At the Edge of Innovation

HANE LNURI



















Electrical Construction Business

Information and Communications Construction Business

Fire-fighting Facility Construction Business

A company Specializing in the Installation of

Renewable (Solar) Energy

Manufacturing of PV Power Generation System

Manufacturing and Installation of Energy Storage System (ESS)

Solar Street Lights Manufacturing



Leading the future energy industry with creative efforts and continuous research and development.

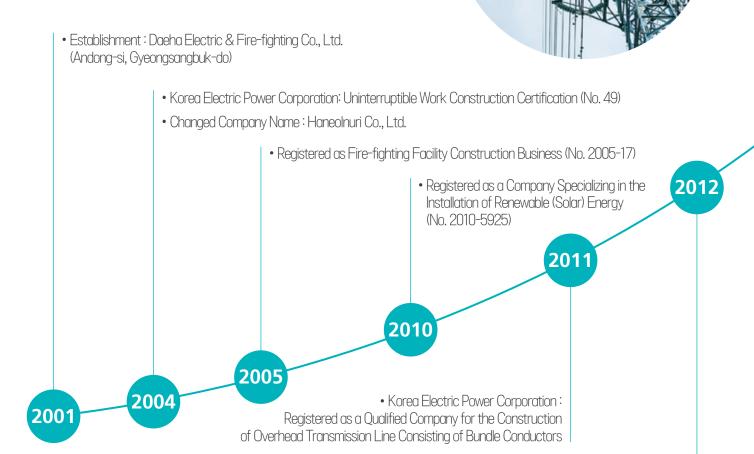
Haneolnuri Co., Ltd. is a company specializing in the installation of new and renewable energy (photovoltaics) and is operating electrical construction business, information and communications construction business, and fire-righting facility construction business together.

Haneolnuri. Co., Ltd. has made a lot of investments and efforts amid difficult economic conditions at home and abroad under the goal of realizing customer surprise, not just customer satisfaction in construction quality.

In particular, we spared no efforts in education and investment to cultivate human resources and improve construction quality.

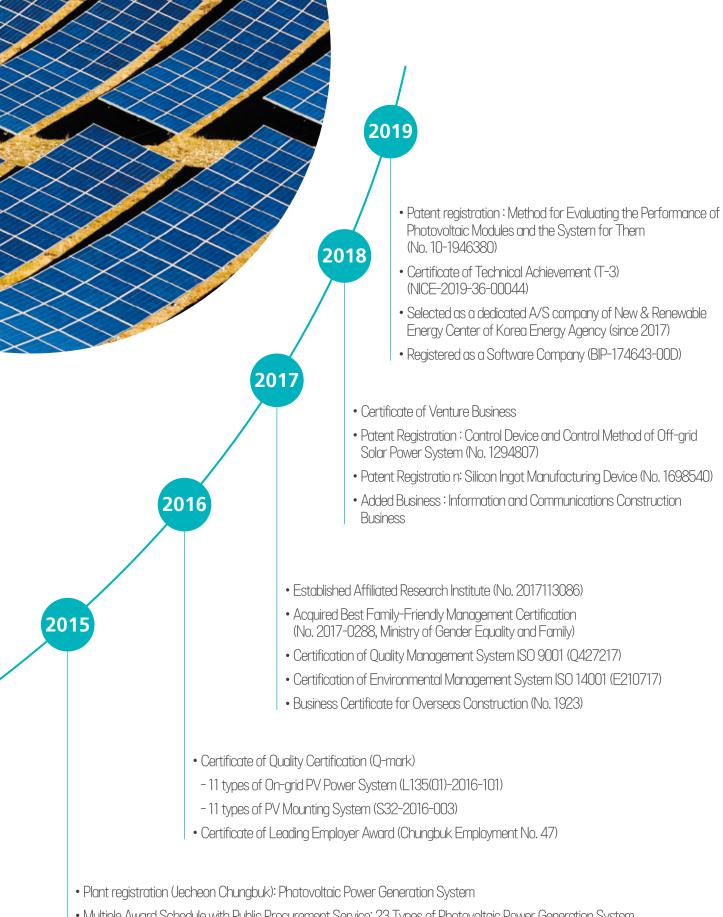
Based on this, all the employees of Haneolnuri Co., Ltd. promise that we will do our best with our pride in flawless and perfect construction.

