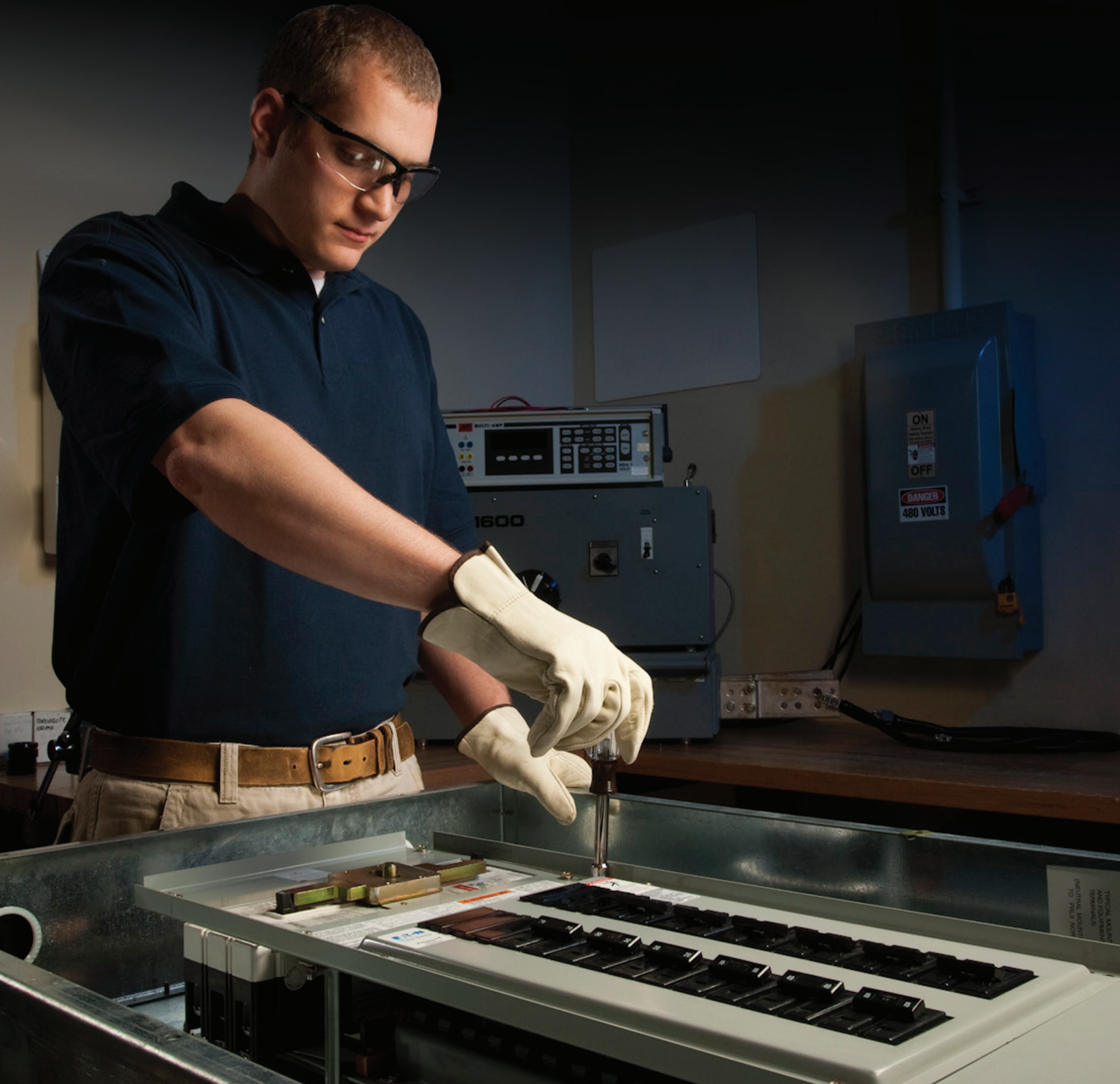


framatome

Nuclear Products



Every Innovation Has a Mission

Challenge

Ensuring safe and reliable operations is the driving force for the nuclear industry. Framatome's road to excellence begins with our culture of accountability and delivering cost-effective solutions critical to success. Tangible results that ensure safety, quality, performance and delivery are paramount.

