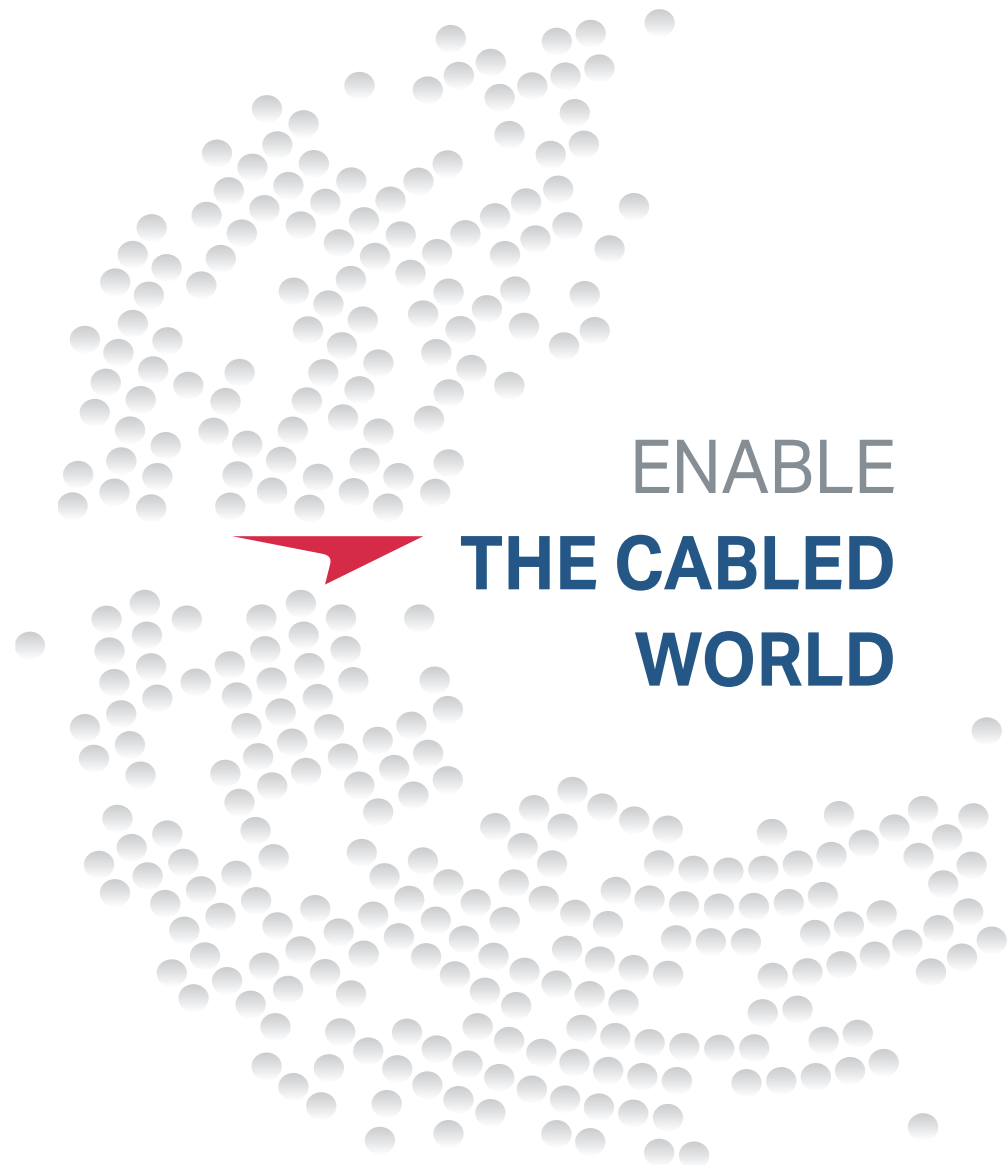


2017-2018

Sustainability Report + Annual Report



Contents

Overview

- 04 Chairman's Message
- 06 President's Message
- 08 About LS C&S and its Businesses
- 10 Our Products
- 12 Company Vision and Philosophy
- 14 Global Business
- 16 Key Achievements
- 18 Achievements in the LS C&S Way
- 20 Corporate Governance
- 21 Risk Management
- 24 Challenges and Opportunities
- 26 Sustainable Management System
- 30 Materiality Assessment

10 Key Topics (Special Theme)

- 34 2017 Performance and 2018 Targets

LS (Leading Solution)

For LS Cable & System, sustainable management means our belief in the value of going forward together. It is not simply a resolution, but something that must be put into action on a daily basis. We resolutely believe in and act upon our vision 'Enable the Cabled World' to enhance the quality of life of our stakeholders, including suppliers, customers, investors, and local communities. Our goal for sustainable management is to create a society defined by coexistence and a prosperous future.

10 Special Themes on

C.O.R.E.



Customer First

- Topic 1** 36 _ New Technologies and Products
- Topic 2** 46 _ Quality and Product Responsibility



One LS C&S

- Topic 3** 52 _ Social Contribution
- Topic 4** 57 _ Shared Growth
- Topic 5** 64 _ Respect for Human Rights and Diversity



Rule & Responsibility

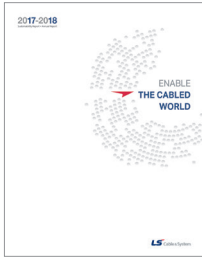
- Topic 6** 68 _ Compliance Management
- Topic 7** 71 _ Ethical Management
- Topic 8** 74 _ Workplace Safety

Appendix

- 96 Statement of Financial Position
- 97 Statement of Comprehensive Income
- 98 Statement of Cash Flows
- 99 Independent Assurance Statement
- 101 GRI Standards
- 104 Additional information on the Index
- 105 Compliance with the UN Global Compact



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127 LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Korea
E-mail: csr@lscns.com Tel: +82 2-2189-9104



Cover Story

Simplified cross-sectional images of cables symbolize the core competence of LS C&S and represent our vision of Enable the Cabled World.



Expertise

Topic 9 79 _ Talent Management

Topic 10 84 _ Advanced Green Management

About This Report

Overview

The 2017-2018 LS Cable & System Sustainability Report has been prepared based on GRI (Global Reporting Initiative) Standards. To increase the credibility of the report and the understanding of GRI Guidelines, the company's 2016-2017 report and reports from other domestic and overseas companies within the industry were applied as references. Last year's performance has been disclosed in this report in a transparent manner in order to communicate with our diverse stakeholders. In addition, the feedback of internal and external stakeholders was reflected as a means to meet their needs. The management and a third-party assurance institute reviewed the document for final confirmation.

Reporting guidelines

- GRI^{Global Reporting Initiative} Standards
- UNGC^{UN Global Compact} Ten Principles
- ISO26000

Reporting period

From January 1 to December 31, 2017 (published annually)

- Three-year data from 2015 to 2017 is provided to keep track of performance trends.
- Performances and issues in 2018 that are considered meaningful and in need of reference are included and the point of time is specified.

Reporting scope

Domestic worksites (headquarters, plants in Gumi, Indong, and Donghae, a Gunpo R&D center) and domestic and overseas subsidiaries

Assurance

For the credibility of this report, internal review by the management and third-party verification were conducted.

Publication date of the latest report

June 2017

Currency

All financial figures are presented in KRW in the Korean version of the report and in USD in the English version. All won amounts are expressed in U.S. dollars at US\$1:₩1,071.4 the exchange rate in effect on December 31, 2017.

Data collection and use

Data collected from seven working committees using the information management system was processed and used.

- For any changes in data collection methods, data was adjusted based on the method used in 2017 and the details are specified in the report.

Key changes in terms of the size, structure, and ownership of the organization

None

Chairman's Message



I would like to take this opportunity to express my gratitude to all of our stakeholders for your continued interest and support.

LS C&S has been providing a solid foundation for industrial and economic development by contributing to the establishment of power and telecommunications networks in a range of countries. As a result, we have grown into a leading cable manufacturer and our technologies and product quality are recognized around the world.

At a time when change is commonplace in all industries, we have devoted ourselves to achieving sustainable, high-quality growth as a leading player in the next-generation power and telecommunications industry.

Instead of settling for the present, we will continue our efforts to identify innovative business models and create synergies that will create value for the future. In this regard, the expertise and technological prowess we have established through projects over the last half century will play an important role.

We believe our competitiveness stems from an organizational culture grounded in vitality and communication with stakeholders, including our customers, shareholders, suppliers, local communities, and employees.

With this belief, in 2015 we announced the LS C&S Way and our four core values of 'Customer First,' 'One LS C&S,' 'Rule and Responsibility,' and 'Expertise.' We have been striving to live up to our motto of 'Enable the Cabled World' and provide access to energy and information for everyone.

In parallel with these efforts, we will focus on creating an organizational culture that allows employees to increase their productivity, produce results, and improve quality of life based on the perception that employee wellbeing and a sound environment are key to our corporate competitiveness.

We will do our utmost to sustain a corporate culture that encourages employees to be proactive at work and in this way heighten their competitiveness. At the same time, we will work together with our stakeholders to provide a trustworthy partner creating greater value.

As long as our company lasts, our efforts to Enable the Cabled World will continue to improve quality of life and build a brighter and more prosperous future.

Thank you.

Chairman Koo Cha-Yub



President's Message



I am very pleased to publish this 8th Sustainability Report as a channel to communicate with our stakeholders.

Over the past several years, LS C&S has focused on financial and business restructuring to ensure its survival and growth in a fiercely competitive global market. As a result, both sales and profits were turned around in 2017 and we won the largest project in our history.

Based on these results, we will continue to pursue sustainability by laying a foundation for long-term growth and increase the value we provide to stakeholders, including customers, suppliers, local communities, shareholders, and employees.

To this end, we will further strengthen the HV/EHV and submarine cable business to position ourselves as a global leader. High value-added and differentiated product strategies will be implemented to further enhance our competitiveness.

In addition, strategic change management and R&D investments based on forecasting global markets and the energy industry will allow us to better prepare for the future. We will develop new growth engines such as HVDC, superconducting cables, and eco-friendly car parts and apply IoT, big data, and AI to existing businesses in order to proactively respond to the fourth industrial revolution.

Our overseas business will be expanded based on our reinforced competitiveness. Investments meeting market needs are being made in the US, Europe, and Southeast Asia to fuel a virtuous cycle.

Meanwhile, the scope of activities to fulfill our corporate social responsibility has been expanded in regions where our worksites are located. Starting from last year, employees have been conducting electrical safety checks in traditional markets.

Going forward, we will continue our efforts to provide quality products and solutions and create greater value for our stakeholders.

Thank you.

President **Myung Roe-Hyun**

About LS C&S and its Businesses

Company profile

Since the foundation in 1962, LS C&S has developed, produced and provided cable-related solutions, contributing to the establishment of power grids and communications networks at home and abroad. Our cutting-edge products, including submarine, superconducting, HV/EHV and communication cable systems, have been supplied to energy agencies, heavy electrical equipment manufacturers and telecommunication companies in North America, South America, Europe, Middle East, and Asia, allowing us to be recognized as a global leading company.

Company name	LS Cable & System
Headquarters	12th-16th Fl. LS Tower, 127 LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Korea (zip code: 14119)
Domestic worksites	Gumi plant, Indong plant, Donghae plant, and Gunpo R&D center
President	Myung Roe-Hyun
Date of establishment	May 1962
Primary products	Power/communications/industrial cables, and materials
Subsidiaries	5 domestic subsidiaries, 14 overseas subsidiaries

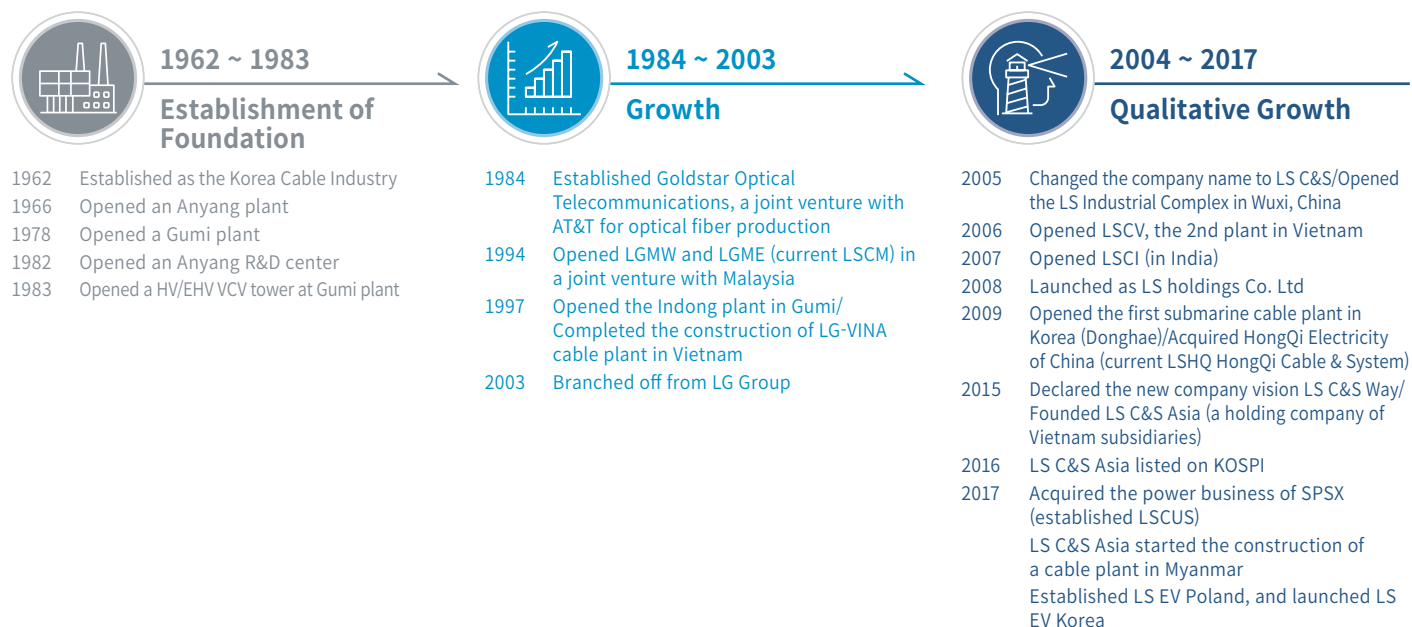
* as of the end of 2017

Company information

(as of the end of December 2017; consolidated)

	Date of establishment	May 1962
	Sales	USD 3,312 million
	Subsidiaries	19
	Capital	USD 773 million
	Employees	4,203

History



Financial results

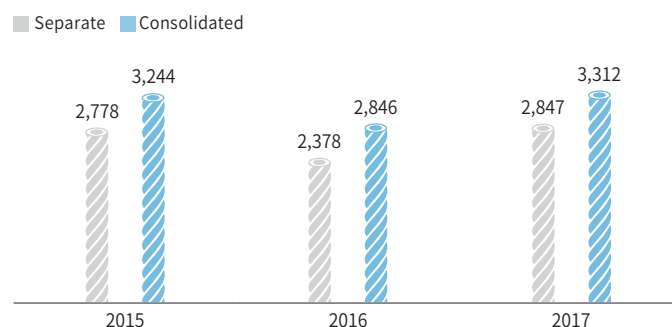
Consolidated sales in 2017 was recorded at USD 3,312 million, a year-on-year increase of USD 466 million due to aggressive sale activities. Operating profit rose by USD 26 million to USD 104 million and earnings before tax increased by USD 50 million to USD 86 million from the previous year due to increased profit of LS C&S and its Vietnam subsidiaries and a decline in deficit of the India subsidiary. As of the end of 2017, the total amount of assets stood at USD 2,788 million, a rise of USD 248 million year on year mainly because of increased inventories and derivative financial instrument. Our financial structure has considerably improved from the previous year due to improvement in business performance with USD 2,015 million for debt, USD 773 million for equity, and 261% for debt-equity ratio.

Membership

Gumi CCI	Korea Electrical Contractors Association
Green Company Council	Korea Electrical Manufacturers Association
Korean Institute of Electrical Engineers (KIEE)	Korea Electric Engineers Association
Korea Electric Association	Korea Electric Wire Industry Cooperative (KEWIC)
Donghae CCI	Korea Information and Communications Contractors Association (KICA)
Korea Defense Industry association	Korean Standards Association (KSA)
Anyang Chamber of Commerce	Korean Standards Association (KSA)
Korea Engineering and Consulting Association	Korea Industrial Safety Association
Underground transmission system research society	MOTIE Emergency Planning Council
The Korea Railway Association	CIGRE Korea
Korea Association for Chief Financial Officers	Korea Rolling Stock Industries Association
Korea HRD association	Korea Profibus Association
Korea Employer's Federation (KEF)	SERI CEO
Fair Competition Federation	CIGRE Korea
Korea International Trade Association (KITA)	CIREN Korea
Korea Industrial Complex Corporation	CLPA (CC-Link Association)
Korea Listed Companies Association	Foundation Fieldbus Association (FieldComm membership)
Korea Engineering & Consulting Association (KENCA)	FTTH Council Asian Pacific
Korea Automobile Manufacturers Association (KAMA)	ICF
	ODVA

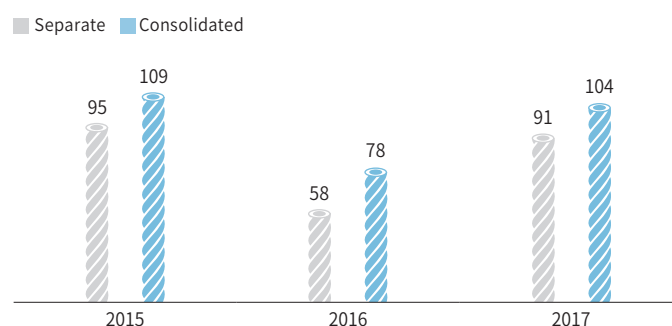
Sales

(unit: USD million)



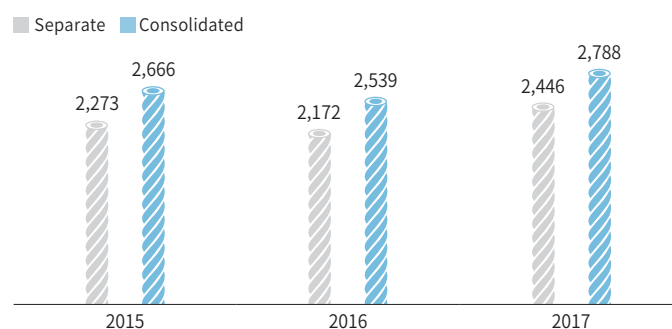
Operating Profit

(unit: USD million)



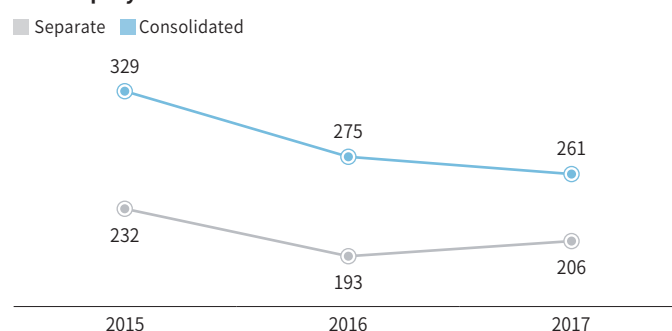
Assets

(unit: USD million)



Debt-equity ratio

(unit: %)



Our Products

Energy

Energy

Overhead transmission line

This is normally installed in steel towers and used for long-distance power transmission. OPGW (optical ground wire) is overhead ground wire that telecommunication features are added.



HV/EHV cable

This efficiently transmits large-capacity power with the voltage of 154kV or higher.



Busduct system

This has an advantage of distributing power efficiently in confined spaces where there is a high demand for electricity such as factories and apartments.



Power distribution cable

This supplies power of 0.6/1kV to 18/30kV to residential and commercial buildings and industrial distribution circuits.



Superconducting cable system

This transmits and distributes large quantities of energy with minimal loss as there is little electrical resistance.



HVDC cable

This allows long-distance transmission with less power loss by converting AC to DC.



Submarine cable system

This is installed on the ocean floor allowing electric power transmission and communications between islands and between a mainland and an island.



Industries

Industrial

Industrial cable

These are used to supply signals and power to electric and electronic devices and industrial robots.



Automotive cable and harness & module for electric vehicles

These are used to provide power to all devices required to drive a vehicle.

*Products of LS EV Korea (LSEVK)



Military cable

This is used to send signals to and power armored vehicles such as tanks, aircraft, and naval vessels.



Rolling stock cable

This is used to power and control various rail vehicles such as subway cars and high-speed electric trains (KTX).



Wind power cable

This is used to transmit electricity generated from onshore and offshore wind power generators to transformers.



Marine and offshore cables

These are used to power and control ships (such as an oil tanker and a containership) and oil-drilling facilities, and also used for telecommunication in those ships and facilities.



Communications

Communications

FTTA (Fiber to the Antenna)

This is installed in wireless base stations and efficiently sends electric power and optical signals to the antenna.



Optical fiber/Optical cable

This delivers large-capacity data fast and accurately by sending communication signals with the use of light.



FTTH (Fiber to the Home)

This provides high-speed internet service to homes using optical fiber cables.



LAN cable (Local area network)

This allows high-speed telecommunication networking in limited geographic areas.



Structured cabling system

This allows planned installation and operation of cables that are used for communications equipment and personal computers in buildings.



Coaxial cable

This transmits high frequency signal from communications base stations to antennas using broadband in a stable manner.



Materials

Metrials

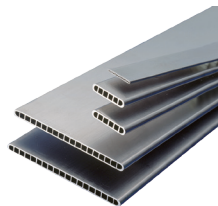
Copper wire

This is high purity copper wire made of electrolytic copper only to minimize the loss of electricity.



Aluminum

This is made of lightweight, high-strength aluminum with high conductivity.



Magnet wire

This is used to convert electric energy to mechanical energy in electrical or electronic devices, and vice versa.

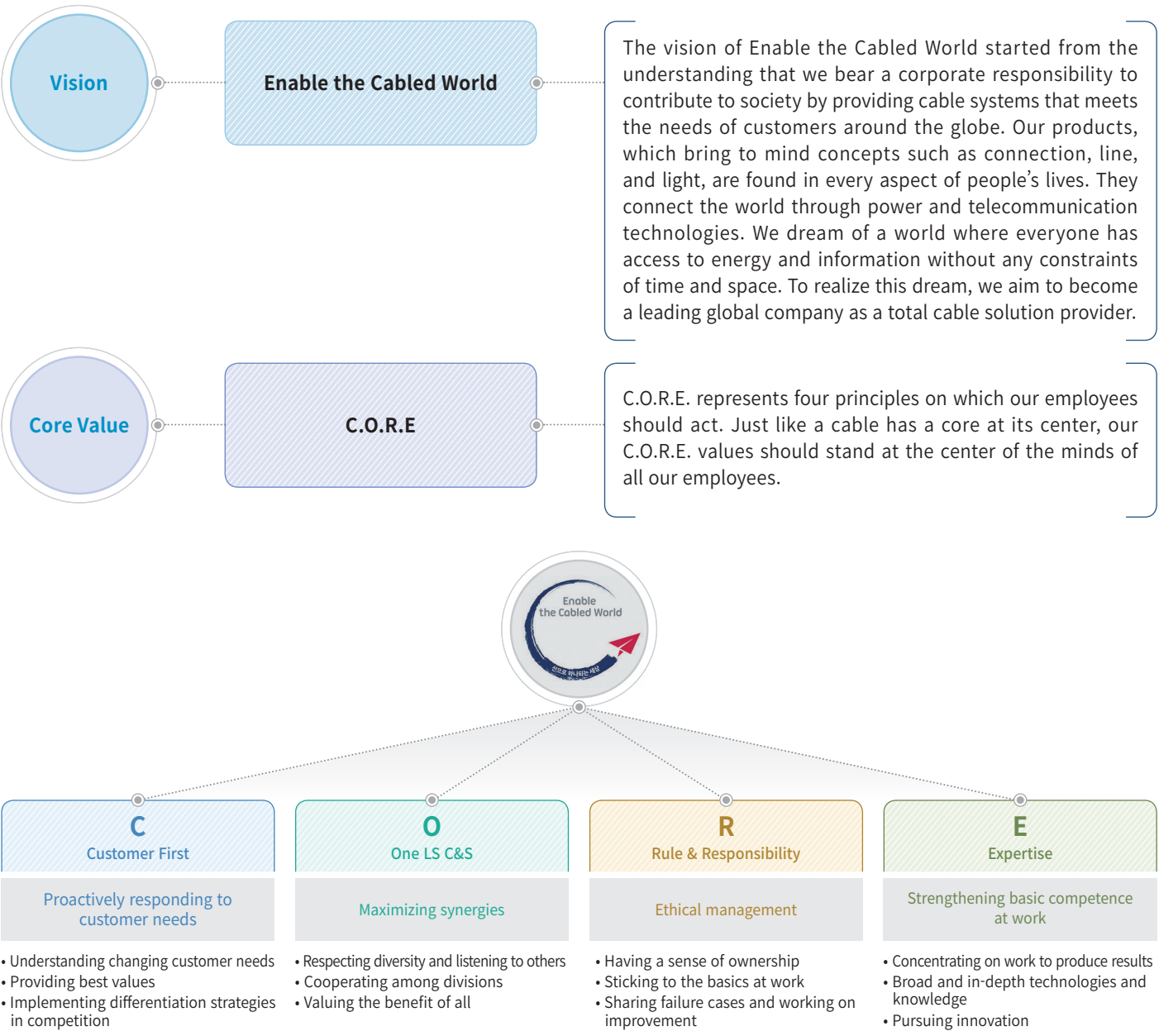


Company Vision and Philosophy

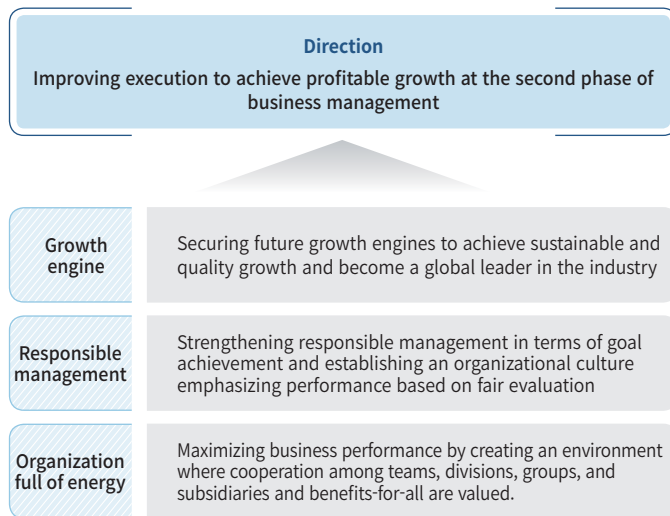
As a partner going beyond our role of simply manufacturing and providing cable systems to offer the best possible value to customers, we are striving to make the world more convenient and prosperous by respecting and caring about our stakeholders, innovating our business model, and developing high-quality eco-friendly products.

LS C&S Way

Our LS C&S Way ideal provides a future direction and value system for LS C&S. It consists of the company’s vision and core values that inspire the principles on which employees act.



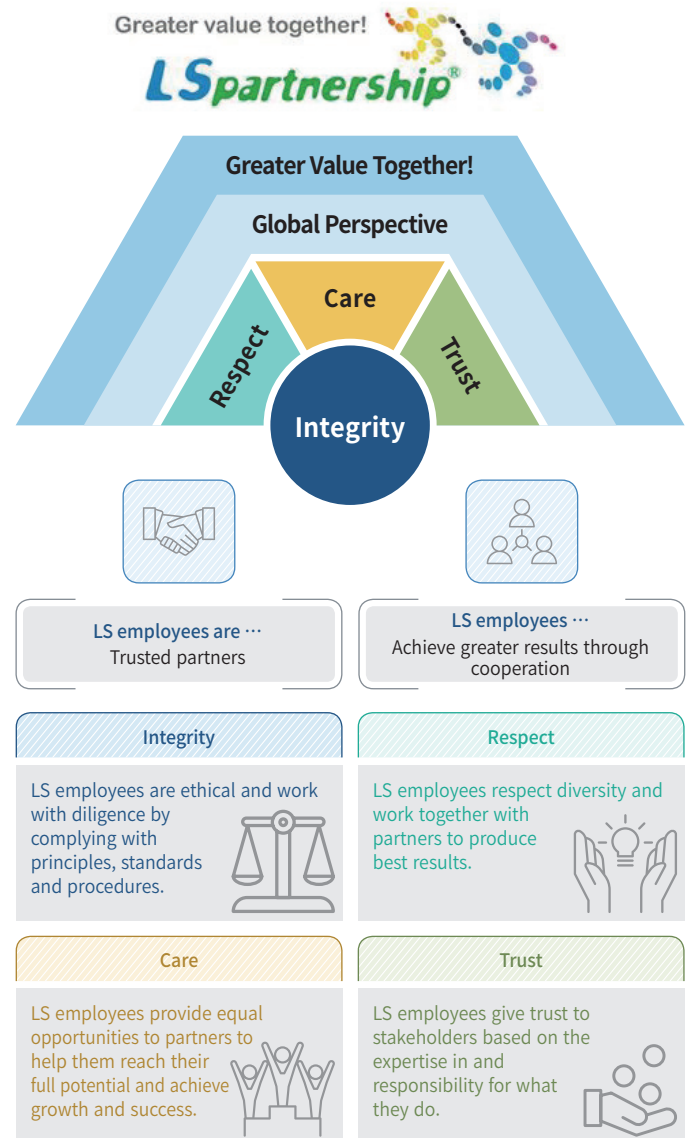
Management policy in 2018



Corporate philosophy - LSpartnership

The importance of cooperation and communication is greater today than ever in the past. In order to become more competitive amid growing uncertainty and sluggish economic growth, all LS Group affiliates are sharing and practicing the corporate philosophy of Greater Value Together.

LSpartnership means employees armed with a sense of ownership achieve superior performance through mutual respect, care, and trust. They cooperate based on open-mindedness and grow together with our stakeholders. LSpartnership was created with the participation of all members of LS Group and provides the philosophy upon which employees should act. It serves as a driving force that will bring about a new future. By practicing LSpartnership, we will create greater value with our stakeholders at home and abroad.

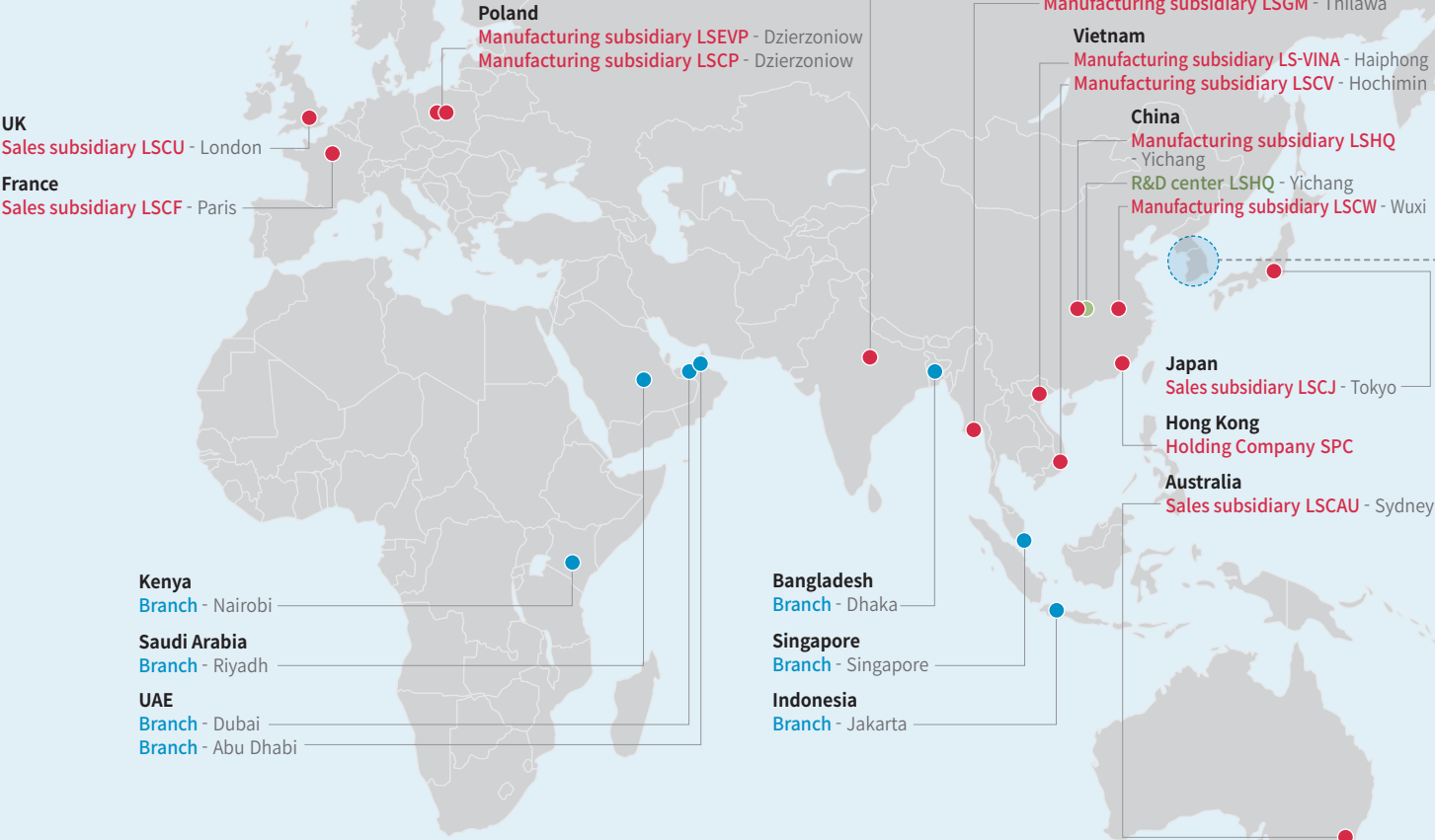


Global Business

We operate **16** plants, **32** sales and marketing branches/subsidiaries, and **4** R&D centers in **17** countries.

