



FNC TECHNOLOGY CO., LTD.

FUTURE & CHALLENGE

Smart Solutions for the Clean Future

A large, stylized graphic of the FNC logo is positioned in the bottom left corner. It features a large, solid grey 'F' and 'N' with a white 'C' inside a grey circle, all set against a white background.

FNC

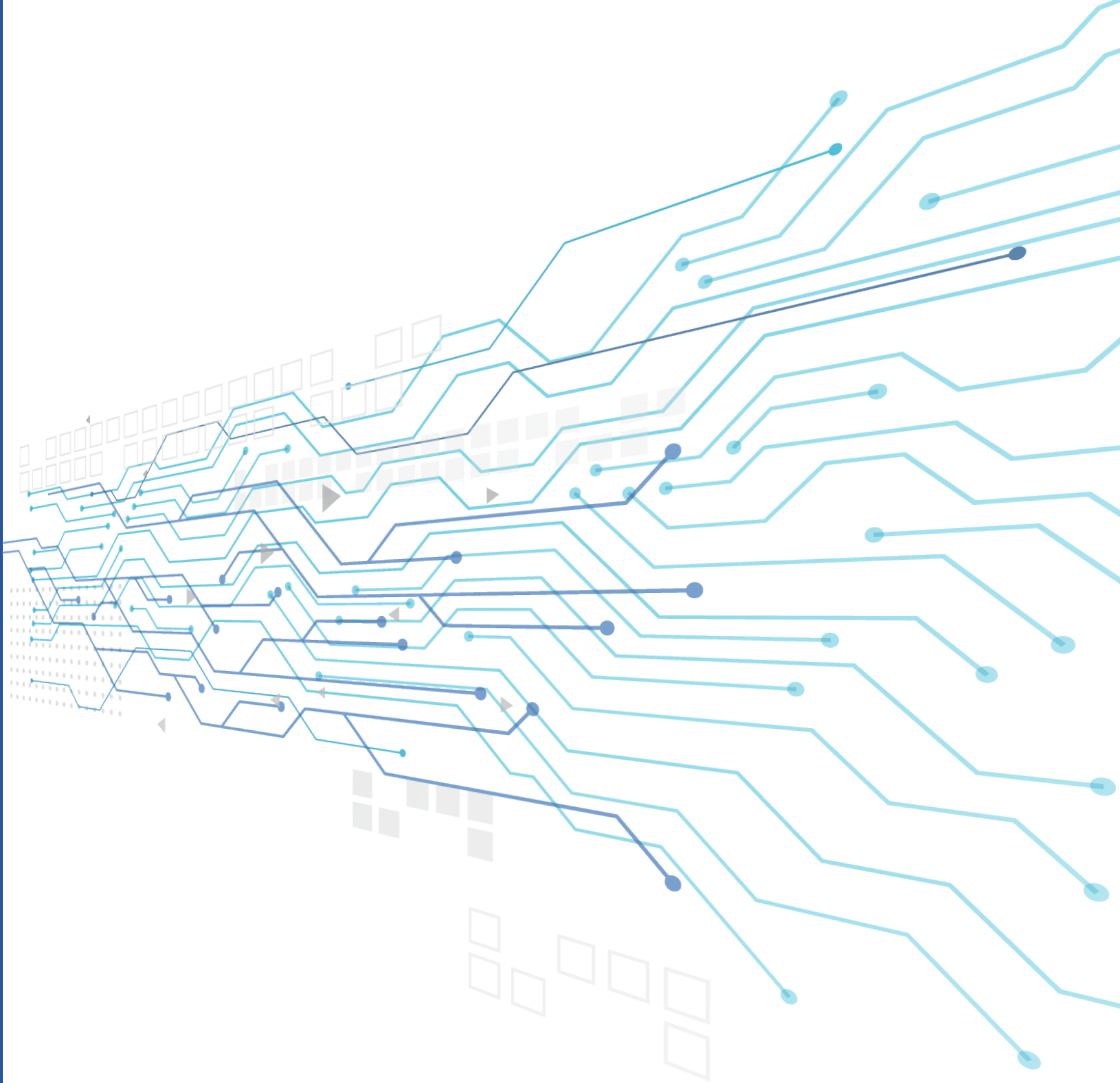
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New Challenge For Better Future

With expectations of better tomorrow,
FNC begins new challenges with superior expertise

Research the better future with nuclear engineering

With its technical superiority, FNC has been actively participating in the national projects to lay the foundation and build a framework for the Korean nuclear infrastructure. And in doing so, FNC has promoted the excellence of the Korean nuclear industries to the world.

FNC firmly believes in the technical independence of the nuclear industry and the overall safety advancement and strives to build technical knowledge and experience to contribute to the leading edge of the technology for safety enhancement. FNC is constantly on the move to raise the expectation of nuclear power to the next level and propel nuclear energy as the main clean energy of the future.

CEO Message

Vision & Mission



FNC is a key partner in the nuclear industry with its highest level of competence

In the middle of summer in 2000, FNC was established with spirited engineers and researchers specialized in nuclear engineering. Mastering the techniques and building up experiences, FNC becomes one of the best engineering companies in the world and provides technical services and engineering solutions as integrated engineering services in energy industry as well as nuclear power. Keeping in mind that nuclear engineering always requires the highest level of techniques, all members of FNC strive to lead the advancement and innovate ourselves to improve our engineering capability for enhancing the safety and the peaceful uses of nuclear energy.

FNC always appreciates your interest and caring for the company regarding its competence and experiences. With consistent challenges for the better future, FNC will continue to do its best to be a trusted and respected engineering company that helps create a clean and sustainable world.

Thank you very much.

President & CEO
Byung Chul Lee, 

Vision The Best Global Energy Engineering Company Creating Leading Technical Innovation