Solution

Framatome Nuclear Products stands ready to support you in meeting our industry's goals: advancing safety, reliability and economic performance. You can count on Framatome to deliver innovative solutions including high-quality distributed parts through the Nuclear Parts Center and qualified parts to address obsolescence through our procurement team. We also deliver electrical and mechanical product solutions to help you to improve reliability, lower costs and address obsolescence.

Benefits

- Increase safety, efficiency and plant performance
- Resolve emergent issues quickly
- Reduce plant operating cost
- Address obsolescence and equipment reliability issues
- Meet evolving regulatory requirements
- Improve your plant performance

Our Commitment to You

Framatome's Nuclear Products division is focused on the products and services offered today and new products and services to be developed for the future in order to deliver innovative and reliable solutions with the highest quality and best value in the industry.

We are driven by:

- Plant life extensions through modernization upgrades
- Reliable equipment for breaker-to-breaker runs
- Cost-effective procurement solutions



Alignment with Industry **Standards and Expectations**

Framatome has a variety of programs in place — at all levels — to ensure alignment to industry standards and to your expectations.

- Management Commitment to Excellence — Darden Assembly to Reach Excellence (DARE)
- Operating experience and lessons learned programs
- Human Performance Observation Program
- Standards of Operational Excellence reference guide
- Good Catch Safety Program



SAFETY



QUALITY



PERFORMANCE

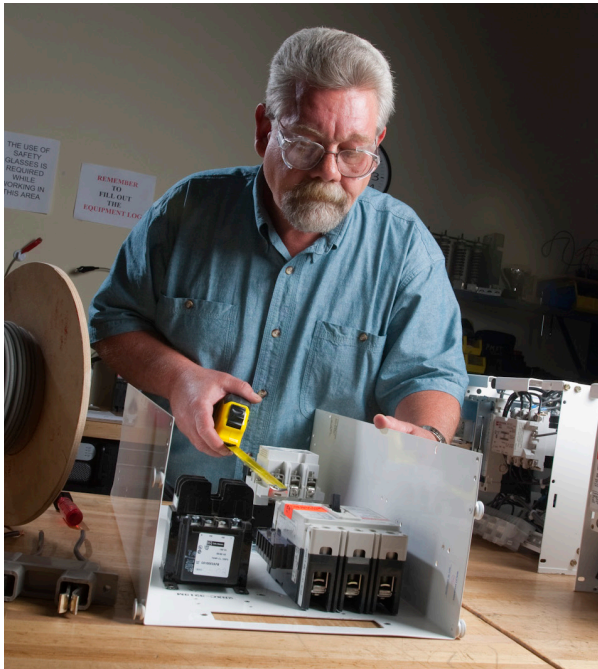


DELIVERY

Managing Obsolescence

Faced with the need for reliable, cost-effective solutions to address obsolescence, utilities can turn to Framatome for the optimum solution. Framatome can provide the right solutions for replacement of components and systems.

As a NSSS provider with decades of plant design, component engineering, commercial grade dedication and reverse engineering experience along with close relationships with OEMs and global reach, Framatome brings unique capabilities to deliver the best and most cost-effective solutions for your plant.



In addition to identifying your most pressing obsolescence challenges, Framatome brings the procurement resources and engineering expertise to deliver solutions to your dock. As a single source to identify, solve and deliver solutions for obsolescence challenges, Framatome's turnkey approach reduces your costs and decreases obsolescence risk. With our proven expertise and innovative commercial models, Framatome has provided obsolescence solutions for a wide-range of utilities for safety and non-safety products from simple parts to complex assemblies.

