

Nuclear Power/Plant/Renewable Energy Construction

Nuclear Power / Plant General Design Engineering

Electricity/Telecommunication/ Firefighting/Instrumentation Facilities/Production and Installation

Global Leader of Electric Power Industry

We're Constantly Driving Development Today for a More Perfect Future.

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Greetings from CEO

The 21st Century Global Leader of the Electric Power Industry - DAEKYEONG E&C with the most advanced technology, we will try our best for the utmost customers' satisfaction.

DK E&C aims to become a global leader in the power industry, focusing on technology and securing competitiveness, and all the employees are united to develop the company with the same goal. DK E&C is the only small and medium-sized enterprise in Korea that can process manufacturing, installation and construction simultaneously with the various experience, accumulated technology and know-how over many years. Now, DK E&C has been leading the industry including nuclear power, thermal power, hydroelectric power, renewable fusion energy petrochemicals, plant, shipbuilding, marine plant, and other industrial plant areas. On top of that, DK E&C keeps moving forward to become a true leader in developing new technologies and dismantling nuclear power plants by participating in a number of important national research projects. From now on, DK E&C will contribute to the development of the power industry through high-quality engineering services, design specialization, manufacturing and construction, systematic quality assurances, and an investment in human resources development.

Thank you for your consistent support for DK E&C and we will do our best to become a "trustworthy company" for our customers in anywhere and at anytime.



Young-Ha Lim CEO of DAEKYEONG E&C





We are Leading the Way in Creating New Technologies with a Creative Spirit of Challenge

Outline



Company Name	DAEKYEONG ENGINEERING Co.,Ltd
Established	2006. 6. 1
Address	16 Cheonggang-ro 85beon-gil, Gijang-eup, Gijang-gun, Busan, Republic of Korea
Certificate	 Design of electric facilities for KHNP operating nuclear power plants - Grade "Q" KHNP electrical cables and electric panels - Grade "Q" KHNP lighting equipment maintenance work - Grade "A" ISO 9001:2008 / Certification of safety management system (18001:2007) Registration of electric construction, Telecommunication, Firefighting facilities business and multiple patents
Business	• Domestic and international nuclear, thermal, and water power generation, New and renewable fusion energy facilities construction and engineering
	 Manufacture and installation of plant electrical, Firefighting, Telecommunication, Instrumentation equipment construction, and related facilities
Subsidiary	KOCEN Co.Ltd / CHEONG LIM ELECTRIC Co.,Ltd

History

- 2006. 06 Register a business DaeKyeong Engineering Co.,Ltd. / DeaKyeong Electrical design team merges into DaeKyeong Engineering / Registered as an approved vendor for Korea Hydro & Nuclear Power Co.,Ltd (KHNP)
- 2007.01 Registered as a vendor for Hyundai Engineering Co.,Ltd
- 2007.08 Registration for Electric Construction Business(Registration No. Busan-01181)
- 2007.12 Registered as a vendor for KHNP / Electrical cable and panel construction(Safety class "A")
- 2008.04 Registered as a vendor for Doosan Heavy Industry & Construction
- 2009.10 Registered as a vendor for maintenance and construction of KHNP / Electrical cable and panel construction (Safety Class "Q")
- 2010. 03 Registration for professional electric power design business (Registration No. 2010-6260000-85-12-00002)
- 2010. 03 Registration for professional electric power supervision business (Registration No. 2010-6260000-86-22-00002)
- 2010. 05 Acquisition of ISO 9001:2008(No. K101542.01)
- 2011.03 Registered as a vendor for KHNP / Operating nuclear power plant electric facilities design service(Safety Class "A")
- 2011.07 Registered as a vendor for KEPCO KPS Instrumentation and control "Q" Class / Electrical Construction (All over the country)
- 2011.10 Uninterruptible construction contractor registration (Certification No. 11-17)
- **2012.09** Business registration of companies specializing in underground distribution (Certification No. 5500-2012-123)