Thank you.



• Korea Electric Power Corporation: Company Specializing in Underground Distribution

[Uninterruptible Work Construction Certification]



- Multiple Award Schedule with Public Procurement Service: 23 Types of Photovoltaic Power Generation System
- Certification of Quality Management System ISO 9001 (QA107415)
- New & Renewable Energy Center of Korea Energy Agency: Selected as a Participant in the New & Renewable Energy Dissemination Project

Haneolnuri Co., Ltd. has established a quality management policy and is making constant efforts to meet customer expectations.



Quality Management Policy

Quality Assurance and Realization of Customer Surprise through Defect-free & Safe Construction

In order to achieve our policy, we set the management objectives, establish detailed plans for each department, and make all-out efforts to establish a quality management system and to achieve organizational performances.

Quality Management Goals

Complying with the Established Construction Deadlines Perfectly

Establishing quality management system

Achieving Zero Customer Complaints

Achieving Zero Safety Accidents

The CEO will secure the necessary resources to achieve the above-stated policies and objectives effectively, and provide the best support to ensure that all employees can show their full competences

Haneolnuri Co., Ltd.

CEO, Kwon, Taek Jo



Various Registration Certificates



laneolnuri's Homepage



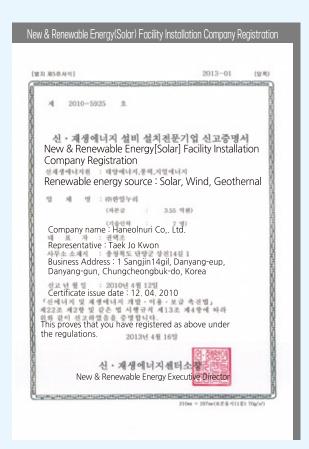












Software Business Report Confirmation ■소프트웨이산업 관흥업 지행군의 [법지 제18호시식] < 개점 2016.01.01> 방광변호: 819-174643-001 송매일자: 2019-05-03 소프트웨어사업자 신고확인서 Company name : Haneolnuri Co., Ltd Representative: Taek Jo Kwon Business Address: 1 Sangin 14gil, Danyang-eup, Danyang-gun, Chungcheongbuk-do, Korea 6. 4.2.9.4 : 2010-04-30 Certificate issue date : 30, 04, 2019 6. 선교장자 : 2019**** CONTROL SAC 필류되관된 서비스자일 배기지조프트웨어 개방 중국사업 7.사업문약 : 디지팅콘텐츠 개발서비스사업 테이티베이스 제작 및 참세서비스사업 8. 공공 소프트웨어사업 입물량이 제한 금액 : 없음 #2018년 12월 경산 기준 프트웨이선임진홍업 제 24조 제1항에 따라 위와 같이 소프트웨어사임자보 선고하였 을 확선합니다. This proves that you have registered as above under the regulations. 한국소프트웨이산업협회장 TT-7-7% [소프트웨이산업 건흥법 시행국제] 기호로 및 관련 고시에 따라 변경자를 당성시 [소프 웨이산업 전흥법 시행국의] 법계 제[7호, 시시에 변경 사랑을 기계하여 계계 없이 변경 신고 하여야 하여, 확인기준을 벗어나는 경우 확인시의 효리운 상실됩니다. 210m m X297m m [백설적 80g/m*] 현존증업이를 열망할 수 있는 기준은 얼굴일로부터 24일이오니 중공(# 일을 등 제출시 적로 얼굴받아 자용하시기 바랍니다. 전# 선생생도운당시스템등(# 7.5 + 2.4 Let Lich) 영화기관은도 되는 제소에 설립되었다.

