PROJECT PORTFOLIO

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XELL - PROJECT PORTFOLIO

WHERE SKILLS MEET EXCELLENCE

REDEFINING AUTOMATION FOR
TOMORROW'S INDUSTRIES.

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SUSTAINABLE AVIATION FUEL PLATFORM

TotalEnergies • Schneider-Electric • La Mède, France • 3 Months

Automation and safety system implementation for TotalEnergies' new Sustainable Aviation Fuel production platform at La Mède. The project encompassed control logic validation, safety sequence programming, and SNCC Foxboro integration for SAF production units.

TECHNOLOGIES USED

Schneider-Electric | Tricon | Tristation | Foxboro | IA Series | ArchestraIDE | IACC

CATEGORIES

Engineering | Safety Systems | HMI | Commissioning | Control Systems | Documentation

SECTORS

Energies | Oil & Gas | Bio-Refinery

SCOPE & OBECTIVES

- Implemented automation and safety systems for new SAF production units including control logic development and safety interlock programming.
- Validated all control sequences and safety logic against TotalEnergies technical standards and international safety norms.
- Integrated new SAF platform with existing Foxboro SNCC infrastructure ensuring seamless communication and coordinated operations.
- Developed comprehensive technical documentation including flowcharts 9S, algorithms 9R and logic narratives compliant with TotalEnergies standards.
- Executed commissioning activities and system validation tests ensuring SAF units met all performance and safety requirements.

KEY RESULTS

- Successfully commissioned all new SAF production units with zero safety incidents and full operational availability
- Strict compliance with TotalEnergies technical standards
- Delivered consolidated and validated documentation package meeting all client requirements
- Completed project within timeline enabling on-schedule SAF production startup



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LOADING DEPOT SAFETY SYSTEM MIGRATION

TotalEnergies • La Mède, France • 6 Months

Complete migration and optimization of TotalEnergies' oil loading depot automated safety system from legacy Honeywell FSC to modern Schneider Electric Tricon CX platform. The 6-month project encompassed functional analysis, reverse engineering, full system reprogramming, HMI enhancement, FAT/SAT execution, and operational commissioning with comprehensive documentation updates per TotalEnergies standards.

TECHNOLOGIES USED

Schneider-Electric | Tricon CX | Tristation | Foxboro | Honeywell | ArchestralDE | FSC

CATEGORIES

Engineering | Migration | Commissioning | Pre-Commissioning | Supervision | Startup | Testing (FAT/SAT) | Control Systems

SECTORS

Energies | Oil & Gas | Bio-Refinery | Storage

SCOPE & OBECTIVES

- Conducted comprehensive functional analysis and reverse engineering of existing Honeywell FSC safety system including all sequences, interlocks, and emergency shutdown logic for petroleum loading operations
- Executed complete migration to Schneider Electric Tricon CX platform with full reprogramming of safety logics, emergency shutdown sequences, and protection interlocks ensuring functional equivalence.
- Programmed SNCC Foxboro under ArchestrA IDE platform per TotalEnergies standards ensuring seamless APS-SNCC integration with validated communication protocols
- Improved automation sequences through new functionalities, program optimization, and enhanced operator interface delivering superior ergonomics and operational clarity
- Executed Factory Acceptance Tests (FAT) validating safety logic and APS-SNCC exchanges, followed by loop checks, I/O validation, site commissioning, and operational support through final acceptance

KEY RESULTS

- Successfully transitioned from obsolete Honeywell FSC to modern Tricon CX platform eliminating obsolescence risks and ensuringlong-term system supportability
- Enhanced operator interface ergonomics and operational clarity through redesigned HMI screens, optimized alarm presentationsand intuitive navigation reducing cognitive load
- Delivered comprehensive documentation package compliant with TotalEnergies standards including safety flowcharts (9S), functional algorithms (9R), and complete as-built documentation
- Completed all Factory Acceptance Tests (FAT) and Site Acceptance Tests (SAT) with zero major non-conformities demonstrating excellent engineering quality



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DIAGNOSTIC AND CORRECTION OF DCS COMMUNICATIONS

Schneider-Electric • TotalEnergies • Le Havre, France • 2 Weeks

Executed a critical diagnostic and troubleshooting intervention to resolve complex communication failures between TotalEnergies' FSRU Distributed Control System (DCS) and multiple subsystem packages. The project encompassed systematic network analysis, firewall reconfiguration, VLAN optimization, data mapping corrections, and validation testing across eight critical systems including TGBT, AFDS, QRHPLC, SSLINK, MLA, Rotork valves, fire water pumps, and GRTgaz interface.