Mission Achieving Global Competitiveness for Sustainable Energy Future

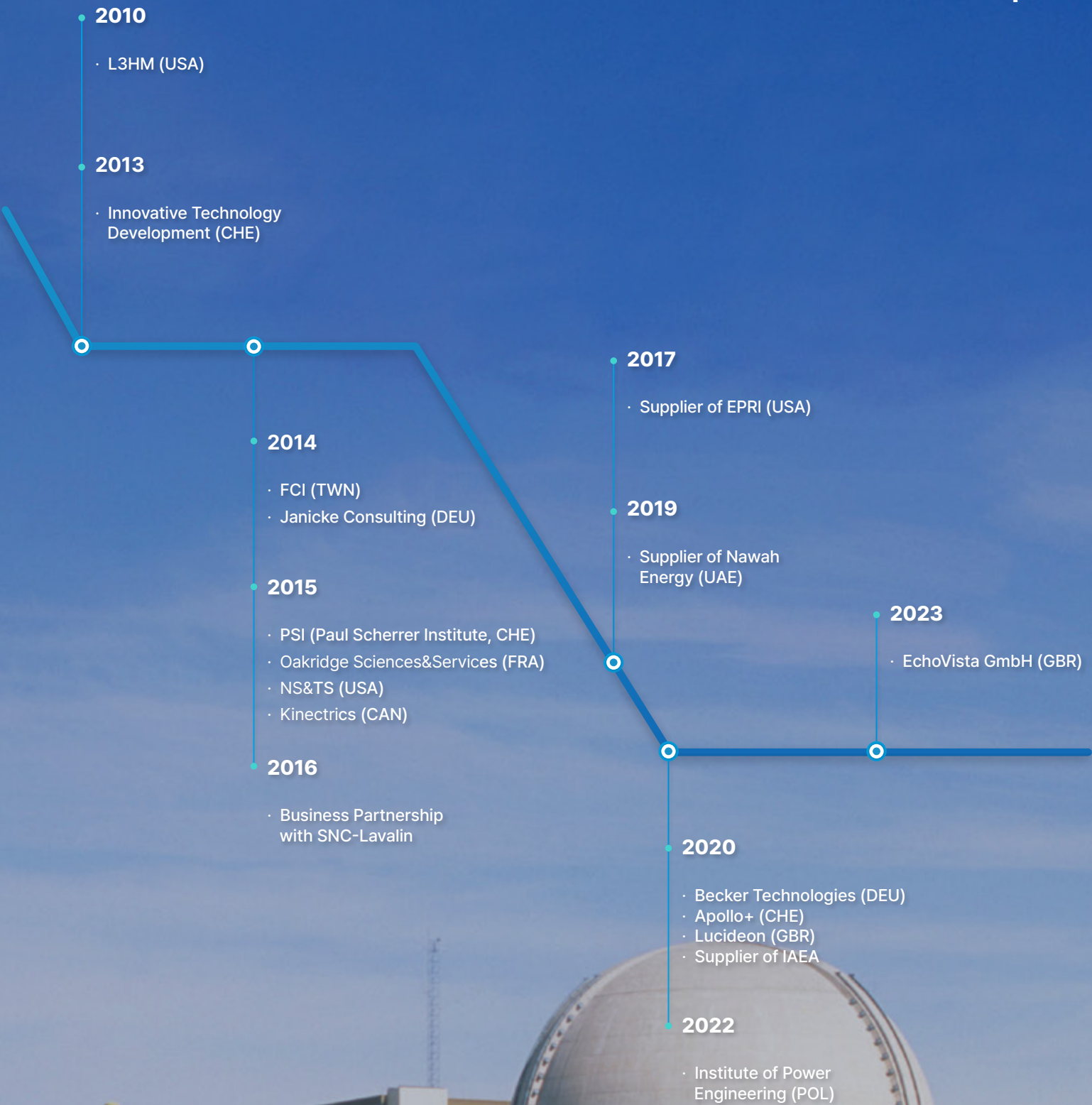


- 1 Leading nuclear safety improvement and sustainable growth with fundamental and solid expertise
- 2 Providing clear answers to customers with collective intelligence developed through communication and cooperation
- 3 Offering the highest quality service to satisfy customers based on its advanced technology and enthusiasm

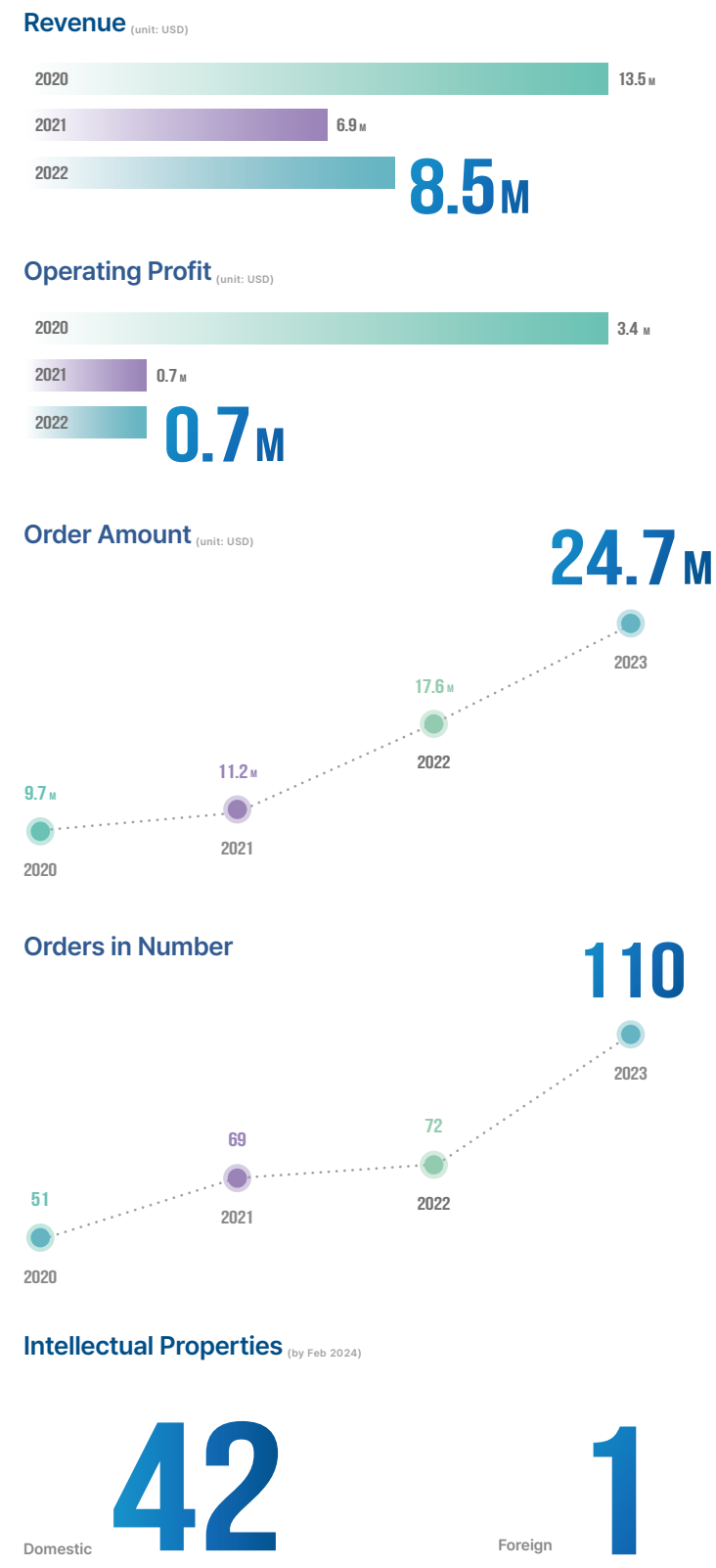
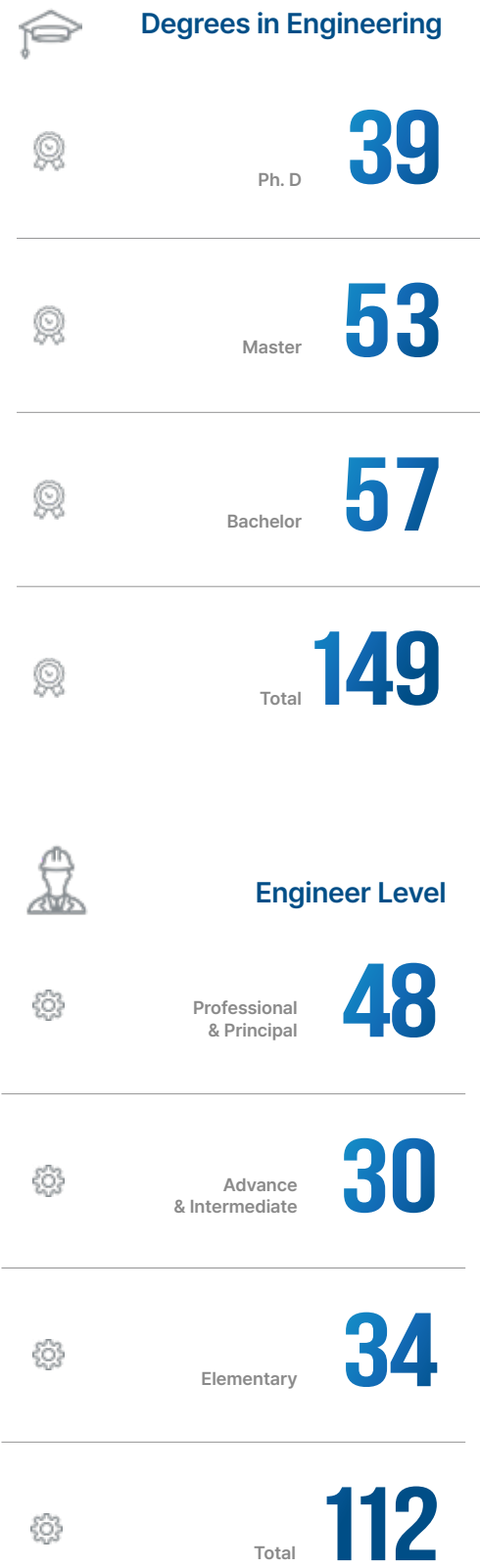
History