Certificate of Authorization

No. 2017113086

CERTIFICATE OF AUTHORIZATION

The Korea Industrial Technology Association, the certifying agency authorized by the Ministry of Science and ICT of the Republic of Korea, hereby certifies the

> Haneolnuri R&D Center of Haneolnuri Co., Ltd located at

22, Gangjeo-ro 4-gil, Jecheon-si, Chungcheongbuk-do, Republic of Korea

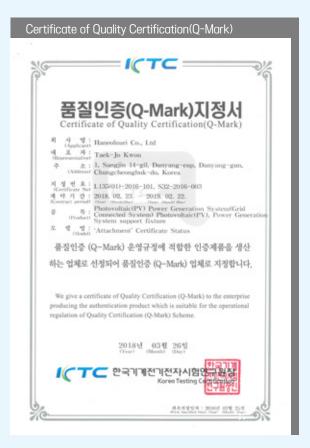
as an Industrial R&D Center as of 20th June 2017,

pursuant to the Basic Research Promotion and Technology Development Support Act of the Republic of Korea.

Deehvan Dim

leehwan KIM, Ph.D. Executive Deputy Chairman Korea Industrial Technology Association(KOITA)







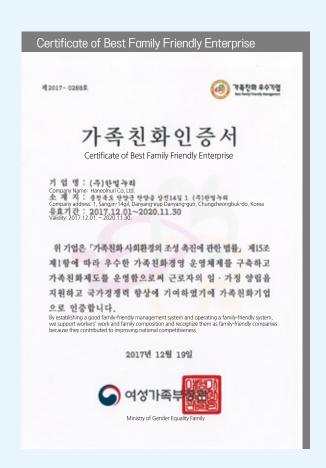


















Photovoltaic Power Generation System





PV power generation business with Haneolnuri











CONSULTING

- Licensing support
- Economic analysis
- System optimization

DESIGN

- Specification optimization
- Economical design
- Perfect simulation

CONSTRUCTION

- Quality maximization
- Optimal construction
- Construction of the best system

OPERATION

- Trial operation
- Performance analysis
- 3d Monitoring

A/S

- · Periodic inspection
- Maintenance
- Available 365 days a year







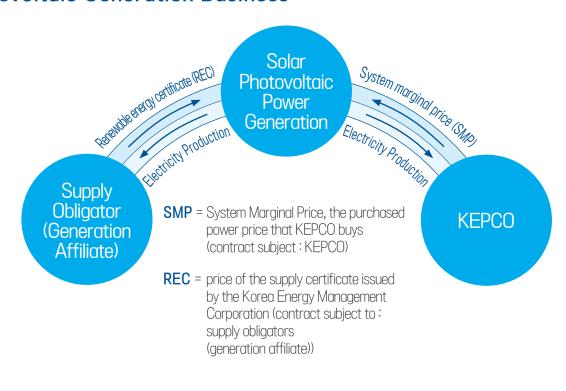


Haneolnuri Co., Ltd.:

- Has the best technology and know-how.
- Provides perfect quality and the highest economic efficiency.
- Puts construction quality first.
- Pursues customer happiness.
- Aims to produce high-quality modules and products.
- Is thinking about the future.
- Cares about the future
- Realizes customer surprise.
- 1. For power generation companies 2. For building support projects 3 For home supply 4. For apartment supply



Profit Structure of Photovoltaic Generation Business







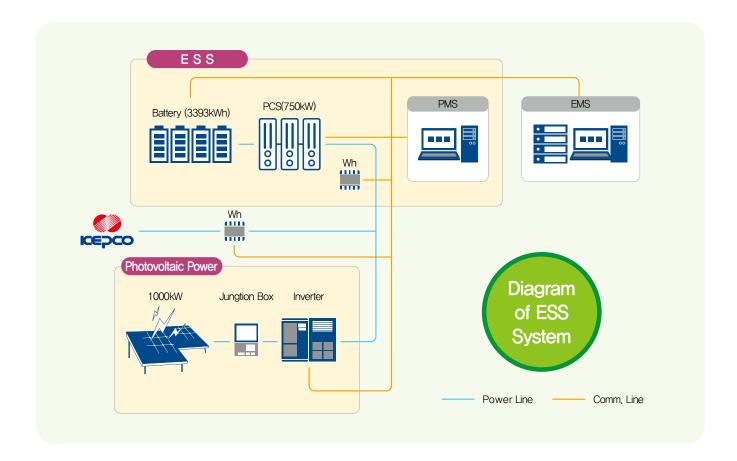
Currently, the average daily sunshine time in Korea is 3.6 hours. Therefore, annual power generation (kWh) = ICAP (kW) × 3.6 (hours) × 365 days.