TECHNOLOGIES USED

Schneider-Electric | Foxboro | RS485C | ArchestralDE | IA Series

CATEGORIES

Commissioning | Control Systems | Diagnotstics | HMI

SECTORS

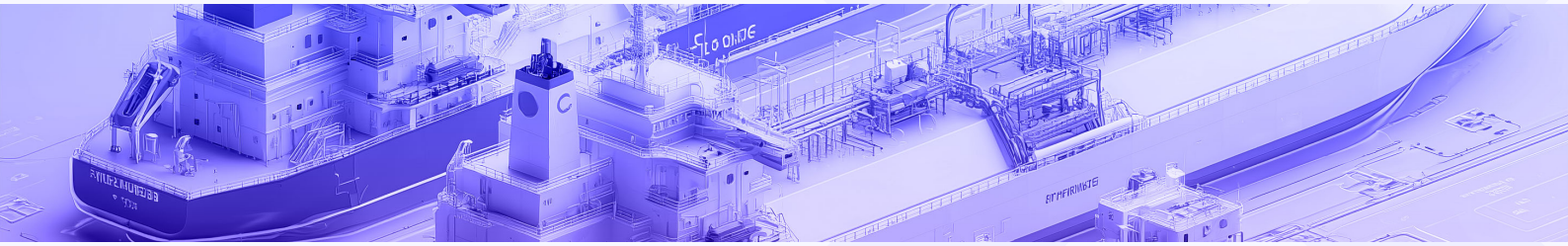
Energies | Oil & Gas | Bio-Refinery | Storage

SCOPE & OBECTIVES

- The intervention aimed to diagnose and resolve communication issues between the Distributed Control System (DCS) and several subsystem packages on the FSRU installation.
- Identified and corrected firewall configuration issues, VLAN segmentation problems, and non-standard port configurations preventing proper data exchange between DCS and field systems
- Performed comprehensive network infrastructure analysis including switch configuration verification, VLAN mapping validation, and QoS profile optimization across all communication paths
- Corrected data mapping inconsistencies including DCI block aliases, analog input scaling errors, and Modbus register mapping issues ensuring accurate process data representation
- Executed end-to-end communication testing using simulation tools, packet capture analysis, and functional validation.

KEY RESULTS

- Successfully resolved firewall and VLAN segmentation issues through systematic reconfiguration, port testing, and network architecture optimization enabling proper data flow across all systems
- Identified root cause of Rotork valve alarm logic mismatches revealing inconsistent alarm priority configurations and documented findings for vendor resolution and standardization
- Corrected DCI data mapping inconsistencies through on-site validation achieving accurate process data representation and confirmed synoptic display functionality
- Restored operational communication for 6 of 8 critical subsystems (TGBT, QRH, FWP, GRTgaz, partial AFDS, Rotork status) with clear action plans for remaining vendor-dependent completions
- Delivered comprehensive technical documentation including network diagrams, switch/firewall configurations, VLAN mappings, test results, and troubleshooting procedures for ongoing support



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PROJECT MANAGEMENT & TECHNICAL ASSISTANCE

TotalEnergies • La Mède, France • 60 Months

Providing comprehensive technical assistance and project management support for TotalEnergies' biorefinery operations at La Mède facility. Delivering ongoing control system engineering, supervision program development, contractor management, and technical documentation maintenance across distributed control systems, safety systems, and process control platforms.