- **2023** · Opening of USA Branch in Maryland
- **2022** · Nawha's Q-Class Supplier for Engineering Services
- **2021** · Designated as ATC+(Advanced Technology Center) By Ministry of Trade, Industry and Energy
- **2020** · Acquisition of ISO450001
· Designated as ECRC(Excellent Corporation R&D Center) By Ministry of Science & ICT
- **2019** · Opening of UAE Branch in Abu Dhabi
· Acquisition of KHNP's Q-Class Supplier for Follow-up service under PSR
- **2017** · Acquisition of Qualification KHNP's Q-Class Supplier for PSR(Safety Performance/Plant Operation)
· Registration of Factory and Manufacturing Business
· Certification of ASME N
- **2016** · Certification of KEPIC(Korea Electric Power Industry Code) Nuclear Quality Assurance
· Certification of NET(New Excellent Technology)
· Acquisition of Qualification of KHNP's Q-Class Supplier for the EQ Assessment Service
· Designation as a Company of Special Cases on Military Service
- **2015** · Business Partnership with Paul Scherrer Institut(PSI) and Oakridge SAS
- **2014** · Registration of Atmosphere Management and Information Management
· Designation as a "K-Brain Power" Company from the Ministry of Trade, Industry and Energy
- **2012** · Designation as the Best Research Institute utilizing Results of Energy Technology Development by Ministry of Knowledge Economy
· Awarded a KETEP Prize to the Best Performance Test Facilities and Sump Strainer Technologies In The World
- **2009** · Acquisition of ISO9001
· Acquisition of Qualification for KHNP's Q-Class Supplier of PSA Service
- **2008** · Registration of Research and Development Service(Ministry of Education, Science and Technology)
- **2007** · Registration of Technical Innovative Smaller Business
· Member of Korea Software Industry Association and Korea International Trade Association
· Daejeon branch establishment
- **2004** · Registration for the Supplier of KEPCO E&C
- **2001** · Designation as R&D Investment Venture Company Registration of Nuclear Engineering Service
· Registration of Engineering Service for Radiation Management
- **2000** · Foundation of FNC Tech Co., Ltd. and Future Energy Research Institute