2012.10	Corporate registration of DK E&C
2012.12	Registration of new and renewable energy facilities(Registration No. 2012-12-012360)
2012.12	Registration of telecommunication business (No. 510322)
2013.01	Registration of firefighting business (No. 2013-01 / 2009-01)
2013.04	Construction of DK E&C headquarter building
2013.07	Registration of factory
2013.07	Establishment of corporate research institute (No. 2013113329)
2015.03	Certification of safety management system (No. 15-30)
2015.03	Registration as a qualified supplier for KHNP Operating nuclear power plant electric facilities design service (Safety class "Q")
2015.03	Certification of venture company (No. 20150203371)
2015.05	Certification of INNO-BIZ(No. 150206-00478)
2016.02	Registration as a supplier for KHNP lighting equipment maintenance work (Safety Class "A")
2017.05	Certification of MAIN-Biz (No. R170203 - 01011)
2018.02	Award from the Minister of National Industry(Contributing to the development of electrical engineering and national industries)
2018.07	Merger and acquisition of KOCEN
2019.01	Renewable convergence energy(Sunlight) housing support project

Company Motto & Organization Chart

Main Customers and Partners









Korea Atomic Energy

KAERI Research Institute



Doosan Heavy Industries & Construction

















We Strive to Become the World's Most Competitive Technology Company

Certificates



- ISO 9001:2008 Quality Management System
- K-OHSMS/OHSAS 18001:2007 Safety Management System
- Research and Development Center Certificate
- Certificate of Qualified Provider for KHNP - Electrical Design Service Class "Q" - Electrical Cable / Panel Construction Class "Q"
- Certificate of Partner for KPS
- Electrical Construction
- Instrumentation and Control Class "Q"
- Certificate of Non-Interrupting Electric Source **Construction Business**

- Registration of Electrical Construction Business, Telecommunication Business and Professional Firefighting Facilities Business
- Venture Business Confirmation, INNO-BIZ Confirmation
- Registration of Engineering Business, Electrical Design **Business and Electrical Supervision Business**
- Registration of Manufactory, Certification of International Contractor
- Patents Two Other Patents Related to Underground Tracks
- New Renewable Energy (Sunlight) Housing Support Project























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Certificates

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히가번호: 2012-654

3. 대 표 자: 임영하 4. 생년월일: 64.07.18

6. 사업소 현황: 주된 사업소

근로자파견사업허가증

1. 상호 또는 법인명칭: 대경기술주식회사 2. 소 재 지: 부산광역시 기장군 기장을 청감리 174-3

5. 히가기간: 2018년 12월 12일 ~ 2021년 12월 11일

「파견근로자보호 등에 관한 법률」 제7조제1항 또는 제10조에 따라 근로자 파견사업을 위와 같이 경신하가 합니다.

2019 년 01 월 03 일 . 부산지방고용노동청부산동부지청장

Patents

- Reliability of Multiple Sensors (Patent No. 10-1882384)
- Control Panel (Patent No. 10-2018-0138266)
- (Patent No. 30-1000875)







We are Continuously Expanding Our Energy Technology Development with Years of Accumulated Technology and Know-How

Nuclear Business Department

Plant/Ocean Module



Plant/ Ocean Module Instrumentation

Switchboard Production/ Installation

Main Business

Kori-1 Main Control Panel and Supplementary Facilities Replacement Project

• Replacement of the main control panel and auxiliary equipment verified for environmental and seismic performance in Kori-1 reactor (Safety facility control team, reactor control team, turbine control team, alarm facility improvement, etc.)

Replacement of Unsafe MCC Blocking Base for Kori Unit 3 and 4

- MCC Breaker (semi-annual) replacement of MCC Breaker according to aging and discontinuity
- Replacement of the component is performed sequentially at every OH hour

Facility Improvement of Main Power Generators and Systems for Hanul Units 1 and 2

- New replacement work for the main generator and system due to the old design and discontinuation of components
- Doosan Heavy Industries & Construction (Order Place) / Design, Installation, Construction and Technical Support



Installation and Construction of Control Element Driver Mechanism Control System (CEDMCS) Control Facility

- Demolition of the existing aging control rod control system facilities
- · Completion of replacement with the latest digital equipment
- Shin-Kori Units 1 and 2 / Shin-Wolsong Units 1 and 2 / Doosan Heavy Industries & Construction(Order Place)

TBM (Tunnel Boring Machine) Design & Production Development of Technology

- Development of TBM design and production source technology for tunnel excavation of diagnostic surface
- Design and manufacture of electrical facilities and electrical circuits
- Lead research institute, EM Korea Co., Ltd. / Joint research institute, DK E&C