*as of the end of April 2018

● LS C&S ● Subsidiary ● Branch ● R&D center



Key overseas manufacturing subsidiaries

LSCW

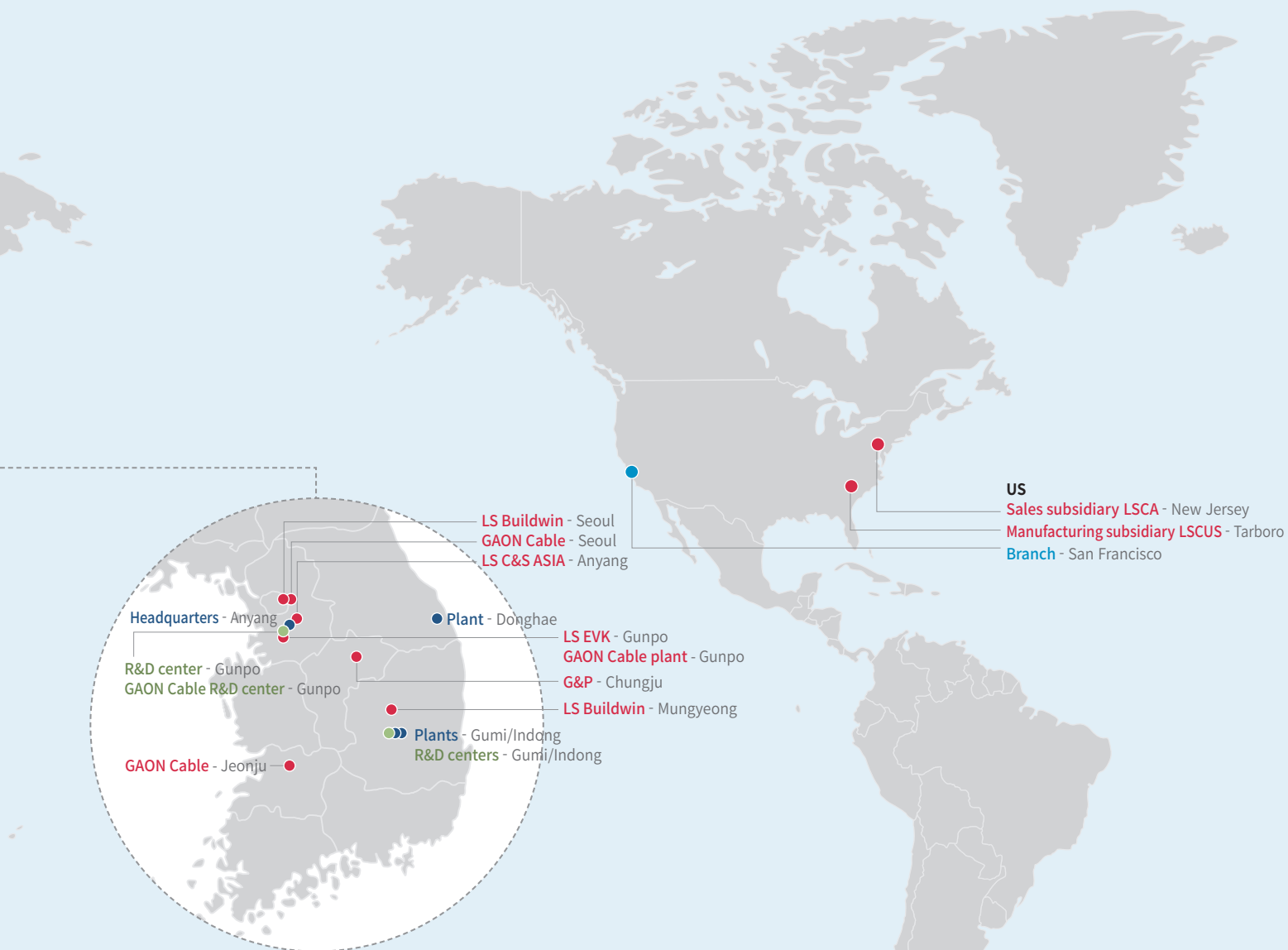


Location	Wuxi, China
Date of establishment	2003
Building area	34,415m ²
Employees	342
Primary products	Industrial cables; automobile cables; tubes, H&M (harness & module); and AL PFC
Annual capacity	1,680 km of industrial cables; 591,720 units of H&M; 1,920 tons of AL PFC; and 54,000 sets of BD

LSHQ



Location	Yichang, China
Date of establishment	2009
Building area	141,587m ²
Employees	438
Primary products	HV/EHV cables; power distribution cables; overhead transmission lines; industrial/specialty cables; and submarine cables
Annual capacity	588km of HV/EHV cables 3,276km of power distribution cables



LS-VINA



Location	Haiphong, Vietnam
Date of establishment	1996
Building area	29,337m ²
Employees	470
Primary products	HV/EHV cables; power distribution cables; and Cu-Rod
Annual capacity	63,000km of power cables 30,000 tons of Cu-Rod

LSCV



Location	Hochimin, Vietnam
Date of establishment	2006
Building area	102,494m ²
Employees	403
Primary products	Communications cables (UTP/Fiber optical cables); distribution cables (MV/LV); and busduct
Annual capacity	1,260,000 Boxes of UTP; 9,600 tons of LV; 3,000 tons of MV; 36,000km of fiber optical cables; and 50,000 sets of busduct

LSCI



Location	Gurgaon/Bawal, India
Date of establishment	2007
Building area	29,000m ²
Employees	138
Primary products	Communication cables (coaxial/FTTA); HV/EHV cables; and OPGW
Annual capacity	9,600km of communications cables 300km of power cables

Key Achievements

We would like to share our achievements in 2017 in product development, new contracts, and investment with LS C&S stakeholders. Based on the results, we will continue our efforts to become a top-tier player in the industry as a total cable solution provider.

July 2017

Won a USD 204 million HV/EHV cable contract from Kahramaa



LS C&S signed a USD 204 million HV/EHV cable contract with Kahramaa (Qatar General Electricity and Water Corporation), the largest underground cable contract we have ever signed in the Middle East. Cables from 132kV to 220kV and 440kV will be provided, accounting for 70% of total cable demand for this project.



July 2017

Signing of first submarine cable contract for Southeast Asia



LS C&S became the first Korean company to export submarine cables to Southeast Asia by winning a project worth USD 58 million with SP PowerAssest Ltd. Cables will be used to connect the 1.5 km gap between Woodland, a northern area of Singapore, and the southern Malaysian city of Johor Bahru.



August 2017

LSCV supplies optical cables to Myanmar



LSCV signed a USD 4 million contract to supply optical cables to Mytel, the number one telecommunications provider in Myanmar. Before the end of the year, 5,000 km of optical cable will be supplied. These are high value-added products with an outer sheath made of FRP to protect the interior.



October 2017

Won the first loan project approved by the AIIB



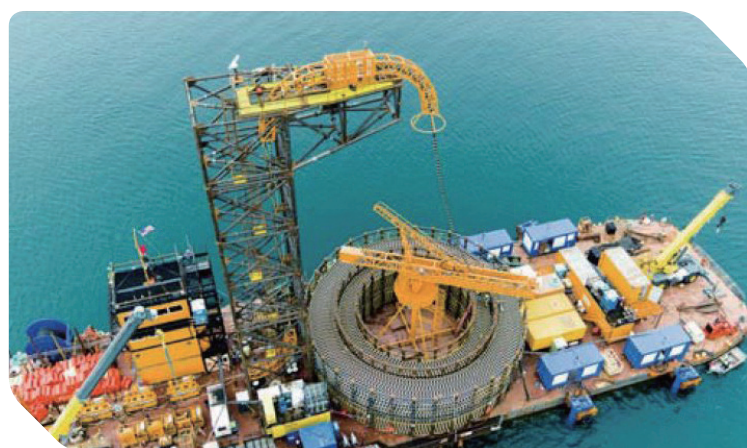
LS C&S won its first AIIB (Asian Infrastructure Investment Bank) loan project, a contract for power cable supply worth USD 46 million for the first time. Despite aggressive efforts from low-priced competitors from China, our technological strength was evaluated highly during the bidding process.

October 2017

Supplied submarine cables to the first offshore wind farm in the US



LS C&S supplied submarine cables to the Block Island Wind Farm off the coast of Rhode Island in the US. This project was selected as a top project by ENR, a weekly US magazine for the construction industry and by the American Wind Energy Association.



November 2017

Establishment of LS EV Poland and launch of LS EV Korea



On November 2, 2017, LS EV Poland, a subsidiary for manufacturing automobile battery parts, was established in Dzierżoniów in southwestern Poland. Following a quality stabilization period in 2018, it will start production in 2019. Meanwhile, the inauguration ceremony for LS EV Korea, a subsidiary focusing on EV battery components, was held on November 15.

Achievements in the LS C&S Way

In 2017, in order to build an organizational culture where employees take the initiative and concentrate on their works to produce results, we clarified our targets and changed the ways we work. Based on our achievements, we will continue our efforts to become a top-tier company in the cable industry as a total cable solution provider.

Promoting the LS C&S Way and specifying the targets

To achieve the goals for 2020, activities to set a vision were conducted by each Group/Division. Facilitators for each Group/Division organized workshops to set their goals and establish related mid-term strategies.

The heads of Groups and Core Communicators of each Group/Division led “melt-in” activities with the participation of all members in order to inspire the positive energy needed to achieve the targets.



Workshops for promoting trust among team members

Team-base workshops were conducted to help team members identify issues, discuss measures for resolution and promote mutual understanding to achieve targets. In 2017, workshops were held for 20 teams selected based on the recommendation of the Business Group heads. They received a highly positive response from participants and served as an opportunity for them to strengthen cooperation and develop teamwork.



Improvement activities for the ways we work

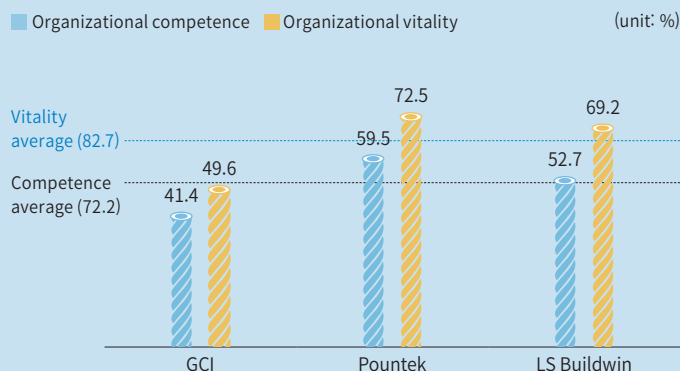
A diagnosis was conducted on the five ways we work, and the results showed that certain improvement activities were urgently needed. Rather than simply reducing working hours, these activities should be designed to help employees concentrate on their work so that performance is maximized and employees can be allowed more free time to pursue work-life balance. Since the commitment and role of a leader is critical to improvement, Core Communicators collected opinions on what members expect from their Business Group and Division heads. The opinions collected were reviewed by the leaders. To encourage them to keep their promises, a list of consensus items was put on the wall of their offices under the title of “Leaders, Promise Us the Following”. In addition, improvement activities were grouped into five categories, including meetings, reporting and approval, documentation, work direction, and teamwork, and we started work to improve meeting-related issues. 1, 2, 3 Meeting Principles were established to reduce the frequency and duration of meetings. In 2018, we will improve additional categories.



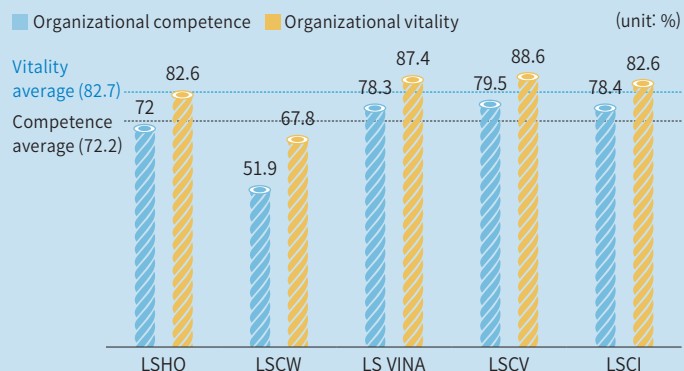
Corporate culture promotion activities and organizational diagnosis for subsidiaries

As our subsidiaries increasingly play an important role in our business, the vision and core values of LS C&S were promoted so that we are all moving in the same direction and creating greater value together. In addition, an organizational diagnosis was conducted to provide support activities tailored to the characteristics of each subsidiary. Our efforts to promote the corporate culture and understand our subsidiaries will continue to help them elevate their organizational competence and vitality.

Domestic subsidiaries



Overseas subsidiaries



Other programs for organizational vitality

Following the previous year's activities, "Core-up" activities was conducted and led by the Core Communicators of each Business Group according to its particular needs. Programs were provided at the LS Group level with the aim of strengthening employee loyalty, such as Family Happiness Camp, Dream Camp (for children), and Go Camp (for adolescents). In 2017, Camp for Married Couples and Camp with Daddies were newly launched. At these activities, 102 LS C&S employees and their families joined in and gained a chance to come to further understand each other and strengthen their family bonds.

In addition, to enhance organizational vitality, model employees took part in overseas training programs with the Chairman. Core Communicators that play a leading role in Business Group-based activities for corporate culture traveled with the Chairman to Hokkaido, Japan for four days. Overseas training for organizational vitality has been provided since 2014. In 2017, a total of 82 employees participated in international exhibitions and conferences held in 14 countries in Europe, North and South America, and Asia.



Corporate Governance

Promoting management efficiency and transparency

Auditor

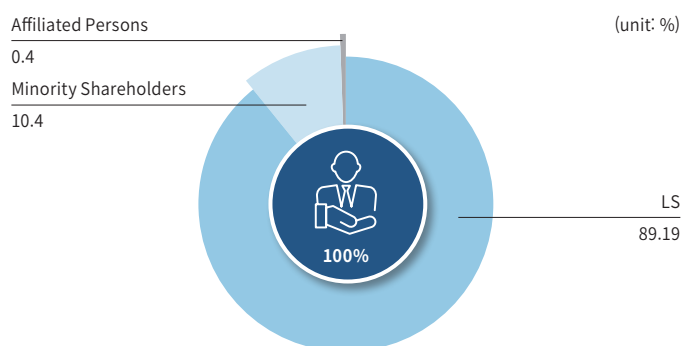
We have one auditor in compliance with the related laws and articles of association in order to secure management transparency and legality. In the general meeting of shareholders, auditor is selected and appointed among those who have no reason for disqualification under the commercial law. To inspect and verify internal accounting and affairs, the auditor investigates overall financial status or requests accounting managers or subsidiaries to submit their sales reports as needed.

Auditor profile

Auditor profile details and other information are specified in the published sales and business reports.

Enhancing shareholder value

Shareholder composition (as of the end of 2017)



Dividends

Dividends are paid by the resolution of the board of directors and the general meeting of shareholders. In 2017, USD 8.8 million worth of cash dividends were paid, and the company's cash payout ratio based on consolidated financial statements stood at 19%.

	2015	2016	2017
Cash dividends total (USD million)	8.7	8.7	8.7
(Consolidated) cash payout ratio (%)	85.9	133.4	19.0

Board of directors (BOD)

Composition

Directors are appointed at the general meeting of stakeholders. They are selected based on their insight of the company and society. As of the end of 2017, the BOD features four internal directors with the chairman serving as its chairperson.

BOD status

On October 27, 2017, CFO Lee Sang-Ho was appointed as a new Director.
(as of the end of 2017)

Name	Appointed as	Recommended by	Responsibility	Transaction with the company	Relations with the largest and major shareholders
Koo Cha-Yub	Internal director (full-time)	BOD	Chairman	-	Executive of LS Group, the largest shareholder
Myung Roe-Hyun	Internal director (full-time)	BOD	President	-	Executive of the affiliate of LS Group
Ju Wan-Seob	Internal director (full-time)	BOD	CSO	-	Executive of the affiliate of LS Group
Lee Sang-Ho	Internal director (full-time)	BOD	CFO	-	Executive of the affiliate of LS Group

Operation

The Board Meetings are held on a regular basis according to the pre-established annual plan. Special meetings are convened for prompt decision-making on major agenda items. In 2017, 20 board meetings were held in which a total of 47 items were resolved, including the acquisition of the power business of SPSX and the sale of LSCW stocks.

Evaluation and compensation

Executives are evaluated in accordance with performance indicators linked to the company's business goals and evaluation criteria for financial and non-financial performance. Remuneration is determined based on quarterly and annual evaluation results. In regard to remuneration of the directors and auditor, incentives are provided according to the evaluation results within the amount approved by the general shareholders' meeting. In October 2017, the remuneration limit at USD 6.6 million was approved in the meeting.

(unit: USD thousand)

Responsibility	Person	Total remuneration	Average per person	Note
Registered director	5	4,097	821	-
Auditor	2	47	28	-
Total	7	4,144	588	-

* The above is the remuneration for the year 2017. The average remuneration per capita is based on the calculation of the total amount of remuneration divided by the number of people.

* In the calculation, the remuneration for Director Yoon Jae-In and Auditor Koo Ja-Youn, who retired during the period from the start of the business year to working on the documents for disclosure, was included.

Director profile

Director profile details and other information are specified in the published sales and business reports.

Risk Management

As an ever-wider variety of business is being conducted in countries around the world and the market rapidly evolves, unpredictable risks impacting business performance are on the rise. In response, we define key risks and pertinent management procedures. By preemptively managing risks, we aim to maintain management stability and soundness, promote corporate value, and create a friendly relationship with stakeholders, ensuring our foundation for sustainable growth.

Risk management system

Risk Management Committee

The company-wide Risk Management Committee, that is led by the President as the chairperson and the head of the Strategy and Planning Division as the Chief Risk Officer (CRO), reviews the risk status and makes a decision on response measures. Meanwhile, project bidding cases are deliberated on in the Bidding Review Committee; the Copper Futures Committee for copper management; and the Working-level Investment Review Meeting and Investment Risk Review Committee for major investments.

Risk Management Committee meetings

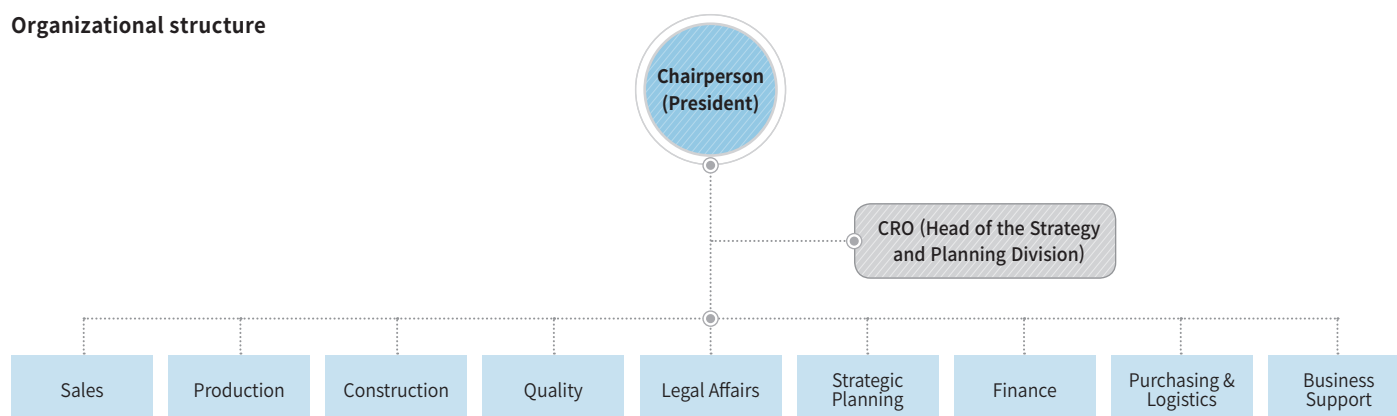
Meetings are held to establish response measures on a quarterly basis. If necessary, special committee meetings are convened for which the monitoring team is required to immediately provide the general management team with the report on the risk and its impact on the business.

Risk management organizations

Our risk management activities are conducted by three groups: an execution team, monitoring team, and general management team. The execution team implements action plans and takes response measures when risks occur. The monitoring team examines risks for prevention. When abnormal signals are detected, the team reports them to the general management team. The general management team establishes a risk management plan, oversees its status, and operates the company-wide risk management committee.



Organizational structure



Risk management activities by type

Disaster risk

To prevent disasters and occupational accidents and minimize the damage when they do occur, we are conducting management activities including response policy formulation, inspection and diagnosis, and implementation of improvement measures. For accident prevention at plants and construction sites, safety inspections are carried out on a regular basis. At the same time, we have established a management system and are maintaining a dedicated organization to prevent and respond to emergency situations to prevent unexpected accidents such as earthquakes and fires from negatively impacting our efforts to provide value to employees and customers. Even when production is disrupted by a disaster, we are still able to supply products from our overseas subsidiaries through cross-selling. In order to ensure that our subsidiaries provide comparable products, we operate an integrated Control Tower to support and manage the R&D, quality, and production technologies at our subsidiaries in a comprehensive manner. The Control Tower includes technology management, quality management, and equipment management teams.

Disaster risk categories

Category	Item	Impact	Affected sector
Disaster risk	Natural disaster	Natural disasters such as typhoon, floods, earthquake, snowstorm, thunderstroke	Suspension of production and sales All
	Accidents	Fires and explosion	Loss due to fire; suspension of production; casualties; and disruption of the process operation Production
		Leakage of chemical substances (toxic materials)	Casualties and tarnished corporate image Production
		Serious accidents (including inhouse suppliers)	Causing victims and disruption of the process operation All
	Others	Wars and coups	Disruption of the process operation All

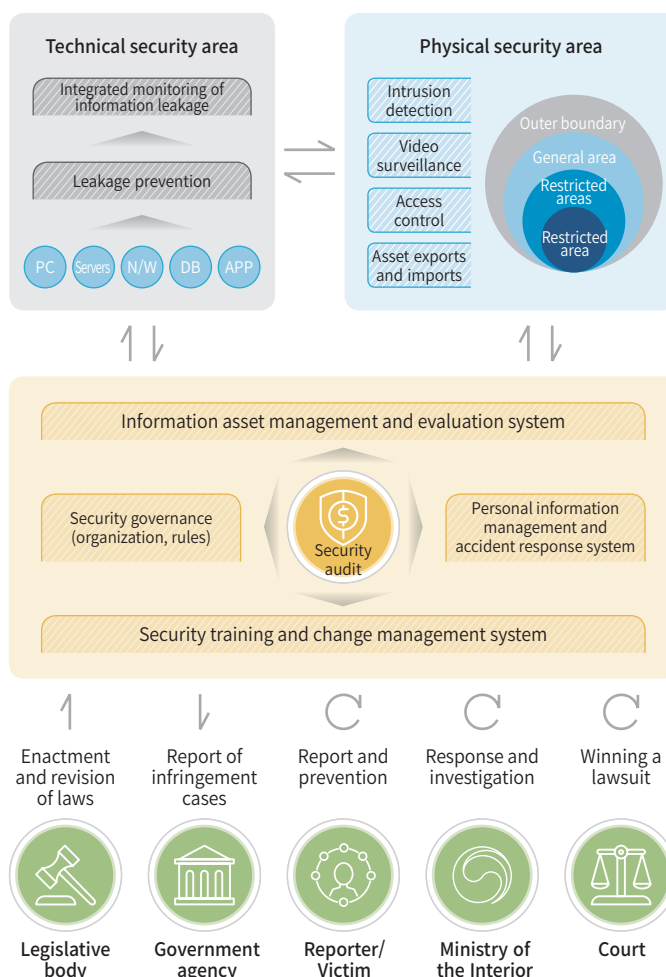
Financial risk

We strictly prohibit currency and derivatives trading for speculative purposes beyond essential risk management. Since price fluctuations in raw materials heavily affect our profit structure, such risks are mitigated through futures trading. In particular, the Copper Futures Committee regularly reviews related risks by sharing information, including copper commodity and futures related issues, operational performance, and market conditions by period. In addition, full foreign currency hedging is conducted for all currencies for overseas projects to minimize exchange rate risks. Meanwhile, for the soundness of the capital structure, financial rates, including the net borrowing rate, are checked on a monthly basis and appropriate measures are taken as necessary.

Operational risk

In order to maintain the stability of the IT system, daily data backup for the entire system is conducted and the backup systems and data are stored in a vault to prepare for disasters or accidents. Measures in place to prevent the leakage of corporate and personal information include document encryption, authentication of external storage media, an approval process for exporting PCs, encryption systems, and firewalls. In regards to production, a response manual has been established for any case of the disruption of equipment operation, and regular equipment inspections are being conducted.

System for personal information and corporate security



Risk management process

Risk Identification

At this phase, potential cases that may affect the company are identified and then defined as opportunities or risks. Responsible teams host meetings to identify risks of each business process from quotation to contract, production and delivery, after-sales service, and bill collection.

Risk Assessment

This is a phase of determining how much impact identified potential risks will have on our efforts to achieve goals. Qualitative or quantitative methods are used in assessing risks. In the qualitative evaluation method, the likelihood of risk occurrence is indicated as high, moderate, and low while the results using a quantitative method is indicated in the form of percentage, frequency, and numerical value (amount).

Risk Response

Risk response is a phase of establishing and implementing appropriate responses to eliminate or reduce identified risks. Risk responses are largely classified into four ways: avoidance, mitigation, sharing, and acceptance.

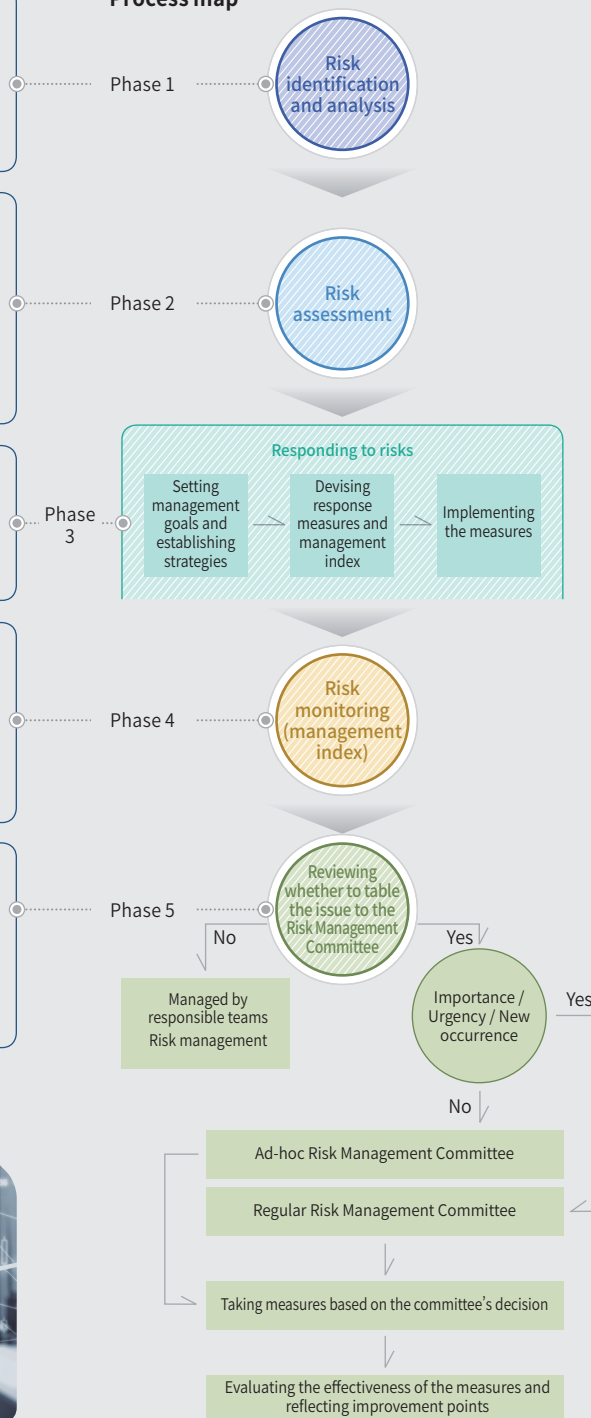
Risk monitoring

Risk monitoring is a phase of conducting a series of activities from review to supervision, observation, and management in order to identify abnormal signs for the defined risks. Monitoring should be implemented considering start date; expected completion date; when to reflect loss; fluctuations in risk amount; and status of response measures.

Risk report and closing

Risks are reported to management through the Risk Management Committee for their closing. Based on the three criteria, importance, urgency, new occurrence, decisions are made on whether pertinent risks are reported to the committee. Once the risk case is closed, results and completion date are documented.

Process map



Challenges and Opportunities

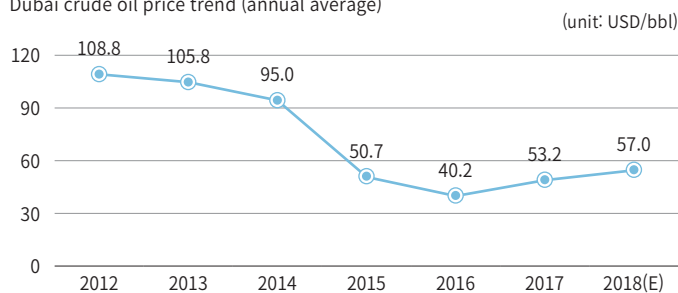
Cable business environment

Increase in raw material prices

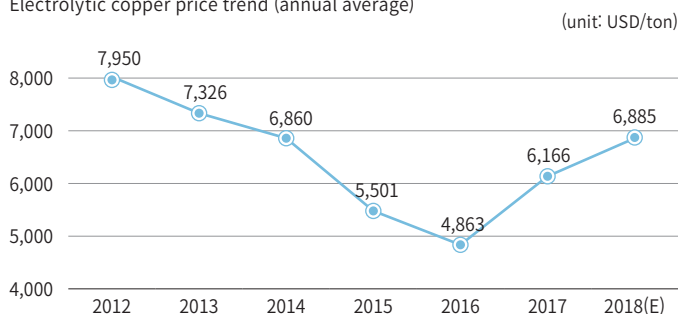
Dubai crude oil, which had started 2017 at USD 50 per barrel, rose sharply in the second half to break the 60-dollar mark. WTI and Brent oil also recorded an approximately 20% year-on-year increase. In 2018, international oil prices are forecast to average 57 dollars per barrel as increased demand for crude oil and a possible OPEC agreement on extending production cutbacks are expected along with the recovery of the global economy. Non-ferrous metal prices have been rising since their rebound in early 2016 due to solid growth in major economies, including China, and a moderate upward trend is expected to continue in 2018.

Copper prices are managed by linking purchasing and sales prices, and inventory is controlled through continuous forecasting and monitoring. In order to minimize price volatility risks, derivative transactions are conducted.

Dubai crude oil price trend (annual average)



Electrolytic copper price trend (annual average)



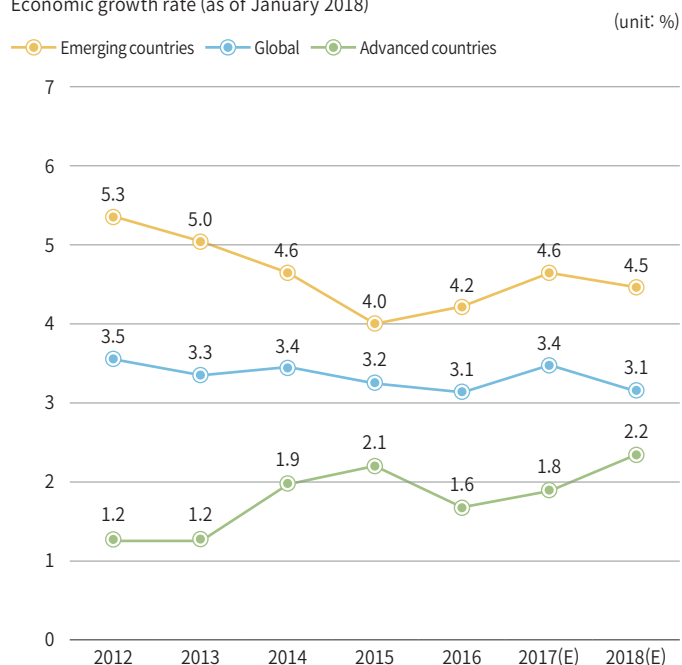
*Source and reference: Korea Institute for Industrial Economics and trade, Samsung Futures, and Public Procurement Service of Korea

Continued low-growth trend in the global market

In 2018, the global economy is expected to continue to grow at the 3% level, maintaining its upward trend, but potential risks threatening the recovery are also likely to be present. The economic outlook for advanced economies, including the US, is favorable, driven by the restoration of domestic consumption. Meanwhile, benefitting from economic recovery in advanced economies, China and other emerging economies that make up a major proportion of demand for the cable industry are expected to increase public spending on infrastructure. However, a slowdown in economic growth is expected due to the block economy led by the Middle East and some Asian markets, as well as to the resurgence of protectionism worldwide.

The cable industry is currently exposed to a difficult business environment featuring both reduced profitability and demand in a sluggish global economy. However, we were able to expand our global presence and achieve targets through the establishment of subsidiaries in France, Myanmar, and Poland (H&M). We will continue making our utmost efforts to swiftly and efficiently respond to rapidly shifting market conditions.

Economic growth rate (as of January 2018)



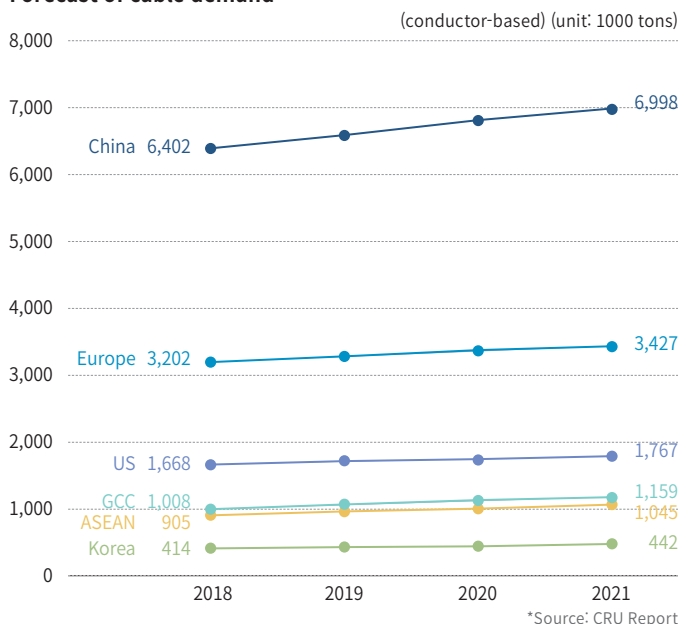
*Source and reference: Korea Institute for International Economic Policy, IMF, and World Bank

Global Cable Market Demand

The global cable market is expected to grow to reach a demand of 20.1 million tons of conductors by 2020. In the Americas and Europe in 2018, demand is expected to rise with the needs for power connection between countries and transmission efficiency. Demand for grids ensuring a stable power supply and high-speed communication networks has steadily increased apace with urbanization in ASEAN countries, India, and Bangladesh. As for China, expanded investment led by the government is expected to heighten demand.

As a result of aggressive approaches to entering overseas markets, we were able to win large-scale projects in Bangladesh, Qatar, and Singapore, increasing our regional market presence. In addition, our Chinese subsidiary won a bid for a project from the Ministry of Electricity and Water of Kuwait based on its cost-competitiveness and technological prowess. We will focus on submarine, HV/EVH, and optical cables in the US and Europe to increase our related market share.