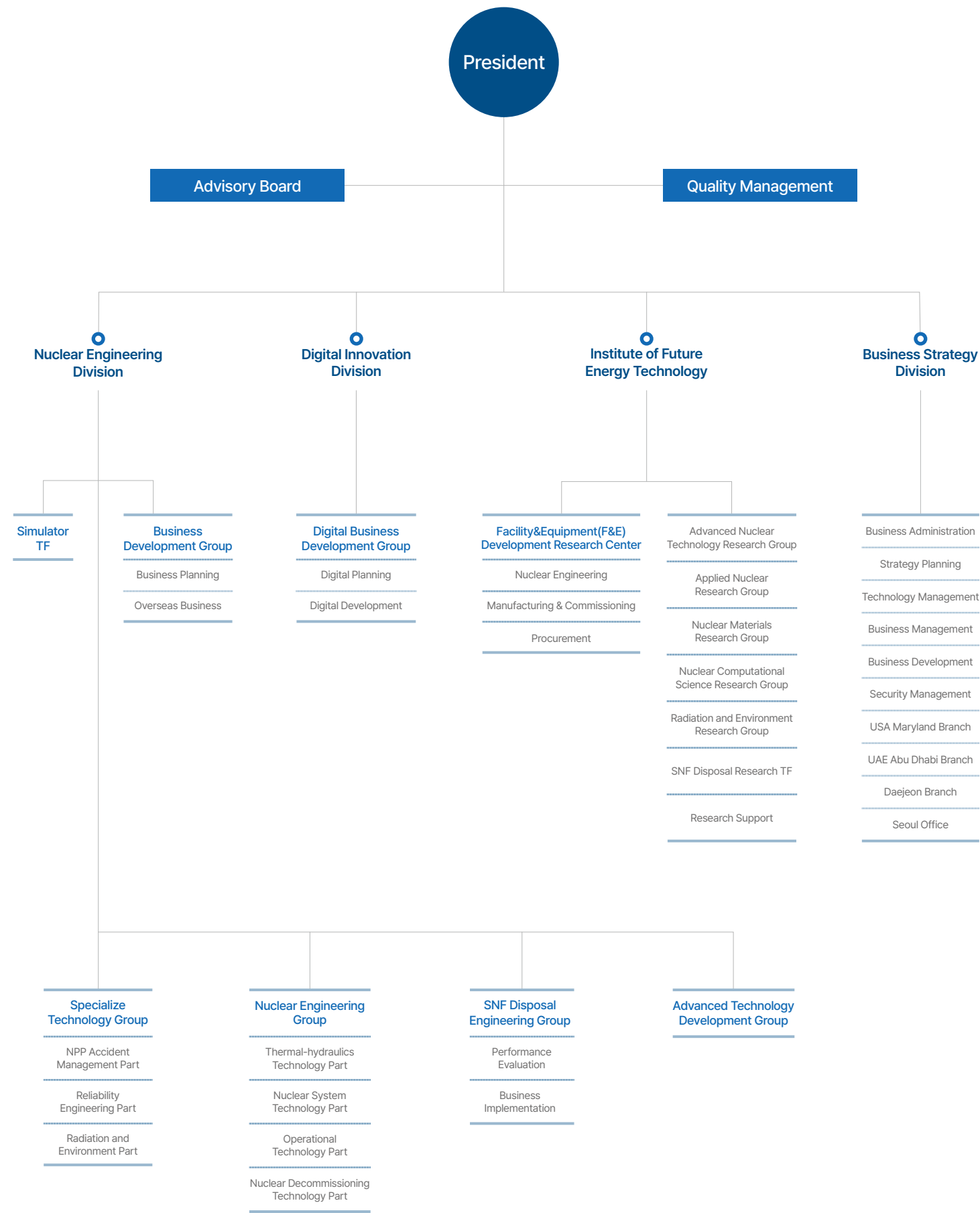
Global Partnership



Human Resources & Growth



Organization



Business Area

For safe and efficient use of energy, FNC provides engineering solutions for all nuclear fields based on advanced and differentiated technologies by collaborating and converging expertise to increase competitiveness and flexibility.

Engineering and R&D Solutions for Nuclear Safety



Professional Consulting Based on Code Evaluation

- Safety Analysis, Severe Accident Analysis, and Thermal-hydraulic Analysis of Operating NPPs and Regulatory Support
- RELAP, RETRAN, MAAP, GOTHIC , LS-DYNA , CFD, and etc.



New Techniques and Products

- Development of Safety Analysis Code
- Environmental Radiation Monitoring System
- Green Hydrogen Technology for Energy Sustainability



Design and Operation Engineering for NPP

- T-H & Safety Analysis, Severe Accident Analysis
- PSA, RIR&RIA, Material and Hydro-chemical Analysis
- Development of Procedures and Strategy for NPP



IT System for Nuclear Facilities

- Establishment of Various Service Systems such as Search Systems and DB, Operator Training Simulators, etc. in Nuclear Industry

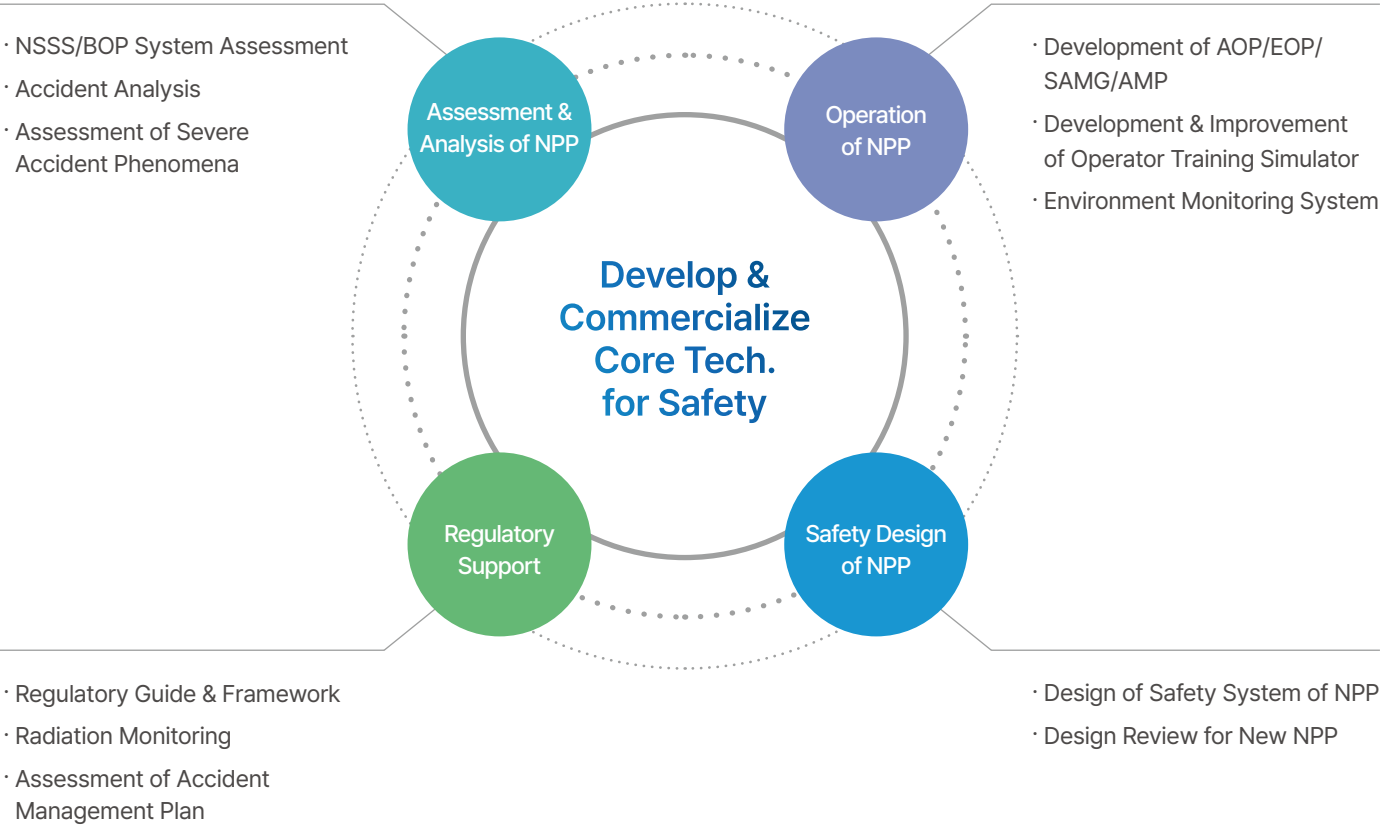


AI Solutions and Big Data Platforms

- Development of Computer Vision AI Solution
- Development of Classification and Prediction AI Solutions
- Establishment of I&C Information Big Data Platform

Technologies

Leading the advancement of nuclear engineering, FNC has the world's best technologies in NPP diagnosis, safety assessment, and design of nuclear systems.