TECHNOLOGIES USED

Schneider-Electric | Tricon CX | Tristation | Unity XL | Siemens | ArchestraIDE | TIA Portal

CATEGORIES

Engineering | Safety Systems | Maintenance | Automation | Control Systems | Documentation

SECTORS

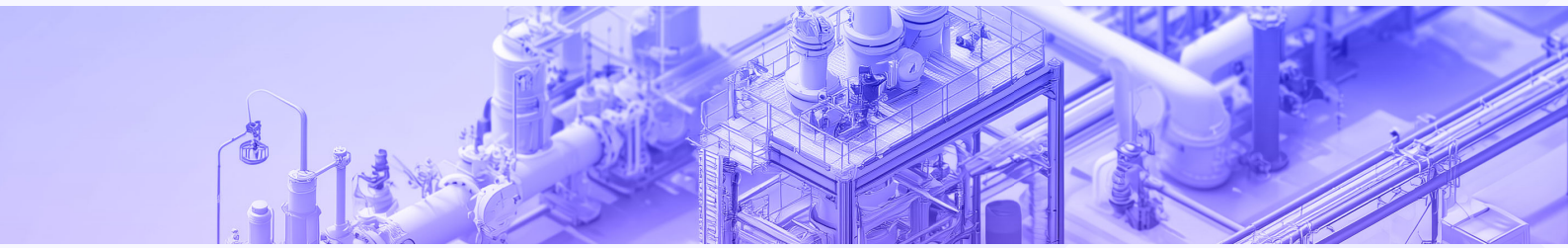
Energies | Oil & Gas | Bio-Refinery

SCOPE & OBECTIVES

- DCS/SIS/PLC technical assistance across multiple control platforms including DCS Foxboro, safety systems Triconex, and PLCs Schneider/Siemens with comprehensive cross-discipline project coordination
- Control and supervision program development including logic programming, HMI design, alarm management, and system optimization for biorefinery operations and process control applications
- Contractor supervision and management coordinating multiple external teams, monitoring work quality, validating deliverables and ensuring compliance with project specifications and safety standards
- Operating system maintenance and updates for distributed control systems including software version management, database administration, backup procedures, and system performance optimization
- Technical documentation management maintaining up-to-date technical dossiers, as-built drawings, functional specifications,operating procedures, and modification records ensuring complete project traceability

KEY RESULTS

- Delivered comprehensive control and supervision programs achieving seamless integration across multiple platforms and enabling efficient biorefinery operations with optimized process control
- Maintained robust operating systems ensuring continuous availability and reliability of critical control infrastructure with zero unplanned system downtime
- Successfully supervised contractor teams coordinating multiple engineering disciplines and ensuring timely delivery of high- quality work packages meeting all specifications
- Achieved complete technical documentation compliance maintaining accurate and current technical dossiers facilitating regulatory audits and operational excellence throughout the facility lifecycle



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BIOREFFINERY CONVERSION PHOENIX PROJECT

TotalEnergies • La Mède, France • 24 Months

Providing comprehensive technical assistance for TotalEnergies' La Mède refinery conversion into France's first large-scale biorefinery. Delivering control system engineering, safety validation, commissioning support, and cross-discipline coordination throughout the multi-year transformation project.

TECHNOLOGIES USED

Schneider-Electric | Bently Nevada | Tristation | Unity XL | Siemens | IA Series | TIA Portal

CATEGORIES

Engineering | Safety Systems | Maintenance | Automation | Control Systems | Documentation