Forecast of cable demand



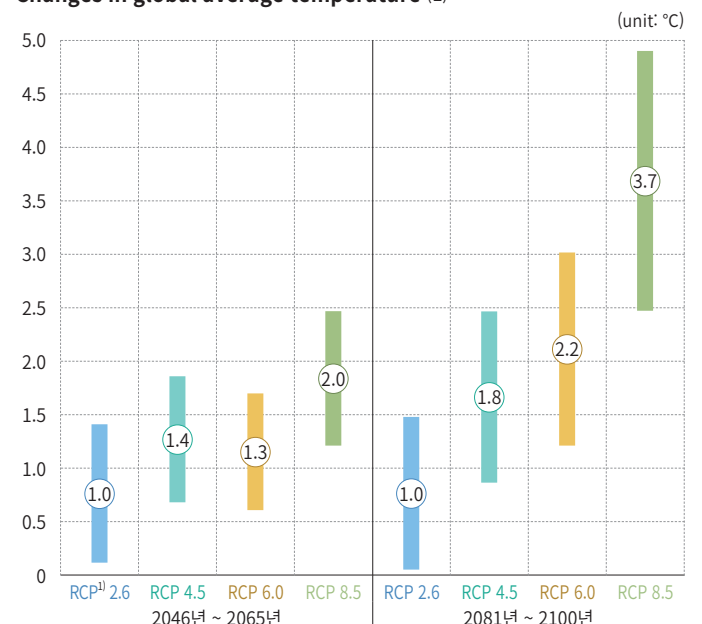
Mega Trends

Changes in global average temperature

According to the fifth report of the IPCC (Intergovernmental Panel on Climate Change), the average global temperature rose by 0.85°C over the 133 years from 1889 to 2012. Considering that the Earth's temperature has never changed by more than 1 °C during the past 10,000 years, this finding indicates that the speed of increase is faster than ever. It is predicted that if this trend continues, the average temperature will rise by 3.7°C by the end of the 21st century.

The signing of the Paris Agreement brought all nations into a common cause to pursue ambitious efforts to combat climate change. A paradigm shift towards a low-carbon economy is required to meet this goal. In response, we have implemented low-carbon strategies to reduce GHG emissions across the entire business process and are reporting GHG emissions and energy consumption to fulfill our legal obligations and share information with stakeholders.

Changes in global average temperature (E)



Sustainable Management System

Sustainable management

Strategy

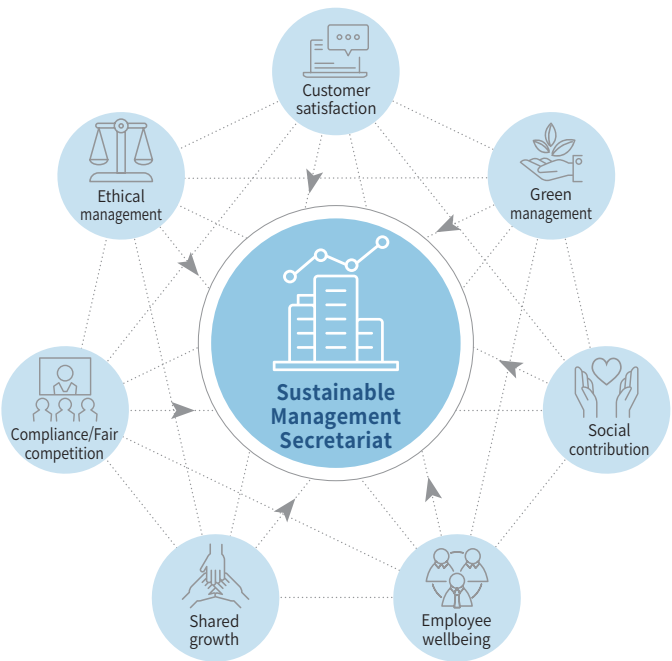
We aim to become a sustainable company by raising stakeholder value, going beyond our role of simply manufacturing and providing cable systems to offer the best possible value to customers. To this end, in 2010 we established the mid-to-long term strategy and roadmap to implement sustainable management, focusing on 7 key topics, including customer satisfaction, green management, social contribution, employee wellbeing, shared growth, compliance and fair competition, and ethical management.

Roadmap for Implementation

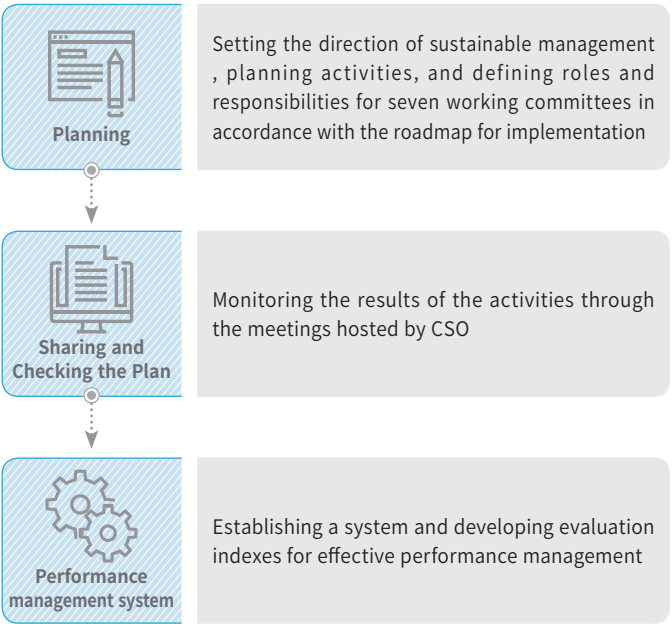
	PHASE 01 Foundation building (2010~2014)	PHASE 02 Internalization and promotion (2015~2018)	PHASE 03 Integration and Differentiation (2019~)
Policy	<ul style="list-style-type: none">Establishing and implementing a system for CSR strategies; and expanding governance	<ul style="list-style-type: none">System operation, management and monitoringEnhancing competence to implement CSR strategies	<ul style="list-style-type: none">Implementing global CSR strategies
Strategic Task	<ul style="list-style-type: none">Establishing an organizational foundation for sustainable management at an enterprise level: Setting up a consultative body; and defining R&R for missions/key tasks of seven working committeesBuilding a system to respond to ISO26000	<ul style="list-style-type: none">Strengthening the process of plan, implementation, and checkImplementing the strategies at domestic and overseas subsidiaries	<ul style="list-style-type: none">Integrating sustainability and management strategiesDeveloping CSR strategies by location worldwide

Organization

The Sustainable Management Secretariat is in overall charge of this and its seven working committees are implementing mid- and long-term strategies and carrying out tasks for each phase. Key issues and achievements are reported to the executive meeting, where decisions are made on implementation measures to effectively respond to stakeholder needs.



Direction



Sharing value with stakeholders (consolidated)

Customer

We pay a close attention to changing market and customer needs and strive to provide unique value through our products and services. In 2017, sales generated by customers amounted to USD 3,312 million.

Communication channels: CRM system / Corporate disclosure system / Seminars for customers



Shareholder and investor



Our management direction and business performance are disclosed through public announcement, general meetings of shareholders, business reports, and company website. We make our utmost efforts to strengthen competitiveness and pursue quality growth in order to share value with our shareholders and investors. In 2017, USD 12 million was distributed to shareholders in the form of dividends, and USD 38 million to investors in the form of interest.

Communication channels: Corporate IR activities / Business reports / BOD Meetings / General shareholders' meetings / Management information disclosure system

Supplier

Cooperation with domestic and overseas suppliers that provide raw and other materials is a starting point to strengthen our competitiveness. In 2017, USD 2,032 million (Separate) was paid to suppliers for raw materials, energy, water, and repair and other services.

Communication channels: Supplier satisfaction survey / Open discussion meetings / Shared Growth Council



Local Communities



Based on a perception that local communities are the supporting base of a company, we provide educational support and participate in sharing activities to promote the public good and prosperity of local communities. A variety of activities are conducted in four domestic production sites in Anyang, Gumi, Indong, and Donghae, and overseas subsidiaries. In 2017, we donated USD 532 thousand to local communities.

Communication channels: Social contribution activities / Open discussion with local Communities / Cooperation between academia and businesses

Government

We are making every effort to fulfill our social responsibility as a corporate citizen by meeting obligations of paying taxes in good faith. The government establishes laws and systems to ensure companies stably conduct business activities. In this regard, the government and businesses are in a complementary relationship. In 2017, we paid USD 42 million worth of taxes and utility bills.



Employee



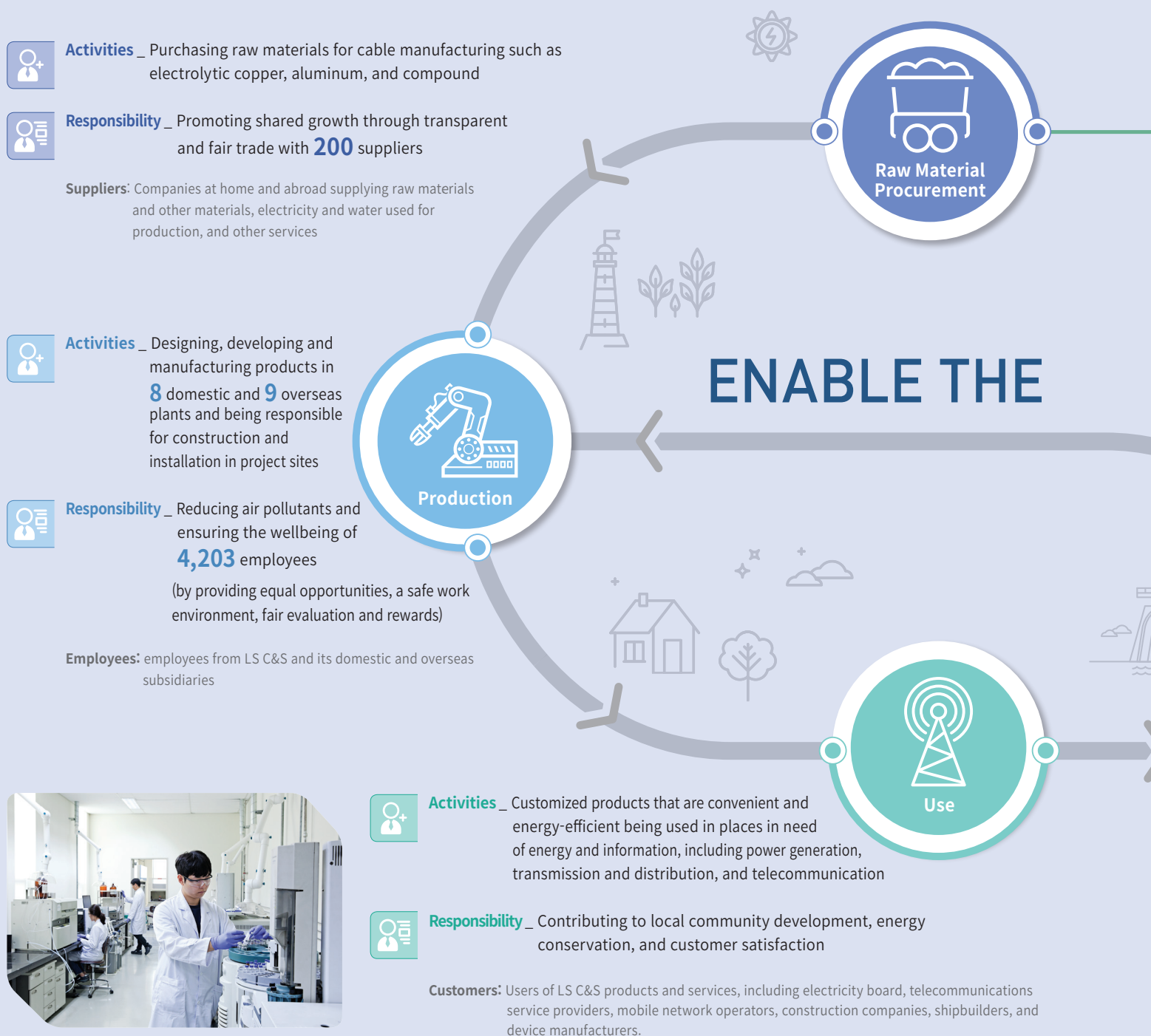
Our employees are given equal opportunities according to their abilities, and their performance evaluation and promotion are conducted in a fair manner. A variety of training programs are provided to all employees to strengthen their competitiveness. Our 1,922 employees are dedicating themselves to making top quality products. In 2017, USD 168 million was distributed to them for wages, employee benefits, and training (Separate).

Communication channels: Monthly morning assembly / Intranet / Diagnosis of organizational competence and culture / Hotline

Sustainable Management System

Activities and responsibilities to promote stakeholder value

In order to promote stakeholder value, we strive to maximize strength and minimize weakness by closely analyzing the impact of corporate activities and products on the society and stakeholders in the whole process from material procurement to production, use, disposal and recycling. We listen to the voices of our stakeholders and reflect them in doing our business. In addition, to benefit both LS C&S and its stakeholders, created values are distributed fairly.





CABLED WORLD



Activities _ Implementing ethical management and conducting regional and global sharing activities



Responsibility _ Contributing to the development of local communities by establishing energy infrastructure and promoting public good through social contribution activities

Government: The government and public agencies that provide legal standards and systems to ensure companies do business in a stable manner

Local communities: Regions where our domestic worksites in Anyang, Gumi, Indong, and Donghae and nine overseas manufacturing subsidiaries are located and large-scale projects are operated



Reinvestment



Activities _ Creating businesses for the future through capital and R&D investment



Responsibility _ Enhancing shareholder value by creating profits; and R&D investment worth USD **100** million*

Shareholders and investors: They are individual and institutional investors who hold stocks and bonds issued by LS holdings Co. Ltd. who make an investment for capital investment, R&D, and business operation.

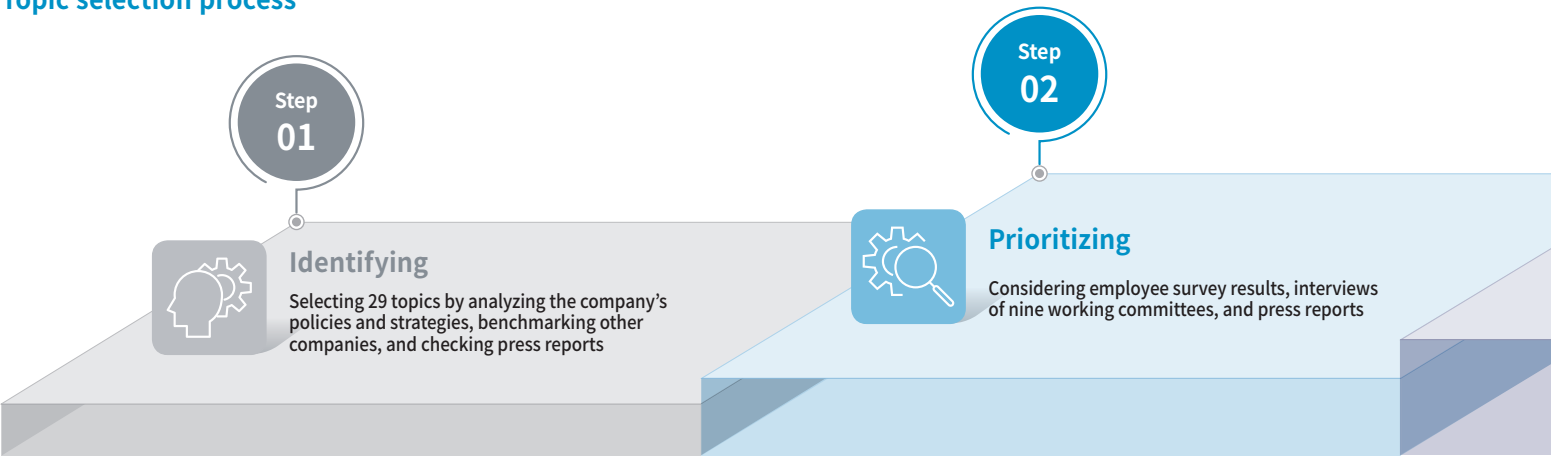
* R&D and capital investment for LS C&S and its subsidiaries

Materiality Assessment

2017-2018 Key topics

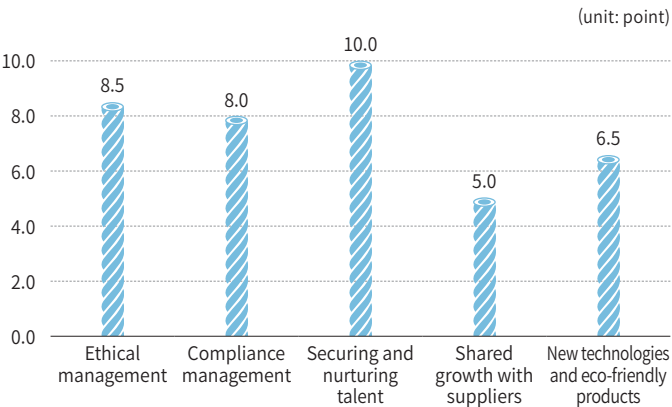
We conduct a materiality assessment on an annual basis to identify topics of greatest importance impacting our businesses and stakeholders at home and abroad. Assessment results are reflected in the next year’s sustainability plan and report. Ten topics identified as highest priority are covered for our 2017-2018 activities in this report, and we have managed related issues in cooperation with working committees.

Topic selection process



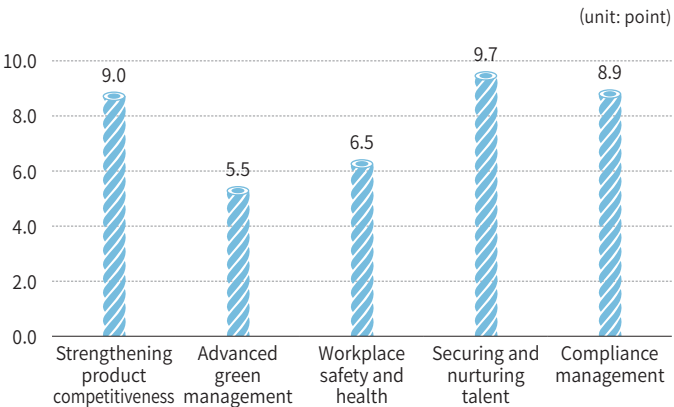
Shareholder interest

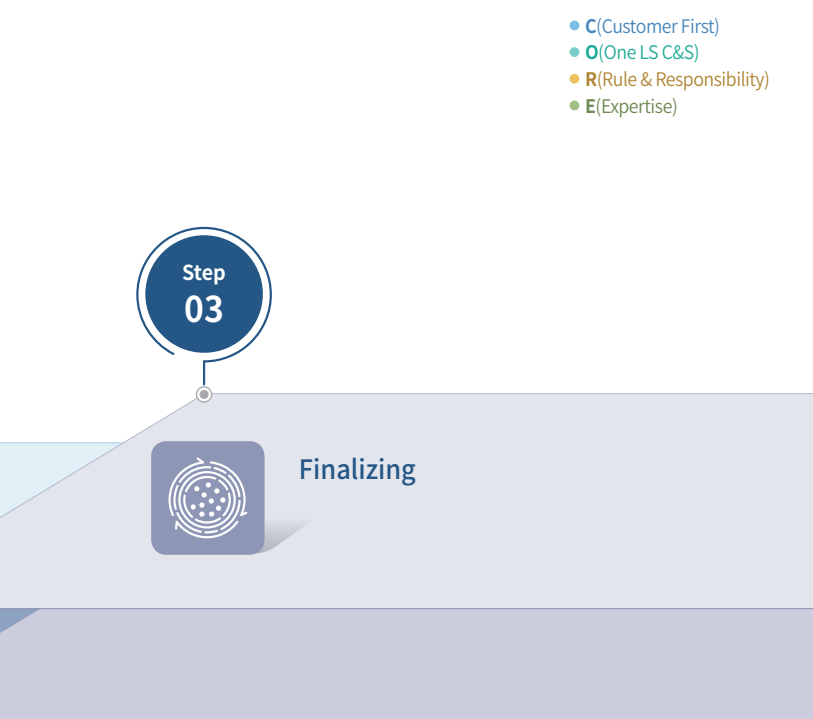
The topics have been identified based on company policy items considering the agendas discussed at the company-wide meeting, pending issues, and the management index, as well as on interviews with working committees and sales teams. For company policy items, securing talent and achieving financial performance were considered most important, while higher priority was given to topics including green management, respect for human rights and diversity, the environment, and safety in the interviews.



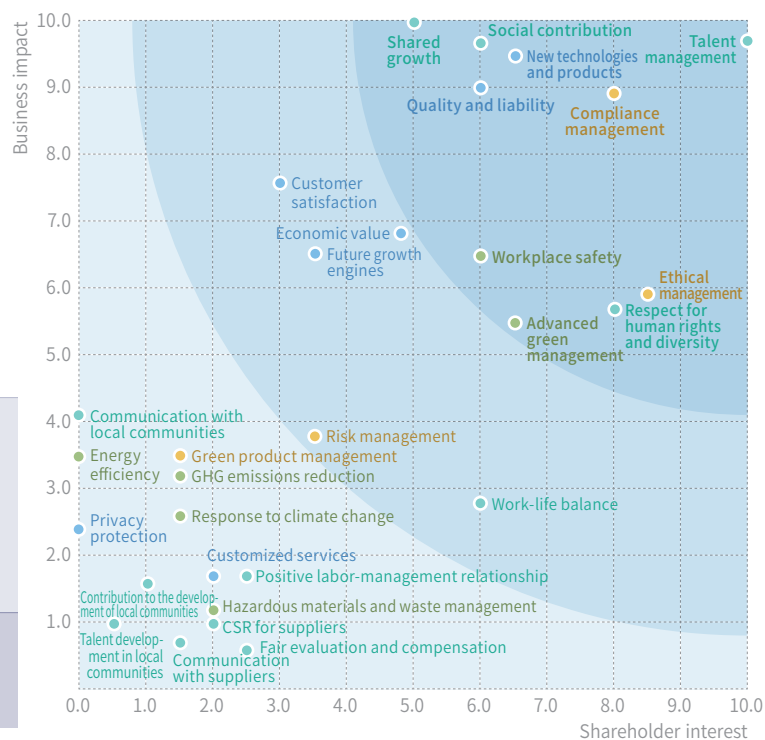
Business impact

We analyzed and benchmarked the material assessment results of domestic and international companies in the areas of cables, electricity, and electronics. In addition, press report items were scored based on their frequency of being reported in Korea in major newspapers, broadcast news, the internet, and business magazines. The analysis indicates that other companies paid close attention to topics such as shared growth with suppliers, green management, and safety and health. Meanwhile the domestic press placed greater importance on securing talent and achieving financial performance.





- C(Customer First)
- O(One LS C&S)
- R(Rule & Responsibility)
- E(Expertise)



A total of 10 out of the 29 topics identified through the material assessment have been selected as key issues. As last year's topic of Jeong-do management has increased in importance (Jeong-do management means companies recognize not only economic and legal but also ethical responsibilities as their obligation, and should abide by laws and principles when doing business), the subject was divided into compliance and

ethical management, which are key to our business activities in order to achieve the goal of becoming a global leader in the cable industry. In addition, as we pursue our target of honing quality competitiveness and enhancing stakeholder value while achieving shared growth with suppliers, quality competitiveness and share growth were selected as key topics.

	Key topics	Reporting scope							Page
		Customer	Shareholder	Government	Supplier	Local Community	Employee	Future generation	
C Customer First	Topic 1 New technologies and products	●	●	●		●		●	36
	Topic 2 Quality and product responsibility	●	●		●		●		46
O One LS C&S	Topic 3 Social contribution			●		●		●	52
	Topic 4 Shared growth		●	●	●				57
	Topic 5 Respect for human rights and diversity			●			●	●	64
R Rule & Responsibility	Topic 6 Compliance management	●	●	●	●		●	●	68
	Topic 7 Ethical management	●	●	●	●		●	●	71
	Topic 8 Workplace safety	●	●	●	●	●	●		74
E Expertise	Topic 9 Talent management		●				●	●	79
	Topic 10 Advanced green management		●	●		●		●	84

**Customer
First**

Ten Key Topics on C.O.R.E

SPECIAL

**One
LS C&S**



1



Rule &
Responsibility



0

THEME

Expertise

2017 Performance and 2018 Targets

C.O.R.E. represents four principles on which our employees should act. Just like a cable has a core at its center, our C.O.R.E. values should stand at the center of the minds of all our employees.

		Strategic direction	Key tasks
C	Customer First	 Topic 1 New Technologies and Products	<ul style="list-style-type: none"> Producing result by focusing on strengthening technological competitiveness in key fields Promoting customer value with differentiated products
		 Topic 2 Quality and Product Responsibility	<ul style="list-style-type: none"> Satisfying the needs of global customers Conducting a customer satisfaction survey Running a Quality School
O	One LS C&S	 Topic 3 Social Contribution	<ul style="list-style-type: none"> Donation of talent Local community support Global sharing activities
		 Topic 4 Shared Growth	<ul style="list-style-type: none"> Establishing a system to achieve shared growth in a sustainable manner System for fair trade Systems for suppliers Systems for win-win cooperation
		 Topic 5 Respect for Human Rights and Diversity	<ul style="list-style-type: none"> Respecting the human rights and diversity of our employees and pursuing global standards Respect for employee rights Labor-management relationship for shared growth Respect for diversity
R	Rule & Responsibility	 Topic 6 Compliance Management	<ul style="list-style-type: none"> Promoting employee awareness that 'no sustainability is achieved without legal compliance', and expanding activities to prevent and minimize risks Strengthening compliance training CP activities for personal information protection Legal advice
		 Topic 7 Ethical Management	<ul style="list-style-type: none"> Conducting activities for ethical management to raise employee awareness and encourage them to put into practice Strengthening the foundation for ethical management Conducting activities for ethical management Monitoring ethical risks
		 Topic 8 Workplace Safety	<ul style="list-style-type: none"> Ensuring a healthy workplace and achieving the goal of zero-accidents by strengthening safety activities Strengthening voluntary safety and health activities Creating a healthy workplace Activities for safety and health management
E	Expertise	 Topic 9 Talent Management	<ul style="list-style-type: none"> Supporting employees with a sense of ownership in their jobs to make a great achievement together Improving employee satisfaction Securing talent and fair HR management Employ welfare benefits Nurturing talent
		 Topic 10 Advanced Green Management	<ul style="list-style-type: none"> Strengthening environmental management for zero accidents and pleasant work environment and contributing to a green society by reducing greenhouse gas emissions Operation of an environment management system Efficient use of resources Use of green materials Response to climate change Emissions and waste discharge management

Performance in 2017	Targets in 2018	Page
<ul style="list-style-type: none"> Strengthened competitiveness in HV/EHV and submarine cable fields Developed products to bring greater value to customers Developed new businesses and secured future growth engines through open innovation 	<ul style="list-style-type: none"> Expand the scope of products and businesses to prepare for the future Establish a manufacturing and management system based on digital transformation Develop key strategic product groups targeting global markets 	36
<ul style="list-style-type: none"> Satisfied the needs of global customers: 98 cases Resolved CTQ issues and secured evaluation technology: 99 cases Secured outsourcing quality based on responsibility 	<ul style="list-style-type: none"> Satisfying the needs of global customers: Implement a QMS IT system (inspection/evaluation/change/test) CTQ: Conduct activities to address chronic defect issues and implement a QC Patrol function by product Outsourcing quality: Conduct steady 'level-up' activities for suppliers 	46
<ul style="list-style-type: none"> Conducted electrical safety checks in traditional markets Operated on-site training programs for industry-academia cooperation Provided the LS Dream Science Class program Ran the LS overseas volunteer group program Conducted sharing activities by employees 	<ul style="list-style-type: none"> Expand the scope of electrical safety checks in traditional markets Conduct national projects through industry-academia cooperation, and provide on-site training programs for college students Upgrade the LS Dream Science Class to increase the satisfaction of participants Promote the participation of employees at plants in supporting their local communities Operate the LS overseas volunteer group program 	52
<ul style="list-style-type: none"> Provided USD 933 thousand of direct loan support to suppliers Supported suppliers through the overseas sales support program Offered free training programs to strengthen job competency of suppliers (200 employees from 9 suppliers) Supported key suppliers through the AVL program 	<ul style="list-style-type: none"> Expand supplier support for increasing their overseas sales and contribute to the local economies of our international locations Introduce the Q.C.D.S. evaluation in the QMS IT system (for transparent supplier selection) Conduct a survey on environmental performance 	57
<ul style="list-style-type: none"> Respected employee rights, and implemented no discrimination policies Prohibited child/forced labor and ensured labor-union activities of employees Supported female employees, and employed the disabled 	<ul style="list-style-type: none"> Encourage employees to take more vacation time (e.g. by using 'sandwich' days or annual 'refresh') Promote measures to support female employees Maintain employment policies for people with disabilities 	64
<ul style="list-style-type: none"> Provided training for agencies, and offered educational programs on fair trade laws for employees Introduced a system to prevent the leakage of personal information Provided upgraded legal services by employing lawyers (75% of the legal affairs team) 	<ul style="list-style-type: none"> Provide compliance training activities under any circumstances Raise employee awareness of crisis prevention activities Provide quick and accurate legal services 	68
<ul style="list-style-type: none"> Handled report cases 100% Posted articles related ethics Provided ethics training Conducted the evaluation of ethics 	<ul style="list-style-type: none"> Awareness raising of our ethical system: Facilitate a counseling center, and promote the Code of Conduct Ethical training and promotion: Diversify training programs, and review promotion measures Reporting system: Promote a reporter protection program and strengthen counseling channels 	71
<ul style="list-style-type: none"> Conducted 28 activities to create a culture of safety Provided intensive management of potentially dangerous equipment (500 machines) Provided intensive management of processes subject to PSM (Process Safety Management) Conducted activities to improve a working environment and health (237 sites) 	<ul style="list-style-type: none"> Achieve the goal of zero-accidents: Safety for pedestrians Conduct activities to create a healthy workplace: Improvement of worksite environments 	74
<ul style="list-style-type: none"> Securing talent and fair HR management: Operated a performance management system, and established the C.O.R.E. Prize Nurturing talent: Launched e-Campus (the Group-wide e-HRD system was officially launched on January 1, 2017), and operated programs for local employees with excellent performance from overseas subsidiaries (five employees from five subsidiaries for three months) 	<ul style="list-style-type: none"> Improve employee satisfaction Secure talent and fair HR management Nurture talent 	79
<ul style="list-style-type: none"> Operation of an environment management system: Implemented optimal facilities to reduce pollutants, and operated their maintenance systems Efficient use of resources: Participated in the basic research project on the recycle status of domestic power and telecommunication cable wastes Use of green materials: Responded to regulations related to harmful materials and collected relevant information Response to climate change: Replaced lights at all our plants with LED to reduce GHG emissions HSE System: Conducted HSE diagnoses for domestic and overseas subsidiaries 	<ul style="list-style-type: none"> Operation of an environment management system: Reduce micropollutant risks Use of green materials: Comply with the Act on the Registration and Evaluation of Chemicals in regards to imported chemical substances Efficient use of resources: Achieve plastic collection and recycling targets and promote the pertinent agreement Response to climate change: Establish GHG inventories for overseas subsidiaries 	84

C.O.R.E. - Customer First

TOPIC

1

New Technologies and Products

We focus on the research and development of: power transmission and distribution systems and construction technologies for the HV/EHV and submarine fields; network solutions for the wire and wireless fields; industrial, automotive, and special cables and cable materials. In addition, we develop long-distance power transmission HV/EHV systems, core automobile parts, and fire-resistant products for next-generation engines.



Strategic direction

Strengthening competitiveness in products and technologies for future growth, and developing differentiated products to enhance customer value



Key tasks

Producing result by focusing on strengthening technological competitiveness in key fields

- Enhancing technologies in HV/EHV systems
- Increasing competitiveness in construction and engineering

Promoting customer value with differentiated products

- Diversifying optical cable armoring
- Develop cables with high fire resistance



Performance in 2017

Strengthened competitiveness in HV/EHV and submarine cable fields

- AC 400kV XLPE, DC 500kV(MI), and 525kV(XLPE)
- Al Sheath armored HV/EHV cable technologies

Developed products to bring greater value to customers

- Overhead lines made of carbon composite materials, and busduct I-series
- Armored optical cables that are anti-rodent and resistant to shotgun pellets

Developed new businesses and secured future growth engines through Open Innovation

- R&D in association with domestic and international universities and research institutes
- R&D cooperation with subsidiaries and affiliates for creating synergy
- Technological competitiveness strengthened utilizing technical advice and consulting from external organizations



Targets in 2018

- Expand the scope of products and businesses to prepare for the future
- Establish a manufacturing and management system based on digital transformation
- Develop key strategic product groups targeting global markets.

HVAC

Development of AC 400kV XLPE single-core submarine cables

The demand for AC 400kV XLPE submarine projects has been rising in line with the trend in the cable market towards larger capacities and higher voltages. In response, we undertook the development of 400kV XLPE single-core submarine cables in 2014. From October 2015 to January 2017, a pre-qualification test (PQ test) was conducted by KEMA (Keuring van Electrotechnische Materialen) according to standards including CIRGE TB 490, Electra 171 and IEC 62067. The results were a success. In addition, all necessary types of joints and terminations, including factory joints and repair joints, were developed to allow the provision to customers of any length of cable. This product is expected to be applied in the establishment of transmission networks among countries.



Product concept

What is an HV/EHV AC XLPE single-core cable?

Underground transmission grids are generally AC, and the same transmission method is used for submarine cables. If submarine cables meet the ratings required for underground use and the supply power is 150kV or below, three-core cables are used rather than single-core.

On the other hand, single core is used in HV/EHV due to the inherent limitations of three-core cables. However, single-core HV/EHV cables have their own drawbacks as well. They produce sheath loss in steel-tape-armored cables due to the magnetic field resulting from cable separation distance. To mitigate loss, non-magnetic tape, such as made from copper, is used to armor cables along with concentric-circle-shaped conductors.



Product advantages

AC submarine cables can be added to an existing underground grid without additional cost. They are mainly used for mid-/long-distance (100 km or less) applications, and either the three- or single-core method can be used.

Our AC-related systems and technologies enable us to manufacture long-distance submarine cables. The benefits of XLPE insulating submarine cables include: ease of laying and maintenance; simplicity of connection and repair; superior electrical and chemical characteristics; no additional cost incurred for DC conversion when linking to existing underground grids; and easy excellent grid connectivity.



HVDC

DC 500kV polypropylene-laminated-paper MI underground cable systems

LS C&S became the first company in Korea to develop a DC 500kV MI underground cable system insulated with polypropylene laminated paper. This product will be applied to the first domestic HVDC (High Voltage Direct Current) project. The reliability of the product has been assured through certification (Type Test) by the Korea Electrotechnology Research Institute. In addition, a PQ test was conducted over six months to guarantee a 40-year product life, which was the world's first case of testing for such a period.

This system will be implemented along the 35-km span between the North Dangjin Converter in Chungcheongnam-do Province and the Goduk Converter in Gyeonggi-do Province to facilitate the supply of three GW of power generated on the west coast of Chungcheongnam-do, which will be utilized in the second North Dangjin- Goduk, EP, and Jeju projects.