Development of Core Technology for NPP

- ECCS Sump Strainer Performance Test
- Safety Analysis Code for NPP Containment
- Severe Accident Analysis Code
- CFVS (Containment Filtered Vent System)

700+ Experiences in Nuclear Field

- Safety Analysis and Diagnosis of NPP
- System Design and Verification for NPP
- Demonstration Test and Experiment
- Regulatory Support, IT for NPP, etc.

Leading the Advancement of Nuclear Engineering and R&D

Certificates & Intellectual Properties

Certificates



Title	Registration Number	Date of Registration
· ISO 9001: 2015	KQA-Q092402	21.01.05
· ISO 45001: 2018	KQA-OH20126	23.02.28
· KHNP's Q-Class Supplier for PSR(Safety Analysis)	202001058	20.11.03
· KHNP's Q-Class Supplier for PSR(Safety Performance/Plant Operation)	202001064	20.11.03
· KHNP's Q-Class Supplier for PSR(Waste Management/Radiation Protection)	202001063	20.12.10
· KHNP's Q-Class Supplier for PSA Service	202200521	22.06.29
· KHNP's Q-Class Supplier for EQ Assessment Service	202200995	22.12.23
· KHNP's Q-Class Supplier for Follow-up service under PSR	202300565	23.08.10
· Nawah Approved Suppliers List(NASL)-Q-Class Supplier for Engineering Services	QA-FTC-QDT-22-0001	22.09.29
· KORAD's AQ-Class Supplier for PSR(The first phase of LILW disposal facility(Rock-cavern type))	경주-용역-23-003	23.11.29
· Business Partnership(SNC-Lavalin)	24653	21.07.02
· Advanced Technology Center(ATC+)/Inno-Biz/Main-Biz	—	—

Patents



Title	Registration Number
· Aerosol Sampling System	1016827070000
· Real-time Simultaneous Monitoring System for Aerosol and Radiation of Radioactive Aerosol	1023291350000
· Apparatus and Method for Constantly Monitoring and Controlling Water Level Using Ultrasonic Wave High Temperature	1019838160000
· Apparatus and Method for Removing High Concentration of Boric Acid from Liquid Radioactive Waste	1021727520000
· Drone-mounted Multi-channel Radiation Detector with Variable Distance Structure	1023272220000
· Automatic Radioactivity Measurement System for Facility Surface Contamination	1019987410000
· Measurement System for Detecting Residual Radioactivity in Soil	1019987420000
· Method for Manufacturing Neutron Absorbing Material	1024095010000
· Apparatus and Method for Removing High Concentration of Boric Acid from Liquid Radioactive Waste	1024238390000
· Method for Determining Representative Accident Sequence of Severe Accidents Using Probabilistic Safety Assessment	1025586950000
· Method and System for Determining Optimum Arrangement for Radioactive Waste Complex Disposal Facility	1024393270000
· Radiation Sensor System for Long-Distance and Real-time Spectroscopy to Verify Spent Nuclear Fuel	1024983700000
· Intelligent Management System and Method for Nuclear Decommissioning Site Characterization	1025284360000

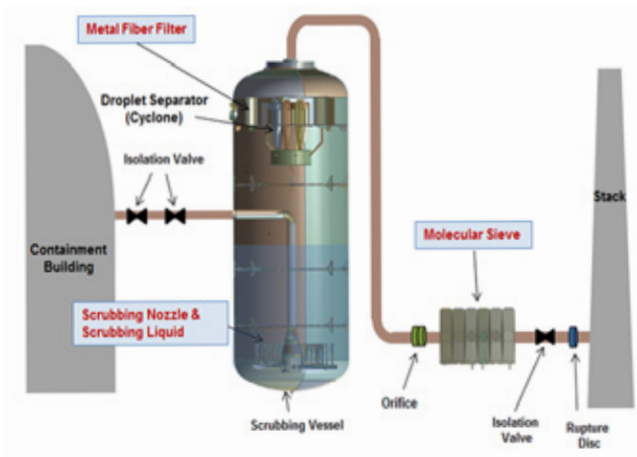
Competence -
Experimental Assessment for Components and Systems



1. ECCS Sump Strainer Performance Test Technology	Remarkable Results
Development of sump strainer comprehensive performance test facility and technology reflecting containment conditions under LOCA (Loss of Coolant Accident)	100% localization of the test facility & technology
Applying actual debris formation for fibrous, particulate, and chemical precipitate generated by large break LOCA	Successful commercialization (3.5M USD in revenue) and technical export (1.7M USD)
Unique and competitive test technology considering 3D structure of containment, chemical effect, and in-core downstream effect	- Selected as the best innovative R&D projects by Ministry of Trade, Industry and Energy - Awarded a KETEP Prize, 'Best Performance Test Facilities and Technologies In The World' - Awarded '20 Superstar SME' by KETEP (2012)



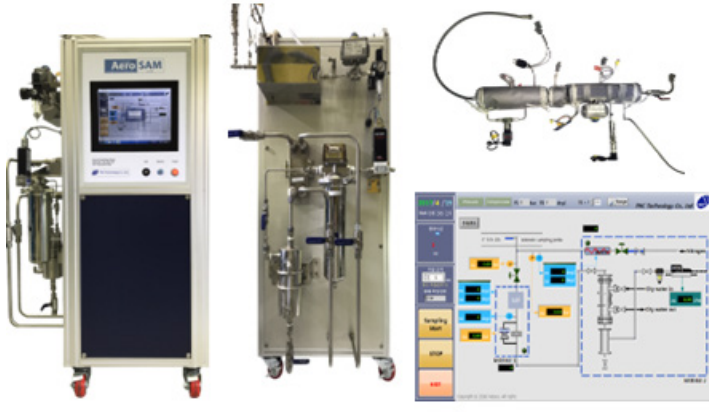
2. Containment Filtered Venting System (CFVS)	Remarkable Results
Development of filtered venting system to prevent containment release by discharging to the atmosphere after filtration	New Excellent Technology Award from Ministry of Trade, Industry and Energy
Securing the source technology and performance verification test of CFVS	Successful commercialization (40M USD in revenue) and export substitution
Design of CFVS and linked existing system in NPP	Selected as the best innovative R&D projects by Ministry of Trade, Industry and Energy