Our solutions

- Depth and breadth of engineering expertise to identify obsolete piece parts and components
- Item equivalency evaluations (IEE) for alternative products
- Reverse engineering
- Re-engineering of analog systems
- Commercial grade dedication (CGD) and equipment qualification (EQ)
- Intelligent use of modern technologies and improvements to provide performance reliability without excessive regulatory issues
- Direct relationships with key manufacturers and suppliers
- Global supply chain to locate difficult-to-source parts
- Design change/modifications
- Long-term support via the Nuclear Parts Center

All of the facets of our business work together for a model to deliver scalable solutions. Framatome's turnkey services free up utility personnel to address emergent and other high priority issues. We can help identify solutions to the highest priority obsolete items before they become emergent needs. Our division's wide scope includes Integrated Procurement Solutions, Nuclear Parts Center, Electrical, Mechanical and Instrumentation and Control products.

A single source to identify, solve and deliver solutions for obsolescence challenges



Integrated Procurement **Solutions**

Framatome's Integrated Procurement Solutions (IPS) offers comprehensive solutions to help utilities address procurement engineering challenges and deliver needed parts on time and with reduced costs. With deep relationships with a broad base of original equipment manufacturers and suppliers, extensive commercial grade dedication experience and world-class testing capabilities, Framatome offers a one-stop source for the full suite of procurement engineering services including:

- Procurement engineering
- Commercial grade dedication (CGD)
- Component testing and qualification
- Obsolescence solutions, including IEE and reverse engineering
- Sourcing and purchasing
- Global supply chain for difficult-to-source parts

Comprehensive solutions to help utilities address procurement engineering challenges

Turnkey Commercial Grade Dedication Services

Mounting cost pressures are causing utilities to use commercial grade dedication (CGD) as a means to reduce costs. At the same time, regulatory drivers and increased oversight can increase execution and compliance costs. To address these conflicting demands, Framatome is leading the industry with turnkey CGD services that decrease utilities' risks, lower costs, improve execution efficiency and reduce lead times through economies of scale.

With more than 20 years of CGD experience, Framatome offers the best value, highest reliability and industry-leading quality in CGD services. Our CGD services are fully aligned with EPRI's latest "Guideline for the Acceptance of Commercial-Grade Items in Nuclear Safety-Related Applications" (2014) and have been noted as a strength by industry experts. In addition we dedicate a large number of commodity and non-commodity items.



Real Value

Framatome is a leading NSSS provider that offers third-party CGD and is the first third-party dedicator to provide fleet-wide dedication for a U.S. nuclear utility. Therefore, we bring unrivaled experience, capabilities and depth in engineering to offer the highest caliber and best value in CGD services.