Smart Choice for the Solar PV Power Project,
Haneolnuri Co., Ltd.

Energy Storage System (ESS)

What is the ESS?

ESS is a system that stores the electricity generated in a power plant in a battery and discharges it when it is needed to improve power usage and efficiency.



PMS (Power Management System)	A system that manages power. An operating system that manages Battery and PCS
PCS (Power Conditioning Systems)	A device that converts electric power
EMS (Engrgy Mangement System)	A system that manages energy
BMS (Battery Management System)	A system that manages battery

Solar Power Plant Installation Cases









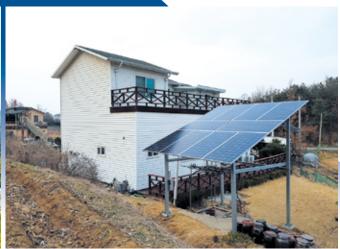




Cases of Government Supply Projects and Local Government Support Projects

Solar-powered housing support business





Solar-powered building support business





Solar-powered senior center support business







Electrical Equipment



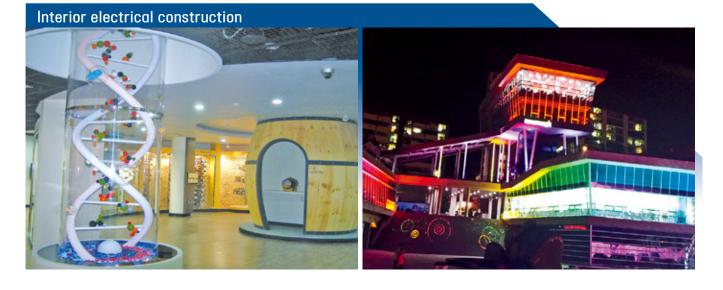


Case of Electrical **Equipment Installations**









Apartment construction





Plant construction





University construction





Lighting Installations:



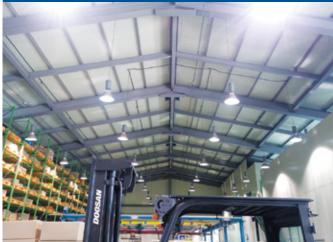


LED Landscape lighting



Plant lighting







Interior lighting

General lighting







Information & Communications





Communication power supply (DC) construction project

IT Maintenance

Replacement and extension work of DC equipment with exceeded service life (rectifier, DC control panel, dc power distribution unit, converter, air handling unit, etc.)



Communication power supply (AC) construction project

Maintenance of power distribution facilities

Replacement and extension work of (power distribution) / UPS with exceeded service life (power distribution facility, UPS, STS facility)



Communication power supply (storage battery) construction project

Maintenance of storage battery facilities

Replacement of a storage battery with exceeded service life and repair of defective storage battery (storage battery replacement work, storage battery voltage, impedance defective cell replacement work)



Communication power supply (generator) construction project

Maintenance of generator facilities

Replacement of generators with exceeded service life and maintenance of defective facilities (Generator replacement and maintenance 10kw-6,000kw)



Communication power supply (grounding) construction project

Grounding and maintenance

Construction and supplementary construction of ground facilities for information and communication facilities (for communication, security, lightning rod construction)



Highland repeater station maintenance and construction project

Highland repeater station

Management of ground facilities for lightning protection and maintenance work for power supply stabilization







High-speed internet business

Maintenance of high-speed internet

Mobile generator truck support project for power supply stabilization (BBS, BBC, BBH, BBP, etc.)