Product concept

What is a polypropylene-laminated-paper MI cable?

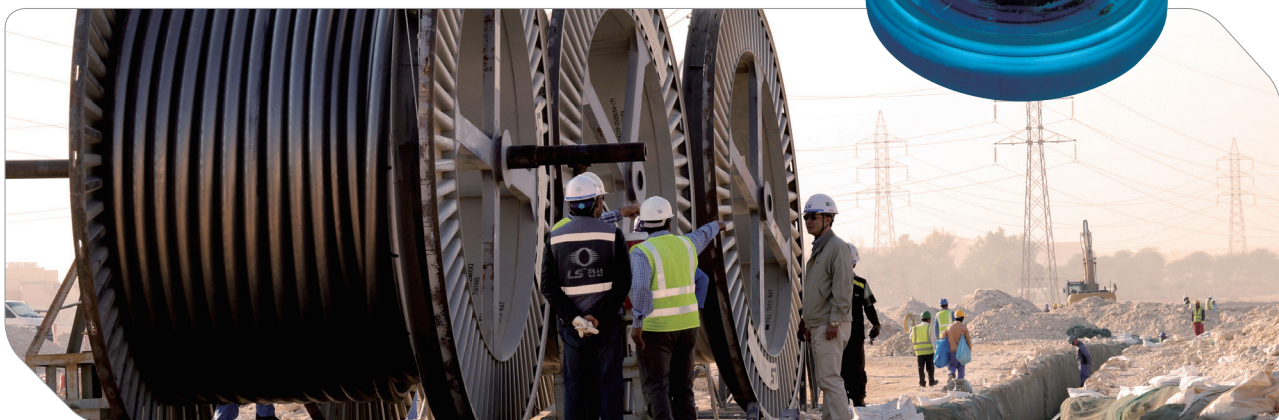
MI, which stands for mass impregnated, refers to the forced impregnation of high viscosity insulating oil. The insulating layer for this cable consists of a laminated polypropylene film and Kraft insulating paper impregnated with high-viscosity insulating oil.

As polypropylene film has lower permittivity and higher resistivity than does Kraft paper. The polypropylene-laminated paper is superior to Kraft paper for AC, impulse, DC withstanding voltage, and polarity reversal. As a result, polypropylene-laminated-paper cables show better withstand voltage performance than do Kraft cables.



Product advantages

The product can be used at a higher temperature (80°C) than can Kraft cables (55°C), transmits high-capacity power, and enables minimizing the size of electric power conduit pipes, reducing environmental impact.



Our differentiated products

Diverse flat FRP armored cable products

Optical cables laid in an outdoor environment such as through direct burial, overhead wires, and conduit lines can be damaged by rodents or hunters, resulting in communication problems. In particular, non-metal materials should be used to protect overhead optical cables laid alongside power lines from lightning. In response, we developed flat FRP armored cables that are non-metal, anti-rodent, and resistant to shotgun pellets, providing a product line-up for different service environments. We are working to win projects with these products in Europe, Southeast Asia, and the Americas while exploring ways to enter new markets.



Product concept

What is an FRP (fiber-reinforced plastic)?

Fiber-reinforced plastic (FRP) is a composite material to which phenol formaldehyde resins are applied. It is light and strong and features high tensile strength. Round FRP is mainly used as the tension member for optical cables, while flat FRP is used to armor a cable core.



Anti-rodent cables are required



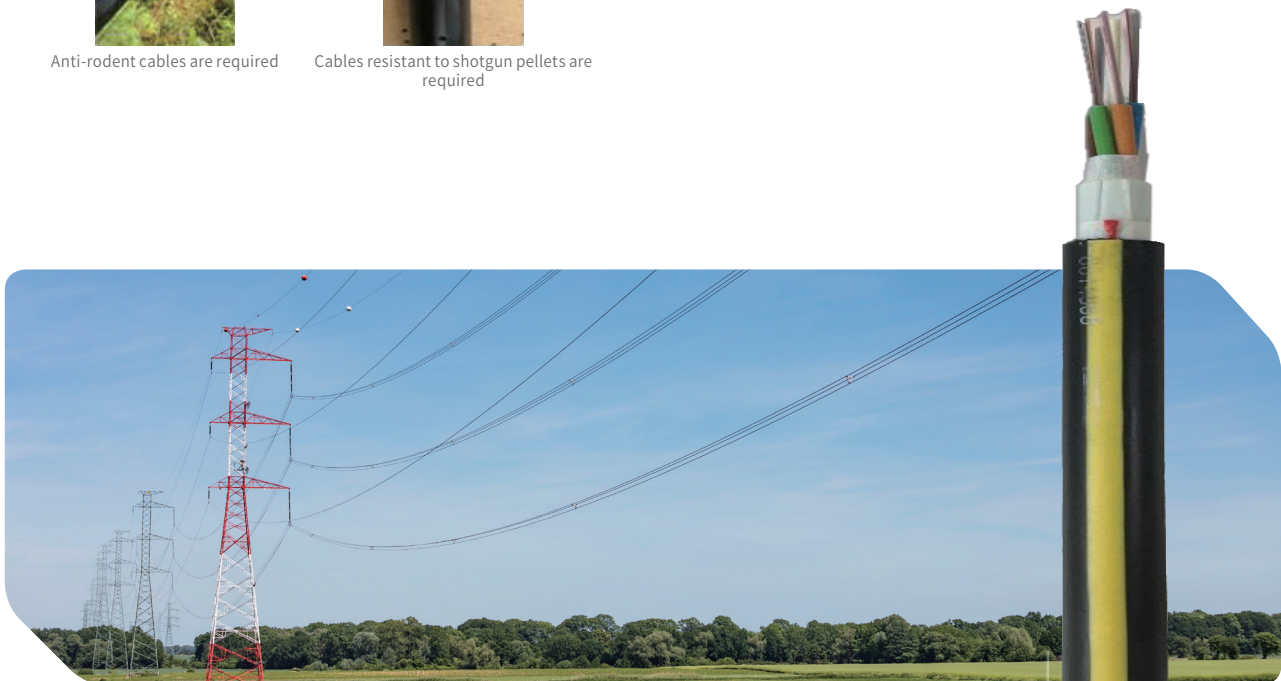
Cables resistant to shotgun pellets are required



Product advantages

They are highly cost effective since additional armored lines are not required when laying these non-metal cables. They are lightweight and compact since additional tension materials are not needed due to their anti-rodent, anti-shotgun, and highly tensile characteristics. As a result, we were able to develop cables that are easy to lay and cost-competitive.

With the same level of anti-rodent protection as metal cables, they overcome the limitations of existing non-metal products. Third-party verification and field tests by customers have been successfully conducted.



Our differentiated products

Movable overhead catenary systems

The diesel locomotives that are mainly used for hauling railway freight present a number of issues, such as increased time for loading/unloading, cargo waiting times, fuel costs, and emissions. As a result, electric locomotives are considered attractive for their tractive force three times greater than that of diesel locomotives and their lower maintenance costs. However, the installation of a catenary system is required to use them, so diesel locomotives are still preferred.

As part of a government-subsidized test, we developed a mobile catenary system that allows an electric locomotive to be used for railway freight. To verify its system specifications, safety, and efficiency, the pilot catenary system was implemented at Okcheon Station on the Gyeongbu Line for a test in partnership with KORAIL and the Korea Electrical Industry Technology Research Association. The technology was publicly announced as the designated Excellent New Technology No. 41 by the Ministry of Land and Transportation.



Product concept

Movable overhead catenary system for containers yard consists of an R-BAR system along with driving, control, and protection devices.

The R-BAR system is operated by the driving device, and its location is managed by the control system. To shunt the electric locomotive, the system moves to the position for connection. In container unloading, the system on the top of the freighter is moved to a position that allows unobstructed unloading of containers.

The control device halts the system or sends an alarm to an operator when it detects potential problems that could occur while the system is on the move or containers are being loaded/unloaded.



Product advantages

The electric locomotive can be used with this system to move rail freight since it allows loading/unloading without any interference. In addition, it reduces container loading/unloading and waiting times. Driving brackets used with the system are controlled by respective auxiliary control devices. Distributed control technology applied to the device enables expansion, installation cost savings, and ease of maintenance.



Our differentiated products

Development of an e-Flatek low-dust moving system package

To establish automated production facilities for semiconductors and displays and to optimize the production process, a low-dust moving system must be applied in a clean room. To this end, we developed the e-Flatek low-dust moving system package and obtained the first class in Air Cleanliness Class Overall by IPA. The use of this product optimized for clean room equipment in semiconductor and display facilities is expected to increase.



Product concept

What is a low-dust moving system package?

Plastic chain cables are used for general cleanroom equipment. Friction occurs among the wiring materials inside the cable, which causes air pollution and negatively impacts process yield. On the other hand, the low-dust moving system package has a sleeve-shaped pod in which the wiring materials are located. This structure is more suitable for cleanroom equipment and is designed to minimize friction between the pod and wiring materials. It suppresses the occurrence of fine dust based on its low friction coefficient.



Product advantages

This product, replacing existing cableveyors made of plastic, comes in a variety of system packages. Its stack-up or configuration design allows mounting on different types of equipment. In addition, the pods, one of its main components, are specially treated with PTFE so that electrification can be maintained after 10 million uses. Moreover, the product has been demonstrated to be optimal for cleanrooms by minimizing noise and earned the first grade in Air Cleanliness Class Overall from IPA.



Our differentiated products

Busduct I-Series (economic busduct in line with IEC standards)

Technological barriers are being overcome in the busduct market as large numbers of domestic and international competitors rush to enter this field. In response, we developed our busduct I-series that offers cost-competitive but high-quality products that meet the unique needs of markets and customers.

These IEC-based products meet the related standards and are a quality upgrade over the E-Series, one of our primary models. Our technologies related to electricity, heat, and machinery developed through the E-Series were utilized while quality and functionality were enhanced and weight was reduced.



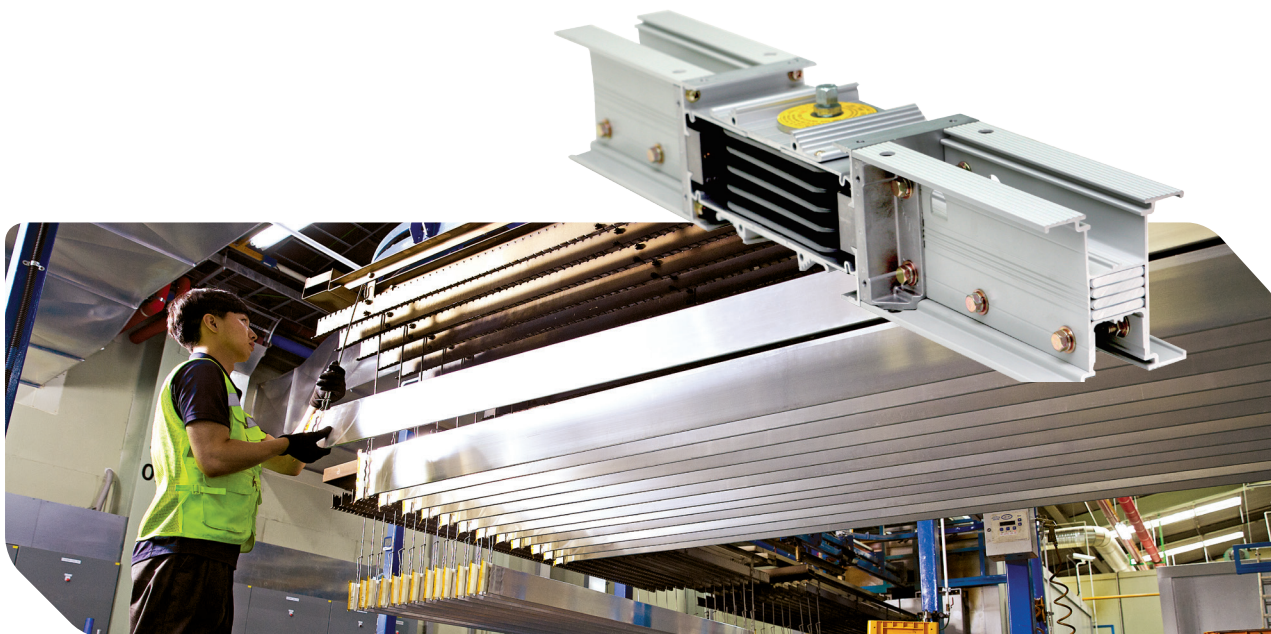
Product concept

A busduct is a main line in a low-voltage power system with an assembly of copper or aluminum bus bar conductors, insulators, metal cases, and joints. The characteristics of the I-Series, including reduced conductor size, a case optimized for thermal dissipation, and a new connection KIT and development, all meet IEC standards. This allows us to increase access to customers.



Product advantages

To find the optimal conductor size for IEC specifications, the thermal dissipation mechanism of the copper and aluminum bus bar conductor were examined using CAE thermal analysis and testing. As a result, we were able to reduce the size by 10% to 30% by capacity compared to existing products. In addition, the insulation, thermal expansion, waterproof IP, and construction performance was upgraded.



HVAC

Low-sag composite core conductors (LSCC) with a proprietary structure

Aluminum conductor steel-reinforced (ACSR) has been widely used for power transmission lines. However, to meet the increase in demand for power, cables were developed that can double power transmission capacity by using different materials. These are known as high temperature and low-sag conductors (HTLSC). To make these cables, technologies related to conductors and supporting tension lines are needed.

For our low-sag composite core conductors (LSCC), softened aluminum conductors and carbon composite materials with low linear expansion coefficients and high strength were used to provide increased capacity and low-sag characteristics in overhead transmission lines.



Product concept

What is a lightweight overhead transmission line?

The lightweight overhead transmission line that is used for the tension member is made of carbon, glass-fiber reinforced plastic, or both. As the specific gravity of reinforced plastic is 2.0 g/cm³ or less, it allows a reduction in the weight of the cables and therefore the load on steel towers.

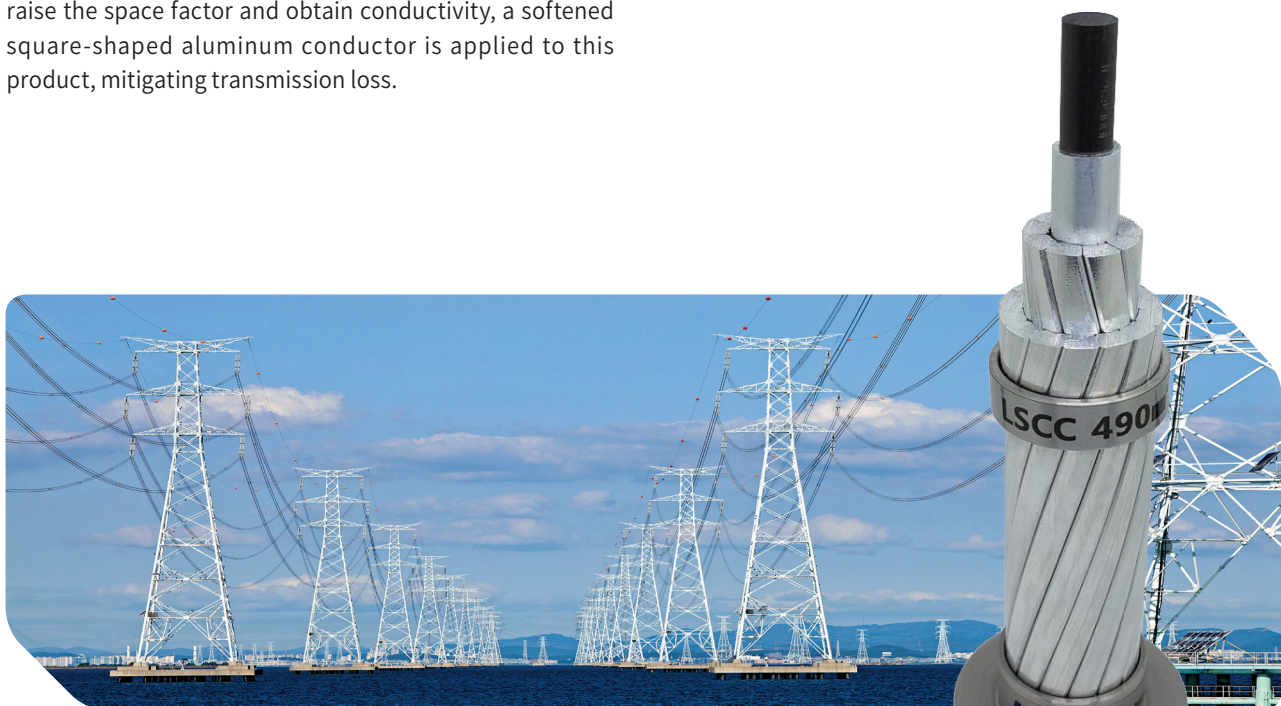
In addition, high tensile strength and a low coefficient of linear expansion help to create low-sag characteristics. To raise the space factor and obtain conductivity, a softened square-shaped aluminum conductor is applied to this product, mitigating transmission loss.



Product advantages

Our LSCC has appropriate characteristics for a lightweight overhead transmission line, including increased transmission capacity and efficiency combined with low sag.

In addition, a protective aluminum layer is included in the outer layer of the tension member to prevent corrosion caused by direct contact, protect the composite materials from shocks, and increase allowable current.



Our differentiated products

FW-CV cables that drastically reduces water infiltration

Power distribution lines have a complex structure designed to supply electricity in a stable and reliable manner from transmission lines to end load. In the early 2000s, a flame retardant PVC system known as F-CV was mainly used for distribution cables. After the XLPE insulation system was adopted, however, electrical treeing frequently occurred and resulted in the breakdown of F-CV cables. In response, we have developed FW-CV flame retardant and waterproof cables.

1) 수트리: 절연체 내 수분이 존재하는 경우 발생하는 현상



Product concept

What is an FW-CV?

Our FW-CV products feature a water resistance capacity to prevent electrical treeing caused by water infiltration while maintaining the fire-retardancy of existing F-CV cables. This new feature was achieved by strengthening the water resistance for outer PVC sheath only without making any structural changes to the cable. The moisture absorption of the FW-CV sheath is 1.0 mg/cm² or less, twice the performance of F-CV and in line with IEC 60811-1-3.



Product advantages

Compared to F-CV cables, our FW-CV product is suitable for an environment exposed to moisture due to its superb moisture absorption and penetration, volume resistivity at room/high temperatures, and dissipation factor. In addition, reduced stray voltage loss in the sheath ensures product quality and the enhanced electrical and mechanical properties minimize the failure rate of cable systems, allowing maintenance and repair cost-savings.



Products for fire response

Eco-friendly indoor cables HFIX+ (low-toxic insulated cable)

To qualify as LV-grade insulated indoor cables, flame retardance is essential to minimize the damage from any possible fire accidents. Insulated indoor cables consist of conductors and insulators, and the flame retardant performance is determined by the insulating materials. In the past, PVC was applied for its beneficial features and properties. However, problems arose due to toxic HCl gas produced during combustion. Our HFIX+ product features excellent flame retardance and is designed to minimize any emission of smoke or toxic gases. In addition, this eco-friendly product has significantly enhanced constructing performance with a lower level of surface friction.



Product concept

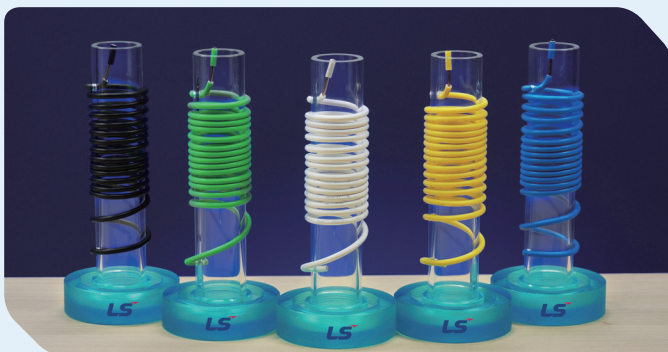
Our HFIX+ cables address the critical drawback of PVC insulators since they do not produce toxic HCl gas during combustion. The product passed vertical retardant tests in accordance with KSC 3341 product specifications (pass rate: 100%). In addition, construction performance* has been improved for user convenience.

*In this context, construction performance refers to the tensile force for surface and curved-area friction when HFIX+ cables are inserted through conduit tubes.



Product advantages

Its low-toxicity feature of minimizing smoke and toxic gas emissions during a fire makes this product optimal for public environments such as high-rise buildings, hospitals, underground shopping areas, airports, and subways. In addition, materials and structures with drastically reduced surface friction were applied. Simulations and on-site evaluations demonstrated that its construction performance was twice that of existing HFIX products.



Fire-resistant (950°C) cables with strengthened cost competitiveness and fire safety

As plants and high-rise buildings are becoming increasingly concentrated in many areas due to the development of industrial facilities and changes in living environments, the extent of fire damage that can be caused within a short period of time is growing. In this regard, it is necessary to maintain alarm systems for early detection and evacuation and provide power to disaster controls systems to prevent the spread of fire. Our products boast a fire-resistance capacity for up to 950°C, 200°C higher than existing products, and have passed simulations for high-pressure water and external shocks.



Product concept

What is a fire-resistant cable?

Since a fire-resistant cable can maintain its basic power transmission and telecommunications functions in the event of a fire, it is useful for preventing fires caused by cables and minimizing related damage. They are used for the emergency power supply and circuits of indoor hydrants, sprinklers, and flue treatment facilities.



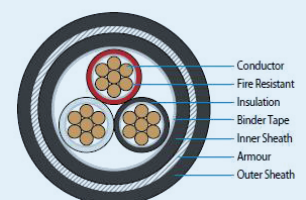
Product advantages

High quality and cost competitive fire-resistant mica tape was utilized. In order to minimize cable damage during a fire, a fire-retardant polymer compound was applied to the outer sheath layer.

The product meets BS 6387 evaluation standards, including Cat.C for fire resistance (950°C/180 min), Cat.W for water spray (650°C/15min) and Cat.Z for mechanical shock (950°C/15min).

Evaluation standards for fire resistance

Standards	Temperature (°C)	Time (min.)	Test method
IEC 60331-21	750°C	90	Flame
IEC 60331-1,-2	830°C	30/60/90/120	Flame + Mechanical shock
BS 6387	950°C	180+30+15	Flame + Mechanical shock + Water spray



C.O.R.E. - Customer First

TOPIC

2

Quality and Product Responsibility

As our cable products are used for power and telecommunication transmission for people's lives and industrial infrastructure and applied to a variety of power devices, we are proactively conducting quality management activities to increase reliability and meet the needs for eco-friendly products.

In addition, considering the impact of our products has on local communities and the country, we establish a risk management system across the entire processes and strive to secure the best possible product quality to meet the needs of our customers and stakeholders.



Strategic direction

Providing products and services that meet customer expectations and needs anytime, anywhere and under any circumstances



Key tasks

Satisfying the needs of global customers

- Conducting a customer satisfaction survey
- Running the Quality School
- Managing risks

Resolving CTQ¹⁾ issues and securing evaluation technology

- Innovation activities at plants (Passion and a Leap forward! (2017))
- Improving chronic issues regarding defective products
- Securing evaluation technology for product quality

Ensuring quality in outsourcing

- Conducting 'level-up' activities for suppliers (for steady improvement)

1) CTQ: Critical to Quality (key characteristics of quality)



Performance in 2017

Satisfying the needs of global customers

98
cases

- Conducted a survey on customer satisfaction and addressed 98 VoC cases
- Operated a Quality School and established a risk management system

Resolving CTQ issues and securing evaluation technology

99
cases

- Conducted tasks to improve chronic defect issues (99 cases)
- 9 cases for Six Sigma, 143 for quality circles, and 20 for evaluation technology

Ensuring outsourcing quality based on responsibility

- Conducted 'level-up' activities for suppliers



Targets in 2018

- **Satisfying the needs of global customers:** Implement a QMS IT system (inspection/evaluation/change/test)
- **CTQ:** Conduct activities to address chronic defect issues and implement a QC Patrol function by product
- **Outsourcing quality:** Conduct steady 'level-up' activities for suppliers

Key tasks

Satisfying the needs of global customers

To operate a quality management system tailored to customer needs worldwide and each product group, VoCs, pertinent laws and regulations, and global standards are identified and reflected within the system.



Energy transmission / Construction ISO9001, KEPIC

We obtained an ISO 9001:2015 certification ahead of our competitors. A dedicated quality system for construction has been operated based on OHSAS18001 certification.



IT TL9000

Activities are conducted to meet requirements on risk assessment and disaster recovery as for optical communication products with the aim of obtaining TL 9000 R6.0 in 2018.



Automobiles / Materials ISO/TS16949

We acquired the ISO/TS16949 certification and have conducted activities to ensure product safety in line with the Product Liability Act and the end-of-life vehicle directive by the German Automotive Industry Association (VDA). In 2018, we plan to obtain the IATF 16949 certification.

Activity 1

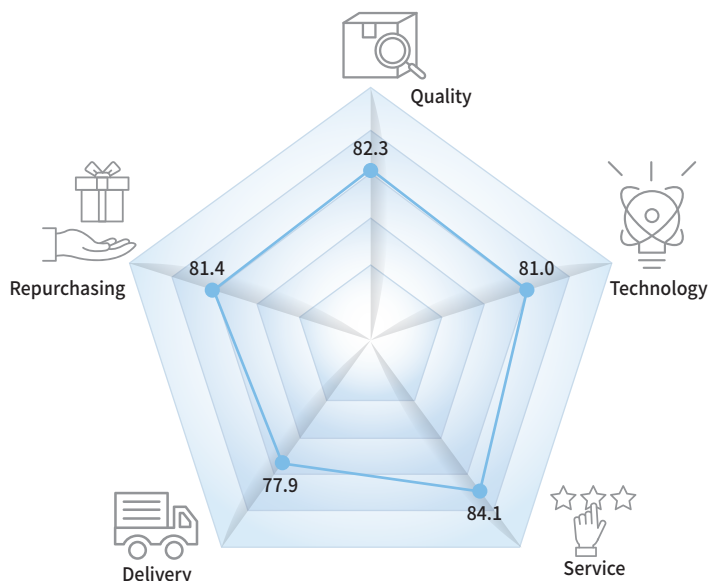
Customer satisfaction survey

Identifying areas for improvement and taking measures

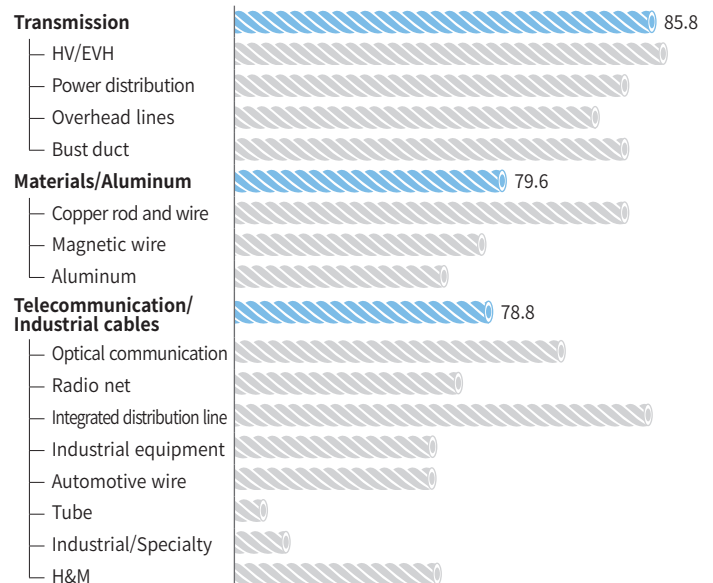
The survey was conducted for 428 employees from 316 customers, and 82 out of 100 points were scored for customer satisfaction level. A total of 57 VoCs that were received through the survey were addressed as of December 2017.

(unit: case)

HV/EVH/ Const- ruction	Power distribution/ Overhead	Bus duct	Mat- erials	Alumi- num	Telecom- muni- cation	Equip- ment	Industrial/ Specialty cables	H&M	Total
11	6	2	10	1	5	13	8	1	57



*The response rate of 72% shows a high interest in the LS C&S.



Activity 2

Quality School (quality training)

To resolve any potential quality issues through risk management, in-house or external programs, on-the-job training, and task force activities are all provided. In particular, employees directly responsible for QA, development, and production all attend annual Quality School events. Themes for these programs are selected in consideration of the impact and urgency of issues.

One of the 2017 themes was FMEA (failure mode and effects analysis). This methodology is required in fields such as the automobile industry in which product defects can directly affect people's lives. It is not yet mandatory in the cable industry, but we selected this theme since it can help us to identify risks by defect type based on the level of seriousness, rate of occurrence, and detection. After this, potential risks can be minimized.

External professionals were invited to provide programs on statistical quality management, including FMEA, SPC (static process control), and MSA (measurement system analysis) and measurement systems. Four training sessions were offered to 120 employees from the quality, development, production, procurement, and facility teams from July to September 2017.



Survey results from the participants show many of them considered this training to be essential for achieving quality management expertise. They also related the benefit of taking these programs as an in-house mandatory training course that they would not have been able to attend individually. In 2018, to respond to the revision of IATF 16949 on quality system requirements for automobile parts, we plan to upgrade our quality process through outside consultations and qualifications for internal inspectors.

Quality School in 2017

Objective	Curriculum	Target	Date
Awareness raising	Global quality management (2 hours) Risk Thinking, development quality, improvement at worksites, preventive management, and processes	All employees	<ul style="list-style-type: none"> July morning assembly Headquarters, and auditoriums at the Donghae and Gumi plants
Understanding of global quality systems	Quality management in development (4 days) <ul style="list-style-type: none"> Trends in global quality management systems Quality management in product design (APQP and CP) FMEA and PPAP Quality management in production (4 days) <ul style="list-style-type: none"> Trends in global quality management systems Production process development and management (CP) Statistical analysis and SPC measurement system (MSA) 	Engineers (QA and development) <ul style="list-style-type: none"> (Mandatory) Internal inspectors, and trainees from the QA team (Optional) Engineers responsible for development and R&D Engineers (QA and production) <ul style="list-style-type: none"> (Mandatory) Internal inspectors, and trainees from the QA team (Optional) Engineers responsible for production 	<ul style="list-style-type: none"> July 4-5, 18-19 Gumi training center Aug 17-18 and 30-31 Gumi training center
IATF renewal	Understanding of IATF 16949 (3 days) <ul style="list-style-type: none"> Understanding of IATF standards and GAP diagnoses Risk analyses and measures Qualification for IATF 16949 inspectors (2 days) <ul style="list-style-type: none"> Internal inspectors, and supplier inspectors Strengthening IATF 16949 processes (4 days) <ul style="list-style-type: none"> Strengthening processes and reviewing the results 	<ul style="list-style-type: none"> Employees responsible for certifying automobile parts (QA, QM) (LS C&S) Indong, Gunpo QM (Subsidiary) GCI, LSCW QM Internal inspectors for certifying automobile parts (LS C&S/Subsidiary) Persons in charge Teams responsible for certifying automobile parts (LS C&S/Subsidiary) Persons in charge by team 	<ul style="list-style-type: none"> Oct 18-20 Gumi training center Oct 26-27 Gumi training center Nov 15, Nov 29, Dec 13, and Dec 27 Gumi training center

Three-step programs are provided for qualitative improvement in operating a quality system.

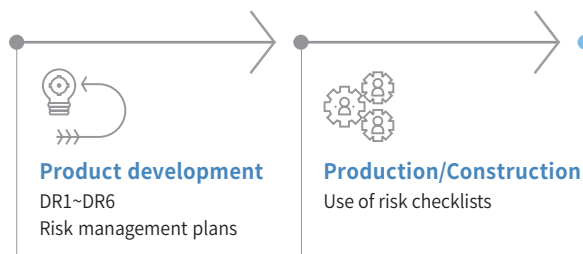
Activity 3

Enhancement of the quality risk management system

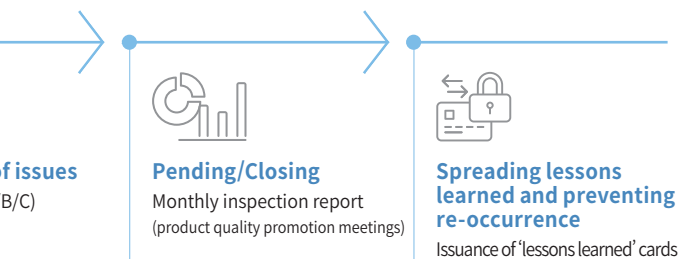
Since our products serve as a basis for industrial infrastructure and people's lives, addressing any product quality risks is critical, as is ensuring that there is a response system to swiftly deal with any possible issues. In this regard, we implement preventive risk management processes through which potential issues can be identified in the design review phase to minimize risks throughout the entire process. In addition, a risk tracking management system has been implemented to mitigate losses if pertinent risks pass through into quality issues.

When quality issues are identified, emergency measures are immediately taken to minimize their impact on customers, society, and the environment. Risks are classified as S, A, B, or C grade in consideration of their impact and urgency. S- through A-grade risks are immediately reported in the form of a 5W1H report to the management and to stakeholders.

Preventive risk management (before the occurrence of issues)



Risk minimization (after the occurrence of issues)



Quality risk classification

Grade	Criteria	Examples of risks
S	<ul style="list-style-type: none"> Risks that could cause a serious problem for customers, the company, and the society Risks that could impact the overall business 	<ul style="list-style-type: none"> Causing serious business issues such as contract termination or reduction Causing troubles in society, violating laws and regulations and going against ethical management
A	<ul style="list-style-type: none"> Product quality issues that could cost USD 9,334 and more Incidents that could lead to a product recall or to suspending production/shipment 	<ul style="list-style-type: none"> Causing casualties in building fire Accidents impacting social overhead capital facilities Causing environment issues such as harmful chemical spills Causing conflicts with local communities
B	<ul style="list-style-type: none"> Product quality issues that could cost less than USD 9,334 (approved by a division head) 	<ul style="list-style-type: none"> Product liability (PL) issues and product recalls
C	<ul style="list-style-type: none"> Product quality issues that could cost less than USD 933 (approved by a team leader) 	<ul style="list-style-type: none"> Causing the stop of customer lines and defects in a large quantity of products

After emergency measures are taken, issue status, stakeholder requests, and the state of progress are specified. Until root causes can be identified and action plans to prevent their re-occurrence drafted and implemented, 'risk tracking management' activities are conducted under the Quality Management Team. Their monthly status is reported to management.

In addition, both pending and closed risks over the last three years are reported to all employees. In particular, with risks that have re-occurred, 'lessons learned' cards are issued and shared with related divisions.