Hyundai Oil Bank 3000 PPH CCR MODULE E&I PROJECT

- CCR(Continuous Catalyst Re-generation) Continuous Catalyst Regeneration Process
- UOP LLC / Construction and installation of electricity and instrumentation field for GS Entec

KNPC CFP MAA FAR E-HOUSE E&I PROJECT

• Construction and installation of the electric/field with a container-type comprehensive distribution system equipped with all the devices necessary for power supply/ discharge and control supply in the container box

Energy Technology Development Project through Research on National Project

- Development of laser-based dehumidifier for reducing solid radioactive waste
- Development of a mobile modular liquid waste disposal system based on gas hydrate
- Development of wear-resistant materials and processes for nuclear power plant valve seats and disks
- Development of block chain-based Internet of things(IoT) platform for radioactive waste management





We are going to show you a different level of technology that goes beyond home to the world

Leading Company in the Field of Nuclear Power, Thermal Power, Plant **Electricity and Instrumentation**

DK E&C is highly recognized for its ability to conduct design services, construction of nuclear power generation facilities and research reactors at the same time based on its unique technology, many qualifications, and knowhow in the plant field. Also, DK E&C is now expanding its business area to the thermal power, hydroelectric power and construction of renewable fusion energy facilities. By having the safety grade of nuclear facilities design and electric panel maintenance services, DK E&C provides the best service to customers through constantly developing its technologies and securing competitiveness with high-guality construction and engineering. In addition, DK E&C is actively developing new technologies and new products as a host of national research projects and many research projects related to dismantling nuclear power plants.

Quality Assurance Department

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- Operation and implementation of the nuclear quality assurance system
- Quality inspection activities such as technology development design, public works and etc.
- Internal and external quality assurance audit and quality guidance
- Reviewing quality requirements, implementing education and training related to purchase



R&D Center First Runner that Leads the Global Energy Technology

DK E&C Technology Development Projects

Development of Laser-Based Dehumidifier for Reducing Solid Radioactive Waste

- · Facilities that desalinate laser energy from oxidation and contamination of radioactive metal wastes under concentration investigation
- Research Subjects / Participating Institutions : DK E&C, Nuclear Research Institute, LS&C Co., Ltd., KEPCO Nuclear Graduate School
- Research Period and Budget : 2019.01 to 2022. 09.30 / KRW 20.7 billion

Development of Mobile Modular Liquid Waste Disposal System for Demolition of Nuclear Power Plants

- Waste desalinization facility for combination of gas hydrate, microfilter and ion exchange fiber filter module
- Research Subjects / Participating Institutions : DK E&C, Korea Institute of Production Technology, LS&C Co., Ltd., Nuclear Industry Technology Research Association
- Research Period and Budget : 2020.05.01 to 2022 / KRW 10.31, 39.1 billion

Development of Wear-Resistant Materials and Processes for Nuclear Power Plant Valve Seats and Disks

- · Development of materials for high hardness and cobalt reduction of highpressure valve hard-pacing alloys and development of process technology
- Research Director / Participating Institutions : DK E&C, Korea Institute of Production Technology, Dong-A University Industry-Academic Cooperation Group, Nuclear Industry Technology Research Association
- Research Period and Budget : 2010 to 2024.09.30 / KRW 45.5 billion

Development of Block chain-Based Interent of Things (IoT) Platform for Radioactive Waste Management

- · Development of a management condition monitoring and tracking tool for various wastes during the dismantling of nuclear power plants by type and level
- · Research Organization / Participating Institutions : DK E&C, Ulsan Institute of Science and Technology
- Research Period and Budget : 2020.04.01 to 2022.03.31 / KRW 6.31 billion



Nuclear Business Department

Plant Business Department



- Performing nuclear power and plant electricity/instrumentation design and services
- High-quality engineering activities with qualifications ("Q") for electrical facilities at nuclear power plants
- Designing SMR and research reactor electricity/instrumentation
- Designing national projects including electrical facilities and electrical circuits
- · Government offices and general plant electrical, firefighting, communication design, and various service tasks

- Construction of nuclear power, thermal power, hydroelectric power and new and renewable fusion energy facilities
- Plant electrical / control module construction and E-house installation construction
- High-quality construction with qualification ("Q") for nuclear power cables and electric panels maintenance services
- Manufacture and installation of distribution boards, PLC panels, monitoring systems, etc
- Electricity, communication, and firefighting works, such as government offices, buildings, and underground distribution facilities