3. Multi-Purpose Aerosol Control System
Development of aerosol generation/injection/mixing/measurement system to understand and analyze the behavior of radioactive aerosols under severe accident condition
By expanding the operating conditions of the existing aerosol generation system, this system can be applied under various environmental conditions and the performance verification test is completed
Applicable as a research system to understand the behavior and phenomenon of aerosol generated in very harsh condition (Steam and Non-condensable gas conditions)



▲ Aerosol Generation/Injection/Mixing Module (AeroGEN)



▲ Aerosol Sampling & Measurement Module (AeroSAM)

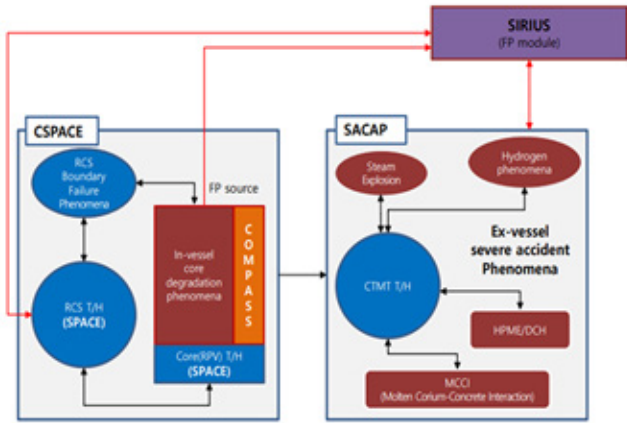
Competence -
Development & Utilization of Safety Analysis Codes



1. Development of Integrated Severe Accident Analysis Code and Severe Accident Analysis

• CINEMA
(Code for INtegrated severe accident Evaluation and MAnagement)

- Comprehensive severe accident analysis code integrating SPACE, SACAP, and SIRIUS
- FNC, as a major participant of the project, developed the containment analysis module, SACAP, which can handle the ex-vessel severe accident phenomena and integrated all the modules as CINEMA.

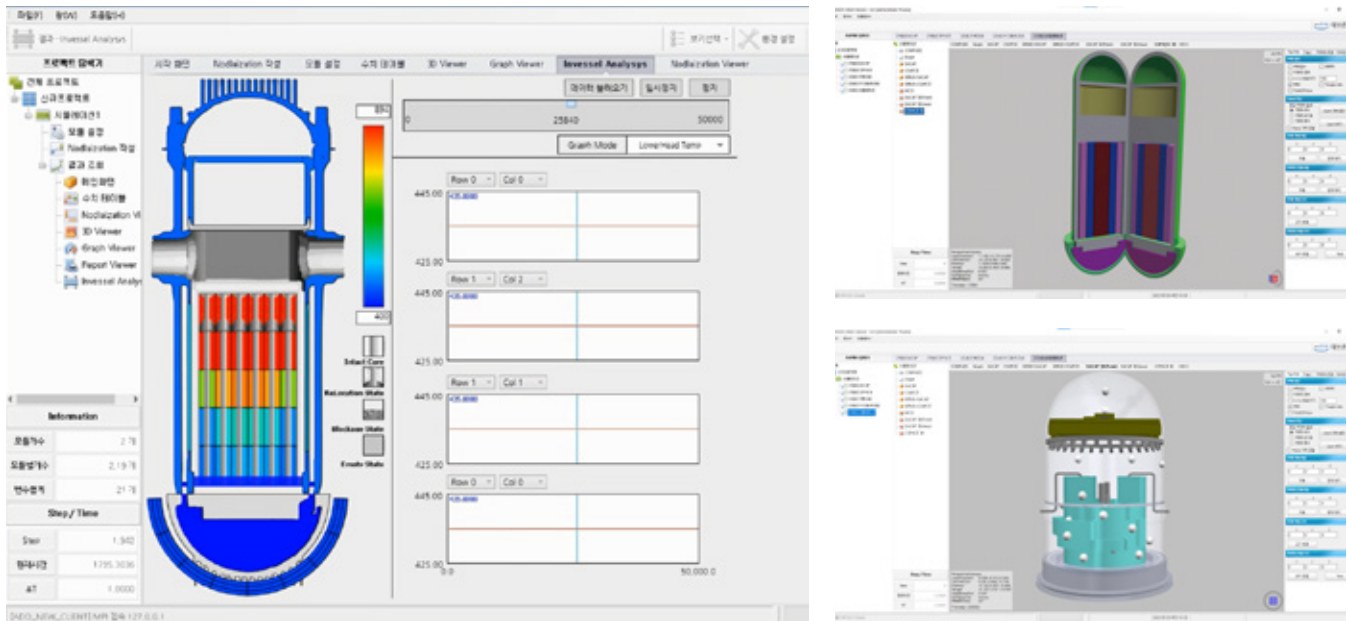


▲ CINEMA code

- SACAP
 - Thermal hydraulic analysis module
 - Hydrogen combustion analysis module
 - Core melting-concrete response analysis module
 - Steam explosion analysis module
 - Containment direct heating analysis module

• Utilization of Severe Accident Analysis Codes

- Comprehensive understanding and analysis expertise of MAAP, MELCOR, GOTHIC and GASFLOW codes for supporting customers keeping up with the state-of-the-art
- Steam explosion load analysis using TEXAS-V and full-scope analysis extended to structural response with LS-DYNA