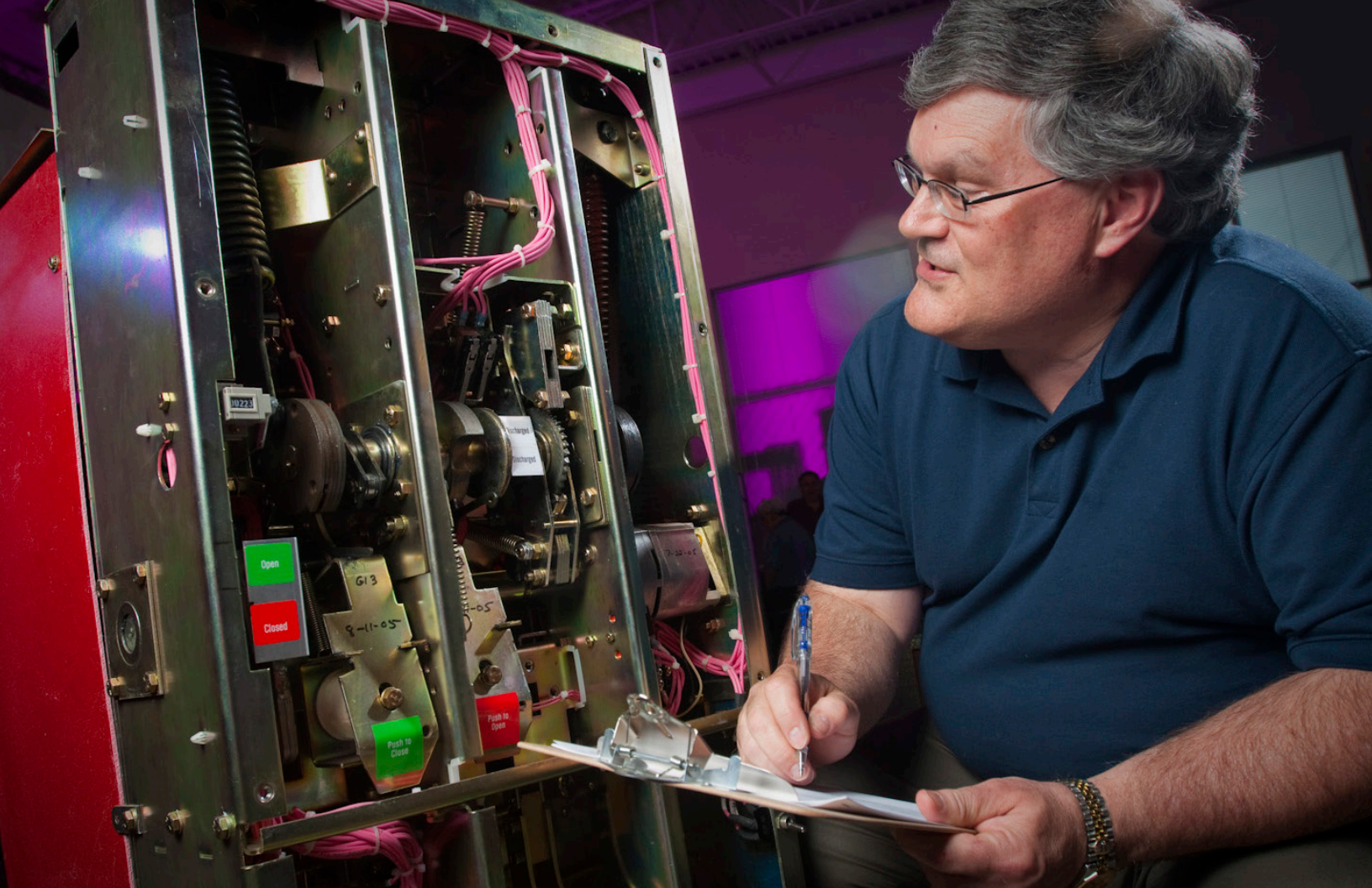
Through our experience, Framatome has implemented processes and procedures for continuous improvement, cost optimization and enhanced schedule performance. As a result, our customers benefit from our ability to execute efficiently from day one and to scale up rapidly to deliver the volume and quality needed.

Outsourcing CGD services offers potential savings through:

- Reduced overhead and O&M costs
- Avoided costs of compliance with new EPRI guidelines
- Lower average unit price (AUP) and reduced lead-times through bulk purchases and dedications.

Features and Benefits

- Decades of plant NSSS experience help customers execute operational excellence with enhanced value
- Single point of contact for sourcing, dedication and delivery
- Bulk sourcing and standardized dedication plans reduce costs and shorten lead times
- Turnkey service allows plant staff to focus on high priority and emergent issues
- 20 years of CGD experience translates into delivering the right product, on time, the first time



Risk-Informed Engineering Programs

10 CFR 50.69

Risk-informed engineering offers utilities an opportunity to gain efficiencies and reduce cost in a broad spectrum of plant processes and programs. Under a 50.69 methodology, utilities can potentially reduce costs by focusing maintenance, classification and engineering efforts on SSCs that have a higher risk profile and reducing focus on those that are lower risk. This methodology can lead to major savings while increasing equipment reliability and availability and reducing outage times.

Framatome offers unparalleled capabilities to support our customers in developing and implementing a 50.69 program. Our flexible approach is designed to be methodical and implemented on the customer's schedule to deliver optimum benefit, while minimizing risk.

Our engineering, procurement, design and licensing experience can help utilities with:

- Development of methodology (or generic Topical Report)
- Procurement engineering services
- Licensing (LAR) support
- Training and change management
- Gap analysis (PRA)
- Expert panel reviews (PRA and integration)
- Document and engineering updates
- Procedure and program updates
- Configuration control management
- Peer reviews
- Overall project integration



Nuclear Parts Center

The Nuclear Parts Center (NPC) features a Customer Inquiry System (www.framatome.com/npc) where utilities can connect with Framatome 24/7/365 for access to its extensive spare parts inventory, guaranteed stocking programs, supply chain management and technical support.