Electric vehicle (EV) charging business

Maintenance of storage battery facilities

Replacement of storage battery with exceeded service life and repair of defective storage battery (storage battery replacement work, storage battery voltage, impedance cell replacement work)



Base station maintenance

Maintenance of a storage battery facilities

Replacement of storage battery with exceeded service life and repair of defective storage battery (storage battery replacement work, storage battery voltage, impedance cell replacement work)



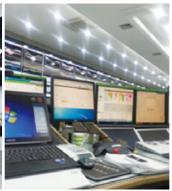


Environment construction/removal and LAN/Network construction business

Environment construction

Indoor environment construction/removal and LAN/Network construction business (center construction and LAN construction project) $\frac{1}{2} \left(\frac{1}{2} + \frac{1$











Fire-fighting Equipment





Fire-fighting Equipment installations









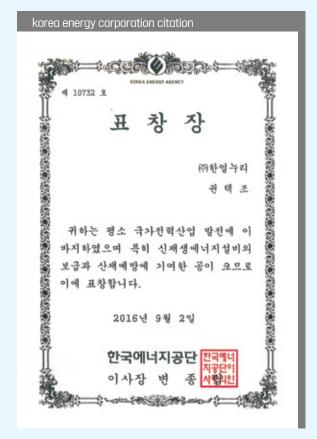
Awards and Certificates





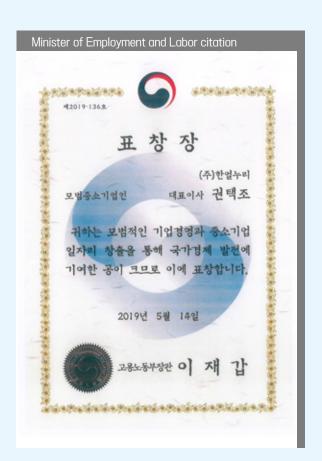
















Major Projects





Project and Services	Owner	Construction Amount (thousand won)	Completion Date
Repair work on the secondary cable of unit auxiliary transformer of Gori No.2 Reactor	KEPCO KPS	108,614	2007.06
Electric work of Sobaeksan education and experience center	Danyang-gun Office	106,804	2007.11
Electric facility improvement construction in 2008	11th Fighter Wing of Air Force	111,573	2008.01
Solar cable installation in Wando and Mokpo	Powerpoint Co., Ltd.	215,850	2008.09
High-tension B work of Danyang branch of KEPCO in 2007	KEPCO Danyang Branch	1,402,362	2008.12
New electric construction work of automated greenhouse for ginseng and herbal medicine research	National Institute of Horticultural & Herbal Science	150,202	2009.01
2009 High-tension unit A work of Danyang branch of KEPCO	KEPCO Danyang Branch	1,056,025	2009.12
Electric work of extended dormitory at Hyeongseok High School	Hyeongseok High School	170,423	2010.01
3.3kV and 6.6kV cable connection at Hyundai Steel Dangjin Plant	Pyungil Co., Ltd.	175,800	2010.02
08-75-8 Electric work	Central Management Corps	402,834	2010.05
2010 High-tension unit A work of Danyang branch of KEPCO	KEPCO Danyang Branch	359,716	2010.12
2010 High-tension unit A work of Danyang branch of KEPCO	KEPCO Danyang Branch	760,403	2010.12
Submarine cable connection work of Offshore Wind Farm No. 1 in Woljeong-ri	Pyungil Co., Ltd.	143,504	2011.05
Relocation of the 66kV power receiving line in Sintanjin section related to civil complaints	Union Co., Ltd.	370,492	2011.06
Danyang S/S 154kV # 2Sh.C installation work	KEPCO Jecheon Branch (Construction Office)	132,416	2011.08
Submarine cable connection work of Offshore Wind Farm No. 2 in Woljeong-ri	Pyungil Co., Ltd.	128,480	2012.03
Electric work of East Gimcheon interchange Expressway No. 1	Korea Expressway Corporation Gyeongbuk Regional Headquarters	548,834	2012.11
Electric work in the remodeling of the central library of the Korea National University of Transportation	Korea National University of Transportation	225,988	2013.03
Dowon PV power plant installation work (1MW)	Dowon PV Power Plant	1,629,600	2014.01
Simple sprinkler installation in welfare facilities for the aged (7 facilities)	Danyang-gun Office	116,697	2014.02
New construction of tramway of Taebaek Line's double track railway and other works (Jecheon-Ssangyong section)	Korea Rail Network Authority	3,249,263	2014.07
345kV T/L steel tower foundation reinforcement work between West Ansung and Sinjincheon	KEPCO Chungbuk Headquarters	459,046	2014.12
Gukwon Dormitory Remedial Work (Fire-fighting)	Korea National University of Transportation	107,384	2014.12
(2 nd) Shifting construction of poles resulted from bank heightening of Gung District of Naebuk-myeon	KEPCO Chungbuk Headquarters	118,261	2015.04
Electric work for Howon IC and sales offices on a Beltway Around Seoul	Korea Expressway Corporation Capital Area Headquarters	1,161,246	2015.05
PV installation project in Cheongju-si senior centers in 2015 (42 centers)	Cheongju City Office	357,000	2015.07