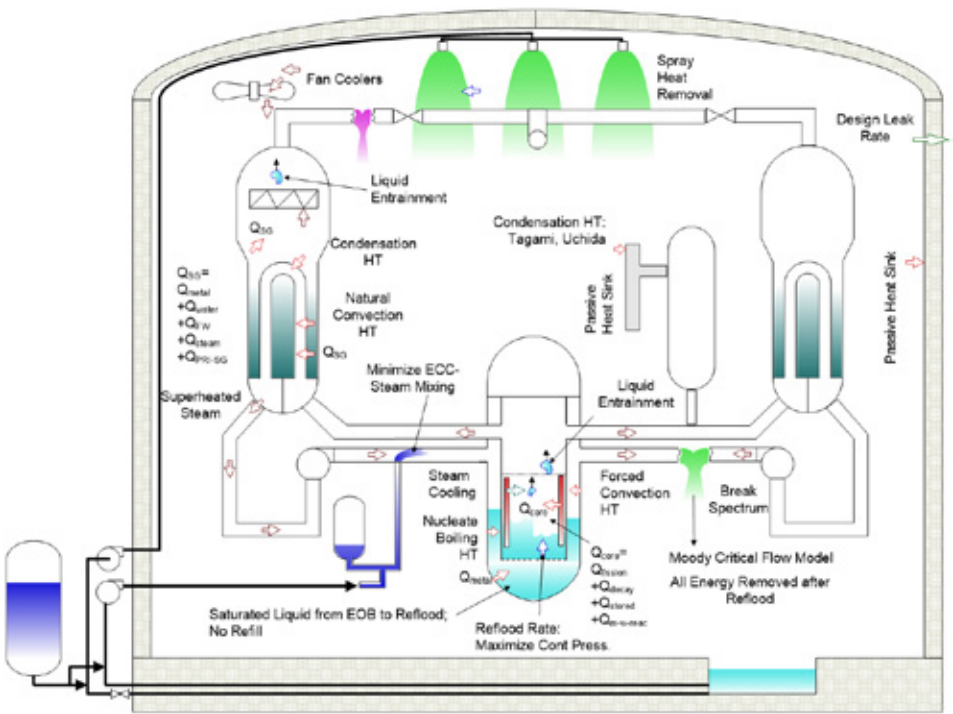
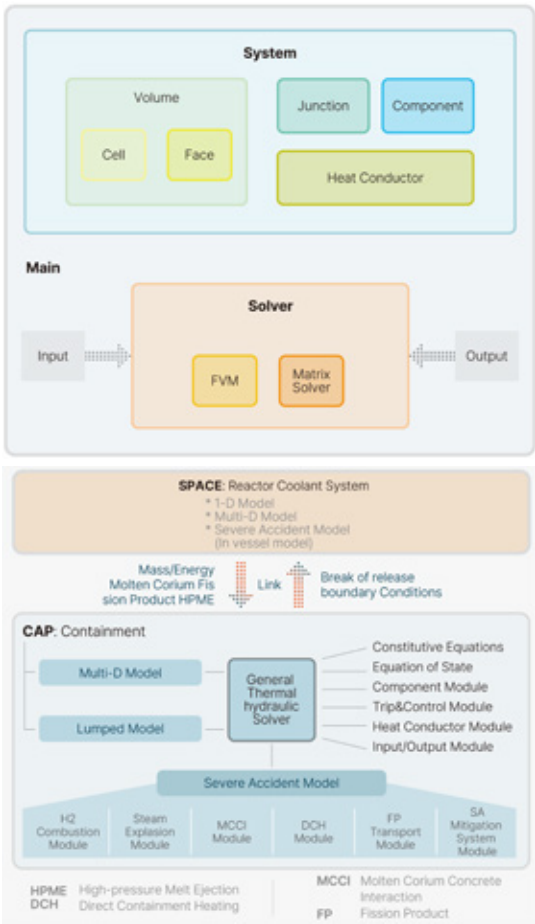


2. Development of Containment Safety Analysis Code and DBA Safety Analysis of NPP

- CAP (Containment Analysis Package)
 - Developed by FNC to analyze the thermal-hydraulic behavior of nuclear plant containment as the fourth barrier
 - Using state-of-art technique including 3-fields and 3-phases
 - Coupling with SPACE (System code independently developed in Korea)
 - Successfully licensed by NSSC (Nuclear Safety and Security Commission)

- Applicable Fields of CAP
 - Design pressure/temperature
 - ECCS efficiency
 - Subcompartment pressure
 - Long-term containment pressure and temperature
 - Hydrogen concentration

- Utilization of Safety Analysis Codes
 - Covering single-phase and two-phase thermal hydraulic analysis, accident analysis, and DEC analysis with RELAP, RETRAN, MARS, GOTHIC, and CFX
 - Application to design passive safety systems of NPP, such as PAFS (Passive Aux. Feedwater System) and PECCS (Passive Emergency Core Cooling System)



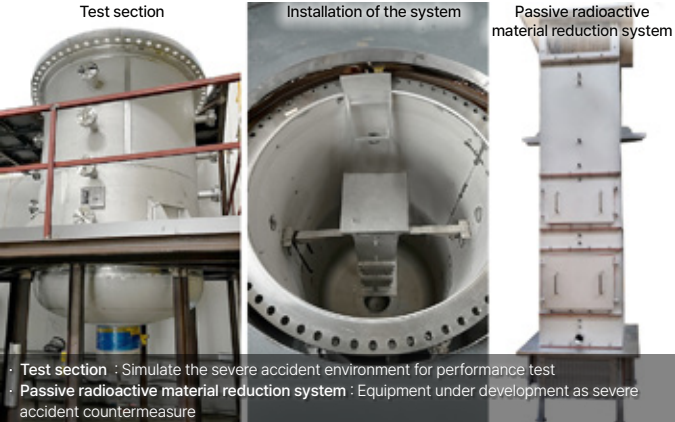
Research Facilities

FNC's Institute of Future Energy Technology has the highest level of research facilities among domestic nuclear private companies and contributes to improving the safety of nuclear power plants.

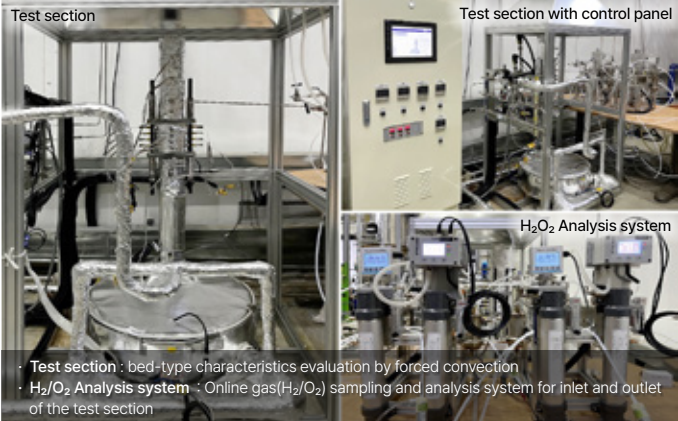
· ECCS Sump Strainer Performance Test Facility



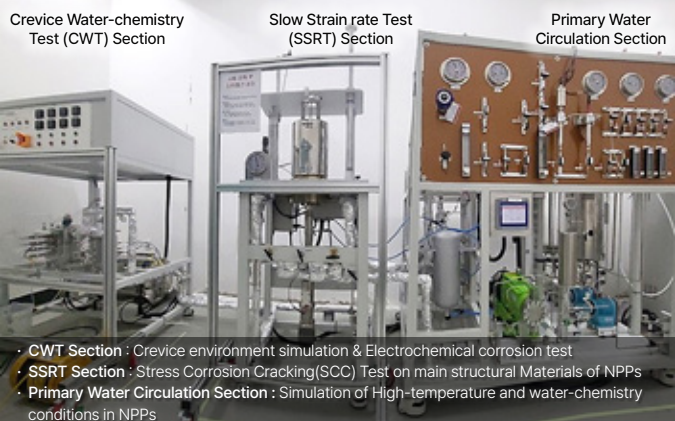
· Performance test facility of the passive radioactive material reduction system



· ACE (Apparatus of bed-type Catalyst characteristic Evaluation)