SECTORS

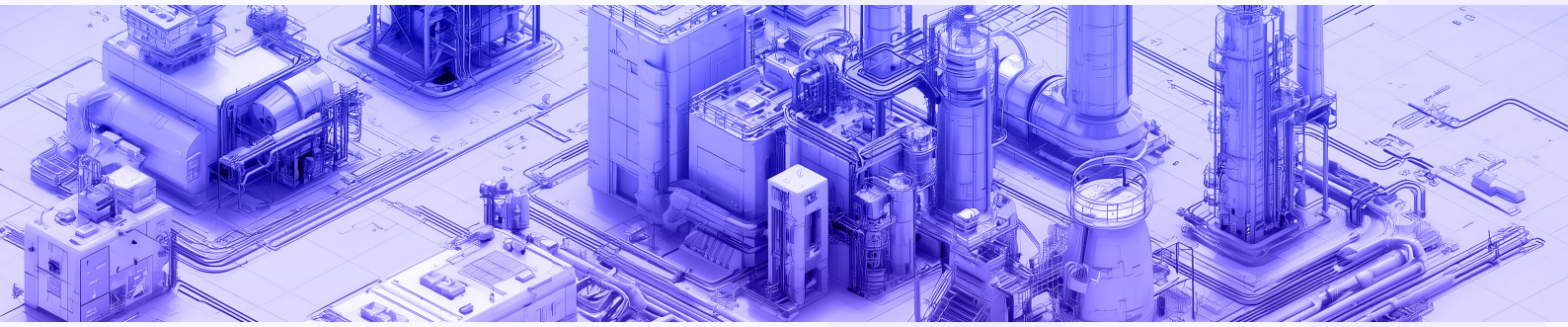
Energies | Oil & Gas | Bio-Refinery

SCOPE & OBECTIVES

- Technical assistance and engineering support on DCS / SIS and PLC systems during the complete refinery conversion to biorefinery operations
- Control & safety system validation, commissioning, and cross-discipline coordination.
- Control and safety system validation including functional verification and logic correction for process control and safety instrumented systems
- Commissioning activities for hydrogen compressors, process units, and integrated control systems with full startup support
- Ensured compliance with international standards and validated system readiness for biorefinery production
- Improved reliability of machinery monitored by Bently Nevada (BN) system as project lead for design, engineering, and work supervision
- Analyzed BN relay logic for 6 machines and generated discrepancy reports according to TotalEnergies standards
- Developed trip logic modifications compliant with TotalEnergies specifications
- Performed hot-loading of logic changes to BN racks and installed new relay cards to match generated logic
- Supported preparation of technical calculations, analyses, and engineering studies
- Incorporated annotations on TQC documentation

KEY RESULTS

- Successfully validated and corrected all control and safety logics achieving 100% functional compliance for biorefinery operations
- Commissioned hydrogen compressors and multiple process units meeting all performance specifications and safety requirements
- Achieved full regulatory compliance and startup readiness enabling smooth transition to biorefinery operations
- Delivered comprehensive documentation and training ensuring operational team preparedness for new biorefinery systems



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ROB1 PIPELINE SCADA BASE STUDY

Sifang • Sonatrach • From Bejaïa to Hassi Messaoud, Algeria • 3 Months

Conducted a comprehensive base study for Sonatrach's ROB1 pipeline, delivering full functional analysis and SCADA/DCS architecture design across 179.5 km from Bejaïa Terminal to Hassi Messaoud. The project included unified network architecture with VLAN segmentation, RTU redundancy, interfacing studies for 23 stations, and detailed technical documentation to support future modernization and integration.