Design / Engineering (Electricity / Instrumentation)

- Designing the 2nd operational nuclear power plant in 2020
- Drawing/documentation services for Sin-Gori Units 5 and 6 safety Systems
- Purchase of service for preparation of TLSD, ILSD related to P-CCS/NPCS DCP 6.6 of Shin Hanul Unit 1 and 2
- Design Service for the Installation of Cable Fire Protection System in the Cooling and Seafood Pump Room of Gori-1
- Systematic Drawing Design and Protection System Verification Test Design Service of Safety Stop Cable Fire Protection System for Gori-2
- Design Service of Small-sized Nuclear Reactor Auxiliary System for Education



- Preparation of the Functional Block Diagram (FBD) and related drawings of the NSSS system of the SMART reactor
- CFVS Installation / Design Service of Light-water Nuclear Power Plant(Field of Chief)
- Design service on the Improvement of Automation Redetection Facility for Kori Unit 2
- ESF-CCS VDCN, TLSD, and ILSD outsourcing services for DCP of Shin Hanul Unit 1
- Performance Evaluation Service for Lightning Protection System of Unit 1 and 2 in Hanul
- Shin-hanul 1, 2 Engineering Safety Facility Purchase of TLS/ ILSD outsourced service for the equipment control system
- Detailed Design Service for Electrical Field Replacement of Gori Unit 2, 3 and 4 and Hanul Unit 1 and 2
- Detailed Design Service for Instrumentation and Control of Shin-Kori Unit 5 and 6
- Design Service of Sin-Gori Unit 5 and 6 Emergency Diesel Generator
- · Feasibility Study for Improvement of Internal Radiation Monitoring System (KRT) in Hanul Unit 1 and 2
- Design Service of Hanul Unit 5 and 6 Alarm Facilities
- 345kV Samcheonpo T/P Connection Facility Replacement Work Comprehensive Design Service
- Technical support service for measuring cable fire protection in containment building of Hanul Unit 1 and 2
- Detailed Design Service for New Seocheon Thermal Power Instrumentation and Control
- · General design (electricity) service for operating nuclear power plants in 2015
- Detailed Design Service for the Improvement of Alarm Facilities in Kori Unit 3 and 4
- Design Service for Underwater Drainage 22.9kV Distribution System
- The Improvement of the 480V Motor Control Panel for Unit 1 and 2 of Yeonggwang



- Design Service of Hanbit Unit 5 and 6 for Integrated Wireless Communication System
- Performance Evaluation Service for Lightning Protection System of Unit 1 and 2 in Hanul
- Shinhanul 1, 2 Engineering Safety Facility Purchase of TLS/ ILSD outsourced service for the equipment control system
- Shape management technology service after replacement of 345kV switchyard GIS from Hanul 1st
- New Research Reactor for Export Comprehensive Design Service Electrical / Measurement Service
- IntEC input service for ASTS heavy water reactor at Wolseong-1 reactor
- Jordan Research & Training Reactor(JRTR) PJ Construction/ Electrometer Control Execution Design Service
- HDC 3000PPH CCR Module Steam Tracing Design
- Improvement of Gori 1-4 transmission lines
- Revised service for VFCR and ILSD of Shin Hanul Unit 1 and 2
- Installation and Design Service for Real-time Performance Monitoring of Hanul Unit 1 and 2

- Lighting Design Service of Gori Unit 1 and 2 Turbine Building
- Measurement and Design of In-house Computer System Hardware and Software of Hanul Unit 1 and 2
- Main feedwater pump bin speed control facility of Hanul Unit 3 and 4
- Installation of On-line Sensing Equipment for Younggwang 2 High-pressure Motor
- Support for design services/electric personnel for improvement of generators and main power systems of Gori Unit 2, 3 and 4
- Gori-1 154kV Switchyard Facility Improvement Design
- FHA (Fire Risk Analysis) Service for Yeonggwang Unit 1 and 2
- Improvement of Electrical Equipment for Seawater Charging at Kori Unit 3 and 4
- Design Service for Replacement of Gori Unit 2, 3 and 4 Generator and Analysis of Main Power Generators
- Support for design of multiple desalinization facilities of Kori-1(CPP)/Electrical and Field Design

Nuclear Construction & Installation

(Electricity/Instrumentation)