Project and Services	Owner	Construction Amount (thousand won)	Completion Date
PV power plant installation at Intercity 365 Hotel in Magog District	Yeonhun Co., Ltd.	148,500	2015.08
Installation of PV power plant for DNP Corporation (61.75kW)	KT Corp.	133,650	2015.09
Nonghyup Moguchon's Gimje Meat Processing Plant (201.6kW)	GNSENG Co., Ltd.	178,200	2015.11
Danyang Dasarang Nursing Home for Elderly (40.0kW)	Public Procurement Service / Danyang-gun Office	101,643	2015.12
Temporary power and power trunk lines installation at Naedeok-dong medical facility (Ppuri Medical Center)	SinJeongam Construction Co., Ltd.	220,000	2015.12
Cheonhwangsan PV Power Plant installation work (power trunk line construction)	NH Development Co., Ltd.	256,835	2016.03
New construction of Iwol Nonhyup Hanaro Mart	lwol National Agricultural Cooperative Federation	382,049	2016.05
2016 Building Support Project (Bok, Young Kyu and 14 other places)	Korea Energy Agency	304,684	2016.08
2016 Housing support project (Jo, Dong-hee and 42 other places)	Korea Energy Agency	171,770	2016.07
PV auxiliary project of the senior center in Danyang-gun (Deokhyeon Senior Center and 27 other centers)	Danyang-gun Office	229,500	2016.07
Remodeling work of Jecheon Danyang Chukhyup Local Food (electrical/communications/fire protection work)	Jecheon Danyang Dairy Cooperative Association	127,516	2016.09
345kV T/L Lightning Arrester Installation between Sinokcheon and North Gyeongnam	KEPCO Chungbuk Headquarters	337,039	2016.11
Gwangil PV power plant (2MW)	Gwangil Photovoltaics	3,172,455	2016.11
Relocation of pole signal equipment of double track railway between Wonju and Jecheon and other works	Korea Rail Network Authority Gangwon Headquarters	1,795,715	2016.12
PV power plants 2 in Yeong-dong, Jeju	Korea Land & Housing Corporation	140,274	2016.12
Sobaeksan Natural Recreation Forest Development Project/ Electric Construction/PV Power Generation System	Danyang-gun Office	114,696	2016.12
Baekdudaegan Green Theme Experience Center Development Project	Danyang-gun Office	176,693	2017.01
2016 Jecheon S/S, Geumseong D/L Supply Capacity Expansion	KEPCO Chungbuk Headquarters	138,876	2017.02
Extension & Remodeling work of Cheongju Nonghyup (Electric construction)	Cheongju National Agricultural Cooperative Federation	210,606	2017.03
New construction of forest house in Sobaeksan Natural Recreation Forest	Danyang-gun Office	174,770	2017.04
Electric construction for wastewater treatment facility of Osun Industrial Complex	Eumseong-gun Office	252,180	2017.05
Danyang Senior Welfare Center Remodeling Project (Electric construction)	Danyang-gun Office	232,536	2017.06
2017 Solar Housing Support Project (Kim Sun-wook and 14)	Korea Energy Agency	145,250	2017.06
2017 Solar Building Support Project (Pungju temple and 9 other places)	Korea Energy Agency	267,800	2017.06