TECHNOLOGIES USED

Schneider-Electric | Rockwell Automation | MicroWin | WinCC | Siemens | Step 7

CATEGORIES

Engineering | Control Systems | Documentation

SECTORS

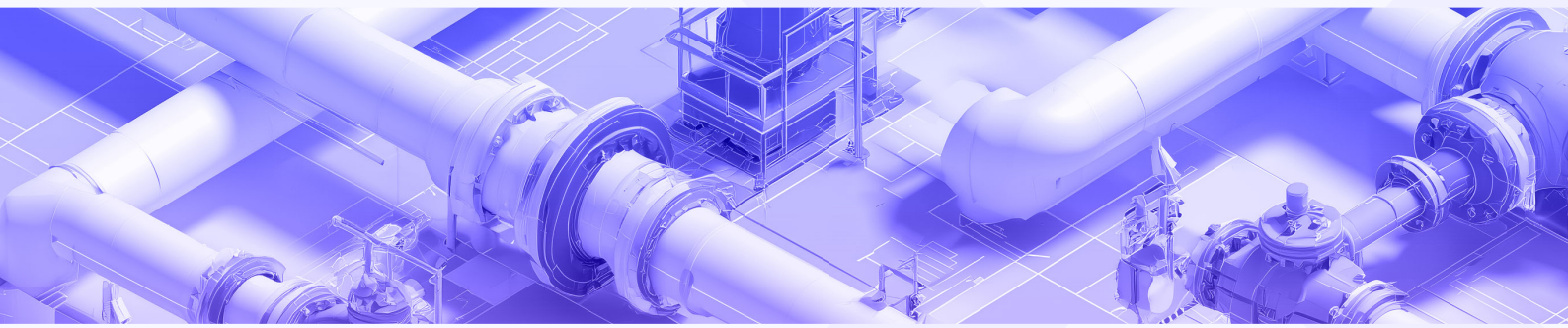
Energies | Oil & Gas | Storage

SCOPE & OBECTIVES

- Performed comprehensive functional analysis of existing SCADA and DCS systems across 23 stations including Terminal Bejaïa (MCC), Port Pétrolier, SP2 Outaya (BCC), SP3 M'Sila, SBM, SP1 BIS, SP1 ROB1, TRA Algiers, and 15 pump stations covering diverse control platforms and legacy systems.
- Developed unified SCADA system architecture with dual redundant RTU configuration, VLAN-segmented network topology, and standardized communication protocols ensuring scalability, reliability, and vendor-agnostic integration across multi-site infrastructure.
- Resolved key integration challenges, including ABB AC800F firmware alignment (v6.2), DeltaV controller mounting constraints, Port Pétrolier ESD signal splitting (4 × DI splitters for ELPRO 105U-1), and TRA Algiers RS485 port utilization for RTU integration.
- Produced comprehensive technical documentation including system architecture drawings, hardware Bill of Quantities (BOQ), interfacing feasibility studies for SBM/SP1BIS/SP2/SP3, communication specifications and meeting minutes.

KEY RESULTS

- Delivered a unified SCADA architecture for 179.5 km of pipeline infrastructure, featuring a dual-VLAN topology (SCADA LAN A/B + RTU Network A/B), redundant RTUs, and a vendor-agnostic communication framework for consistent supervision across 23 stations.
- Established a scalable foundation for future system migration through documented interfacing requirements, communication card specifications (6 × S7-400 Ethernet, 4 × ABB FI820F, 2 × DeltaV VIM), and validated compatibility for phased modernization without downtime.
- Resolved key integration challenges, including ABB AC800F firmware alignment (v6.2), DeltaV controller mounting constraints, Port Pétrolier ESD signal splitting (4 × DI splitters for ELPRO 105U-1), and TRA Algiers RS485 port utilization for RTU integration.
- Standardized multi-vendor control practices across Siemens (S5/S7), Emerson (DeltaV), ABB (Freelance), Allen-Bradley (ControlLogix), and SMAR (LC700 Modbus RTU) platforms to ensure consistent data exchange and supervision methodology.



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SAND FILTERS COMMISSIONING

Air Liquide • Fos-sur-Mer, France • 2 Months

Air Liquide's Fos-sur-Mer facility required the commissioning of three critical sand filtration units for process water treatment. These filters are essential for maintaining water quality standards required for industrial gas production operations. The project involved complete automation integration, safety interlock verification, and HMI system development.

