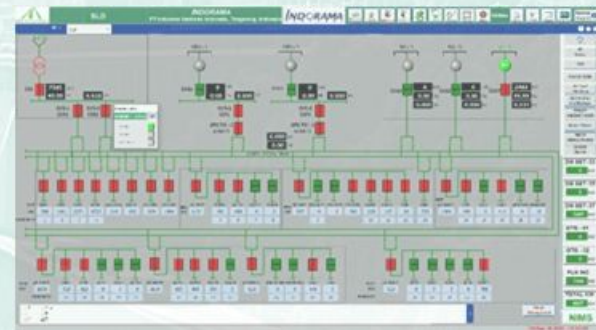
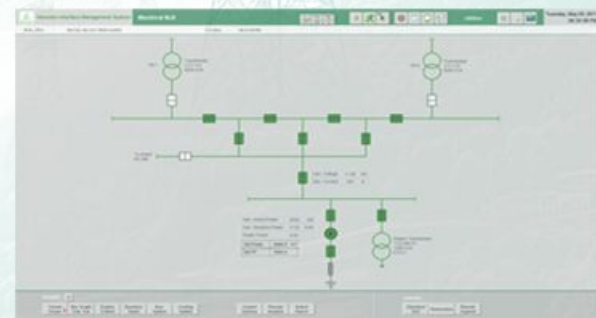


The NGCU is a fully-integrated and configurable controller that utilizes proven microprocessor-based hardware with flexible IOs for the control & speed and load regulation of hydro turbine. A Human Machine Interface (HMI) on the panel-mount touchscreen allows the configuration of machine control functions. It serves the purpose of start-up assistance to operator as well as fine tuning of the system to desired performance. PC based configuration software makes it more flexible and user friendly.

Plant SCADA Systems



- ❑ SCADA Systems for:
 - ❑ Hydro & Solar power plants
 - ❑ HFO/Gas based power plants
 - ❑ Indoor & Outdoor Substations
 - ❑ Plant Power System
 - ❑ User interface through panel mounted or PC based HMI
 - ❑ Historical trending and event storage & retrieval
- ❑ Load Management System
 - ❑ Contains programmed sequence for plant operation
 - ❑ Intelligent Load Shedding System
 - ❑ Dynamic prioritization of sequencing
 - ❑ Facilitates Active & Reactive Power Management
- ❑ Energy Management System
 - ❑ Collects data from Field Devices/Meters/IEDs
 - ❑ Transmits data to HMI/DC/Gateways
 - ❑ Energy reporting
- ❑ BMS/Chiller Management System
 - ❑ Collects data from Field Devices/Chillers
 - ❑ Facilitates monitoring & control



Substation Automation System (SAS)



Design, engineering & manufacturing of Substation Automation Systems, comprising of:

Bay Control Units (BCUs)

- Having communication protocols IEC103, IEC104, IEC61850, Modbus, Modbus TCP/IP

Remote Terminal Units (RTUs)

- Collects discrete and analogue data from Field Devices/IEDs and retransmits to HMI/DC/Gateways on various protocols i.e. IEC103, IEC104, IEC61850 etc.

Data Concentrators (DC)

- Used to collect data from Meters/IEDs and retransmits to HMI/DC/Gateways on various protocols i.e. IEC103, IEC104, IEC61850 etc.

Communication Gateways to Load Despatch Centres (LDCs)