Construction projects

Project and Services	Owner	Construction Amount (thousand won)	Completion Date
Delivery and installation of PV facilities at e-Pyeonhansesang Kumho Apartment in Daegu (73.5kW)	GNSENG Co., Ltd.	148,500	2017.06
Hoam Gymnasium PV Plant Installation (50kW)	Chungju City Office	105,342	2017.06
Extension and renovation work of the main store of North Danyang Nonghyup (Fire protection work)	North Danyang National Agricultural Cooperative Federation	104,000	2017.07
LED lamp replacement work (electric construction) of Namsung middle school and 2 other schools (Shinnam middle school, Seonghwa middle school)	Chungcheongbuk-do Cheongju Office of Education	101,536	2017.08
Landscape lighting installation at Manhakcheonbong Observatory	Danyang-gun Office	566,200	2017.09
Fire Protection Work in the Future Area Warehouse	GRM	205,940	2017.09
Renovation of track circuit due to the welded rail of Chungbuk line	KORAIL	142,622	2017.10
Electric construction of the multi-purpose classroom and other places of Danyang Elementary School	Chungcheongbuk-do Danyang Office of Education	379,175	2017.10
Fire works for the expansion of storage holder of raw materials	GRM	312,100	2017.10
SM PV Power Plant Construction (148.484kW)	SM PV Power Plant	256,520	2017.12
Sambong Bridge Landscape Lighting Installation	Danyang-gun Office	485,730	2017.12
Safety Distance Construction of 154kV between Danyang and Yeongwol CC T/L No. 49	KEPCO Chungbuk Headquarters	224,498	2018.01
Installation work of Yeungnam University PV R&BD Demonstration Complex Construction Project Facility	Yeungnam University	875,000	2018.05
KEPCO PV Plant Support Project- PV Panel (Yeongnam Area)	Korea Energy Foundation	213,517	2018.07
KEPCO PV Plant Support Project- PV Panel (Honam Area)	Korea Energy Foundation	314,657	2018.07
Purchas of an energy management system of Yeongdong thermoelectric power plant Units 1 and 2 (under the condition of installation) $\frac{1}{2}$	Yeongdong Eco Power Division of Korea South-East Power	211,493	2018.07
Government-furnished materials of electric work of photovoltaic power in Jangnak Elementary School (PV power generation system 50kW)	Chungcheongbuk-do Jecheon Office of Education	101,682	2018.07
Purchased Government-furnished materials (PV power generation system) for Danyang Elementary School Photovoltaic installation and LED map replacement work 50kW	Chungcheongbuk-do Danyang Office of Education	101,682	2018.08
Purchased Government-furnished materials (fuel cell) for construction of Hansoop middle school	Yongin Office of Education	409,643	2018.10
Manjong Energy PV power plant construction (97.92kW)	Manjong Energy	176,000	2018.11
Hyundai PV power plant construction in Sangju (1000kW)	Sangju Hyundai PV Power Plant Co., Ltd.	1,782,000	2018.12
Construction of the PV power generation facility 2 in Wimi Village in South Jeju	Korea Southern Power Co., Ltd.	1,486,100	2018.12
2018 Solar Housing Support Project (kim, Hyeon Jeong and other 44 cases)	Korea Energy Agency	282,420	2018.12
2018 Solar Building Support Project (Onnuri Farm and other 21 places)	Korea Energy Agency	457,608	2018.12
2018 Solar Village Support Project (Go, Yeong Hwan and other 34 places)	Korea Energy Agency	183,535	2018.12
Energy Independent Danyang-eup convergence project (second)	Danyang-gun Office	149,700	2018.12