TECHNOLOGIES USED

Schneider-Electric | Foxboro | inFusion

CATEGORIES

Control Systems | Commissioning | HMI

SECTORS

Industrial Gas | Process | Manufacturing | Utilities

SCOPE & OBECTIVES

- Commissioning of three sand filter units including complete mechanical, electrical, and instrumentation verification
- Advanced control logic development per AFC documentation with automatic filtration cycles, backwash sequences, and filter switching algorithms
- Safety interlock verification and validation including pressure protection, flow interlocks, and emergency shutdown sequences
- HMI view creation and updates for operator interface including alarm management, trend displays, and intuitive navigation
- Complete instrumentation loop verification and signal integrity validation

KEY RESULTS

- Successfully commissioned all three sand filter units with flawless startup achieving first-time-right control sequence execution
- Validated all safety interlocks and protection systems ensuring zero safety incidents during commissioning and startup phases
- Delivered intuitive HMI interface enabling efficient operator control and reducing training time requirements
- Achieved optimized filtration performance with automated sequences maximizing throughput and minimizing water consumption



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CO2 COMPRESSOR COMMISSIONING

Saudi Aramco • Hawiyah, Saudi Arabia • 6 Months

Delivering complete commissioning services for MAN 7-stage high-speed centrifugal CO2 compressor at Saudi Aramco's Hawiyah gaprocessing facility. Providing comprehensive loop verification, advanced control system commissioning, anti-surge optimization, HMIdevelopment, and operator training for high-pressure CO2 compression operations.

TECHNOLOGIES USED

Schneider-Electric | Tricon | Tristation | Wonderware | InTouch

CATEGORIES

Safety Systems | Training | HMI | Commissioning | Startup

SECTORS

Energies | Oil & Gas | Rotating Machinery

SCOPE & OBECTIVES

- Commissioned MAN 7-stage high-speed centrifugal CO_2 compressor with complete auxiliary systems including seal gas, lube oil, and cooling water ensuring operational readiness for high-pressure service
- Verified all instrumentation loops including process measurements, machinery protection sensors, and analytical instruments ensuring measurement accuracy and proper integration with control systems
- Commissioned and tuned anti-surge control system with real-time monitoring and optimized performance controllers for compression efficiency through speed control and pressure regulation
- Enhanced HMI displays on InTouch v11 platform with intuitive operator screens, real-time status visualization, performance parameters, trend displays, and alarm management
- Executed comprehensive test procedures covering mechanical runs, performance validation, and safety verification with on-site troubleshooting support and intensive operator training program

KEY RESULTS

- Successfully commissioned 7-stage CO_2 compressor achieving full operational capacity with optimally tuned controllers and complete safety system functionality
- Achieved stable operation with rapid load response and effective surge prevention through precise control tuning maximizing compression efficiency across operating range
- Validated all safety systems including emergency shutdown sequences, vibration trips, temperature protection, and seal gas interlocks achieving 100% compliance with Saudi Aramco standards
- Delivered complete documentation including operating procedures, alarm guides, and troubleshooting manuals while training operations team to full competency in compressor operation



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POWER PLANT SCADA SYSTEM OVERHAUL

AviComp • Laâyoune, Occidental Sahara, Morocco • 2 Months

Delivering complete SCADA system modernization for ONEE's diesel power generation facility in Laâyoune. Providing comprehensive PLC programming with RSLogix 5000, advanced HMI development using FactoryTalk View SE, and full system integration with rotating equipment monitoring and synchronization controls.

TECHNOLOGIES USED

ControlLogix | Rockwell Automation | FactoryTalk View | RSLogix 5000 | RSLinx

CATEGORIES

Engineering | Control Systems | Rotating Equipment | SCADA/HMI | Migration | Commissioning

SECTORS

Energies | Machinery | Power Generation

SCOPE & OBECTIVES

- Complete SCADA system redesign and migration from legacy platform to modern Rockwell Automation architecture including hardware specification and system architecture design
- RSLogix 5000 development for ControlLogix PLCs with comprehensive control logic for diesel generator operations, synchronization sequences, load management, and protection interlocks
- Rotating equipment integration including generator monitoring, diesel engine control, automatic synchronization with grid, load sharing algorithms, and emergency power management sequences

KEY RESULTS

- Successfully migrated power plant operations to modern robust SCADA platform achieving enhanced reliability and eliminating obsolescence risks with future-proof architecture
- Delivered advanced operator interface improving supervision efficiency and facility operation through real-time visualization and intelligent alarm management capabilities



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NOTES

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GET STARTED WITH **XELL**

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