A full list of risks occurred (a monthly report)

Type	Risks	W	N	F
Pending	(ex.) XX breakdown			
Closing				
Closing				

Risks are tracked until their closing

Progress tracking by risk

Type	No.	Risk	Responsible team/division
Closing		(ex.) Breakdown	
	<input type="checkbox"/> Summary	<input type="checkbox"/> Cause	
	<input type="checkbox"/> Phenomenon/Customer request	<input type="checkbox"/> Response and measure	
	<input type="checkbox"/> Lessons Learned	<input type="checkbox"/> Amount of damages by item	

Resolving CTQ issues and securing evaluation technology

For product quality management, CTQ and CTP tasks by product/process are identified. The tasks are incorporated into improvement tasks for Six Sigma, quality circle activities and engineers.

Innovation activities on site in 2018

In 2017, activities for innovation were conducted at our plants on the theme of 'Passion and a Leap Forward!' to overcome difficulties in businesses and lay a foundation for the development of the company. 'Speed Up!' is the 2018 theme under which new activities in terms of quality, cost and delivery will be devised based on the results of the last three years to achieve the management targets of the year.

In addition, to promote quality circle activities, including 5S (sort, set in order, shine, standardize, and systematize), and to produce results, the CAs (Change Agents) for 2018 were appointed.

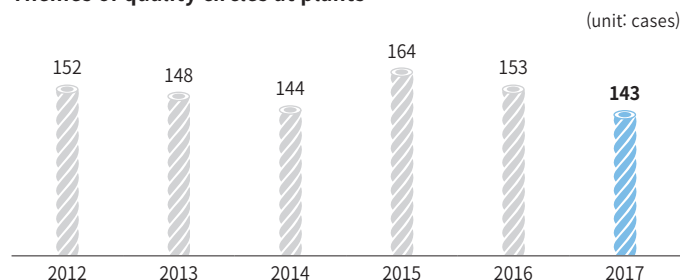
Improving chronic issues of defective products

To respond to chronic defect issues at the company level, 21 tasks for improvement were selected. All divisions, including R&D, production, facility and QA, took part in analyzing their root causes and establishing preventive measures.

In 2018, our efforts to identify tasks and conduct improvement activities will continue.

Category	Task type				Progress		KPA achievement rate
	Process condition	Product structure	Compound	Total	Completed	Cancelled	
Power transmission	6	-	1	7	6	1	100%
Telecommunication/Industrial systems	5	5	1	11	11	-	108%
Materials/AL	4	-	-	4	4	-	117%
Company-wide	15	5	2	22	21	1	107%

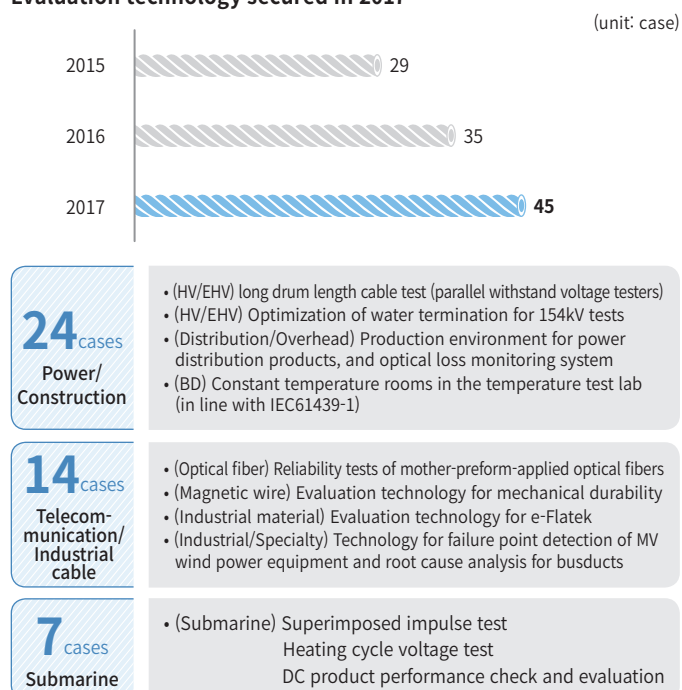
Themes of quality circles at plants



Securing evaluation technology for product quality

Considering the potential impact of product defects on industries and people's lives, it is essential to achieve product reliability through evaluation technologies. In response, we have secured technologies related to long-term reliability, electrical and material tests to ensure high product quality and win the trust of customers. Meanwhile, we are developing available substitute characteristics.

Evaluation technology secured in 2017



Ensuring quality in outsourcing

To minimize product defect risks due to external factors (raw materials and half-manufactured goods) and raise supplier awareness on quality, a biannual quality meeting is held by business division.

In the meeting, we share our quality policy and annual quality index with suppliers to encourage them to set quality targets. Suppliers present their status and quality defect cases, allowing them to spread lessons learned and prevent the reoccurrence of the same defect cases.

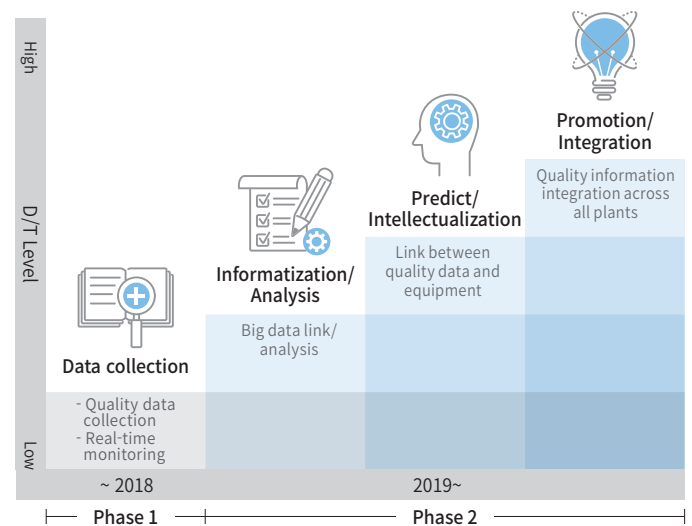
Since the launch of the meeting, simple defects caused by human errors have been decreased. We will continue these efforts so that supplier can focus on quality rather than dealing with defect issues, and ultimately achieve quality competitiveness.

Future plans

Establishment of a QMS IT system (inspection/evaluation/change/test)

The scope of a QMS IT system is: 1) development/before-production quality; 2) material quality; 3) production quality; 4) test and management; and 5) customer quality. By 2018, an enterprise-wide quality information database will be established, and from 2019 we plan to complete a system that predicts any possible quality accidents through big data analysis.

Roadmap for implementation



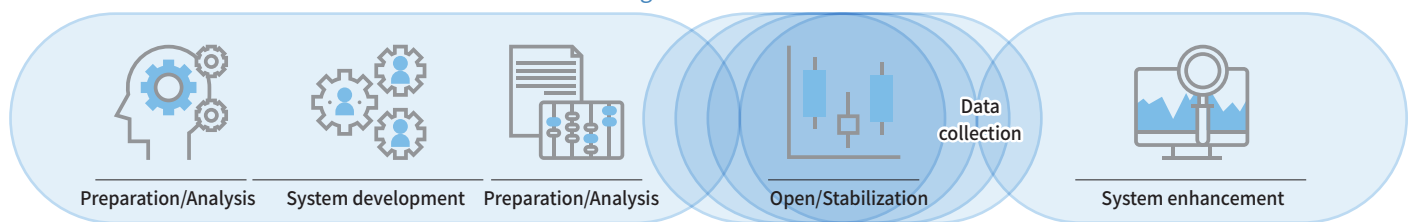
November 2017

Phase 1

August 2018

Stabilization October 2018

Phase 2 (from 2019)



An in-house task force team was formed and it prepared for the project launch for nine months. This project was launched in November 2017 and the system is scheduled to open in August 2018.

QC Patrol by product

We will further strengthen 'back to the basic' (restoring QC functions by product) activities for product reliability and customer satisfaction through the 4M¹⁾ control.

On-site inspection (QC Patrol) of our plants will be conducted without a prior notice to check their quality management status. According to the result, the pertinent plants will be requested to take measures for identified issues and devise plans to prevent their re-occurrence. This process will be reflected in establishing a QMS IT system, allowing us to monitor the state of progress.



Power: Process patrol for managing quality consistency, and analysis of CTQ quality trend for important characteristics

Submarine: Strengthening on-site inspections

Telecommunication/Industrial cables: QC audit of cable production sites in the areas of telecommunication, equipment, materials, and ships

1) 4M: Man, Machine, Material, Method

C.O.R.E. - One LS C&S

TOPIC

3

Social Contribution

We strive to realize the vision Enable the Cabled World which allows everyone to have access to energy and information. As part of the efforts, activities such as donation of talent and sharing events with local communities at home and abroad are conducted to fulfill our social responsibility.



Strategic direction

Promoting social contribution activities to achieve shared and sustainable growth



Key tasks

Donation of talent

- Electrical safety checks in traditional markets
- Industry-academia cooperation
- Science class for children

Local community support

- Donation from monthly salary
- Employees' sharing activities

Global sharing activities

- LS overseas volunteer group
- Local community support by overseas subsidiaries



Performance in 2017

Conducted electrical safety checks in traditional markets



Operated on-site training programs for industry-academia cooperation



Provided the LS Dream Science Class program



Ran the LS overseas volunteer group program

- Employees' participation
- Support for children's education
- Establishment of schools

Conducted sharing activities by employees

- Visit to social welfare centers and children welfare facilities
- Kimchi- and coal briquette-sharing events



Targets in 2018

- Expand the scope of electrical safety checks in traditional markets.
- Conduct national projects through industry-academia cooperation, and provide on-site training programs for college students
- Upgrade the LS Dream Science Class to increase the satisfaction of participants
- Promote the participation of employees at plants in supporting their local communities
- Operate the LS overseas volunteer group program

Donation of talent

Electrical safety checks in traditional markets

We have been providing monthly electrical safety checks in traditional markets since September 2017. Employees with cable inspection expertise visit shops to check cable insulation performance, sheathing, and possible short-circuits. They offer education on the risks posed by cable misuse. As of March 2018, such activities had been conducted at 109 shops in seven traditional markets in Busan, Gwangju, and Donghae.

Shared growth with local communities through electrical safety checks at traditional markets

(excerpt from the company magazine published in November 2017)



Yangdong Market in Gwangju, October 18-19, 2017

The environment in traditional markets is highly vulnerable to fire. Many of the electric installations are outdated and there are numerous flammable assets. The shops are tightly concentrated as well. As a result, it can be highly likely for a small fire to lead to a serious disaster. In a number of markets, it has been found that cables are not being properly managed and many of them are not equipped with fire extinguishers. In response, electrical safety checks in traditional markets were initiated.

“Since traditional markets are economic bases for local residents, special attention needs to be paid. We contemplated how we could help local communities using our existing strengths and reached a consensus on conducting electrical safety checks at traditional markets”, related Park Dae-Jin, a Research Engineer of the Transmission and Distribution System Research Team.

He described how much effort was put into preliminary checks before launching this program. They visited Seomoon Market in Daegu and Soraepogu Market in Incheon, which suffered from major fires last May and July, respectively, to examine cable installations and use in the shops.

Park described the results: “We found many cases of cable misuse. Some of them had improper circuit breakers, and in some cases, current exceeded cable capacity. It was found that many of the vendors were afraid of handling cable installations but struggled to afford professional services.”

Based on their close communication with vendors, they planned specific activities and decided to check cable insulation performance, sheathing,

and potential short circuits as well as educate vendors on the risks posed by cable misuse and how to replace cables or circuit breakers.

Safeguarding a base for local residents!

In September, electrical safety checks were performed in traditional markets. At the Jhoonggang Market in Gumi and the Nambujaerae Market in Donghae, safety diagnoses and cable replacement were conducted in cooperation with facilities teams, in-house volunteer clubs, and construction companies.

On October 18, they visited the Yangdong Market in Gwangju. Repairs and upgrades were conducted focusing on shops that urgently required cable replacement. Cables were extended on fluorescent lights that had been unable to provide light for display stands due to short cables. Dusty and outdated lines and circuit breakers were replaced. “When it is not in use, turn the power off, and make sure cables are not tangled,” Park instructed the vendors.

The scope of these activities will be expanded nationwide. To provide more efficient and effective support, they will sign MOUs with public agencies and local governments. It will be heartwarming to follow their on-going efforts as they apply their expertise to pursuing shared growth with local communities.

Words from participants



Kim In-Ja, Bethel rice-cake shop owner at the Gwangju Yangdong Market

I wouldn't even have thought about touching the cables by myself. It is really exciting to see my shop lighting up because of the repair work from LS C&S. Thank you very much for your efforts.



Kim Hae-do, Labor Relations/Environment and Safety Team at the Gumi plant

This program makes me realize our expertise can be used to help others. I believe it shows the future direction of our social contribution activities.



Kim Jae-Hong, Manager, Power Cable - Distribution/OHTL Domestic Line Sales Team

I felt great whenever vendors said thank you for the small help we gave them. We will continue these efforts to benefit more vendors.

Industry-academia cooperation: on-the-job training programs for college students

We are actively promoting cooperation between industry and academia in order to develop basic science and nurture talent. Technological information regarding our power transmission and telecommunication projects is shared with universities. Our employees with expertise serve as mentors, which allows college students to have chances to learn on-the-job skills.

In addition, we link these programs to opportunities to help them find jobs, contributing to facilitate local economies. We signed MoUs with Kangwon National University and Youngjin College to provide training programs. The Job Schooling, an internship program started in 2012, provides the students of Kangwon National University majoring in electricity and electronics and IT engineering with education and employment opportunities. Its curriculum includes lectures on the systems, design, and manufacturing quality management of submarine, industrial, and specialty cables. In particular, our researchers with master's and doctoral degrees and senior-level employees with expertise and experience participate as lecturers, allowing students to learn both theories and practices.

Customized training programs are operated in partnership with Youngjin College. We provide programs to students base on the curriculums in electric equipment and facilities and power system, and students who complete the course with excellent results are given preference in applying for our company.



LS Dream Science Class for children

The LS Dream Science Class is a program designed to nurture future talent, helping children to increase their interest on basic science. College students majoring in science and engineering participate as teachers during summer and winter vacations and teach science classes to the elementary school students in Anyang, Gumi and Donghae where our headquarters and worksites are located. In addition, a variety of cultural activities and a 'vision' camp are conducted to help children think about their ambitions and how to make them come true.

Our researchers with master's and doctoral degrees also take part in as one-day lecturers to provide in-depth classes. This program helps children to raise their interest in science by making magnetic levitation trains and optical fiber photo frames for themselves and learning about scientific principles.



Local community support

Donation from monthly salary

All employees of LS C&S have voluntarily donated up to USD 1 from their monthly salary, and the company matches its employees' charitable contributions. The funds collected through employee donation is used to support children living with their grandparents, people with disabilities, and senior citizens living alone. In 2017, we donated USD 34,534.

Employees' sharing activities

Our employee volunteer groups have supported senior citizens living alone, and children with disabilities, and poorly-fed children to help them stand on their feet. These groups cooperate with public agencies and the local governments to meet the needs of local communities.

Chamsarang Society, a volunteer group established in 1999 at the Gumi and Indong plants consists of 600 employees, while 200 employees at the Donghae worksite are working as volunteers of Jeongnanum Society that was started in 2009.

They visit local social welfare centers on a regular basis and conduct a variety of activities, including cleaning, repair, birthday parties, sports events, free meals, and free haircut services. In addition, fuel and food support, scholarships to child breadwinners, and cultural heritage protection are provided. At the end of the year, the Gumi and Donghae plants hold coal briquette delivery and kimchi making events for the elderly living alone.



Global sharing activities

LS overseas volunteer group program

We have participated in the LS overseas volunteer group program and elementary school construction projects in developing countries, including Vietnam, India, Bangladesh, and Cambodia, to improve their educational environment. Since 2007, 21 teams consisting of 800 college students and employees have joined these program for 11 years. Volunteer activities include outdated classroom repair, taekwondo demonstrations and K-pop concerts.

In addition, to provide students with better educational environments in Vietnam, the construction of LS Dream School buildings is underway near the location of our subsidiary.

Local community support by overseas subsidiaries: LS-VINA

LS-VINA, our subsidiary in Vietnam raises funds to support schools in rural areas and for the blind, and low-income families in Hải Phòng. Employees regularly make a visit to schools for the blind and orphanages for volunteer activities and donate PCs to rural schools.

Moreover, it is also sponsoring the LS-Vietnam national go competition, and the Hải Phòng fireworks festival, contributing to promoting cultural exchanges with Vietnam.



Social contribution activities in 2017

Volunteer and sharing activities

(unit: USD)

Organization	Activities	Beneficiary	Frequency	Participants	The amount of support in 2017
Company-wide	Electrical safety checks in traditional markets	Traditional markets	12 times/year	40	7,654
Chamsarang Society (an in-house volunteer club at the Gumi and Indong plants)	Activities to keep children company; birthday parties; and a sport day	Aehyang Welfare Home	12 times/year	90	5,600
	Free meals; meal box delivery to the elderly living alone; and cleaning and repair	Gumi social welfare center	12 times/year	220	7,280
	Sharing activities in the Lunar New Year and the Chuseok holidays; and a family camp	Gumi alcohol center	10 times/year	30	1,867
	Support of daily necessities and house visits; and fuel expense support	Seongsim sanatorium; and Seongsim nourishing home	12 times/year	180	3,920
	Monthly donation	Korean Red Cross (Gyeonsangbukdo-Province) / Hwangsang Children Center / health centers	12 times/year	-	8,027
	Donation of talent for electrical safety checks in traditional markets	Gumi Joongang market	Annually	10	1,493
	Kimchi sharing events	The underprivileged	Annually	40	7,374
	Coal briquette-sharing events	The underprivileged	Annually	20	1,307
Jeongnanum Society (an in-house volunteer club at the Donghae plant)	Donghae Dream Start (science program for elementary students)	Elementary students from low-income families	Biannually	50	2,800
	Kimchi sharing events	The elderly living alone and senior citizen centers near the location of the Donghae plant	Annually	20	6,720
Total					54,041

Donation and sponsorship

(unit: USD)

Organization	Activities	Beneficiary	Frequency	Participants	The amount of support in 2017
Company-wide	Donation	Community Chest of Korea; and Korean Red Cross	Annually	-	415,811
	Donation from monthly salary	Children living with their grandparents; senior citizens living alone; and welfare facilities including children's home in Gumi and Donghae	12 times/year	-	34,348
Donghae plant	Sponsorship for local events, including the Donghae Mureung festival	Donghae city; and the Donghae Mureung festival organization committee	Annually	-	4,573
	Sponsorship for local festivals	The Bukpyeon-dong festival committee; the Songjeong-dong committee; and NGOs	Annually	-	1,213
G&P	Local child welfare centers	Jeonyeowon (child welfare center)	Annually	10	1,680
Total					457,626

Social contribution activities in 2017 (overseas)

(unit: USD)

Organization	Activities	Beneficiary	Frequency	Participants	The amount of support in 2017
LS-VINA	Support for the family members with disabilities of our employees and for retirees	Family members of employees and retirees	As needed	4	1,500
	International Women's Day; and Women's Day in Vietnam	Employees	Annually	70	800
	Children's Day events and presents (for low-income families)	Low-income families in Hải Phòng	Annually	100	300
	Sponsorship for the Hải Phòng fireworks festival	The Hai Phong city authorities	Annually	-	8,800
	Support for local events near the location of LS-VINA (for low-income families and orphanages)	Hồng Bang District	Annually	-	4,800
	Sponsorship for the LS-Vietnam national go competition	Participants; and the Vietnam go association	Annually	3	10,600
Total					26,800

C.O.R.E. - One LS C&S

TOPIC

4

Shared Growth

Shared growth is no longer simply an option: It has become a fundamental basis for the competitiveness and sustainable management of companies. Based on the LS C&S Way, we will support our suppliers as we grow together so that a fair and transparent society can be promoted.



Strategic direction

Establishing a system to achieve shared growth in a sustainable manner



Key tasks

System for fair trade

- Strengthening internal rules to prevent unfair trade
- Raise awareness of shared growth and fair trade
- Operate transparent purchasing processes

System for suppliers

- AVL (Approved Vendor List) program
- Evaluation on environmental performance

Systems for win-win cooperation

- Financial support
- Technical and educational support
- Support for increasing suppliers' overseas sales
- Support for promoting the local economies in our international locations



Performance in 2017

Provided USD 933 thousand of direct loan support to suppliers, Utilized the win-win cooperation fund worth USD 37 million

USD 37 million

Offered free training programs to strengthen job competency of suppliers (200 employees from 9 suppliers)

200 persons

Supported suppliers through the overseas sales support program

USD 31 million

Supported key suppliers through the AVL program



Targets in 2018

- Expand supplier support for increasing their overseas sales and contribute to the local economies of our international locations
- Introduce the Q.C.D.S. evaluation in the QMS IT system (for transparent supplier selection)
- Conduct a survey on environmental performance

Improving a system for fair trade

Strengthening internal rules to prevent unfair trade

To prevent unfair exchanges, our pertinent internal rules have been reinforced. We introduced LS C&S Contract Guidelines for fair trade in accordance with our purchasing rules to prevent our employees from engaging in any unfair trade practices that may occur when doing business with suppliers. Supplier registration rules were also tightened so that our employees can select suppliers in a fair and transparent manner based on the clear understanding of the selection criteria. In addition, our pertinent internal policies are available on the e-Procurement system (<http://epro.lscable.com>). Employees of LS C&S and our suppliers all have access to the policy, helping to allow them to keep unfair purchasing practices in check both internally and externally.

LS C&S Contract Guidelines

- Purpose**
These guidelines aim to establish trading practices that allow LS C&S and its suppliers to sign a contract in a reasonable and fair manner. They include the signing of contracts for vendor selection and pricing for individual items as well as standard contracts with suppliers.
- Establishing a foundation for signing a contract**
- 1) Contract type: The options available to suppliers are specified when they are seeking to sign a contract with LS C&S.
 - 2) Operating a proposal system for potential suppliers

Introducing the contract process

Specifying matters to be observed and prohibited

LS C&S Supplier Selection and Operation Guidelines

- Purpose**
These guidelines aim to ensure transparency and fairness in LS C&S's supplier selection and operations and ensure fair trading.
- Selection criteria**
- 1) Evaluation in five areas, including management in general, process management, quality management, environmental and labor management, and financial management.
 - 2) Higher than 70 out of 100 points (pass); 60-70 points (temporary pass); less than 60 points (fail)
- Equal opportunities**
Companies selected and registered as suppliers shall not be prevented from or discriminated against in bidding opportunities for the commencement of business with LS C&S without just cause.

Raising awareness of shared growth and fair trade

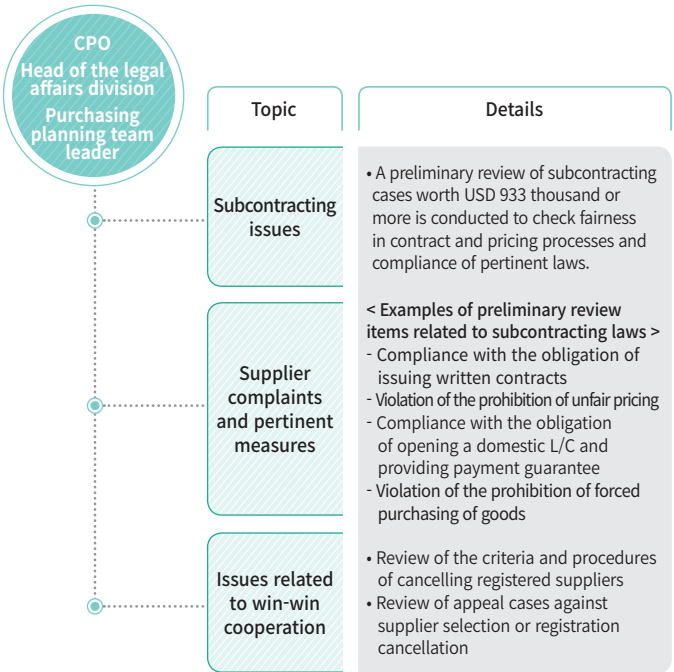
Information sharing

To increase employee awareness of shared growth and fair trade, the public affairs team provides training on subcontracting laws to pertinent teams and divisions. In addition, related information and news are updated and shared at the company level.



Subcontracting Review Committee

We are operating an internal Subcontracting Review Committee to enhance awareness of shared growth and fair trade with our suppliers. The committee consists of three members, including a CPO as a chairperson, the head of the legal affairs division, and the head of the purchasing planning team. A monthly meeting is held to review 1) subcontracting issues; 2) supplier complaints and pertinent measures; and 3) issues related to win-win cooperation.

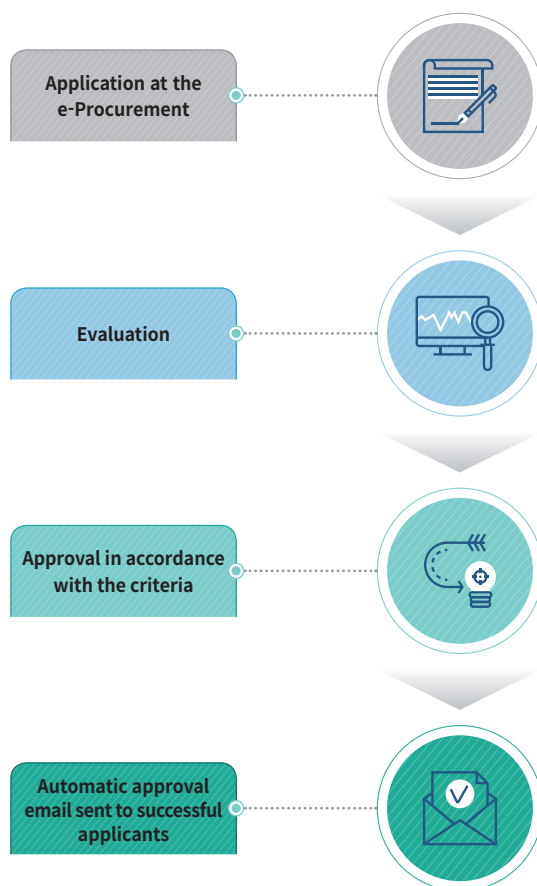


Operating transparent purchasing processes

Supplier selection

In order to select suppliers in a fair manner, the entire purchasing process is managed through our e-Procurement system. In principle, competitive bidding is always conducted except in special cases such as the application of new technologies or customer requests. Applicants are evaluated through both paper screening and on-site inspections. The results based on Q.C.D.S. (quality, cost, delivery, and service) and other evaluation criteria are announced to individual applicants in writing within 15 days of the final selection.

Supplier registration process



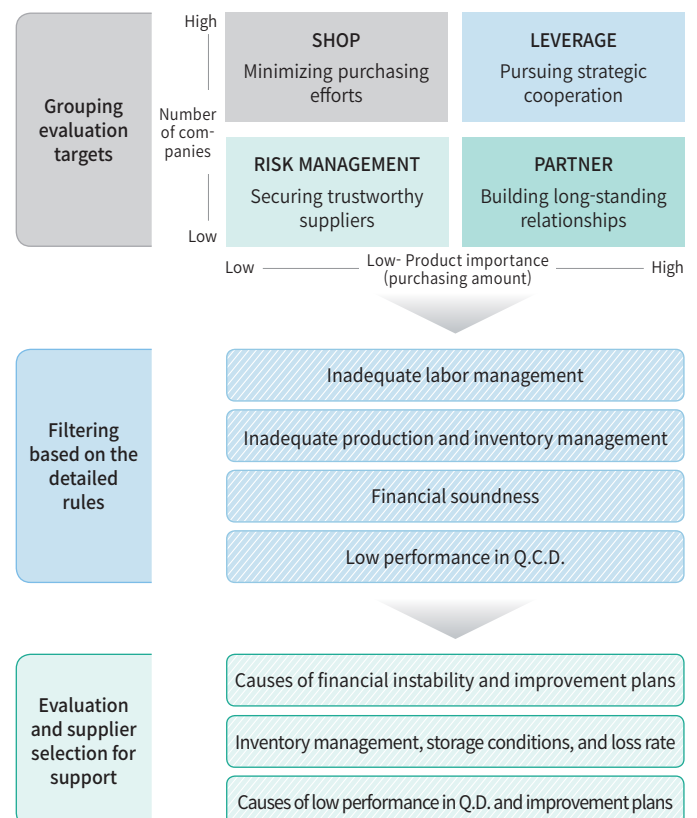
*Supplier selection procedures and details are managed in a transparent manner through our e-Procurement system.

Evaluation on a regular basis

To enhance the competitiveness of our suppliers, evaluations are conducted on those with annual transactions worth USD 280 thousand or more and who have made 10 or more deliveries. They are evaluated and grouped in four categories: minimizing purchasing efforts; pursuing strategic cooperation; securing trustworthy suppliers; and building long-standing relationships. Their process, quality, labor, and financial management are then reviewed based on the detailed rules for supplier evaluation and management. Feedback on the vulnerable areas identified is provided to suppliers so that improvement measures can be taken. Based on annual evaluation results, AVL (Approved Vendor List) suppliers are selected in December.

Evaluation process

Q.C.D.S. (quality, cost, delivery and service) evaluation



Contract

We use a standard form of contract that includes the following information: payment amount; payment methods; and price adjustment conditions for raw material price fluctuations. In principle, contracting parties' signatures should be included on the contract.

Pricing

We set a reasonable price by considering product quality, quantity, and delivery as well as market price. Unjustly lowering the unit price without sufficient reason is disallowed. Suppliers can file for a purchase price adjustment at any time. If a valid reason exists, a contract price can be adjusted based on mutual agreement between within 30 days from the date of request.

Delivery/Inspection

After delivery and service are completed, an inspection is performed in accordance with the pre-agreed standards and procedures. We strictly comply with pertinent rules and inspectors' duties and due diligence to prevent the return of supplied goods without sufficient cause.

Transparent payment criteria

Payment criteria set according to transaction type and payment amount are available through the e-Procurement system in an effort to promote transparency. For suppliers that have signed subcontracting contracts, payment is made on 15th day of the following month of delivery. In addition, we made early payments to suppliers who faced financial difficulties ahead of the New Year and Chuseok holidays.

Payment criteria

Category	Amount	Payment
Subcontracting	Less than USD 280,007	Cash (paid on 15th day of the following month of delivery)
	USD 280,007 or more	45-day maturity cash from the delivery date or the end of the delivery month
Non-subcontracting SMEs	Less than USD 4,667	Cash (paid on 24th day of the following month of delivery)
	Over USD 4,667 and less than USD 18,667	60-day maturity cash from the delivery date or the end of the delivery month
	Over USD 18,667	90-day maturity cash from the delivery date or the end of the delivery month
Large-sized companies	Less than USD 4,667	Cash (paid on 24th day of the following month of delivery)
	Over USD 4,667 and less than USD 18,667	90-day maturity cash from the delivery date or the end of the delivery
	Over USD 18,667	120-day maturity cash from the delivery date or the end of the delivery


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공인인증서 발급


공지사항

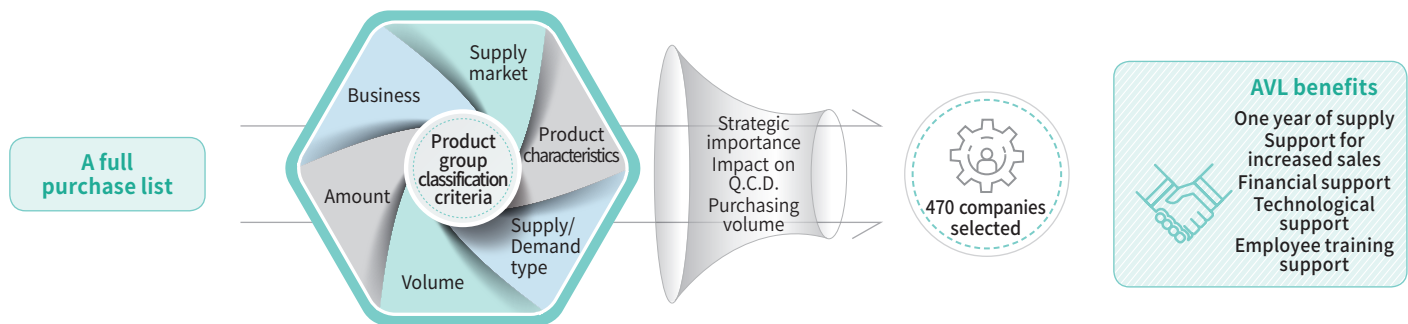
번호	제목	글쓴이	화일첨부	날짜
1	**전자계약 체결 프로세스 안내**	오석준		2018-04-05
2	18년 동반성장협력 체결 요청	오석준		2018-04-05
3	LS전선 상생협력 제도 운영 안내	오석준		2018-04-02
4	AEO 재인증관련 수출입안전관리 협조요청	박현진		2018-03-21
5	2017년 대한민국 취업박람회 개최	최창원		2017-08-10
6	공인인증서 인식오류 현상	시스템담당자		2017-04-04
7	AEO 재인증관련 수출입안전관리 협조 요청	최창원		2017-03-21
8	17년 1-2차 협력사 공정거래 및 동반성장 체결 요청	최창원		2017-02-01

1 2 3 [NEXT](#) [»](#)

Systems for suppliers

AVL (Approved Vendor List) system

Since the introduction of the AVL system in 2016, we have been working to enhance the competitiveness of key suppliers and manage risks together. Companies selected as key suppliers under the AVL system are guaranteed one year of supply to LS C&S, allowing them to minimize uncertainties in sales. In addition, along with financial benefits, they receive support for conducting improvement activities that are identified together with LS C&S. In 2017, 470 companies were selected as AVL suppliers.



Evaluation of environmental performance

To provide services in accordance with domestic and international market standards, newly registered suppliers are subject to the evaluation of not only their overall management, quality management, and production management, but also their environmental and safety management. In addition, surveys of suppliers on applicable environmental and safety criteria will be conducted on a regular basis. We will further strengthen our internal evaluation and environmental performance evaluation system to respond to increasingly tightening regulations.

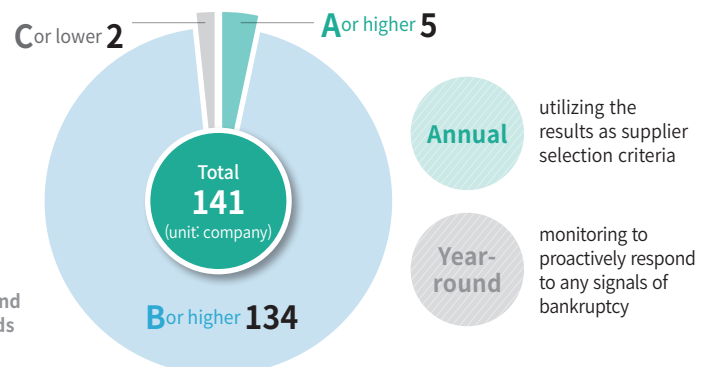
Suppliers subject to our environment and safety management standards



Credit rating system

We operate an annual credit rating system for our suppliers with high transaction volumes. The results are applied the next year as supplier selection criteria. In addition, we monitor their financial risks in order to proactively respond to any signals of bankruptcy. In 2017, the credit of 141 suppliers was evaluated by two credit rating agencies. For those with a low credit rating, consultations were provided from rating agencies and pertinent support was offered by our employees responsible for purchasing.

