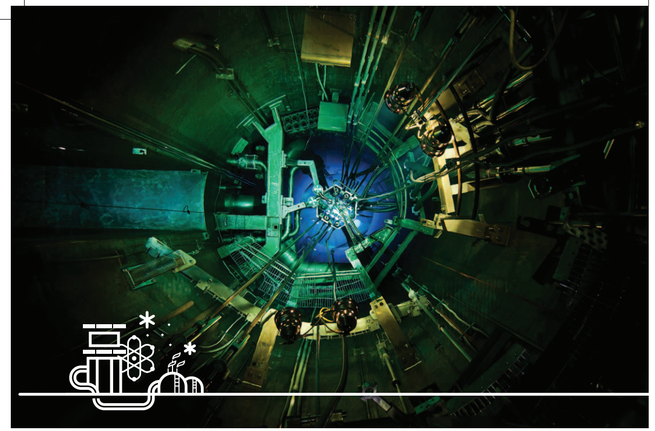


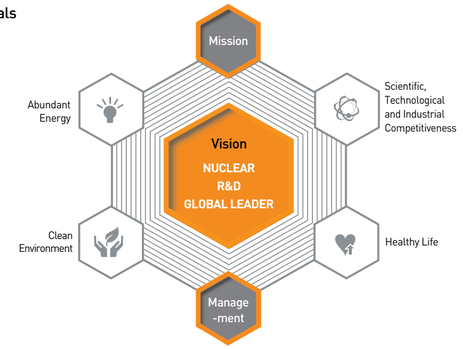
RESEARCH REACTOR UTILIZATION

KAERI contributes to the development of the national science and technology and industries through research in basic science and new material development with its research reactor.

The HANARO research reactor, which was designed and constructed with KAERI's own technologies, has been safely and efficiently operating since 1995. The world class research reactor with high neutron flux has been utilized in various areas such as basic science, the development of new material using neutron scattering, research on nuclear materials and fuel, radioisotope production and research on applications for radioisotope in the medical and industrial fields, the production of high quality semiconductors for power devices, neutron activation analysis, etc.

- Research Reactor Operation & Maintenance
- Neutron Science Research
- Radioisotope Application Research

Strategic Goals



TRUST

KAERI earning the trust of the nation and public

- Establishment of responsible management system
- Carrying out goal-oriented R&D
- Strengthening communication and ethical management

PRIDE

KAERI full of pride and passion

- Producing world-class R&D outcomes
- Playing a key role in the creative economy
- Earning trust as a professional expertise group

FUTURE

KAERI in preparation for the future

- Securing world-class internal capability
- Strengthening communication and partnership
- Future-oriented management

History

1950~1970s

Feb. 3, 1959
Atomic Energy Research Institute (AERI) was established as an affiliate of the Office of Atomic Energy (OAE).

Feb. 17, 1973
Atomic Energy Research Institute (AERI), Radiological Research Institute (RRI), and Radiation Research Institute in Agriculture (RRIA) merged into one to become the present KAERI.

Dec. 1, 1976
Korea Nuclear Fuel Development Institute (KNFDI) was established.

1980s

Dec. 19, 1980
KAERI merged with KNFDI and changed the name to the Korea Advanced Energy Research Institute.

Dec. 30, 1989
The previous name of Korea Atomic Energy Research Institute was restored.

1990s

Feb. 15, 1990
Nuclear Safety Center under KAERI became an independent organization, the Korea Institute of Nuclear Safety(KINS).

Dec. 16, 1996
Activities on nuclear engineering, nuclear fuel design, and radioactive waste management were transferred from KAERI to domestic industries.

2000s~

Oct. 25, 2004
Technology Center for Nuclear Control under KAERI became an independent organization of the National Nuclear Management and Control Agency (Currently Korea Institute of Nuclear Nonproliferation and Control).

Sep. 29, 2006
Jeongeup Advanced Radiation Technology Institute was established.

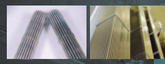
Mar. 27, 2007
KAERI newly inaugurated with a change in its Korean name.
Korea Institute of Radiological & Medical Sciences (KIRAMS) was spun off from KAERI and became an independent entity.

Jan. 1, 2013
Korea Multi-purpose Accelerator Complex (KOMAC), Gyeongju, was established.

