KINECTRICS
a BWXT company

Fusion

Enabling the Journey to Commercialization

Your Partner of Choice

With increasing demands for emission-free power generation, the world is looking to fusion as a potential step change in clean energy development. Kinectrics is ready to support that transition with our people, facilities, services, technologies and forward-looking outlook.

Created to support the growth of the power generation industry, our team has always been at the forefront of technological development and innovation. We have grown with the industry, solving problems as they arise, by offering innovative solutions and essential cost-effective services that have supported the growth of our customers.

As proud members of the Fusion Industry Association and Fusion Energy Council of Canada, our international team of engineers and technical experts are looking forward to leveraging decades of experience to develop the innovative solutions needed to bring fusion to a commercial reality. Our team is well equipped to support the building, integration and operation of fusion technologies for the future.

Kinectrics has facilities and offices across Canada, USA, United Kingdom, Germany, Denmark, Romania, and India, with its corporate headquarters in Toronto, Canada. With over 400,000 sq. ft. of R&D, testing and service facilities, we support all aspects of fusion technology development and life cycle management.

FUSION INDUSTRY ASSOCIATION

FUSION ENERGY CANADA

Kinectrics' capabilities and expertise enable the development of innovative solutions to our customers' toughest problems on projects including:

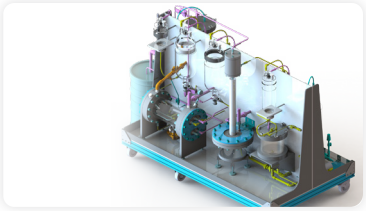
- UKAEA Tritium Framework Agreement
- UKAEA STEP Manufacture Support Services Framework
- Tokamak Fusion Test Reactor Tritium Removal Facility & Isotope Separation System
- Canadian Nuclear Safety Commission Regulatory Framework for Readiness to Regulate Fusion Technologies
- Ontario Power Generation New Nuclear (SMR) Owner's Engineer
- Cernavoda Tritium Removal Facility
- Wolsong Tritium Removal Facility
- Darlington Tritium Removal Facility
- Owner's Support Services for Darlington Plant Refurbishment
- Engineering Support and Program Management for Bruce Power Major Component Refurbishment
- Isotope Production System Design, Fabrication, Installation and Commissioning

Agile Engineering, Procurement & Project Management

As a key contributor to North America's largest vertically integrated utilities and the development of the largest nuclear plants in the world, Kinectrics provides a full range of integrated life cycle management services and facilities to support Fusion developers.

Bolstered by robust project management and project control practices, our team offers industry leading multidisciplinary engineering, procurement and site support capabilities.

- Electrical and Instrumentation & Controls Engineering
- Mechanical & Civil/Structural Engineering
- Piping & Pressure Boundary Design
- Niche engineering & analysis services, including Human Factors, Stress Analysis, Seismic, Environmental Qualification, Software Development
- Laser Scanning & 3D Modelling
- Owner's Engineering & Oversight
- Project Management & Program Planning
- Procurement Engineering
- On-Site Support, Outage Support & Field Engineering



Proven Fuel Cycle Management

A key challenge to large scale commercialization of fusion machines is supporting the fusion fuel cycle. With extensive experience in isotope production, separation, extraction, storage, transport and waste management, we are uniquely positioned to support the Fusion industry in designing, testing and deploying sustainable and efficient fuel cycles.

Tritium Expertise

- ✓ Production
- ✓ Separation
- ✓ Extraction
- ✓ Storage
- ✓ Transport
- ✓ Waste Management

Comprehensive Services

- ✓ Concept & detailed design
- ✓ Manufacturing
- ✓ Testing
- ✓ Operation & Maintenance Support
- ✓ Commissioning

Unique Material Testing & Mock-Up Facilities

Advancements in materials technology have a major impact on the path to sustainable, net positive energy fusion reactions. Kinectrics offers world-renowned expertise in material lifecycle management coupled with over 400,000 sq. ft. of state-of-the-art R&D, testing and service facilities capable of developing, modelling, designing, fabricating and testing materials and major components of fusion machines.

- Component/system testing
  - Environmental qualification
  - Commercial grade dedication
  - Seismic & random input motion testing
  - Burst testing
  - Autoclave and corrosion assessment & testing
- Analysis methods
  - Failure analysis
  - Failure modes & effects analysis
- Material testing
  - Metallurgical & non-metallurgical
  - Elastomeric
  - Materials qualification
  - Simulated harsh environmental/in-service (high temp, high pressure) conditions
  - Irradiated testing in warm cells

- Full-Scale testing facilities
- Full service conventional & radioactive licensed metallurgical & analytical chemistry laboratories
- GridSim, High Voltage & High Current labs
- A range of other niche laboratories

CRD Mock-Up & Training Facility

GridSim Power Lab

Safety is Our Culture.|Quality is Our Promise.

Strong Safety & Regulatory Affairs Track Record

Regulation and licensing of novel technologies introduce new challenges for commercial fusion facilities. Kinectrics brings over 60 years of nuclear safety, licensing and regulatory engagement experience. Our team of experts are primed to support the next generation of Fusion technologies in addressing complex safety problems and achieving efficient regulatory engagement.

- Full lifecycle deterministic & probabilistic safety analysis
- Risk informed assessments, reliability & equipment performance
- Accident management, security & emergency response
- Computer code development & maintenance
- Operational assessments & fuel performance
- Licensing & regulatory affairs
- Decommissioning & waste management solutions
- Production of technology specific safety cases

High Current Laboratory

Developing Solutions to our Customers' Toughest Problems

- Complete and efficient turnkey fuel cycle design, fabrication, testing, operation and waste management
- World-renowned materials lifecycle management expertise
- State of the art laboratories known for addressing extreme, radioactive and harsh environments to stringent QA standards
- Decades of nuclear safety and regulatory engagement experience for designing the next generation of safe and robust fusion machines
- Multidisciplinary engineering, procurement and site support capabilities bolstered by strong project management, ensuring on-time and on-budget delivery

Powering innovative and sustainable energy solutions globally.

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