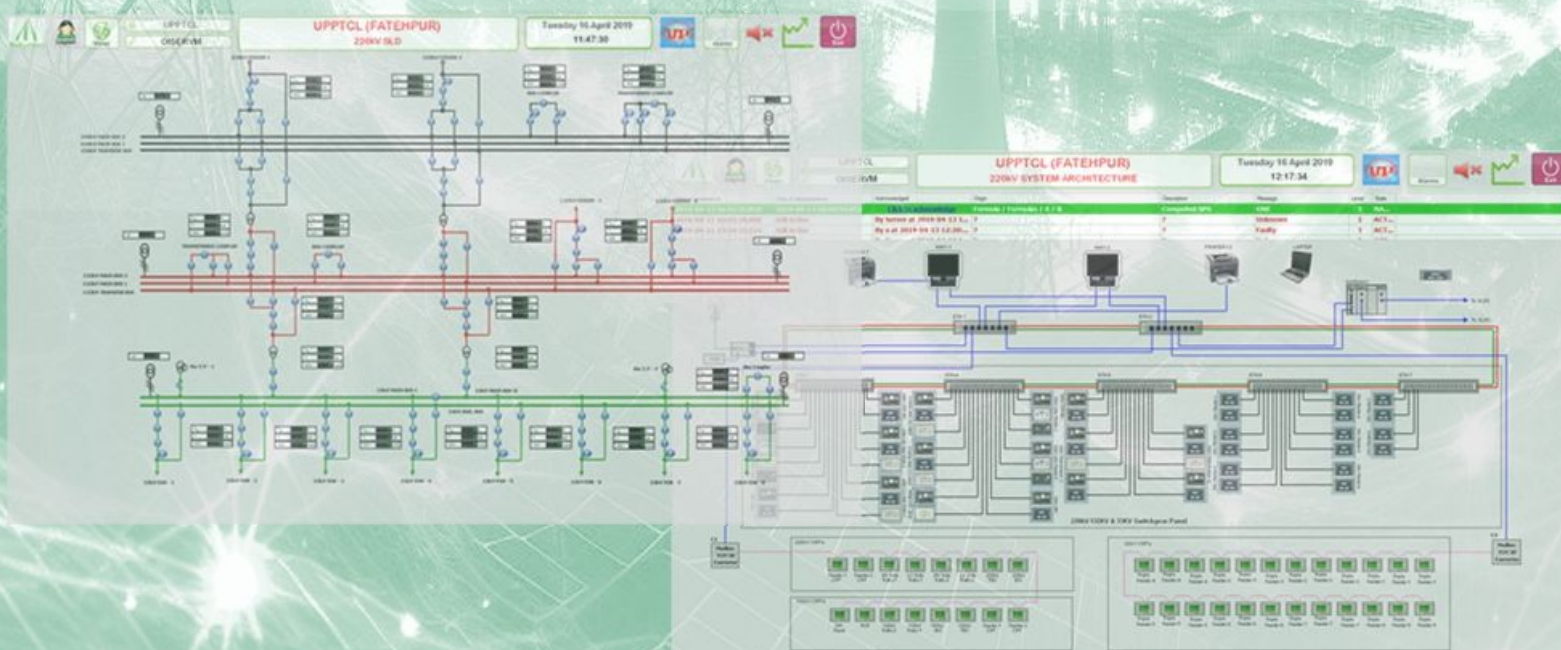
- Facilitates collection of collect data from IEDs/DC and retransmits to LDCs/ALDCs/SLDCs on IEC101 & IEC104 protocols

Human Machine Interface (HMI)

- Provides Graphical interface of Substation to Operators/Users
- Provides alarms & events management for operator
- Provides historical trends for analysis

Disturbance Record (DR) Analysis Station

- Facilitates engineers for disturbance analysis for trouble shooting

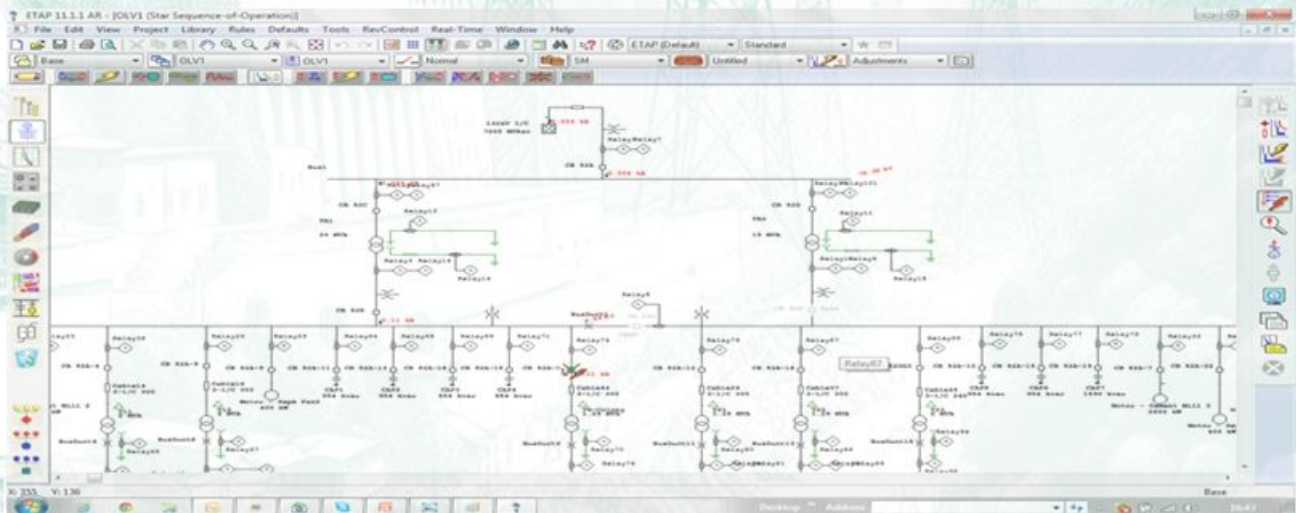


Power System Study



Power system study by using ETAP software, configuration, sequence of operation coordination, testing & commissioning of protective relaying:

- AC load flow analysis
- DC load flow analysis
- Short circuit calculations
- Sequence of relay operation
- Motor starting analysis
- Arc flash analysis
- Harmonic analysis
- Ground grid analysis
- Transient stability analysis
- Solar integration



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