NUCLEAR R&D GLOBAL LEADER

KAERI Korea Atomic Energy Research Institute

MAJOR ACHIEVEMENTS



1980s

1987 Localization of CANDU Fuel
1988 Localization of PWR Fuel

1990s

1995 Indigenous design and construction of HANARO Research Reactor
1996 Development of the Korean Standard Nuclear Power Plant (KSNP)

2000s

2001 Development of Innovative Therapeutic Radiopharmaceutical 'Milican Inj'
2003 Development of Advanced Zirconium Alloy Fuel Cladding
2006 Construction of ATLAS
2009 Bid Winner for the Construction of a Research Reactor in Jordan

2010s

2010 Construction of Cold Neutron Research Facility
2011 Development of High Power Proton Linear Accelerator

2012 Obtaining Standard Design Approval (SDA) for SMART
Leading a Joint Project on High-density Low-enriched Uranium Fuel

2013 Establishing Integrated System Testing Facility for Pyroprocessing

2014 Won the Dutch Research Reactor Remodification Project
2015 Joint Commercialization of SMART with Saudi Arabia

DEVELOPMENT OF **REACTORS FOR EXPORT**

With its top global technology, KAERI will let Korea's nuclear technology widely known around the world.

KAERI hopes to strengthen its competitiveness in the world research reactor market and becomes one of major supplier of research reactor. By successfully obtaining SDA was issued on July 4, 2012, SMART, with its enhanced safety and attractive economical design, will open up the new markets to replace expensive, environmentally unfriendly fossil power plants for electricity steam/water production, and will become an alternative to large nuclear power plants.

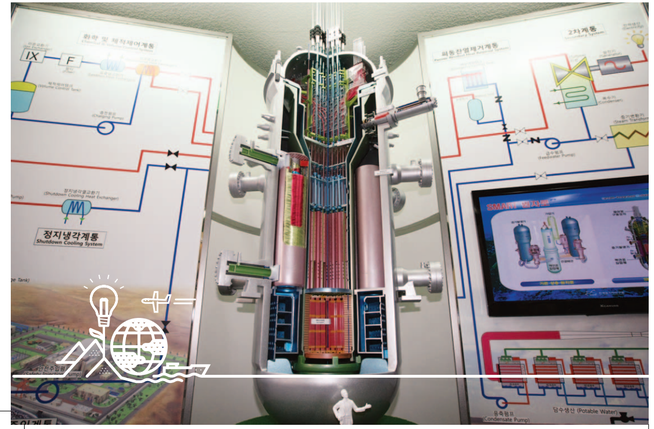
- Development of customized research reactor models for various users demand
- Development and qualification of U-Mo plate-type fuel
- International cooperation with the countries planning a new RR

DEVELOPING **ADVANCED FUTURE TECHNOLOGIES**

We are developing new technologies that will guarantee the future of Korea as well as mankind through the integration of radiation technology and various other technologies.

KAERI is making every possible effort to stimulate public job creation, along with the creation of new industries for future growth, through the development of radiation fusion technology and its rapid commercialization. KAERI is also developing new advanced technologies such as nuclear fusion technology and a high power proton linear accelerator, upon which the future of the nation and society hinges.

- Radiation Breeding Research
- Radiation Biotechnology
- Application of Radiation Technology : New Materials & Environment
- Radiation Instruments Research
- Korea Multi-purpose Accelerator Complex
- Nuclear Fusion Technology Development



NUCLEAR SAFETY RESEARCH

By being always doubly safe, we are conducting research on core technologies to realize safety of nuclear power plant with minimum likelihood of an accident.

KAERI is contributing toward verifying the safe and efficient operation of nuclear power plants and accident management procedures by establishing various experimental facilities including ATLAS, which can simulate various accidents and incidents for nuclear power plants under real pressure and temperature conditions. KAERI is leading the world in the area of PSA, which can be used to assess the safety of nuclear power plants using methods of probability and statistics, and is actively participating in the development of core technologies for commercial nuclear power plants including the Man-Machine Interface System (MMIS). KAERI is a leading expert group that develops various technologies to protect human and environment from the risk of the radioactivity in the field of radioecology, atmospheric dispersion, and radiation biology .

- Thermal-Hydraulic Safety Research
- Severe Accident Research
- Probalistic Safety Assessment
- Environmental Radiation Technology Research
- Analysis of Ultra-trace Nuclear Material in Environmental Samples

R&D FOR **FUTURE NUCLEAR ENERGY SYSTEMS**

KAERI is developing future nuclear energy systems with significant improvements in safety, economics, resource reutilization, environmental friendliness, and nonproliferation resistance.

KAERI is making its efforts to develop nuclear fuel cycle technology for recycling and safe disposal of spent fuel. KAERI is successfully developing pyroprocessing technologies that will be used to recycle useful resources from spent fuels. KAERI is also developing the Sodium-cooled Fast Reactor (SFR) which can improve the uranium utilization, and the Very High Temperature gas-cooled Reactor (VHTR) for the massive production of hydrogen.

- Pyroprocessing Technology Development
- Sodium-cooled Fast Reactor Development
- Very High Temperature gas-cooled Reactor Development
- High-Level Radioactive Waste Disposal Technology Development