Credit rating results in 2017



Systems for win-win cooperation

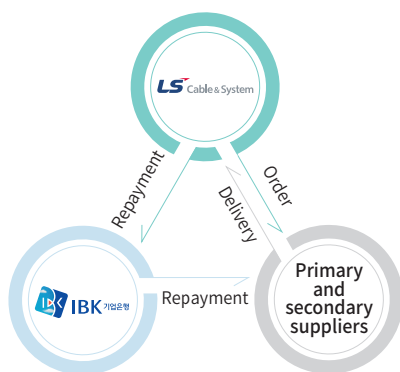
Financial support

To help suppliers improve their cash flow, we operate financial support systems, including direct loans, a win-win cooperation fund, and a network loan. We will further strengthen promotional activities to benefit more suppliers.

Direct support

We offer a program of extending loans to suppliers using internal funds. In 2017, the amount of direct loans totaled USD 933 thousand. A total of 10 suppliers were provided with unsecured interest-free one-year loans of USD 93,336 each.

Network loan



Training support

To support employees from primary and secondary suppliers to strengthen their job competency, free training programs tailored to their needs are provided in partnership with external institutions. The curriculum include accounting, purchasing, quality and production management. In 2017, nine suppliers took part in the programs. We will plan to hold a training camp at the LS training center Miraewon.

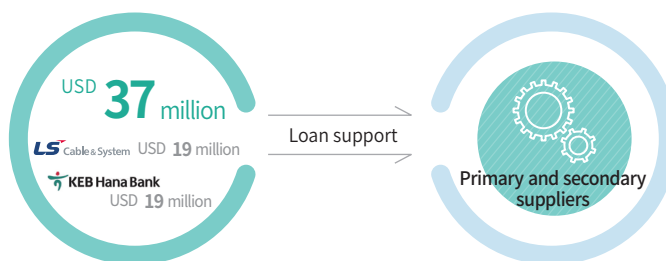


Indirect support

We also provide a win-win cooperation fund worth USD 37 million that was created in partnership with KEB Hana bank, as well as account receivable loan programs. These allow our primary and secondary suppliers to secure loans at lower-than-market interest rates.

In addition, we and the IBK (Industrial Bank of Korea) have operated a network loan worth USD 47 million since 2009 to support our partners.

Win-win cooperation fund



Technological support

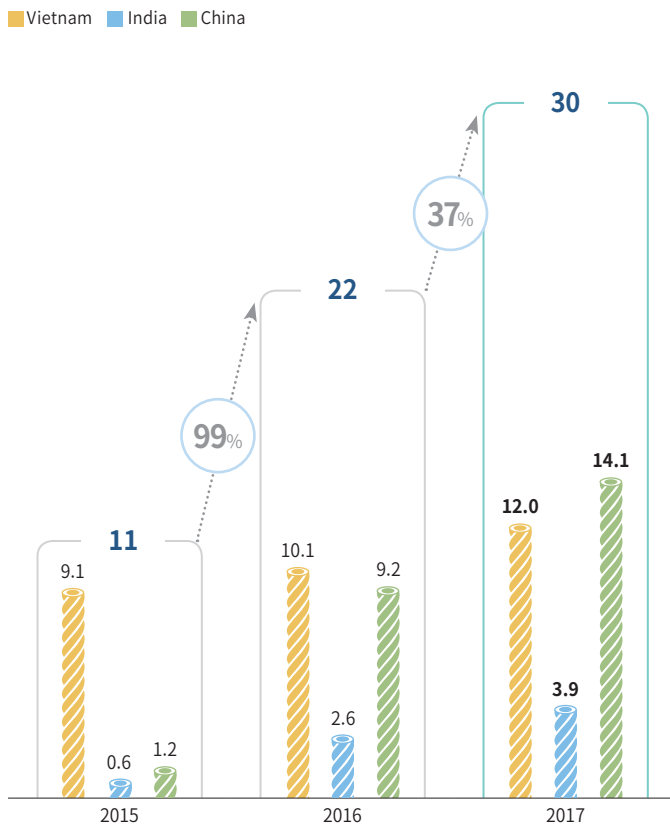
We provide technical support to help our suppliers strengthen their competitiveness. We have been working together on two national projects from 2017 and completed the development of optical joint materials and cable pods for cleanrooms as part of the efforts to enter new overseas markets. Meanwhile, for suppliers that show low performance in annual due diligence, our employees with expertise in production process and quality are dispatched to support them in resolving pertinent issues. In 2017, 14 suppliers received support for improvement.

Support for increasing suppliers' overseas sales

Not only do we help our suppliers operate their businesses in a stable manner through financial and technological support, but we also provide opportunities for them to achieve long-term growth by supporting them in expanding their overseas sales. As part of these efforts, we share information with domestic suppliers on demand for raw and subsidiary materials by our overseas subsidiaries in China, Vietnam, and India. Moreover, selected suppliers with superior performance are given an opportunity to supply products to our overseas subsidiaries and increase their overseas sales.

Suppliers' sales results for our subsidiaries

(unit: USD million)



Support for promoting the local economies in our international locations

To promote the local economies in our international locations, overseas subsidiaries in China, Vietnam, and India have created a supply chain focusing on their respective local markets. In 2017, they procured local raw materials (excluding nonferrous metals) worth USD 195 million, accounting for 66% of our total raw material procurement.

Raw material procurement by overseas subsidiary (excluding nonferrous metals)

(unit: USD million)

Legend: Locally procured (Yellow), Imported (Grey)

Country	Locally procured	Imported	Total
Vietnam	109	70	178
India	41	19	60
China	45	11	56

Raw material procurement ratio by overseas subsidiary (excluding nonferrous metals)

(unit: %)

Legend: Locally procured (Yellow), Imported (Grey)

Country	Locally procured (%)	Imported (%)
Vietnam	61	39
India	68	32
China	80	20

C.O.R.E. - One LS C&S

TOPIC

Respect for Human Rights and Diversity

Employee satisfaction is a starting point that allows us to meet the needs of customers, suppliers, and local communities. Respect for employees is essential to their satisfaction. We respect our employees and treat them fairly. We nurture and secure talent and ensure that people can reach their full potentials and produce the best possible results. To promote work-life balance, a variety of support measures are in place. We also put considerable efforts into creating a pleasant working environment. Our management and labor representatives cooperate fully based on a sound relationship.



Strategic direction

Respecting the human rights and diversity of our employees and pursuing global standards.



Key tasks

Respect for employee rights

- No discrimination
- Education on human rights protection
- No child/forced labor

Labor-management relationship for shared growth

- Operating a labor union
- Facilitating communication
- Joint social contribution activities
- On-site satisfaction survey

Respect for diversity

- Support for female employees
- Employment of the disabled



Performance in 2017

Respect for employee rights, and no discrimination

- Promoted diversities
- Implemented no-discrimination policies

Support for female employees, and employment of the disabled

- Took support measures for female employees
- Signed an employment contract with a company for employees with disabilities

No child/forced labor and ensuring labor-union activities of employees

- Implemented no child/forced labor policies
- Promoted labor-management relationships for value creation



Targets in 2018

- Encourage employees to take more vacation time (e.g. by using 'sandwich' day or annual 'refresh')
- Promote measures to support female employees
- Maintain employment policies for people with disabilities

Respect for employee rights

No discrimination

According to the Article 6 (Equal Treatment) of the Labor Standards Acts, no employer should not discriminate against workers on the basis of gender, or give discriminatory treatment in relation to the working conditions on the basis of nationality, religion or social status. In the Chapter 5 of our Code of Conduct, we prohibit unfair discrimination for reasons of gender, academic background, age, nationality, religion and birthplace in regard to recruiting, promotion, compensation, and education opportunity. All employees are given equal opportunities, and reward is made based on their performance. To prevent any unfair act, we operate support systems, such as the help center and cyber reporting channel where anyone can freely get counseling and report in anonymity.

Corporate Responsibilities for Employees

Nurturing talent

- 1) The company establishes, supports, and promotes the system to nurture employees as autonomous and creative talent.
- 2) Team leaders give advice and guidance to their team members considering their aptitude and abilities with determination to nurture them as those who are strong and challenge themselves.

Treatment based on abilities and performance

- 1) The company provides employees with equal opportunities for improving their abilities (training, job rotation, and position assignment decisions) and does not discriminate them for reasons of academic background, gender, age, religion, birthplace, age, disability, marital status, nationality, and race.
- 2) The company establishes, discloses, and complies with the specific criteria for evaluating the abilities and performance of employees in order to create a culture of fair competition.

Education on human rights protection

In order to raise employee awareness of human rights, we conduct related educational sessions. In addition, annual training on the prevention of sexual harassment is provided. In 2017, a total of 1,988 employees participated in the program. Ethical management, including sexual harassment prevention is covered in the introductory training programs for newly recruited employees and in the development programs for overseas employees.

No child/forced labor

We strictly prohibit any labor by children under 15 years old and by adolescents who are currently attending school in accordance with the Labor Standards Act of Korea and the labor principles of the UN Global Compact. As for forced labor, our employees work only based on their free will. We do not force our employees to work at night or on holidays. Working hours are eight hours per day and 40 hours per week. If anyone works at night or on holidays with prior consent, overtime payments are made.




Labor-management relationships for shared growth

Labor union

Our labor union was launched as the Anyang branch of the GoldStar chapter of the Federation of Korean Metal Workers Trade Unions in 1976, and has celebrated its 19th anniversary with 924 members as of the end of 2017. 'Those who work at LS C&S worksites' are eligible for union members and have a right to freely join or discontinue membership at any time. Both the labor and the management are working hard to establish a sound and harmonious relationship. The management strives to ensure employment stability and compensation based on business performance while the labor union actively conducts task and activities to achieve the company's business goals. Based on these relationships, we agreed on the extension of retirement age and introduced a wage peak system in 2007. We have cooperated to resolve critical issues related to internal and external labor environments. As a result, there have been no labor disputes for the last 29 years since 1989.

Facilitating communication

To share corporate management information with our employees, including a labor union, on a regular basis, a variety of communication channels are utilized. We listen to the voices of our employee and work together in order to improve a working environment and welfare benefits.

	Participant	Frequency	Activities
 Monthly Meeting	• All employees	Monthly	• Sharing information on business status and performance and pending issues
 Participation and Cooperation Promotion Council Meeting	• Management: six persons including the president • Labor: six persons including the head of the union	Quarterly	• Sharing information on business status and performance • Discussing systems and working conditions
 Labor-Management working-level meetings	• Management: led by the head in charge of labor-management affairs • Labor: led by a member fully dedicated to the union	Monthly/ As needed	• Discussing improvement on working conditions and employee benefits

Respect for diversity

Joint social contribution

Since the labor-management agreement was made in 2007, we have operated a program that all employees of LS C&S donate up to USD 1 from their monthly salary and the company matches its employees' charitable contributions. In addition, volunteer activities, such as living expense support for the underprivileged, and kimchi- and coal briquette-sharing events are conducted. Employees also participate in environmental cleanup activities, including the One Company One Stream campaign, to fulfill corporate responsibility.

On-site satisfaction survey

An annual on-site satisfaction survey is jointly conducted by the labor and management to diagnose and improve a working environment and organizational culture at our plants. The survey consists of the following items: 1) manager; 2) supervisor; 3) communication; 4) organizational culture; 5) labor-management relationships; 6) labor union; 7) working environment; 8) job management; and 9) welfare benefits. Based on the survey results, we take improvement measures for issues identified to raise employee satisfaction level at work. At the same time, a grievance system is implemented by plant to deal with employee complaints regarding their jobs and working environment.

Labor union membership by plant

(unit: person)			
Plant	2015	2016	2017
Anyang	11	12	7
Gumi	485	495	498
Indong	247	262	273
Donghae	231	200	146
Total	974	969	924

Support for female employees

Due to the characteristics of the cable manufacturing industry, female employees are a minority at the company. We put major efforts into creating a women-friendly workplace where everyone can reach their full potential. As of 2017, female employees accounted for 16.8% of all employees and female managers for 4.6% of all managerial positions, but this has been rising for three consecutive years. To nurture more female managers, we plan to provide leadership training programs for female employees and actively support them through applicable welfare benefits, including parental leave and flexible work hours.

Female employees in managerial positions (as for permanent employees) (unit: person)

Category	2015	2016	2017
Female employee (%)	125(11.5%)	156(13.4%)	168(16.8%)
Female manager (%) ¹⁾	21(3.4%)	23(3.6%)	30(4.6%)

1) The ratio of female managers: The percentage of female managers out of all managerial positions

Space for female employees

There are nursing rooms and lounges for female employees at our worksites. The female employee club Arom Society is operated to provide counseling and promote good fellowship among female employees.

Parental leave

Employees with children aged eight (second graders) or younger can take parental leave up to one year and their return to work is guaranteed. In 2017, a total of 11 employees took the leave, and three of them were male employees. The benefit helps to promote equal employment for the company and work-life balance for our employees. In addition, a working hour reduction system for pregnant employees is implemented to help reduce their physical stress with less working hours.

LS daycare center

An LS daycare center that was established in Anyang at the end of 2014 helps employees reduce the burden of childcare and concentrate on their work. Currently, a total of 70 employees from LS Group subsidiaries are utilizing this daycare center.



The first beneficiary of our childcare working hour reduction system

Choi Seung-Eun, a Manager on the Power Transmission System Sales Team, became the first ever beneficiary of our working hour reduction system for childcare. She worked three days per week, from Monday to Wednesday, from April 2017 through March 2018.

This system allows employees subject to parental leave to reduce their working hours over one year rather than taking a leave of absence. The lowered working hours should fall within a range from 15 to 30 hours a week.

she was the first to apply for this system, a considerable volume of work was required in preparation, such as involving her in writing and reviewing a contract with the Labor Relations Planning Team. However, it was rewarded in the end when she was able to participate in both work and childcare.

Once she started to work the reduced hours, there were questions as to whether she could fully complete her tasks within the limited working time. However, she successfully won the Euiwang Baekwoon Valley project. Choi said the restricted work hours forced her to concentrate on her work. With the efficiency she gained, she was able to achieve more than she expected.

“Without support from my team leader and colleagues, it would not have been possible for me to complete my work while also spending time on childcare. Taking parental leave is a right that all employees with children should have. However, in our society there are still a lot of stumbling blocks that prevent employees from enjoying this right. In this sense, the working hour reduction system for childcare is a good program for work-life balance,” said Choi.

What is the message she would like to pass along to colleagues who are considering taking a parental leave?

“Happy families mean happy employees, which ultimately leads to improving the company’s competitiveness. We are proactively providing support for employees’ childcare, and many other great assistance systems are in place!”

Power Transmission System Sales Team
Choi Seung-Eun, Manager



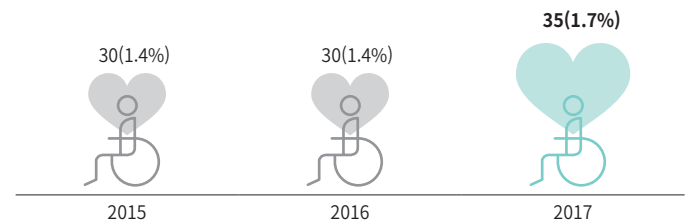
Employment of the disabled

Consideration for employees with physical disabilities

As employees in the cable manufacturing industry are required to be more careful about their safety and health, the ratio of our employees with physical disabilities is relatively low. However, in accordance with the Act on Employment Promotion and Vocational Rehabilitation for Disabled Persons, we hire those who with physical disabilities at our plants. As of 2017, a total of 35 employees with physical disabilities are working in our worksites, which is an increase from 30 of the previous year. We actively support and help them successfully adjust to and do their jobs through guidance and preparatory training so that they can stand on their feet.

Employees with disabilities

(unit: person)



Increasing the number of employees with disabilities through indirect employment

An indirect employment contract was signed in April 2017 with Butyi, a company that was established to provide stable jobs to the socially vulnerable, including the disabled, according to the ‘subsidiary-type standard business system’ of the Korea Employment Agency for the Disabled and the Act on Employment Promotion and Vocational Rehabilitation for Disabled Persons. Employees are selected from the day-hospital¹⁾ center named Haeddeulnal within the Yongin Mental Hospital, the only WHO psychosocial rehabilitation cooperation organization in Korea. They receive training prior to starting work, and all cases of trainees are managed to provide support them to continue working.

1) Day hospital is an outpatient facility where patients attend for assessment, treatment or rehabilitation during the day and then return home or spend the night at a different facility.

2017 employment status of Butyi

(unit: person)

Gender	Applicants	Employed trainees (Butyi)	Trainees	Applicants transferred to outpatient programs	Applicants going to the day hospital
Male	28	16	0	5	7
Female	37	12	16	5	4
Total (Employment rate)	65	28 (43.1%)	16 (24.6%)	10 (15.4%)	11 (16.9%)

C.O.R.E. - Rule & Responsibility

TOPIC

6

Compliance Management

The primary goal of our compliance management is to identify legal risks in our business operations and prevent them from becoming realized. However, we do not consider our corporate responsibility to end simply at legal boundaries: We also take into account social norms and the intent of legislation. Our ultimate goal is to win the trust of our stakeholders by applying compliance management under a framework of sustainability and lay a foundation to fulfill our corporate social responsibility.



Strategic direction

Promoting employee awareness that 'no sustainability is achieved without legal compliance', and expanding activities to prevent and minimize risks



Key tasks

Strengthening compliance training

- Supporting compliance training for suppliers
- Incorporating compliance training into introductory course for new employees
- Providing training programs on fair trade

CP¹⁾ activities for personal information protection

- Taking PC protection measures
- Introducing new software

Legal advice

- Reviewing contracts and pertinent laws

1) CP: Compliance Program



Performance in 2017

Provided training for agencies, and offered educational programs on fair trade laws for employees

Introduced a system to prevent the leakage of personal information and established a process to manage internal information.

Provided upgraded legal services by employing lawyers (75% of the legal affairs team)






Targets in 2018

- Provide compliance training activities under any circumstances
- Raise employee awareness of crisis prevention activities
- Provide quick and accurate legal services

Strengthening compliance training

Supporting compliance training for agencies

To encourage our partners to focus on compliance management and prevent unfair transactions in doing business, we provided compliance training for 104 employees from 72 agencies.

Category	in 2017	Participants	Programs
 1st (power distribution/ busduct)	February 16(Mon.)- 17(Thu.)	55 employees from 36 agencies	<ul style="list-style-type: none"> • Understanding of the LS C&S Way • Ways for cooperation between LS C&S and agencies
 2nd (industrial cables/ materials)	March 20(Mon.)- 21(Tue.)	34 employees from 23 agencies	<ul style="list-style-type: none"> • Training on new products and sharing issues • Special lectures on negotiation skills in sales
 3rd (Telecommunication)	April 24(Mon.)- 25(Tue)	15 employees from 13 agencies	<ul style="list-style-type: none"> • Understanding of bond management • Understanding of Kim Young-Ran Act



Training on fair trade for employees

Training on fair trade is included in the introductory course for new employees to raise awareness on compliance. Our employees are engaged in risk prevention and CP (Compliance Program) activities through the programs on the Agency Act and the Fair Trade Act.

Training on the Subcontracting Act	
Theme	Subcontracting laws and violation cases
Date	June 26 (Mon.), 2017
Venue	Main conference room (17F), LS Tower
Participants	Employees responsible for purchasing



Training on the Fair Trade Act (unfair intercompany transactions)	
Theme	Unfair intercompany transactions
Date	July 3 (Mon.), 2017
Venue	LS C&S R&D center
Participants	Technology Development Group



CP activities for personal information protection

Protection measures as for PCs

We established regulations on data disposal to protect personal information of our customers and suppliers. A lot of efforts are made to prevent any cases that could lead to class action lawsuits and legal punishment through systematic management.

Introduction of new software

With more organized and detailed approaches and measures, we introduced and operated new software to prevent the leakage of personal information and company assets.

Legal review

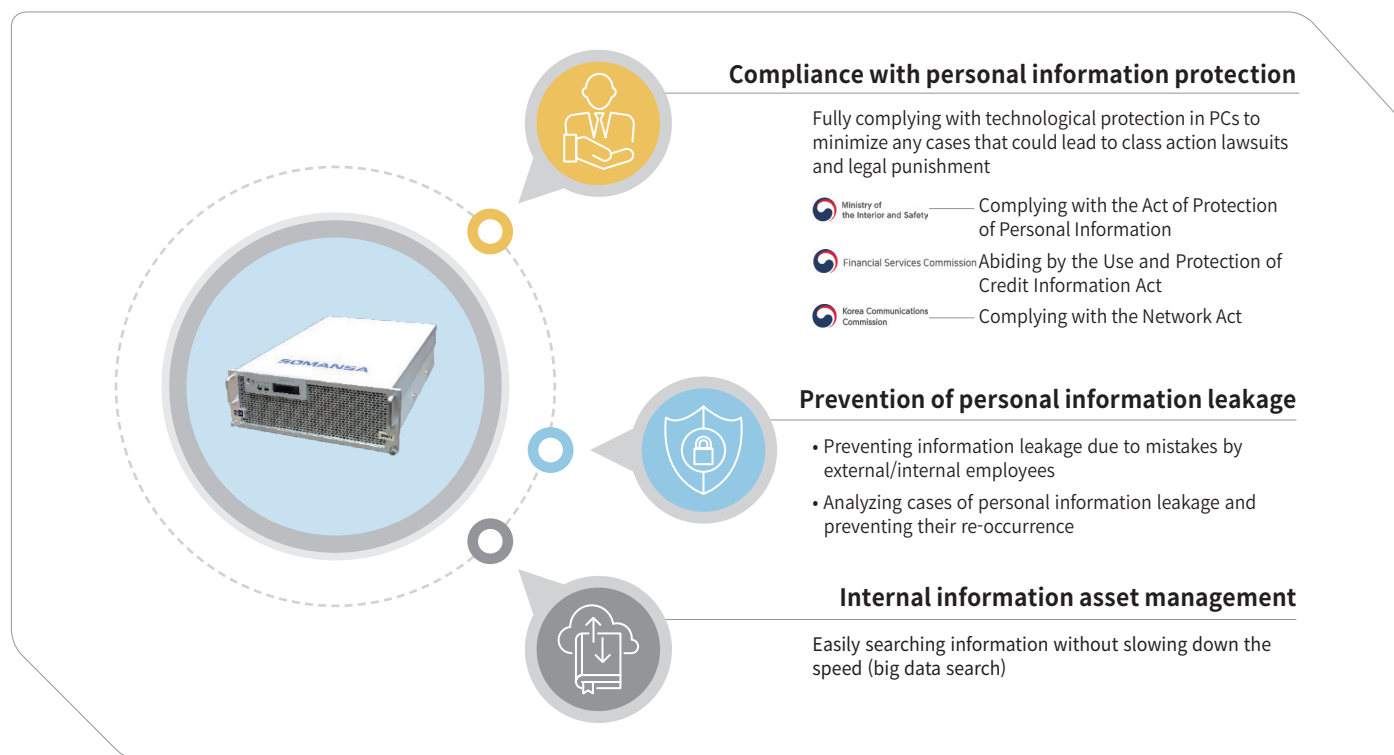
Our intranet Wels was introduced in 2016 and allows our employees to access organized and systematic IT-based legal services, such as contract reviews and legal consultations. All of our contracts must be reviewed and approved by the Legal Affairs Team and the Compliance Management Team before being signed. This is a component of our efforts to prevent any violations of laws and regulations. In addition, more lawyers were recruited (six of the eight employees on the Legal Affairs Team are lawyers) to identify from a legal perspective possible issues that may arise during business processes.

Contract review and legal consultations

(unit: case)

Category	2015	2016	2017
Domestic	Contract review	193	167
	Legal review	1,533	1,886
Overseas	Contract review	178	173
	Legal review	1,764	2,295

Personal information protection policies



C.O.R.E. - Rule & Responsibility

TOPIC

7

Ethical Management

Ethical management means fulfilling our corporate social responsibility while devising strategies and ensuring competitiveness required for our sustainable growth. When companies live up to their ethical, moral, legal, and economic responsibilities, they can win the trust of customers and achieve sustainability. Our management philosophy is that we should fully abide by principles, laws, and regulations and be ethically responsible while doing business. Based on this philosophy, we will continue with our utmost efforts to establish a culture of ethical management for all our employees to put into practice at work.



Strategic direction

Conducting activities for ethical management to raise employee awareness and encourage them to put into practice



Key tasks

Strengthening the foundation for ethical management

- Implementing the Code of Conduct
- Operating the Ethics Secretariat

Conducting activities for ethical management

- Promotion
- Training
- A counseling center
- Evaluation of ethics
- Official document for cooperation to suppliers

Monitoring ethical risks

- Cyber Reporting Channel
- Protection of reporters
- Clean Company
- Reward for reporting



Performance in 2017

Handled report cases

100%

- Eleven report cases were received and resolved 100%

Posted articles related ethics

- Articles on moral hazard, win-win cooperation and whistle blowing were registered

Provided ethics training

- Training programs were offered to new and overseas employees

Conducted the evaluation of ethics

- Customer response and fair competition were improved



Targets in 2018

- Awareness raising of our ethical system: Facilitate a counseling center, and promote the Code of Conduct
- Ethical training and promotion: Diversify training programs, and review promotion measures
- Reporting system: Promote a reporter protection program and strengthen counseling channels

Strengthening the foundation for ethical management

Implementation of the Code of Conduct

We established our Code of Conduct to provide a framework that employees should consider and follow. It is applied to LS C&S and its subsidiaries. The Code of Conduct consists of six categories, each with detailed implementation measures: responsibilities and obligations toward customers; basic ethics for employees; fair competition; fair business transactions; corporate responsibilities for employees; and responsibilities toward the country and society. In addition, example cases of violations are explained to help employees practice this Code of Conduct.

Category	Details
Responsibilities and obligations toward customers	<ul style="list-style-type: none"> • Respect for customers • Providing credible information • Responding to customers • Offering value to customers • Protecting customer interests
Basic ethics for employees	<ul style="list-style-type: none"> • Prohibiting unjust action using job positions or duties • Honest and fair reporting • Keeping one's dignity • Avoiding the conflict of interests against the company • Preventing sexual harassment at work • Promoting self-development
Fair competition (competitors)	<ul style="list-style-type: none"> • Obtaining and utilizing information in a fair manner • Securing competitive advantages in a fair manner • Prohibiting collusion • Respecting related laws, regulations and business practices
Fair transactions (suppliers)	<ul style="list-style-type: none"> • Selecting suppliers through a transparent process • Promoting fairness in transactions and evaluation • Maintaining order in trade • Supporting suppliers
Corporate responsibilities for employees	<ul style="list-style-type: none"> • Fostering talent • Ensuring fair treatment based on capability and performance • Ensuring the freedom of speech and expressions • Being responsible for health and safety
Responsibilities for the country and society	<ul style="list-style-type: none"> • Prohibiting immoral and anti-social business activities • Contributing to the country and society • Protecting shareholder interests • Protecting the environment

Ethics Secretariat

We maintain an Ethics Secretariat under the Internal Audit and Consulting Team. The role of the secretariat is to establish and implement strategies for ethical management. Their implementation status is monitored to prevent any unethical acts. When issues arise, the secretariat takes measures to address them and their root causes are analyzed to prevent any re-occurrence.

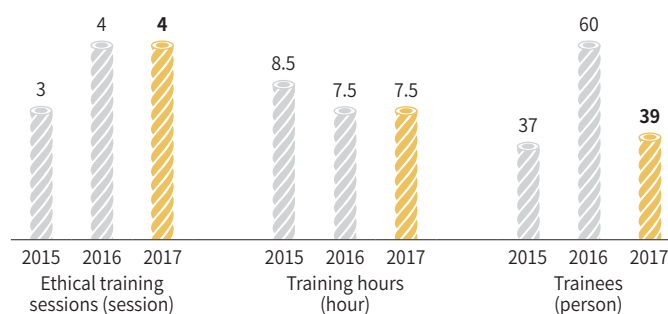
Activities for ethical management

Promotion of ethics management

The secretariat has been posting articles on ethical management, including news, the Code of Conduct, and ethics systems on the company intranet since 2006. In 2017, articles on compliance management, moral hazard, win-win cooperation, and whistleblowing were posted. They received total 1,682 hits.

Training on ethics management

Ethics training is included in the introductory course for newly-hired non-career employees. Employees to be dispatched overseas should take the training before leaving. The training programs include: the concept of ethical management; internal ethical management system and the Code of Conduct; and violation cases. In 2017, four ethical training sessions (7.5 hours) were conducted for 39 employees.



Counseling center

The secretariat is operating a counseling center for employees who face ethical issues. They can not only get general information on ethical management but also have counseling on ethical conflicts at work through the Cyber Reporting Channel, phones or emails. Reports are received and handled confidentially, and the secretariat does not disclose the personal information of anyone reporting and the reported details without their consent.

Measures for corruption and irregularities cases

We take strict disciplinary action against cases of corruption and irregularities while paying full attention to the prevention of potential risks. Disciplinary action is taken against involved employees and any suppliers who offer money or other items of value to representatives of LS C&S. Depending on the seriousness of a case, the contract with an involved supplier can be suspended.

Ethical risk monitoring

Evaluation of ethics

Since 2010, an evaluation of ethics has been conducted on an annual basis. The 2017 survey was conducted online from November 27 to December 11 for all employees regarding the basis of ethical management and implementation of corporate and work ethics. The results showed that improvements were made in customer satisfaction and fair competition compared to the previous year. Implementation of corporate ethics rose to 75.3 from 74.6 in 2016.

Evaluation index on ethics



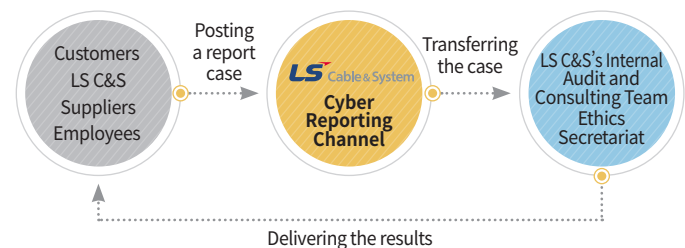
Official document for cooperation to suppliers

Before the Chuseok and Lunar New Year's holidays, we send an official document asking suppliers for cooperation in eradicating practices of giving and receiving gifts, entertainment, and money and informing them of our Code of Conduct and reporting channels. After the document is sent, it is also posted on the company purchasing intranet so that all of suppliers can check the information.

Cyber Reporting Channel

Our ethical management website features a Cyber Reporting Channel that allows employees as well as stakeholders, including customers and suppliers, to anonymously report any unethical activities they witness or disadvantages they suffer. The Ethics Secretariat investigates and handles report cases and delivers the results to reporters. In 2017, eleven reports were received, investigated, and addressed in compliance with the pertinent rules and regulations.

Processes for the Cyber Reporting Channel



Protection of reporters

We keep personal information and reporting details of all reporters confidential and protect them from being disadvantaged due to the reporting. Their identities, evidence presented by them, any other information that could identify them, and measures taken based on the results are strictly kept confidential to protect reporters.

Clean Company

We established a system called Clean Company that helps employees voluntarily report any past acceptance of money or gifts. Once they fill out a report form and submit it to the Ethics Secretariat, any money or gifts received are returned to the givers with an explanation regarding our ethical management policies. If there is a situation in which the received items are difficult to return, they are donated to social welfare facilities or to religious groups under the name of the giver.

Reward for reporting

To prevent unethical acts and create a sound organizational culture, those who report irregularities such as cases of bribery are offered a reward of up to five times of the amount of the bribe (USD 4,667 in maximum). Those who voluntarily report unethical acts are exempted from responsibility and the money they received is used for volunteer activities.

C.O.R.E. - Rule & Responsibility

TOPIC

8

Workplace Safety

To ensure the right of employees to a healthy, safe, and pleasant environment, we make employee safety and health our top priority. We give our all to ensure a disaster-free workplace. To this end, an occupational safety and health management system is operated in accordance with the safety and health management system OHSAS18001. In addition, labor and management are working together to strengthen the management of accident and disaster prevention.



Strategic direction

Ensuring a healthy workplace and achieving the goal of zero-accidents by strengthening safety activities



Key tasks

Strengthening voluntary safety and health activities

- Conducting voluntary safety and health activities by team
- Supporting suppliers in their safety management
- Providing intensive management on potentially dangerous equipment

Creating a healthy workplace

- Occupational disease prevention activities
- Lifestyle disease prevention activities

Activities for safety and health management

- Occupational Safety and Health Committee
- The safety and health management system OHSAS18001



Performance in 2017

Conducted 28 activities to create a culture of safety

28
activities

- A declaration on safe operation of forklifts (24 suppliers)
- Win-win cooperation (28 companies)

Provided intensive management of processes subject to PSM (Process Safety Management)

- Audit by external professional organizations
- Improvement activities regarding SCR explosion-proof

Provided intensive management of potentially dangerous equipment

500
machines

- Safety inspection of potentially dangerous machines and devices (500)
- Non-destructive inspections of forklifts, and blue LED installation (117 forklifts)
- Safety passage for pedestrians (East gate)

Conducted activities to improve a working environment and health

237
sites

- Measurement of working environments (237 sites)
- Establishment of internal standards on the work process in a sealed space



Targets in 2018

• Achieve the goal of zero-accidents

- Activities to promote a culture of safety: Five safety rules at worksites, HSE meetings, and support to suppliers
- Activities to eliminate risks of potentially dangerous equipment: Risk evaluation of all processes, and intensive management of the pertinent equipment
- Safety for pedestrians: Repair of an exterior pedestrian passage, and establishment and application of the standards on interior pedestrian passages

• Conduct activities to create a healthy workplace

- Improvement of worksite environments: Work environment measurement, special examination, and activities for reducing harmful factors
- Promotion of employee health: Assessment on the risks of cardiovascular diseases, smoking cessation clinics, and educational materials for health

Strengthening voluntary safety and health activities

Voluntary safety and health activities by team

Safety training

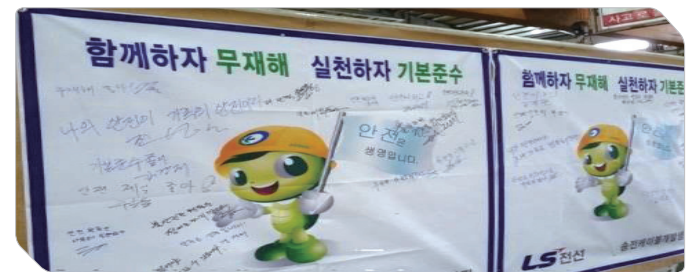
We provided safety training online to 380 office workers (including researchers). In addition, information on accidents or seasonal issues were posted monthly to help them aware of safety and health at work.