- NIMS Replacement Works for Standard Nuclear Power Plant
- ECSA Facility Improvement of Hanbit Unit 1 and 2
- Replacement and Removal of In-Car Radiation (Q) Monitoring and Control System with Hanbit Unit 1
- Supply and Construction of Terminal Box for Sin-Gori Unit 6 RCP
- Hanul Power Plant Lighting Equipment Maintenance Corporation
- Removal and installation of facilities improvement of Sin-Kori 1, 2 and Sin-WolSung 1,2 control rod control system
- Installation of Security Facilities on the Outer Gate of Radiation
- Management Area of the 1st Power Plant of the Saeul Headquarters
- Field related to the installation of hydrogen reduction facilities in containment buildings of Hanul Unit 1 and 2
- Demolition and installation of the DRCS facilities for Gori Unit 3 and 4 and Hanbit Unit 1 and 2
- CV MOV ECSA Assembly For Kori NPP Unit 3 & 4
- Relocation and demolition of electrical and security facilities in Sin-Gori Unit 5 and 6 sites
- Installation and construction of ASTS standard/nonstandard nuclear power plants (all plants)
- Replacement of ICI for Hanul Unit 4
- Generator Diagnosis Monitoring System
- Replacement of SFP (Spent Fuel Pool) Safety Rating Instruments after Using Hanul Unit 1 and 2

- New Communications Construction for the UAE OSSA Simulator Building and Office Building
- Construction of Uljin 1-Bal Main Turbine Accelerator
- 345kV Switchyard Power Disconnecting Construction
- Additional Construction on the Improvement of Gori-1
- Replacement of 480V MCC for Kori Unit 3 and 4
- Construction of the dismantling and installation of the female flag of Uljin Unit 1 and 2
- Yeonggwang Unit 1 and 2 on-road Nuclear Measurement (NIS) Replacement Corporation
- Gori No. 4 Turbine Static Monitoring Facility Improvement
 Project
- Uljin Unit 1 and 2 Power Generators Replacement Project
- Gori-2 electrolytic chlorine facility
- Construction design and installation of Gori-2 main control center alarm system replacement construction



Plant Construction & Production

- Busan Chamber of Commerce & Industry's Joint Workplace Daycare Center Construction (Firefighting)
- Free Market Firefighting Facility Repair Corporation (Firefighting Corporation)
- Electrical/Mechanical Construction of the Precipitator Improvement Facility for Yeongdong Unit 2
- Boryeong Unit 2 and 3 Measurement and Control Facility Disassembly Inspection
- Electricity Measurement Control Corporation
- WWT Final Pond Damage Sludge Line Improvement Electrical Work
- Performance Improvement of Boryeong Unit 3 PJT Electrical and Instrumentation Control Works
- Pre-lubrication Oil Manufacturing Plant/Stage Construction
- New Sky Combined Thermal Power Plant #1 Exciter Modification #1 Mark Vie Modification
- TBM High Pressure Cable Procurement Contract
- Slurry Semisolid D2830 Internal Demolition Type Equipment
 Electrical Equipment
- UOP CCR (Continuous Catalyst Re-generation) Module
- Installation of High Pressure Motor Operation Indicator for Unit 4
- Unit 7 Turbine and Boiler Measurement and Control Supplementary Facility Maintenance Works



- Electrical Construction of Biomass Fuel Conversion Project
- KAI Whirl Tower Electrical and Wiring Work
- \bullet Low Pressure Motor Maintenance Works for De-sulfurization Facility No. 3
- Manufacturing high-pressure transmissions for Ajou-3540
- SHINTECH PROJECT E&I MATERIAL SUPPLY
- KNPC CFP MAA FAR PROJECT (E-House E&I)
- HDC 3000PPH CCR Module Electrical / Field Construction
- Unit 1-8 Lighting and Electrical Supplementary Facilities Under subcontracting
- High-pressure A construction work for Gijang Branch of Busan Ulsan Regional Headquarters in 2015
- UHV (Upsteam Project for Hygiene and Value added Products)
- UGCC ETHYELENE PLANT PROJECT
- Low Pressure Motor Maintenance for De-sulfurization Facility No. 1
- UHV PROJECT PLC PANEL Design
- Demolition and Installation of Taean unit 1 excitating system
- Construction of the New Headquarter of DK E&C







Nuclear Power

Power Plant



Electricity & Module



Distribution Board