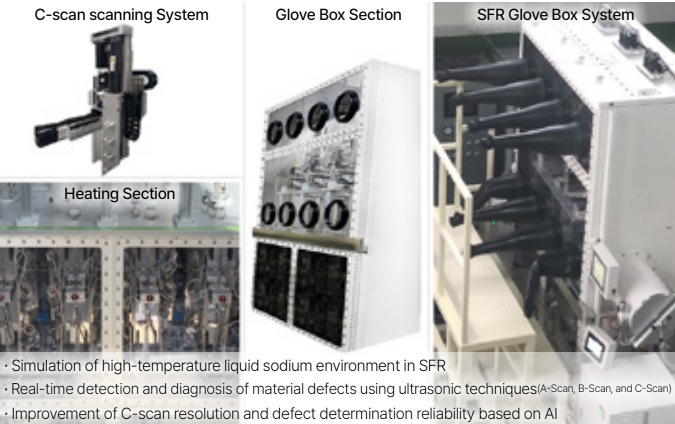
· i-SMR/PWR Primary Coolant Environment Simulation Loop System



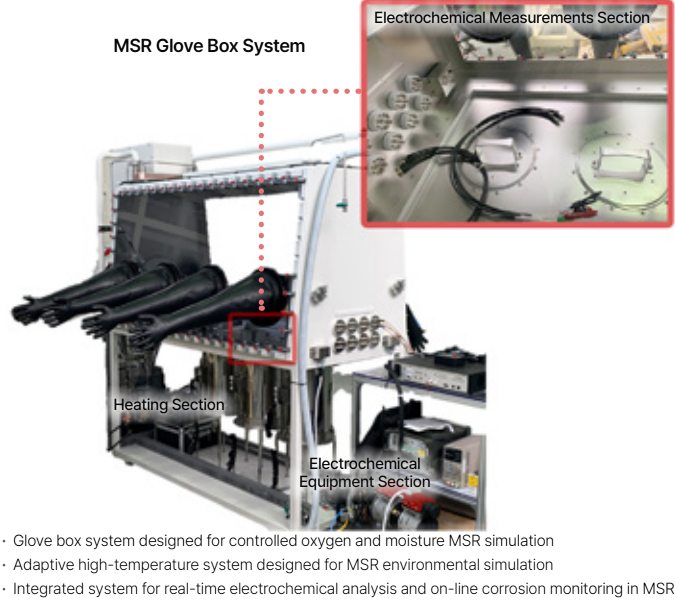
· Decontamination Performance of Aerosol in Piping Test System



· AI-Based Ultrasonic C-Scan Testing Facility in SFR Environments



· Testing Facility for Evaluation Corrosion Characteristics of Materials in MSR Environment



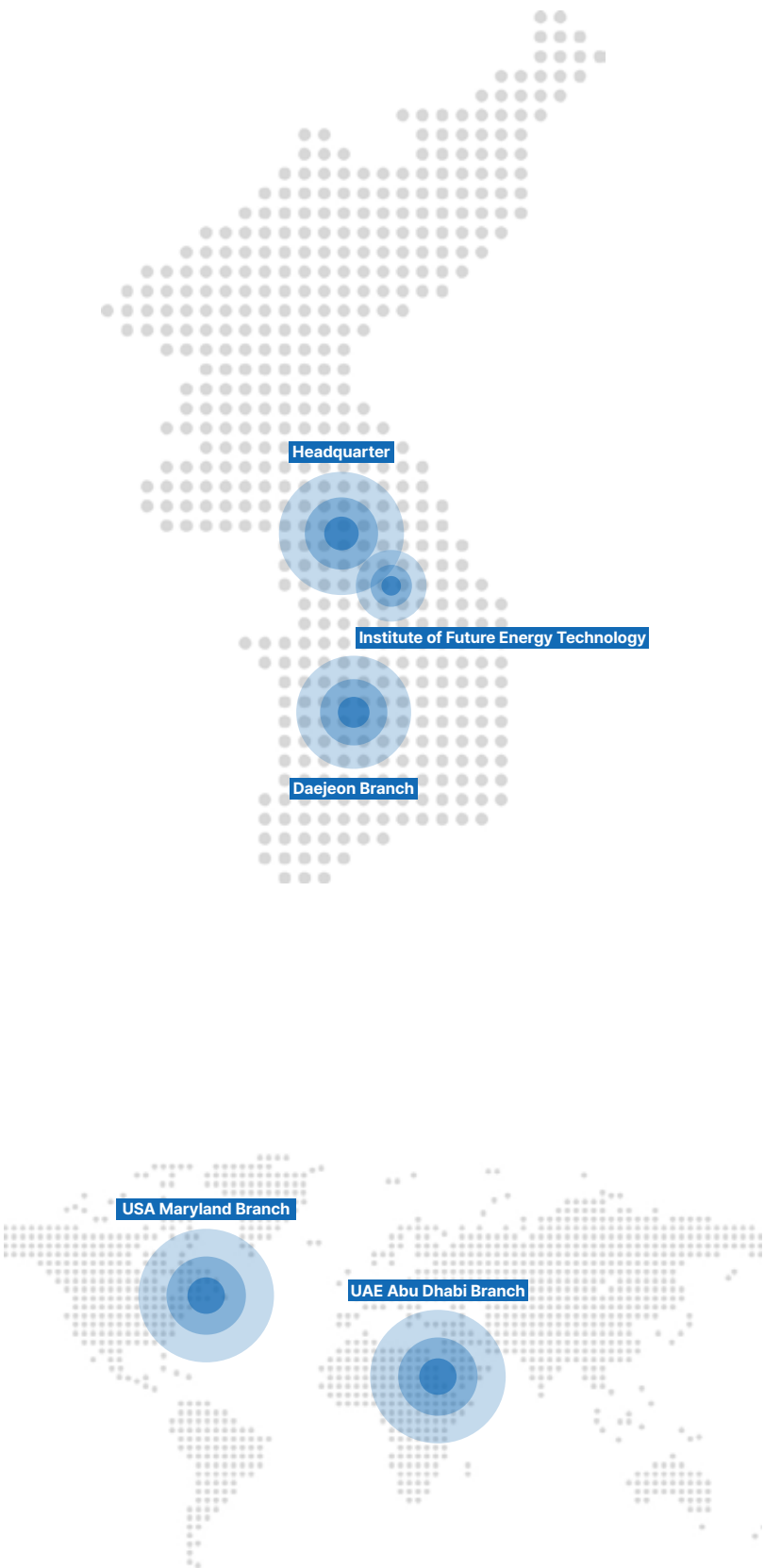
· Aerosol Decontamination Performance Test Facility



· Institute of Future Energy Technology



Headquarter & Branches



- 📍 **Headquarter**

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Engineering and R&D Solutions for Nuclear Safety
Smart Solutions for the Clean Future