The NPC maintains a vast stock of spare parts and provides access to nuclear-rated valves and actuators, electrical components such as breakers, control relays and switches, reactor coolant pump seal parts, valve components, Nuclear Grade Air Traps™, nuclear steam supply system and ASME code parts and nuclear cartridge filters. For reliable, efficient inventory management, Framatome can help you manage obsolescence — with confidence.

Benefits include:

- Reduced O&M Costs
 - Minimize carrying costs by relying on NPC inventory
 - No rejected parts or data packages
 - Reduced QA costs
- Inventory Ready to Ship
 - Material procured and delivered as-needed
 - Reduced delivery and total evolution lead times
 - Real-time access to price and availability through the internet
 - Direct transmission of releases to NPC
- Strong Technical Support
 - Experience in nuclear, technical and quality requirements
 - Off-hours cell phone: 434-610-3880
- Committed to Your Success
 - Service and quality

The NPC maintains a vast stock of spare parts

- ASCO™ Solenoid Valves
- ASCO™ Hydramotor® Actuators and Parts
- ASCO™ Pressure/Temperature Switches
- BIRNS Lighting
- Cable Assemblies
- Cartridge Filters (PALL and Trinuclear Applications)
- Chesterton Fluid Sealing Products
- Conval Valves
- Electrical Dedicated Parts
- EMPATH™ Motor Diagnostics
- Limitorque Actuators, Parts and Motors
- Mechanical Dedicated Parts
- Meggitt H₂/O₂ Analyzer Parts
- Nuclear Grade Air Traps™
- NSSS and ASME Code Components
- Pressurizer Heaters
- RC Pump, Seal and Motor Parts
- Schneider Electrical Nuclear I&C (Triconex® Triple Modular Redundant PLC Platform, Foxboro DCS, Foxboro Spec 200/200M)
- Stearns Roger® Fuel Handling Equipment
- Technofast Hydraulic Fasteners
- TopWorx® Proximity Switches
- UltraCheck® Valve Diagnostics
- Velan Valves
- Yarway Valves





C4801 P (Front)

C4801 N (Front)

C4801 M (Front)

C4801 Q (Front)

DCDCS
SINGLE RPD
POWER SUPPLIES

SUPPLY FAILURE
OUT CC
A IN
B C
AA

POWER ON F
F1 F2 F3

DCDCS POWER MODULE

SUPPLY FAILURE
OUT CC
A IN
B C
AA

POWER ON F
F1 F2 F3

DCDCS POWER MODULE

SUPPLY FAILURE
OUT CC
A IN
B C
AA

POWER ON F
F1 F2 F3

DCDCS POWER MODULE

SUPPLY FAILURE
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DCDCS POWER MODULE

SUPPLY FAILURE
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DCDCS POWER MODULE

SUPPLY FAILURE
OUT CC
A IN
B C
AA

POWER ON F
F1 F2 F3

DCDCS POWER MODULE

I&C — Including Reverse Engineering

Framatome offers digital and analog safety and non-safety I&C solutions. Framatome is the only supplier that has supported the successful licensing, engineering, procurement, installation and commissioning of a full-scope digital Safety I&C Protection System in the U.S. Eighty-one TELEPERM® XS systems have been supplied or are currently on order for 14 different reactor designs in 16 countries, including upgrading Reactor Vessel Level Instrumentation Systems (RVLIS).

Through the acquisition of Schneider Electric Nuclear I&C, Framatome now offers new system platforms and engineering capabilities providing the nuclear industry with additional cost-effective, low risk and full scope I&C solutions. These platforms include Triconex®, Foxboro Distributed Control Systems and Spec 200, spanning extensive nuclear plant operations experience.

Additional Framatome I&C applications include the Digital Control Rod Drive Control System (DCRDCS), Reactivity Measurement and Analysis System (RMAS), Loose Parts Monitoring System (LPMS) and Flux Mapping System (FMS). Framatome is also providing safe, reliable and economical Spent Fuel Pool Level Instrumentation (SFPLI) solutions to multiple utilities in the U.S., Spain and Taiwan.