Project and Services	Owner	Construction Amount (thousand won)	Completion Date
Renovation of track circuit due to the welded rail of 19 rail sections besides 11,968km of Cheongju to Ogeunjang of Chungbuk Line	Korea Rail Network Authority	254,878	2018.12
Power incoming work during the 2nd site building work in Daebyeok-ri, Gimpo	Seohai Construction Co., Ltd.	285,500	2019.01
General electric work during extension work of treatment support building in Korea university Ansan hospital	Poong Lim Industrial Co., Ltd.	678,700	2019.02
New construction of Saemaul Bank's (KFCC) Incheon Head Office (photovoltaics) 86.4kW	Hanjin Heavy Industries & Construction Co., Ltd.	177,356	2019.02
Hyoju PV Power Plant construction work (195.84kW)	Hyoju PV Power Plant	345,400	2019.03
Pureun PV Power Plant construction work (76.16kW)	Pureun PV Power Plant	128,135	2019.05
Hyeongok PV Power Plant construction work (195.84kW)	Hyeongok PV Power Plant	369,000	2019.07
Saewon PV Power Plant construction work (97.92kW)	Saewon PV Power Plant	176,000	2019.07
Gaya PV Power Plant construction work (97.92kW)	Gaya PV Power Plant	176,000	2019.07
EcoProBM's CAM5-Project Power Equipment Construction	EcoProBM	935,000	2019.08
Gasan PV Power Plant No.1 Installation	Gasan PV Power Plant No. 1	115,500	2019.08
Electric work during Construction of Seohae Grand Blue in Dongchun block 4	Seohai Construction	1,973,000	2019.09
Fire work during Construction of Seohae Grand Blue in Dongchun block 4	Seohai Construction	223,000	2019.09
Information and Communications work during Construction of Seohae Grand Blue in Dongchun block 4	Seohai Construction	270,000	2019.09
KEPCO Sunshine-Happiness Power Facility Support Project (Chungcheong Region)	Korea Energy Foundation	524,264	~
Floating Solar Power Plant Installation	Floating Solar Power Plant	580,723	\sim
Hugok-ri PV Power Plant Installation	Hugok-ri, Danyang	148,500	\sim
PV Power Plant Installation at mPLUS Oksan Plant	EM Storage Co., Ltd.	399,850	\sim
2019 Danyang-gun Convergence Project	Danyang-gun Office	596,096	\sim
Installation work of photovoltaic power generation facilities utilizing idle facilities of Samcheonpo Power Division	Samcheonpo Division of Korea South-East Power Co., Ltd.	2,149,604	~
Purchase of photovoltaic power generation facilities for Sinincheon Parking Lot (under the condition of installation)	Korea Southern Power Co., Ltd.	982.921	~
Electric Work of Smart Traffic Convergence Hall	Korea National University of Transportation	1,169,276	~
Improved Fueling Facility and conducted firefighting work for Unit 19-Gong- 00	MND Financial Management Corps.	388,201	~



Haneolnuri Co. Ltd.'s Three Commitments

- > We will realize the best value at the lowest cost.
- > We will do our best to keep our promise with our customers.
- > We will always stand by our customers.



Head Office

24, Sangjin 14-gil, Danyang-eup, Danyang-gun, Chungcheongbuk-do, Republic of Korea Tel. +82-43-423-9939 Fax. +82-43-423-9940

Plant

22, Gangjeo-ro 4-gil, Jecheon-si, Chungcheongbuk-do, Republic of Korea Tel. +82-43-423-0472

Affiliated Research Institute

#317, Chungbuk Techno park, 76, Yeongudanji-ro, Ochang-eup, Cheongwon-gu, Cheongju-si, Chungcheongbuk-do, Republic of Korea
Tel. +82-43-715-9973 to 5

Mobile. +82-10-7139-1259 E-mail. haneol@haneolnuri.com Homepage. www.haneolnuri.com