AUTOMATION & DIGITALIZATION

# ELECTRICAL AND CONTROLS ENGINEERING

SERVICES AND SOLUTIONS PROVIDED

**REGIONAL ENGINEERED SERVICES**

ANDRITZ works with your team to design, supply, commission, and support complete package solutions. We draw on our patented technologies and skills to add value to your projects and help you release your full potential.

## ANDRITZ

ENGINEERED SUCCESS

# Release your full potential

## PRELIMINARY ENGINEERING
- Project scope definition
- Site assessments
- P&ID field studies
- Capital cost estimates
- Control system architecture design
- Contractor bid package preparation
- Schedule preparation
- Design and material specifications

## DCS/PLC UPGRADES
- Turn-key EI&C delivery
- Migration planning
- Detailed process control narratives
- DCS/PLC configuration
- Platform independence (Honeywell, Delta V, Foxboro, ABB, Rockwell, Siemens, GE, Schnieder)

## ELECTRICAL AND CONTROLS ENGINEERING
- Complete construction packages
- Contractor management
- Instrument specifications
- Process and controls drawings
- Switchgear, PDCs, MCCs, control panels
- Power distribution design
- Overhead line and pole design
- Safety Instrumented Systems (SIS)

## POWER SYSTEM STUDIES
- Transient stability
- Protection coordination, short-circuit, load flow, and reliability
- Arc flash analysis and mitigation
- Harmonic analysis
- Power factor correction
- Load interconnection
- Electrical energy audit
- Utility interconnection negotiations and studies

## POWER SYSTEMS ENGINEERING
- Protection system design
- Capacitor and harmonic filter banks
- High voltage substation design
- Tap changer controls
- Islanding and load shedding systems
- Grounding systems
- Large motor applications
- Generator specification and design
- Governor and Exciter controls

## COORDINATED DRIVES
- DC to AC drive upgrades
- Custom-built drive lineup
- Machine production increase
- Drive controls programmed in DCS
- Safety audits
- Motor mount modifications
- Power system engineering

## ADVANCED PROCESS CONTROL
Pulp
- **Digester:** H Factor, chip level, residual alkali
- **Washing:** Outlet consistency, dilution factor. black liquor solids
- **Kiln:** Residual carbonate, oxygen, temperature profile
- **Recaustisizing:** Slaker temperature, Delta T, green liquor temperature, caustisizing efficiency
- **Bleaching:** Brightness, pH, total equivalent chlorine
- **Evaporation:** Steam economy, fouling, black liquor characterization

Paper
- **Grade:** Change management, broke management, level/blend chest, dry fiber optimization
- Freeness: LC refining control, specific energy and quality optimization
- **MD/CD Profile:** Jet to wire ratio control, basis weight control

## PROCESS SIMULATION WITH IDEAS
- Operator Training Systems
- Control System Checkout
- Online Digital Twin
- Static and dynamic modeling
- Design validation

## OPTIMIZATION WITH METRIS
- Risk-based maintenance
- Condition monitoring
- Control performance assessment
- Loop tuning
- OEE tracking
- Production manager
- Advanced Process Control (see details above)
- Machine Learning
- Data analytics

**ANDRITZ INC.**
Atlanta, GA, USA
p: +1 404 370-1350
automation-sales@andritz.com

**Australia:** Vienna;  **Austria:** Vienna;  **Brazil:** Belo Horizonte, Curitiba, Porto Alegre;
**Canada:** Nanaimo, Prince George, Richmond, Terrace;  **Chile:** Santiago;
**China:** Foshan;  **Finland:** Helsinki;  **India:** Bangalore;  **South Africa:** Johannesburg;
**Spain:** Madrid;  **Uruguay:** Montevideo;  **USA:** Eugene, Montoursville, Pensacola

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