Framatome manufactures and supplies in-core detectors for B&W and CE-type plants, and offers multiple core monitoring solutions for Westinghouse plants. Thimble tubes and thermocouples are also manufactured in our Lynchburg facility.

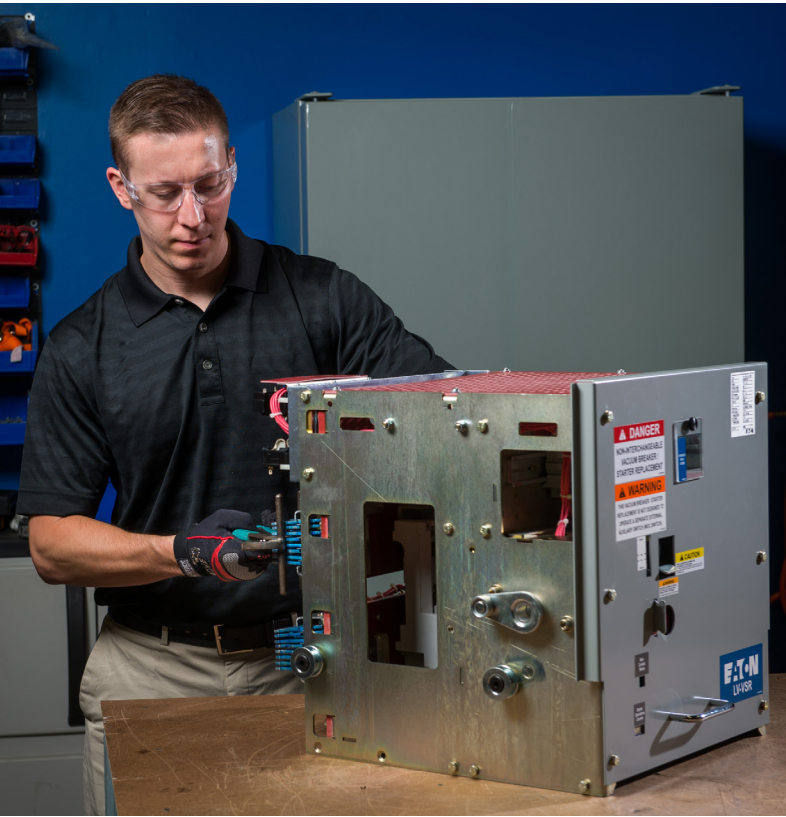
For obsolete small safety and non-safety related I&C systems, Framatome is a leader in re-engineering systems to meet site-specific needs for a design that delivers the same capabilities. With global systems experience and plant knowledge, our approach offers system enhancements where desired to increase performance and reliability to extend plant life and reduce operating costs.

Framatome offers a complete solution to address obsolescence:

- I&C experts prepared to evaluate and identify solutions
- Long-term support with spare parts through our Nuclear Parts Center
- Item equivalencies including commercial grade dedication and qualification
- Re-engineering of digital or analog systems if a design change is preferred to improve system performance and reliability
- Reverse engineering including safety-related cards and analog platforms
- Framatome's Engineering arm to assist with Design Change Packages

Framatome will work with you, leveraging our plant design and operation experience, to define the optimum solution to lower your risk so you can continue to operate safely and cost-effectively.

Electrical Products



Faced with product obsolescence, reliability issues, general maintenance and FLEX requirements, utilities must properly maintain electrical distribution systems and other electrical equipment. Framatome has more than twenty years of experience supplying nuclear electrical products. We provide qualified and dedicated replacement equipment and can replace components with the same form, fit and function.

Framatome's Electrical Products group provides the nuclear industry with products including variable frequency drives, motors and electrical distribution equipment such as breakers, switchgear, motor control center bucket replacements, panel boards and spare components. Framatome has strategic alliances with Eaton, Siemens and other original equipment manufacturers to provide electrical products to the nuclear industry, including vintage Westinghouse electrical distribution equipment.