Safety check

To strengthen safety management, supervisors/managers conduct a daily safety check for potentially dangerous tasks.

Zero-accident campaigns

In February, a zero-accident campaign is launched to raise employee awareness of safety. In July and August, seasonal safety and health activities are conducted for them to stay alert in hot weather.



Number of accidents occurred

(unit: case)

Plant	2015	2016	2017
Gumi	3	1	3
Indong	1	0	0
Donghae	0	0	0
Company total	4	1	3
Company-wide industrial accident rate (%)	0.32	0.08	0.22
Industrial accident rate in the industry (%)	0.34	0.19	0.29

Frequency rate of injury

(unit: %)

Plant	2015	2016	2017
Gumi	2.38	0.75	2.12
Indong	1.44	0.00	0.00
Donghae	0.00	0.00	0.00
Company total	1.68	0.40	1.17

*Frequency rate of injury = (Number of industrial accidents / Yearly working hours) x 200,000

*In calculating the frequency rate of injury, the OSHA incidence rate is based on 200,000 hours.

Safety and health image contest

To raise employee interest in safety activities, a safety and health image contest is held in August. Contest winners are awarded prizes and their works are displayed.

Safe operation of forklifts

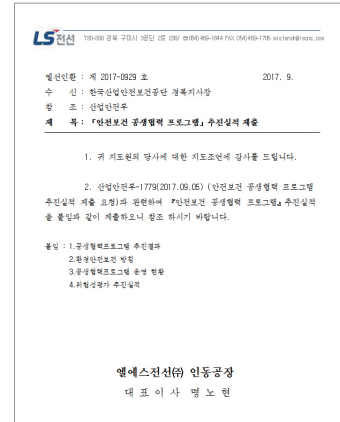
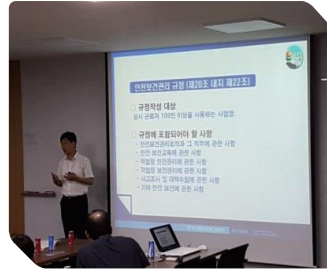
We hold a declaration ceremony where suppliers who operate our forklifts commit themselves to safe operation. The pertinent written agreement is signed and exchanged between LS C&S and its suppliers. In 2017, the event was held in April with the participation of 24 suppliers.



Supporting suppliers in their safety management

To help our suppliers improve their safety management, a win-win cooperation program is being operated with 28 partner companies. The results are evaluated by the Ministry of Employment and Labor. Each supplier is guided in the creation of an annual safety management plan. A monthly safety and health council is held to promote communication. In quarterly joint inspections, we work together to identify and eliminate risks and promote worksite safety.

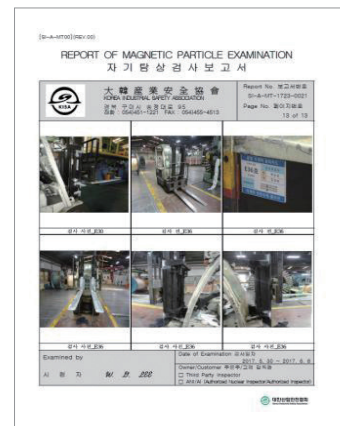
In 2017, we invited instructors to provide group training on risk evaluation for the CEOs of our suppliers and supported 34 companies in their renewal of pertinent certifications.



Providing intensive management on potentially dangerous equipment

Strengthening safety management of forklifts

We commissioned a professional external institution to conduct a non-destructive inspection of 117 forklifts from May to June 2017. Improvement measures were taken for all issues identified. In September, blue LED lights were installed on them to prevent accidents while reversing.



Installation of sidewalk blocks and safety fences

In the area spanning from the east to the west gate at the Gumi plant where there is heavy car and forklift traffic, sidewalk blocks and safety fences were installed in August 2017 to ensure the safety of pedestrians.



Strengthening safety management of overhead traveling cranes

Detailed safety diagnoses were conducted on eleven overhead traveling cranes handling deadweight cargo. One was identified as outdated and holding a number of defects so it was replaced. For seven of the cranes, the mechanisms designed to prevent overload were replaced to ensure their safe operation. In addition, a non-destructive inspection was conducted in September on 56 hoisting accessories used to handle products and materials by crane.

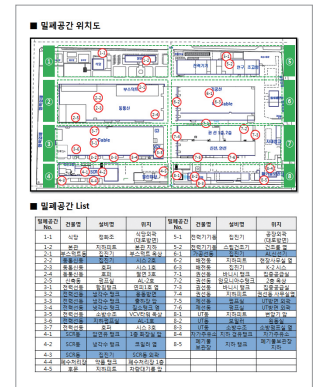


Creating a healthy workplace

Occupational disease prevention activities

Working environment measurement and general/special health checkups

Work environment measurement is conducted biannually for all processes (237 sites) to create a pleasant working environment. The results are monitored to determine whether harmful factors are exceeding set limits or abnormal phenomena are occurring. In addition, general/special health checkups are provided for all employees on an annual basis.



Work process management in a sealed space

To prevent suffocation, we make a list of sealed spaces and location maps and post warnings. Before tasks are conducted in these areas, activities such as ventilation, measurement of oxygen concentrations, and access control are all conducted. During work, oxygen concentrations are regularly measured.

Lifestyle disease prevention activities

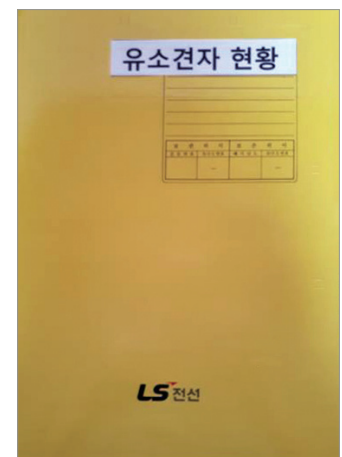
Smoking cessation programs

As part of the efforts to promote employee health, smoking cessation programs were operated for six months from April to September. Seventeen employees at the Gumi and Indong plants successfully completed the programs and were able to quit smoking.



Employee health management

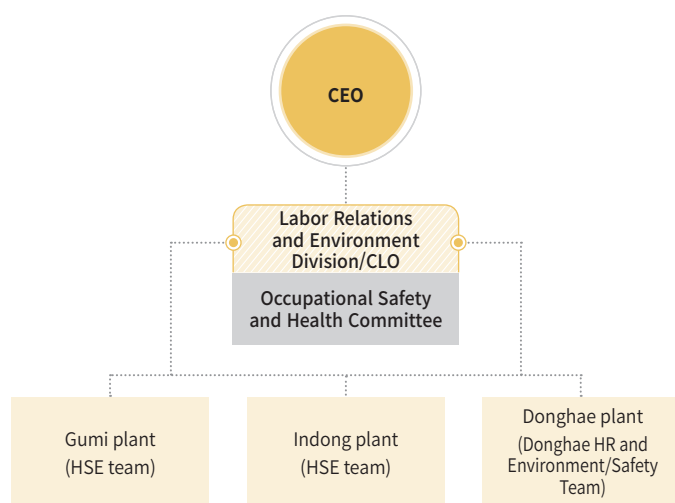
Employees who receive abnormal findings in their health checkups are provided with consultations with doctors and drug prescription benefits. In addition, flu vaccinations are offered to employees and their families in partnership with local clinics to promote their health.

[illegible]

Safety and health management activities

Occupational Safety and Health Committee

The Occupational Safety and Health Committee is operated under the Labor Relations and Environment Division/CLO. Key health and safety issues are jointly reviewed and decided by representatives of labor and management through this committee. It is composed of 15 members from management, including a person responsible for safety management, and 15 labor representatives, including the head of the labor union. Key considerations include: making a plan to prevent industrial accidents; establishing and revising pertinent regulations; providing training to workers; checking and improving the working environment; managing employee health; and collecting statistics on industrial accidents. The committee meets on a quarterly basis to consider and vote on key issues. Approved items are announced to all employees. In 2017, a total of 109 items were considered and decided, and actions have been taken in response.



OHSAS18001

We have been carefully maintaining OHSAS18001, an international standard for safety and health management. Every year, management reviews¹⁾ the performance over the previous year, sets goals for the current year, and operates programs for improvement. Each team internally analyzes implementation status, identifies issues, and conducts independent improvement activities. Our OHSAS18001 compliance status is evaluated by the certification organization UL on an annual basis to ensure we are meeting global standards for safety and health management.

1) The performance over the previous year regarding the operation of our safety and health management system and goals for the next year are reported.

OHSAS 18001 compliance status

	Domestic	Gumi, Indong, and Donghae
	Overseas	LSHQ

C.O.R.E. - Expertise

TOPIC

Talent Management

Based on our belief that sustainable performance can be achieved only through the efforts of the people involved, we strive to secure and nurture creative talent. The talent we seek includes: professionals with outstanding job competence; members leading the development of the organizational culture by implementing its core values; and global leaders actively responding in an ever-changing environment. We aim to create an environment in which the company and its employees grow together, thereby creating greater value.

Strategic direction

Supporting employees with a sense of ownership in their jobs to make a great achievement together

Key tasks

Improving employee satisfaction

- Organizational capability/vitality
- Worksite satisfaction

Securing talent and fair HR management

- Employment
- Performance management
- Fair evaluation
- Appropriate compensation

Employ welfare benefits

- "Homepany" family events

Nurturing talent

- e-Campus
- Training for suppliers
- CORE coaching programs for team leaders
- Job competence in core businesses
- LS career-development programs
- Programs for outstanding local employees from overseas subsidiaries

Performance in 2017

Securing talent and fair HR management

C.O.R.E.
Prize

- Operated a performance management system
- Established the C.O.R.E. Prize

Nurturing talent

124
employees

- Launched e-Campus (the Group-wide e-HRD system was officially launched on January 1, 2017)
- Operated programs for local employees with excellent performance from overseas subsidiaries (five employees from five subsidiaries for three months)
- Provided training for 104 employees from 72 suppliers
- Offered CORE coaching programs to 15 team leaders (four sessions)

Targets in 2018

• Improving employee satisfaction

- 1) Enhance organizational vitality index
- 2) Increase worksite satisfaction index

• Nurturing talent

- 1) Nurture leadership and talent, and strengthen job competence
- 2) Promote work efficiency

• Securing talent and fair HR management

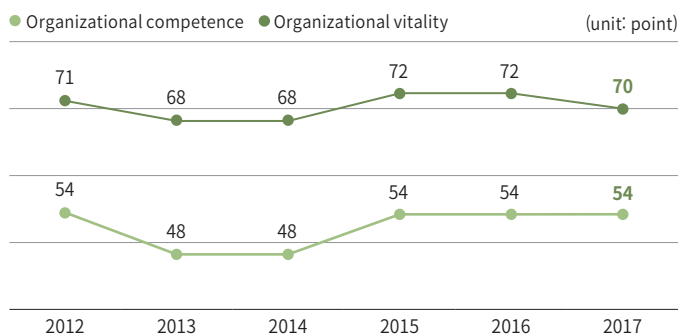
- 1) Optimize HR management
- 2) Enhance employee competitiveness

Improving employee satisfaction

Organizational competence/vitality indexes

In the five-year trends for organizational competence/vitality indexes, the declines in 2013 and 2014 started to reverse and stabilize after our declaration of the LS C&S way and the introduction of related activities. In addition, our employees' perception of the organization has become more positive.

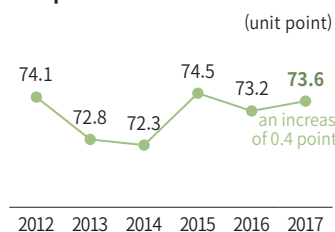
Organizational competence/vitality trend



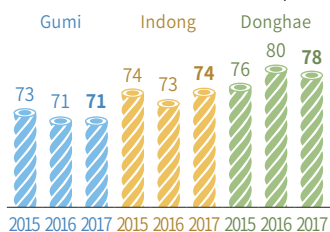
Worksite satisfaction level

The company-wide composite satisfaction level showed a slight increase over the previous year and the worksite satisfaction level was similar year on year. Overall, the satisfaction level has improved. We will continue our efforts to create a better working environment at plants.

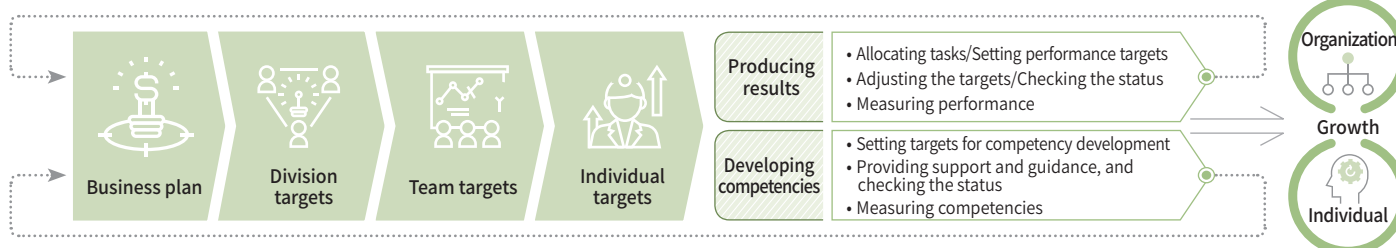
Company-wide composite satisfaction level



Worksite satisfaction level



Strategic Performance & Competency Management System

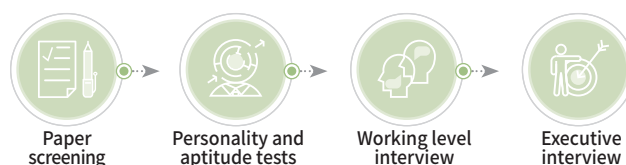


Securing talent and fair HR management

Employment

We strive to find the right people for the company who are positive, creative, and professional. We employ people for non-career, career, and job-type tracks through the process of paper screening → personality and aptitude tests → working level interview → executive interview. In order to strengthen our competitiveness, we also hire international professionals through an overseas recruitment network.

Employment process



LS C&S employees

Category	Beneficiaries
Permanent	Office worker
	Production worker
	Subtotal
Temporary	
Total	

Performance management

We operate the SPCM (Strategic Performance & Competency Management) system to achieve outcomes that align the company's goals with individual goals. Once key tasks are set to ensure each functional organization and team achieves its management goals, employees establish a development plan for the competencies required for reaching performance targets for the defined key tasks. The advantages of SPCM are as follows: employees feel more responsible for their work when they take part in the setting of performance targets. They are motivated to determine a direction for their career development in a systematic manner by analyzing their strengths and identifying what needs to be improved and developed.

Employee welfare benefits

Fair evaluation

In order to evaluate performance in a fair and objective manner, we disclose our evaluation criteria and follow a pre-defined process. The results are released to the pertinent employees, teams, or divisions to ensure transparency, and they are allowed to raise their objections to the results. While doing so, employees become more receptive to evaluation results. We also make a variety of efforts to efficiently link the evaluation of employees to nurturing talent.

Appropriate compensation

Compensation is provided based on the evaluation results of group and individual performances in the form of annual base salary, management incentives, and individual incentives. Employees with outstanding performance are provided with overseas training and awards as well.

C.O.R.E. Prize

C.O.R.E. Concept

C.O.R.E. represents four principles on which our employees should act. Just like a cable has a core at its center, our C.O.R.E. values should stand at the center of the minds of all our employees.

Customer First

LS C&S is always thinking about its customers. We work to understand their needs, put ourselves in their place, and stand at their side. To strengthen customer-oriented management, employees with outstanding sales performance are awarded the Customer First Prize.

One LS C&S

LS C&S values benefits that are shared by all. We listen to one another and work together for sustainability. We are one. The One LS C&S Prize goes to employees who produce substantial results through support/cooperation on behalf of all LS C&S.

Rule & Responsibility

LS C&S sticks to the principles and fundamentals for all processes. We take initiative, work honestly, and learn lessons from failures. To enhance compliance with principles and basics, we award the Rules & Responsibilities Prize to employees with excellent performance in production/development.

Expertise

Expertise provides the foundation of LS C&S. We are professionals committed to innovation and to challenging ourselves to go beyond the bounds of what had been considered possible. The Expertise Prize is designed to strengthen the expertise and is granted to employees who contribute to business performance through R&D activities.

We operate a welfare system that covers six areas crucial to employee health and economic stability, thus allowing them to concentrate on their work. In 2017, as part of our efforts to promote family-friendly management, we invited the family members of employees to an event named "Homepany." This helped lessen the barriers between them and the company. In 2018, we will encourage employees to take their vacation days on sandwich days falling between two holidays in March, April, May, October, and December so that they can refresh themselves and restore their energy.

Healthy life

- Medical expense reimbursement for employees
- Medical expense reimbursement for family members of employees by using a company welfare fund
- Free medical checkups for employees and their spouses
- Sports facilities for employees
- Healthcare rooms or clinics at worksites
- Counseling programs at the R&D center

Cultural life

- Support for in-house club activities
- Gift cards for anniversaries, including birthdays or wedding anniversaries
- Cultural events such as the provision of sports game tickets and lectures for family members of employees

Energetic life

- Reward for long-term employees: Vacation and financial gifts for employees with 5, 10, 20, 25, 30, and 35 years of service
- Free recreational facilities such as condominiums and a Baekam training center
- Company outings: Twice per year (in spring and autumn)

Stable life

- Family occasion support: Money gift or condolence money for family occasions of employees such as weddings or funerals
- Dormitories or employee apartments at local worksites
- Group life and health insurances for employees
- Commuting support: Commuting bus services

Hopeful life

- Monthly in-house online training programs on job skills, leadership, foreign languages
- Mid-/long-term educational support for graduate schools, MBA, and intensive foreign language programs
- Outside training programs on job skills and foreign languages

Prosperous life

- Financial aid of middle school, high school and college tuitions for the children of employees
- Housing loan support
- Discount for our sister company products (LS Networks)
- Retirement gifts

Employee welfare fund

Category		2015	2016	2017
Employee welfare fund provided	Beneficiaries (person)	287	322	339
	Amount (USD thousand)	426	459	467
School expense support	Beneficiaries (person)	476	577	420
	Amount (USD thousand)	2,582	2,402	2,191

Retirement pension system

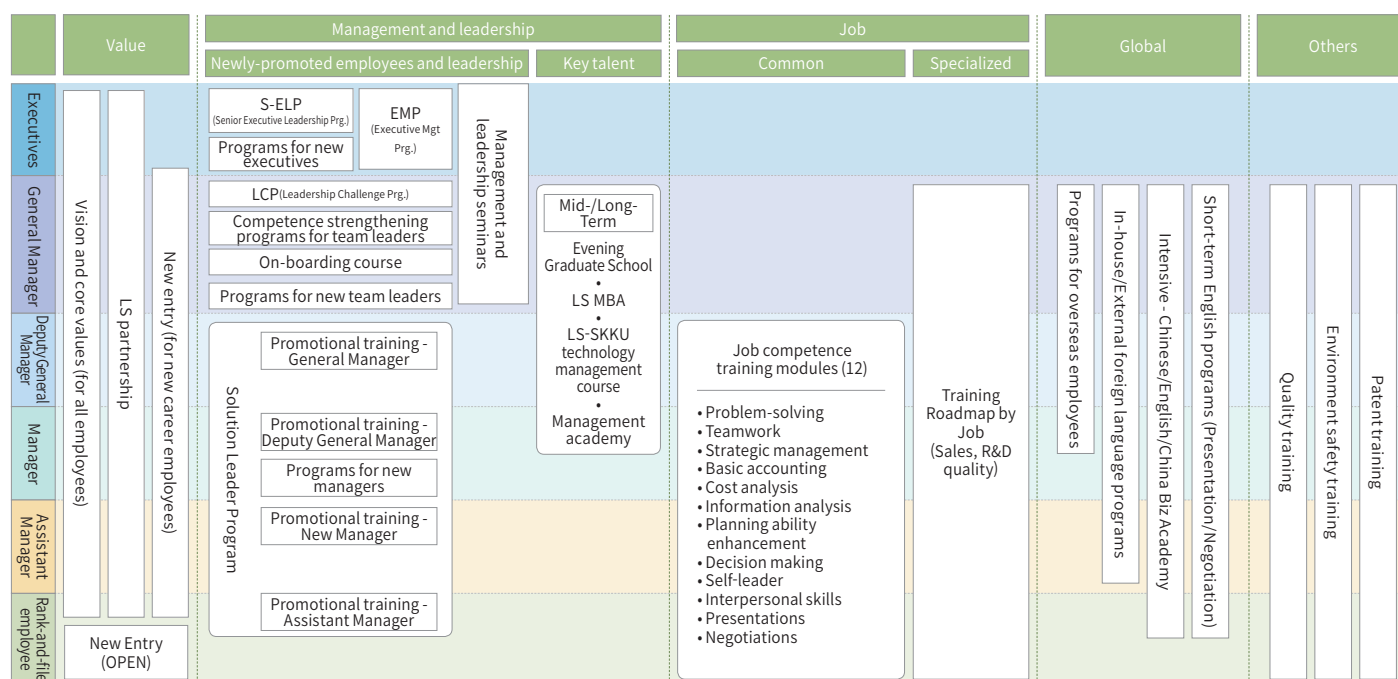
Since 2011, the retirement pension system has been operated for all employees. They can choose between DB (defined benefit) and DC (defined contribution) plans.

Nurturing talent

HR development system

Our HR development system is classified into five tracks and six development stages. They include programs for newly recruited career/non-career employees, the SLP (Solution Leader Program) course, leadership programs, common/specialized training courses, and foreign language programs. There are also programs on workplace quality, environment safety, and sexual harassment prevention that are compulsory for all employees.

Our HR development system



Launch of e-Campus

To promote self-directed learning by LS Group employees, the organized and efficient Group-wide e-HRD system was launched in January 2017. Based on the curriculum of the Miraewon LS Group training center, shared programs are provided with options to meet the diverse needs of subsidiaries. The system supports strategic HR development and management that allows employee to enhance their competitiveness and improve HRD work efficiency.

Three-year employee training statust

Category	2015	2016	2017
Average training hours per employee (including production workers) (hour)	45	51	42
Average training hours per employee by job position			
Executives (including the heads in charge of divisions)	43	41	20
Managers (from Managers to General Managers)	66	102	77
Assistant managers and rank-and-file employees	112	30	97
Training expenses per employee (USD)	1,251	1,344	1,409
Training expenses (USD thousand)	2,763	2,875	2,847

Programs for outstanding local employees from overseas subsidiaries

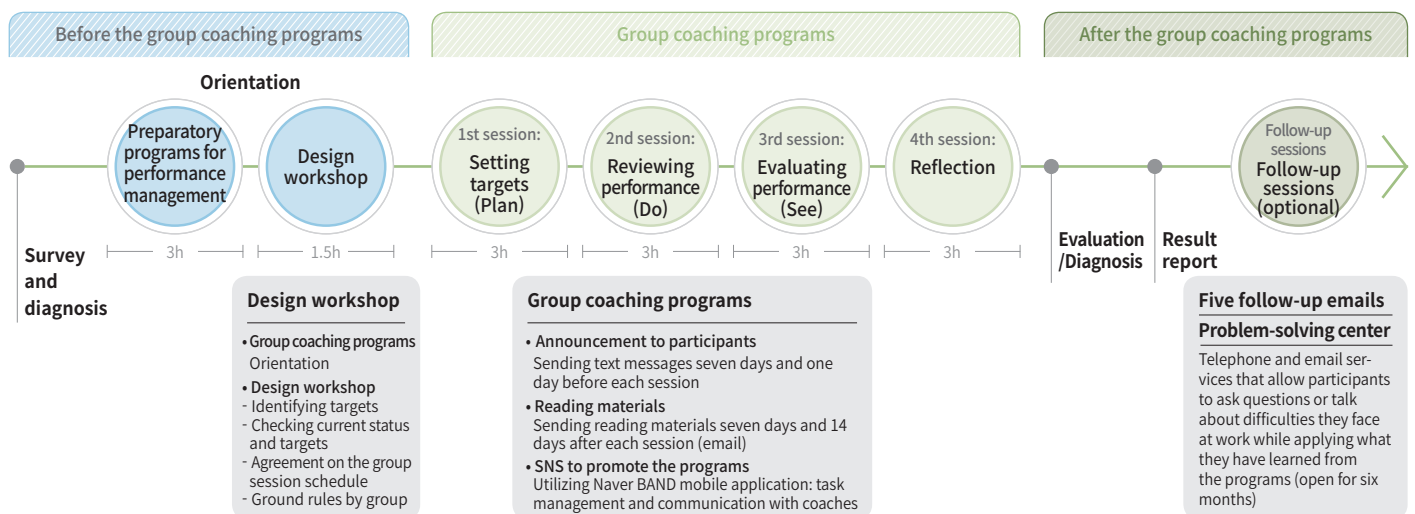
Local employees with excellent performance in overseas subsidiaries were given opportunities to be dispatched to domestic plants and receive training on the LS C&S Way, which allowed them to have royalty to the company and be motivated to achieve better performance. These three-month training programs for five employees from five subsidiaries, including Vietnam, China and India, received a highly positive response from them.

Training for suppliers

For sales employees at all of our suppliers nationwide, training programs were provided on themes including ‘understanding LS C&S and enhancing loyalty’, ‘strengthening competitiveness of sales employees for new product promotion, bond management, and marketing’, and ‘promoting the networks and cooperation among LS C&S and its suppliers.’ A total of 104 participants from 72 companies gained opportunities to better understand the LS C&S Way, discuss methods of cooperation, be informed of new products, share issues, and learn about negotiation skills in sales, bond management, and the Kim Young-Ran Act (known as the anti-graft law).

CORE coaching programs for team leaders

These programs aim to help team leaders strengthen the ability to guide their teams and produce results. In 2017, CORE coaching programs were conducted for 15 junior-level team leaders at headquarters and the Gumi plant. They were provided in four three-hour sessions (three hours per session) from mid-July to mid-October. On the theme of performance management from establishing targets to evaluation and follow-up, a variety of methodologies including scenario practices were applied to enhance their implementation.



LS career development programs

To reduce employee anxiety over changes in the employment and organizational environment, we operated career development roadmap programs for employees aged 35 or younger to allow them to reflect on their future with their first company. For employees aged 45 and older, programs guide them in setting goals and preparing themselves for a life after retirement by securing individual expertise.

Strengthening job competence in core businesses

Technology sales As for sales, 13 job competence programs are provided for general sales and 28 for technology sales. These programs target assistant managers and rank-and-file employees. In 2017, 96 employees took part in eleven programs. These programs will be provided once again in 2018.

Construction PM With the aim of nurturing construction project managers (PM), we identified 56 and 101 required job skills in the power and submarine cable areas, respectively. Ten required qualities, including leadership, were determined as well. Based on this, we created a curriculum of 79 modules and 44 programs (24 for general programs, six for power cables, and 14 for submarine cables). In 2017, ten programs were provided to 120 participants at the headquarters and the Gunpo R&D center.

Core-technology engineers As part of the efforts to secure core technology, engineer training was provided at external institutes. Seven engineers cooperated with a variety of institutes to investigate topics including the impact of resins between semiconductors and insulation and of additives on the DC characteristics of XLPE insulating materials.

C.O.R.E. - Expertise

TOPIC

10

Advanced Green Management

For the sustainable development of LS C&S, green management has been promoted based on our health, safety, and environment (HSE) policy in order to ensure that we become a leading company in these areas and perform our business in an eco-friendly manner. We are striving to minimize the environmental impact of every aspect of our business by applying standards that surpass the legal requirements for pollutant management. Considerable efforts are being made at our domestic plants and overseas subsidiaries to manage HSE on behalf of our employees and local communities.



Strategic direction

Strengthening environmental management for zero accidents and pleasant work environment and contributing to a green society by reducing greenhouse gas emissions.



Key tasks

Operation of an environment management system <ul style="list-style-type: none"> • HSE¹⁾ System • Investment in environmental facilities 	Efficient use of resources <ul style="list-style-type: none"> • Usage of key resources • Water resource at plants • Plastic collection and recycling 	Use of green materials <ul style="list-style-type: none"> • Product lifecycle management • Chemical substance management at plants • Management and reduction of harmful material
Response to climate change <ul style="list-style-type: none"> • Climate change response system • Energy use and GHG emission management • Reduction of GHG emissions 	Emissions and waste discharge management <ul style="list-style-type: none"> • Air management • Waste water management • Wastes management 	

1) HSE: Health, safety and environment



Performance in 2017

Operation of an environment management system <p>Implemented optimal facilities to reduce pollutants, and operated their maintenance systems</p>	Efficient use of resources <p>Participated in the basic research project on the recycle status of domestic power and telecommunication cable wastes</p>	Use of green materials <p>Responded to regulations related to harmful materials and collected relevant information</p>
Response to climate change <p>Replaced lights at all our plants with LED to reduce GHG emissions</p>	HSE System <p>Prepared for ISO14001/OHSAS18001 and 2015 Version certifications, and conducted HSE diagnoses for domestic and overseas subsidiaries</p>	



Targets in 2018

- **Operation of an environment management system:** Reduce micropollutant risks; establish a company-wide HSE database; re-establish HSE standards at the global level; and support HSE activities of suppliers
- **Use of green materials:** Comply with the Act on the Registration and Evaluation of Chemicals in regards to imported chemical substances
- **Efficient use of resources:** Achieve plastic collection and recycling targets and promote the pertinent agreement
- **Response to climate change:** Establish GHG inventories for overseas subsidiaries

Operation of an environment management system

HSE system

Environment management system certification

Since we announced our HSE policy for the sustainable development of the surrounding environment and local communities, we have been pursuing environmental management that enables both business growth and environmental conservation. In 2017, an ex-post review for ISO14001:2007 was completed to extend certification through 2018. For the certification transition to ISO14001:2015 and ISO45001 in September 2018, we contracted a professional consulting firm and have been working together on a transition plan. We will systematically continue these sustainable development efforts.

2017 ISO14001/OHSAS18001 certificate



Our certification status

Category	Certification (ISO14001)
Domestic plants	Gumi, Indong, Donghae
Domestic subsidiaries	G&P
Overseas subsidiaries	LSCW, LSCI, LS-VINA, LSHQ

Securing transparency in HSE

Report and disclosure of a chemical release survey

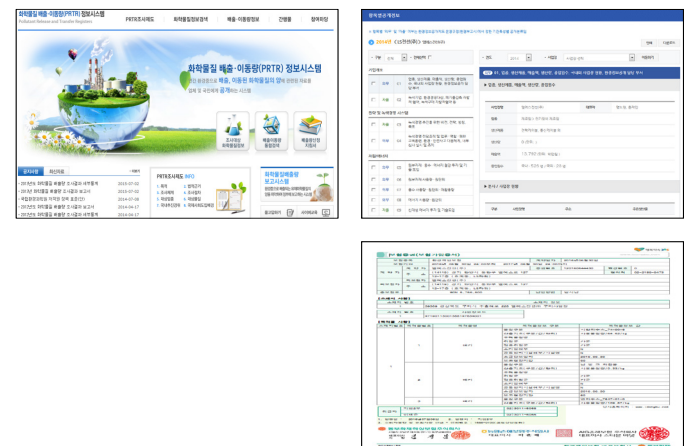
A chemical release survey aims to encourage companies to voluntarily reduce their release of chemical substances by reporting to the government on the release and transfer of chemical substances in their business operation. We will commission an external agency to conduct a survey on the chemicals used by our plants (15 types of chemicals including copper for Gumi, ten including aluminum for Indong, and three including copper for Donghae). The survey results will be submitted to the Ministry of Environment and disclosed in its PRTR (pollutant release and transfer register) system. This annual survey is conducted in April.

Disclosure of corporate environment information

To fulfill our corporate social responsibility, we disclose the environment information of all of our worksites, including headquarters and plants, in accordance with the Act on the Support for Environmental Technology and Industry. The information includes green management, resource and energy conservation, GHG emissions and environment pollution.

Purchase of pollution insurance policies

To compensate for any environment and pollution accidents that could occur in our business operations, we have environmental pollution liability insurance in line with the guidelines of the Ministry of Environment.

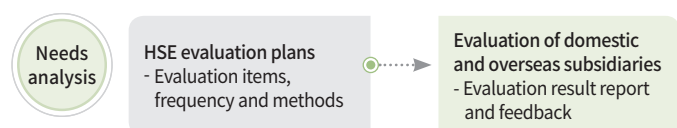


HSE support activities for overseas and domestic subsidiaries

To support our domestic and overseas subsidiaries and perform health, safety, and environmental management at the global level, we conduct diagnoses on our HSE processes. Starting with Pountek (domestic) and LSHQ in 2016, seven domestic subsidiaries were examined over five months in 2017. For all issues identified in the areas of environment, safety, and firefighting, either immediate action was taken or mid-/long term improvement plans were established. In 2018, we will further strengthen our HSE diagnoses and support our subsidiaries as they mitigate potential risks at their worksites.

HSE support activities for subsidiaries

- Identified their needs in HSE (seven subsidiaries in January)
- Conducted diagnoses based on HSE plans (seven subsidiaries from June to August) : Check lists, time frame, and technological support



Common environment and safety issues

	Risk	Improvement measure	Date
Fire-fighting	• Firefighting systems	• Normalize the operation of firefighting systems	2018.02
Safety	• Safety devices • Safety management of forklifts	• Upgrade safety devices • Improve safety management of forklifts	2017.12
Environment	• Air and water pollutants • Wastes and chemicals	• Manage air and water pollutants • Improve wastes and chemicals management	2017.12
Others	• Environment and safety functions	• Strengthen environment and safety functions	2018.02

Investment in environment facilities

Investment in environment facilities and their management

We introduced equipment to remove new types of pollutants identified in certain processes. In addition, to eliminate risks of equipment failure, a group of internal experts regularly check repair and maintenance status in an effort to prevent environmental accidents.

Violation of laws and regulations

To comply with domestic and international laws and regulations concerning safety and the environment, our management standards are set at levels 20% to 30% stricter than the legal limits. We disclose compliance with environment and safety laws and regulations while monitoring their status. Revised laws and regulations are applied to our management standards and pertinent risks are reviewed. In addition, to prevent such risks we identify potential violations that could occur during our business operations.

Investment in cleansing precipitators to reduce new types of air pollutants

After a full inspection revealed new types of air pollutants in our plants, we carefully identified the sources and invested USD 280 thousand in cleansing precipitators to reduce them. This equipment is designed to reduce gaseous air pollutants by using cleansing water.

Investment in emergency cleansing equipment for harmful chemicals

We also made a USD 15 thousand investment in emergency cleaning equipment to protect operators from any accidents related to toxic chemicals. The equipment was installed in three areas with identified as posing a high risk of chemical leakage.

Improvement case – Aluminum dross storage upgrade

As our aluminum dross storage was outdated and its front side was open, there were concerns over possible leaching in the case of rain. In response, we upgraded the storage facility and redesigned it with a sealed structure that prevents dross from being exposed to the external environment. In addition, trenches and storage tanks were installed so that immediate action can be taken in the event of the occurrence of leachate. We will further strengthen our management of environmental equipment and identify and resolve any potential risks.