Our services include commercial grade dedication, training, installation, service contracts and maintenance programs.

Our products include:

- Variable Frequency Drives (VFDs)
- Emergency Diesel Generators (EDGs)
- Medium Voltage (MV):
 - New switchgear
 - Vacuum breaker replacements
 - Enhanced maintenance kits
 - Safety-related transformers
 - Novinium cable life extension
- Low Voltage (LV):
 - DS circuit breakers and refurbishment kits
 - Vacuum starter replacements
 - Switchboards and panelboards
 - New motor control centers (MCCs)
 - MCC bucket replacements
- Post-Fukushima solutions:
 - Low and medium voltage equipment
 - Transfer / disconnect switches
 - MCC buckets
- Motors (NEMA and ANEMA)
- Emergency services:
 - Switchgear recovery
 - Main / auxiliary transformers
 - Electrical distribution systems
- Spare parts, including:
 - Molded case circuit breakers (MCCB)
 - Starters / contactors / overloads / heaters
 - MV and LV fuses
 - Relays
 - Switches / pushbuttons / lamps
 - Motor parts
 - Circuit breaker parts
 - MCC bucket parts
 - MV and LV switchgear parts
 - VFD parts



Mechanical Products

Framatome's Mechanical Products group has innovation at its heart, bringing new mechanical products and services to our customers, such as cooling tower thermal optimization and the particle separator.

The Mechanical Products group brings Framatome-designed and manufactured mechanical systems to our customers. In addition, our team members' broad understanding of the nuclear culture and equipment specifications means we can successfully manage commercial vendors to bring mechanical products to the nuclear industry.

Our most recent innovation is our FLEX Phase 2 Equipment Maintenance Program, including a mobile team, ready to assist our customers. Framatome's program is specifically focused on experience, work quality and cost optimization.

We are also looking globally for innovative mechanical products to bring to the industry to address aging and obsolescence and to improve plant efficiency.

Our products include:

- Chillers
- Conquest (acoustic resonance frequency mitigation of main steam lines)
- Cooling tower optimizations
- Filtered containment venting system
- FLEX Phase 2 equipment maintenance
- Glass-fiber reinforced plastic piping
- Heat exchangers
- Hydrogen recombiners
- Off gas systems
- Particle separators
- Passive autocatalytic recombiners
- Passive spent fuel pool cooling systems
- Pumps



Small cardboard boxes with labels, some containing the number 32836.

RETURN TO:
MONTICELLO NUCLEAR PLANT
MONTICELLO, TN 37562

Flow Control Division
FLOWSERVE
Low Pressure Control Systems
Pressure Control Systems
Water Treatment Systems

Flow Control Division
FLOWSERVE
Low Pressure Control Systems
Pressure Control Systems
Water Treatment Systems

PR16-30

PR16-30

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Our Commitment

Our performance is fueled by the expertise of Framatome's Nuclear Products division. We have decades of leadership in the North American market seeking to understand your challenges and to evaluate and identify solutions. Our solutions enhance your safety and lower your risk so you can continue to operate safely and cost-effectively.

We have the track record of Operational Excellence to deliver quality on-schedule and on-budget. We have 24/7 availability through our Nuclear Parts Center, the Engineering Control Center and the Outage Control Center. Our teams work relentlessly to bring procurement, instrumentation and control, electrical and mechanical solutions to address your needs in a cost-effective manner. As we continue to look to the future and perform at the highest levels with passion and integrity, our commitment is to sustain and advance nuclear energy.

Framatome is a major international player in the nuclear energy market recognized for its innovative solutions and value-added technologies for designing, building, maintaining, and advancing the global nuclear fleet. The company designs, manufactures, and installs components and fuel for nuclear power plants and offers a full range of reactor services.

With 14,000 employees worldwide, every day Framatome's expertise helps its customers improve the safety and performance of their nuclear plants and achieve their economic and societal goals.

Framatome is owned by the EDF Group (75.5%), Mitsubishi Heavy Industries (MHI – 19.5%) and Assystem (5%).



Visit our website to
learn more:
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