Cleansing precipitator



Emergency cleansing equipment



Aluminum dross storage



Aluminum dross storage trench

Efficient use of resources

Usage of primary resources

Usage of primary resources

We conduct a variety of activities to efficiently use resources and establish a resource recycling system. Our primary resources are electrolytic copper and aluminum used for conductors, and polyethylene and polyvinyl chloride for insulators. We review and develop ways for efficient use of resources and identify measures to recycle raw materials and products. In addition, we participate in the resource recycling performance management system projects with the Ministry of Environment to further promote the recycling of wastes.

Usage of primary resources

(unit: ton)

Resource type	2015	2016	2017
Electrolytic copper (Cu)	294,901	256,910	289,494
Aluminum (Al)	27,197	34,784	32,113
Polyethylene (PE)	18,812	12,803	23,474
Polyvinyl chloride (PVC)	3,402	7,660	4,165

Water resources at our plants

Use and management of water resources

The depletion of water resources is both a domestic and global issue. In response, we are engaging in activities to conserve water and minimize related risks. Water resources use at plants includes cooling water for both the cable extruding process and for the melting furnace for electrolytic copper and aluminum. Water is also required for human uses such as drinking and sanitation. As a result of water conservation activities in 2017, total water consumption decreased by 137 tons from the previous year. Despite an 8.9% increase in production volume, water use intensity dropped by 8.7%. Going forward, we will continue our efforts to conserve water resources based on our medium-/ and long-term plans.

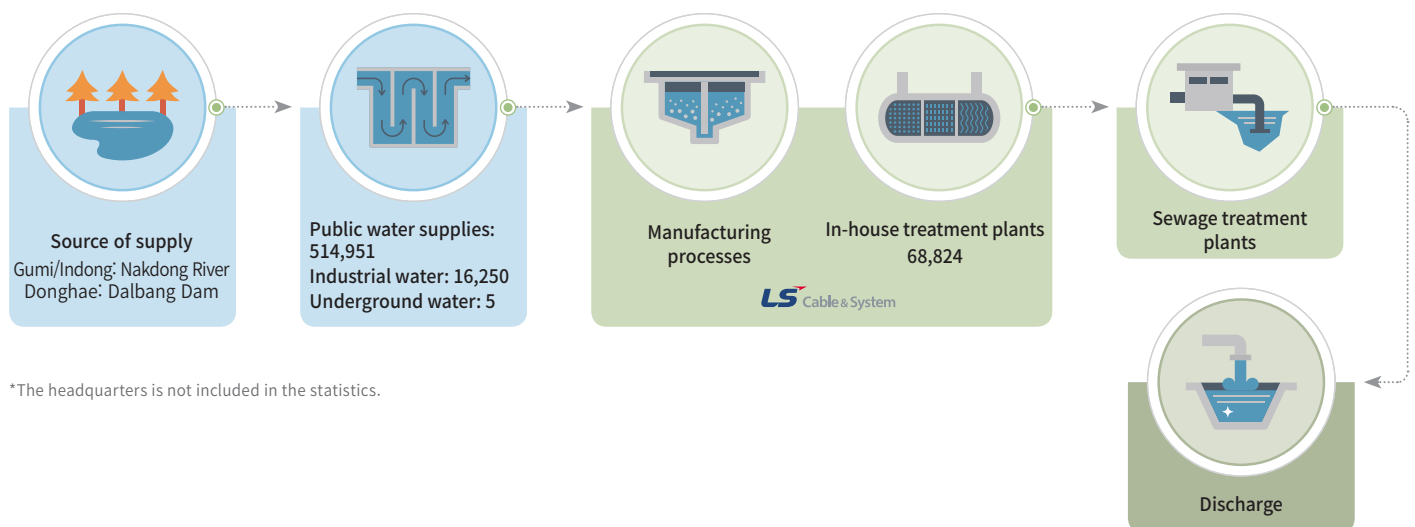
Water usage and water use intensity

(unit: ton)

Type	2015	2016	2017
For human uses	495,454	491,678	514,951
For industries	62,882	33,127	16,250
Underground water	44,858	6,538	5
Company total	603,194	531,343	531,206
Water use intensity (Usage / Production volume)	1.55	1.38	1.27

The flow of water resources

(unit: ton)



*The headquarters is not included in the statistics.

Plastic collection and recycling

Considering that power/communication cables and packaging materials have a long-term durability of more than 30 years, we collect and recycle any plastic that is comparatively hard to recycle in order to minimize the impact on the environment.

Collection and recycling of plastic from power/communication cable wastes

Based on the principle of the extended producer responsibility, we signed a voluntary agreement on plastic waste collection and recycling with the Ministry of Environment in 2008. Since then, we have collected and recycled plastic from power/communication cable wastes. In addition, we have increased financial and technological support to pertinent recycling companies in partnership with the Korea Electric Wire Industry Cooperative. In 2017, a joint project in the cable industry was started to study the recycling status of power/communication cable wastes. Based the results, domestic recycling status will be investigated in 2018. To achieve our mandatory recycling rate of 16.7%, we will explore new markets for recycled plastic and develop technologies to improve its quality.

Cooperation for plastic collection and recycling



Domestic power/telecommunication cable wastes collection/recycling status

Category	2015	2016	2017
Plastic usage for power/telecommunication cables (ton)	18,820	20,966	21,708
Amount for plastic recycling (ton)	2,955	3,627	3,662
Plastic recycling rate (%)	15.70	17.30	16.87(E)

* The statistics are for finished products that were sold to end users.

Extended Producer Responsibility for plastic packaging materials

The Extended Producer Responsibility or EPR is implemented in many countries, including Korea, Japan, Germany, UK, France and the Czech Republic. According to the EPR in Korea, domestic manufactures using plastic packaging materials are required to collect and recycle wastes through the Korea Packaging Recycling Cooperative. We are proactively take part in fulfilling our obligation regarding plastic packaging materials in line with the Act on the Promotion of Saving and Recycling of Resources.

Plastic packaging recycling status in Korea

(unit: ton)

Category	2015	2016	2017 ¹⁾
Plastic usage for synthetic resin packaging	188	235	-
Required amount for plastic recycling	143	173	-
Amount of recycled plastic	200	230	-

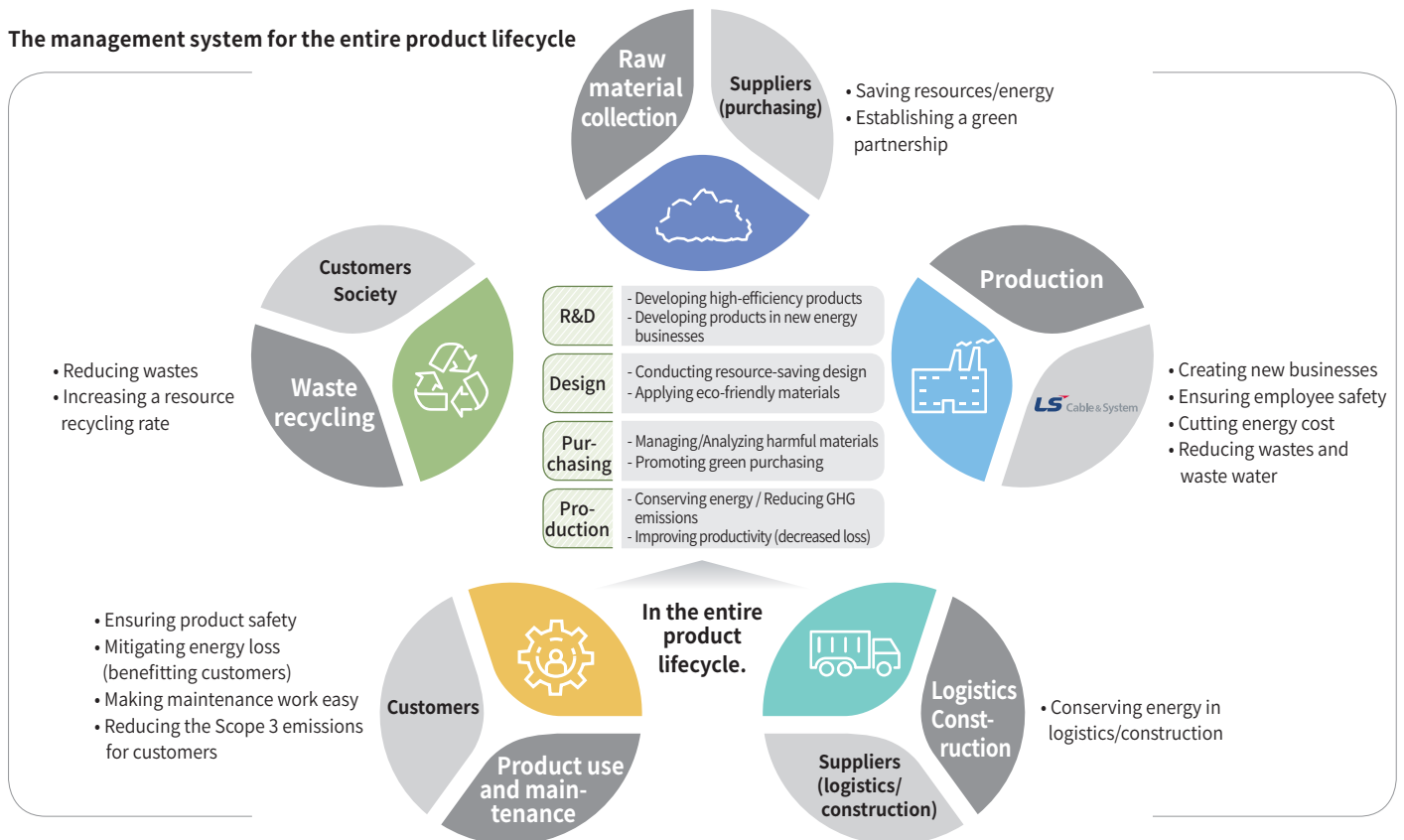
1) The amount of recycled plastic in 2017 will be aggregated in June 2018.

Use of eco-friendly materials

Product lifecycle management

All of our employees in R&D, design, purchasing, and production must consider the environmental impact of the entire product lifecycle. One case in point is our polypropylene insulating cables that can efficiently replace existing XLPE cables. They are easy to recycle, reduce carbon emissions, and conserve energy during processing. We will further strengthen these activities to bring greater value to our customers.

The management system for the entire product lifecycle

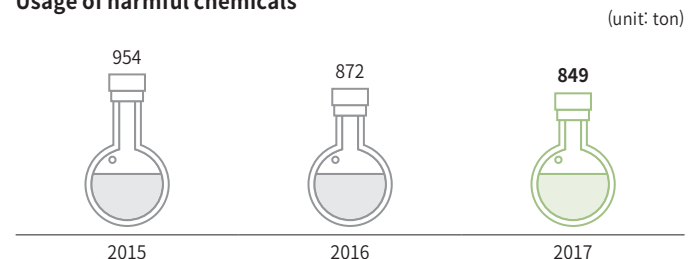


Chemical management at plants

Chemical management

In 2017, we reduced 23 tons of harmful chemicals year-on-year as a result of consistent efforts at all of our plants. Methods for reducing their use are applied to new processes. In addition, a system is being operated to quickly respond to any accidents, including chemical leakage, fire, or explosion. Measures to improve chemical facilities by 2019 have been conducted according to pre-defined plan.

Usage of harmful chemicals



Detailed diagnoses of harmful chemicals

To manage harmful chemicals at our plants, detailed diagnoses tailored to the characteristics of respective types of chemical were conducted to identify dangers and risks. Based on the results, action plans will be established and implemented by 2019.

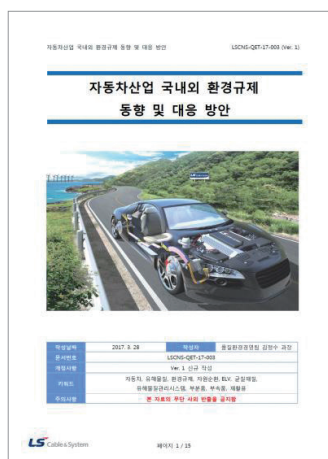
In addition, pertinent training and personal protective gear were supplied to all employees handling chemicals, and emergency drills were conducted. For the safety of subcontractors and suppliers, we offered related training and reported a list of our subcontractors handling chemicals to the Ministry of Environment. Safety training is also conducted at the company level to raise awareness.

In 2016, we submitted an off-site risk assessment and risk management plan for all of our plants to the National Institute of Chemical Safety. In 2017, improvement tasks were implemented for chemical facilities. We recently introduced emergency cleansing and shower facilities to prepare for possible cases of worker exposure to harmful chemicals. We will plan to upgrade leakage detectors and install additional surveillance cameras to strengthen our safety efforts.

Harmful substance management

Activities

We monitor domestic and international trends on environmental regulations to make our policy in line with them. In particular, we strictly prohibit six hazardous substances, including lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ether and four types of phthalates, including DEHP, DBP, DIBP, and BBP according to EU RoHSII. Using substances with high risks defined by EU REACH (European Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals) are restricted.



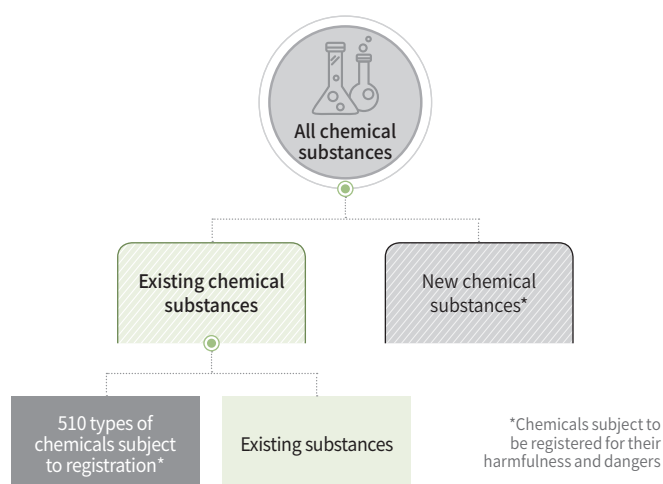
Response to environmental regulations and measures for harmful substance management

Our R&D centers obtained safety standard certification on six hazardous substances and four types of phthalates from TÜV-SUD and KOLAS to secure credibility in our chemical analyses.

The Act on the Registration and Evaluation of Chemicals

Domestic companies importing or manufacturing chemical substances are subject to the submission of annual reports to the Ministry of Environment. In particular, to use or distribute 510 types of new and existing chemicals, information on their harm potential should be registered.

We annually report to the government the volume and purpose of imported chemical substances and fulfill the obligation of registration of the pertinent chemicals in consultation with their suppliers. We make the fullest possible efforts to prevent any chemical leakage from our products by complying with all laws and pursuing environmental and safety management.



Response to climate change

The Paris Agreement allows countries around the world to take actions to limit the increase of global temperatures to within the range of 1.5°C-2°C. Stringent efforts are being made to prevent us from reaching a tipping point for climate change. In response, we are striving to fulfill our social responsibility and create new value through activities that minimize climate change.

A system to respond to climate change

To respond to climate change, we are working to identify risks and opportunities in order to minimize these risks and maximize opportunity. We are devising strategies and reporting them to management for decision-making. Related information is being publicly disclosed.

Risks and opportunities

Costs arise as a result of climate change, such as recovery from damage due to abnormal climate events or compliance with an emissions trading scheme. However, we believe it is also bringing about new business opportunities. With the growth of the new energy industry based on the new and renewable energy policies in many countries, we are expanding our business scope based on our expertise and products that can be applied in different climates.

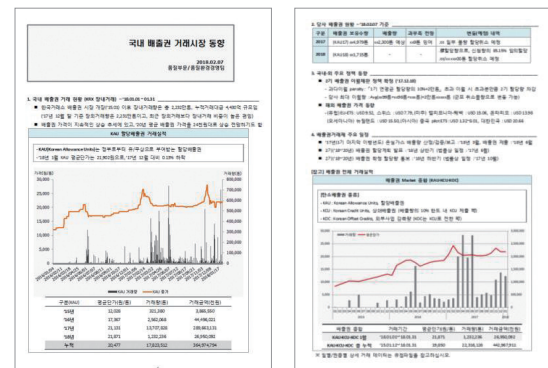
Risks	Opportunities
<ul style="list-style-type: none"> • Weakening price competitiveness due to increased carbon cost for the response to the domestic emission trading scheme • Additional cost for damage prevention/recovery and clean-room management • Possible loss of business opportunities for not being able to meet customer needs • More efforts required for companies producing a high level of GHG emissions 	<ul style="list-style-type: none"> • Increase in sales of products related to new energy (superconducting cables, and cables for new and renewable energy, and submarine/industrial cables) • Strengthening competitiveness through high-strength, heat-resistant, and fire-resistant cables • Promoting competitiveness through enhanced construction performance • Enhancing corporate image through external communication
Regulatory factors	Physical factors
Other factors	Other factors

Response to the domestic GHG emission trading scheme

As we are subject to the domestic GHG emission trading scheme, we calculate, report, and verify our emissions and submit emission credits on an annual basis. In addition, information such as our GHG emission status and the supply-demand forecast of emission credits, and market trends is provided through a monthly in-house newsletter that allows employees share information and cooperate with related agencies.

GHG emissions target

We set annual GHG emissions targets and implement activities to meet them. Moreover, as we are aware that setting mid-/long-term targets is necessary to deal with the GHG emissions issue at the national level, detailed reviews will be conducted to devise the pertinent plans.



Our in-house newsletter on carbon information

Energy use and GHG emission management

We strive to find more reduction opportunities by accurately calculating emissions and monitoring and analyzing their trends.

Energy use

About 98% of our energy use occurs in plants. By energy source, electricity accounts for 71%, LNG for 23%, and purchased steam for 5%.

To conserve energy, it is important to raise employee awareness at our plants. In response, a person in charge for energy savings has been appointed for each class of equipment.

Energy usage and intensity

(unit: TJ; and TJ/KRW 100 million)

Category	2015	2016	2017
Fuel	723	734	719
Electricity	2,139	2,152	2,133
Steam	132	147	157
Total (TJ)	2,994	3,033	3,009
Energy use intensity (TJ/KRW 100 million)	1.006	1.190	0.987

*Based on electric energy conversion: 9.6MJ/kWh (including power transmission/distribution and production loss)

GHG emission status

We calculate our Scope 1 and 2 GHG emissions, have them third-party verified, and report them to the government. Sources of emissions include energy used at the headquarters, R&D centers, sales offices, and plants, as well as GHG emissions from certain processes. The reported information is disclosed through the Greenhouse Gas Inventory and Research Center of Korea (<http://www.gir.go.kr>). Information on our response to climate change is provided upon the request through the CDP (Carbon Disclosure Project) supply chain.

We have been independently calculating and managing some Scope 3 emissions since 2013. To provide more accurate information and secure credibility, we plan to have the results verified in the future.

Scope 1-2 GHG emissions and intensity

(unit: tCO₂eq; and tCO₂eq /KRW 100 million)

Category	2015	2016	2017
Scope 1	40,225	40,937	40,077
Scope 2	110,965	112,519	112,058
Total(tCO ₂ eq)	151,190	153,457	152,135
GHG emission intensity(tCO ₂ eq/억 원)	0.051	0.060	0.050

Scope 3 GHG emissions

(unit: tCO₂eq)

Category	2015	2016	2017
Waste disposal	2,985	2,677	3,396
Fuel/energy production	6,033	6,147	6,029
Leased assets (partial)	4,242	4,885	5,182

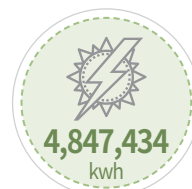
*Calculation is internally made based on domestic and international criteria

GHG emission reduction

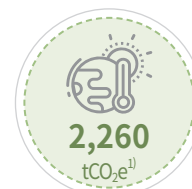
To meet our GHG emission reduction targets, production divisions and production technology centers are working to explore ways for energy conservation and take measures by stages.

Replacing LED light

In 2017, we invested USD 1,400 thousand in replacing 32 to 400W fluorescent and metal lights with 14.7 to 140W high-efficiency LED lights offering reduced power consumption and a longer lifecycle. A total of 39,309 lights were replaced, resulting in 2,260 tons of emissions reductions.



Annual amount of
electricity saved



Annual amount of GHG
emissions reduced

1) It is calculated based on the KVER (Korea Voluntary Emission Reduction) methodology.

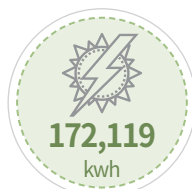


Promotion of video conferences

To promote a smart work environment, we are encouraging employees to hold video conferences by replacing existing systems and adding a video conference feature to in-house web/mobile messengers. This allows employees to minimize business trips to headquarters, R&D centers, and plants, saving time and energy and ultimately contributing to GHG emissions reductions.

Promoting best practices in the supply chain

We extended our practice of LED light replacement to our subsidiary G&P. We will further promote best practices along the supply chain to contribute to GHG emissions reduction.



Annual amount of
electricity saved



Annual amount of GHG
emissions reduced

Emissions and waste discharge management

Air management

Air pollutants management

As standards on the concentration levels of released pollutants have been tightened, we have invested in new equipment, upgraded outdated facilities, and operated air pollution control facilities in an optimal manner to reduce pollutants. The air pollutants we produce are mainly dust, NO_x, HCl, and HF. In 2017, due to an increase in production volumes and facility operation hours, they rose 4.4 tons year-on-year. However, the intensity was recorded at 117.6 kg/1,000 tons of production, a level similar to the previous year. Meanwhile, we invested in cleansing precipitators to efficiently reduce pollutants from the magnet wire manufacturing process and the level of pollutants decreased. We apply standards 20% stricter than the legal limits.

Primary air pollutant emissions

(unit: kg)

Type	2015	2016	2017
Dust	3,719	1,667	1,856
NO _x	17,915	40,567	44,224
HCl	1,973	1,456	2,120
HF	230	298	202
Intensity [kg/production volume (1,000 tons)]	61.1	117.0	117.6

Waste water management

Water contaminant management

The main use of water at our plants is cooling water for the cable manufacturing process. The water is re-used for a specific period, treated, and then discharged. We apply in-house limits on water contaminants that are stricter than the legal limits. Due to an increase in production volume and water usage, wastewater rose 267 kg in 2017, with an intensity similar to that of the previous year. We have worked continuously to reduce water contamination by operating wastewater treatment plants. None of our worksites are located in or near water source protection areas, restricted zones, special management zones, or biodiversity protection areas. Therefore, it is fair to state that the impact of water contaminants released from our worksites on public waters and ecosystems is minimal.

Primary water pollutant emissions and intensity

(unit: kg)

Type	2015	2016	2017
BOD	0	62	109
COD	1,319	1,003	1,128
SS	149	191	203
T-N	180	313	396
Total	1,648	1,569	1,836
Intensity [kg/production volume (1,000 tons)]	4.2	4.4	4.4

Waste management

Waste management

To properly manage wastes, we keep in place a waste disposal process from product development to final disposal. To recycle wastes into resources, we have operated a resource recycling performance management system in cooperation with the Ministry of Environment. Due to the characteristics of HV/EHV and optical cables, wastes generated during the manufacturing process are general wastes and mainly synthetic resins such as HDPE and PVC. In 2017, wastes totaled 14,381 tons. Incinerated wastes and landfill wastes fell 13% and 11%, respectively. Recycled wastes increased by 1,748 tons year-on-year due to increased production volume, but the recycling rate remained at 84%, similar to the previous year.

The amount of wastes generated and intensity

(unit: ton)

Type	2015	2016	2017
Designated wastes ¹⁾	1,924	1,981	2,234
General wastes ²⁾	12,913	10,331	12,147
Total	14,873	12,312	14,381
Intensity [Amount of wastes/production volume (1,000 tons)]	38.0	32.1	34.4

1) Designated wastes: waste oil, waste organic solvent, paint waste, and waste acid

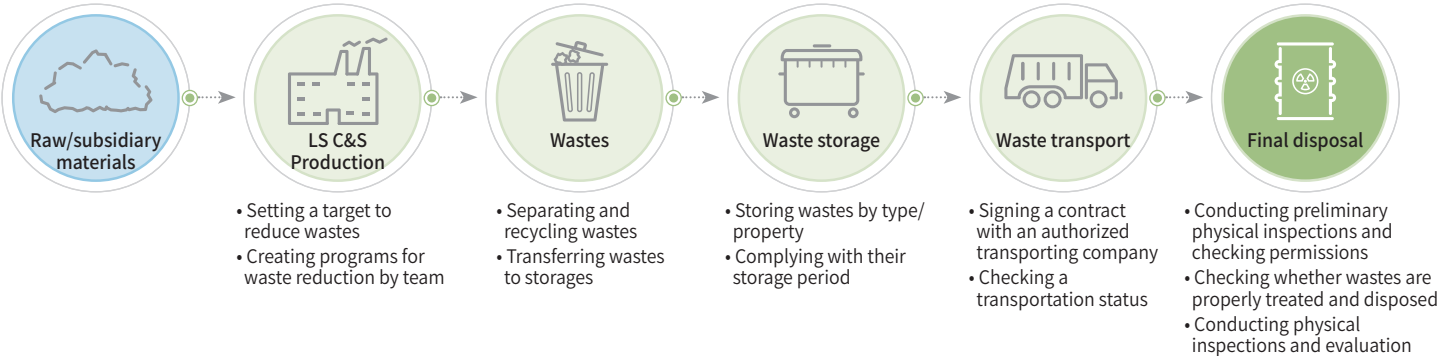
2) General wastes: cable scrap, waste synthetic resins, rubber wastes, and residential wastes

Waste disposal status

(unit: ton)

Type	2015	2016	2017
Incineration	1,847	2,103	1,830
Landfill	423	443	395
Recycling	12,366	10,307	12,055
Recycling rate (%)	83	84	84

Waste disposal process



Periodical analyses of harmful substance in the air and water

We measure and analyze raw materials and emissions on a periodic basis in order to identify harmful substances in the air and water that could occur from our business operations. As part of the efforts to create a healthy environment, analysis and cause identification are conducted for all harmful substances as defined in the pertinent laws.

Improvement of a waste management system

To utilize wastes as resources, we conducted a survey on waste status. Based on the results, action plans were established for issues identified regarding waste separation and disposal. Measures for improvement have been taken at the company level through in-house promotion and employee training. In addition, investments have been made to upgrade the aluminum dross storage at the Indong plant.



ENABLE THE CABLED WORLD



APPENDIX

Statement of Financial Position	96
Statement of Comprehensive Income	97
Statement of Cash Flows	98
Independent Assurance Statement	99
GRI Standards	101
Additional information on the Index	104
Compliance with the UN Global Compact	105

Statement of Financial Position

(unit: USD million)

	LS Cable & System Ltd. (Separate)			LS Cable & System Ltd. and its Subsidiaries (Consolidated)		
	2015	2016	2017	2015	2016	2017
Assets						
Current assets	1,306	1,219	1,473	1,759	1,702	1,951
Cash and cash equivalents	164	96	114	239	171	210
Financial deposits	25	14	17	38	41	28
Trade receivables	732	655	749	900	822	866
Other receivables	21	17	58	45	44	64
Available-for-sale financial assets	-	-	-	3	1	-
Financial assets at fair value through profit and loss	-	-	-	10	18	19
Derivative financial instruments	5	28	83	8	35	93
Firm commitment assets	63	34	24	64	35	24
Inventories	200	237	308	325	364	478
Other current assets	95	138	121	125	172	168
Non-current assets held for sale	7	2	2	23	18	46
Non-current assets	960	951	970	884	820	791
Property, plant and equipment	496	480	463	702	668	635
Intangible assets	32	30	30	40	38	39
Investment property	8	9	11	10	11	12
Financial deposits	0.02	0.02	0.02	1	1	1
Trade receivables	51	25	30	51	25	30
Other receivables	31	25	25	32	26	27
Available-for-sale financial assets	5	5	1	6	5	2
Derivative financial instruments	0.3	2	8	1	5	9
Firm commitment assets	3	0.4	0.1	3	0.4	0.1
Investment in subsidiaries	322	363	392	-	-	-
Deferred income tax asset	11	12	11	18	21	16
Other non-current assets	0.5	0.5	0.5	20	18	21
Total assets	2,273	2,172	2,446	2,666	2,539	2,788
Liabilities						
Current liabilities	1,111	907	1,105	1,526	1,325	1,432
Trade payables	390	474	483	488	568	526
Borrowings	418	143	295	668	407	514
Derivative financial instruments	53	28	16	55	29	21
Firm commitment liabilities	9	39	94	9	45	103
Other payables	124	111	89	145	132	117
Current income tax liabilities	20	11	19	21	13	20
Provisions for other liabilities and charges	-	-	-	19	13	2
Other current liabilities	96	101	109	121	118	127
Non-current liabilities	477	525	541	518	538	583
Borrowings	428	494	507	458	495	536
Derivative financial instruments	3	0.4	0.1	3	0.4	0.4
Firm commitment liabilities	0.3	2	8	1	5	8
Other payables	1	0.05	0.2	0.3	0.04	0.2
Net defined benefit liabilities	14	9	6	16	11	10
Deferred income tax liabilities	-	-	-	1	2	3
Provisions for other liabilities and charges	31	20	21	38	25	26
Total liabilities	1,588	1,432	1,646	2,045	1,862	2,015
Equity attributable to owners of the parent	-	-	-	575	604	655
Capital Stock	88	88	88	88	88	88
Share premium	506	506	506	506	506	506
Accumulated other comprehensive income	1	1	0.3	(2)	0.1	(24)
Other equity components	(0.1)	(0.10)	(0.1)	247	275	314
Retained earnings(Accumulated deficit)	90	146	206	(263)	(265)	(229)
Non-controlling interest	-	-	-	46	73	117
Total equity	685	740	800	621	677	773
Total liabilities and equity	2,273	2,172	2,446	2,666	2,539	2,788

Statement of Comprehensive Income

(unit: USD million)

	LS Cable & System Ltd. (Separate)			LS Cable & System Ltd. and its Subsidiaries (Consolidated)		
	2015	2016	2017	2015	2016	2017
Continuing Operations	Revenue	2,778	2,378	2,847	3,244	3,312
	Cost of sales	2,485	2,171	2,597	2,885	2,993
	Gross profit	293	207	250	359	319
	Selling and administrative expenses	197	150	160	250	215
	Operating profit	95	58	91	109	104
	Other income	298	231	288	312	327
	Other expenses	288	230	283	308	309
	Finance income	9	8	8	6	6
	Finance costs	26	25	27	36	38
	Other non-operating loss	9	(41)	(15)	36	4
	Profit before income tax	79	82	91	47	86
	Income tax expense	24	3	21	28	33
	Profit from continuing operations	56	79	70	18	53
Discontinued operations	Loss from discontinued operations	9	14	-	11	2
Profit for the year	47	64	70	8	12	51
Other comprehensive income	Profit from continuing operations	-	-	-	21	48
	Loss from discontinued operations	-	-	-	11	2
	Profit (Loss), attribute to owners of parent company	-	-	-	10	46
	Profit from continuing operations	-	-	-	(2)	5
	Loss from discontinued operations	-	-	-	-	-
	Profit (Loss), attribute to non-controlling interests	-	-	-	(2)	5
	Items that will not be reclassified to profit or loss	(4)	0.23	(1)	(4)	(1)
	Remeasurements of post-employment benefit obligation	(4)	0.23	(1)	(4)	(1)
	Items that may be subsequently reclassified to profit or loss	0.2	(0.05)	(0.5)	2	(18)
	Changes in the fair value of available-for-sale financial assets	0.002	(0.05)	(0.8)	0.003	(1)
	Cash flow hedges	0.15	-	0.3	0.1	0.3
	Exchange differences	-	-	-	2	(18)
	Other comprehensive income for the year, net of tax	(3)	0.2	(1)	(2)	(20)
Total comprehensive income for the year	43	65	68	6	14	31
Total comprehensive income for the year attributable to	Owners of the Parent Company	-	-	-	8	21
	Non-controlling interests	-	-	-	(2)	10
Earnings per share	From continuing operations	\$3.0	\$4.2	\$3.7	\$1.1	\$2.5
	From discontinued operations	\$0.5	\$0.8	-	\$0.6	\$0.1
	Basic earning per share	\$2.5	\$3.4	\$3.7	\$0.5	\$2.5

Statement of Cash Flows

(unit: USD million)

	LS Cable & System Ltd. (Separate)			LS Cable & System Ltd. and its Subsidiaries (Consolidated)		
	2015	2016	2017	2015	2016	2017
Cash flows from operating activities	106	162	(62)	167	151	(82)
Cash generated from operations	135	191	(30)	216	196	(31)
Interest received	1	2	1	3	4	3
Dividends received	5	4	4	0.03	0.05	0.1
Interest paid	(19)	(23)	(26)	(29)	(31)	(37)
Income taxes paid	(17)	(13)	(12)	(22)	(18)	(18)
Cash flows from investing activities	(76)	(11)	(78)	(74)	(42)	(97)
Decrease(increase) in financial deposit	(7)	11	(3)	(11)	(3)	11
Decrease(increase) in other receivables	(11)	12	(16)	(4)	8	(3)
Proceeds from sales of available-for-sale financial assets	-	-	4	0.01	0.005	4
Proceeds from sales of assets classified as held-for-sale	2	-	-	2	-	-
Proceeds from sales of property, plant and equipment	6	1	21	7	4	20
Proceeds from sales of intangible assets	1	-	2	1	-	2
Proceeds from sales of investments in subsidiaries	50	49	47	-	-	-
Loss of control over subsidiaries	-	-	-	-	-	4
Payments for acquisition of business	-	-	-	-	-	(31)
Proceeds from sales of other investment assets	0.1	-	0.01	2	-	0.01
Payments for available-for-sale financial assets	(0.04)	-	(0.05)	-	-	-
Payments for acquisition of investments in subsidiaries	(66)	(40)	(58)	-	-	-
Payment for acquisition of property, plant and equipment	(41)	(25)	(46)	(50)	(32)	(66)
Payment for acquisition of intangible assets	(0.4)	(2)	(1)	(0.5)	(2)	(3)
Payment for acquisition of financial assets at fair value through profit or loss	-	-	-	(1)	(6)	(0.4)
Increase in derivative financial instrument	(10)	(17)	(28)	(19)	(12)	(36)
Others	-	-	-	(0.05)	-	(0.1)
Cash flows from financing activities	(30)	(220)	160	(69)	(180)	225
Proceeds from issuance of borrowings	-	47	134	-	47	168
Proceeds from Repayment of borrowings	(254)	(406)	(28)	(340)	(417)	(51)
Proceeds from issuance of debentures	224	149	165	224	149	165
Repayment of debentures	-	-	(103)	-	-	(103)
Proceeds from disposal of investments in subsidiaries	-	-	-	48	49	42
Issuance of shares of subsidiaries	-	-	-	-	4	15
Dividends paid	-	(9)	(9)	(1)	(11)	(12)
Others	(0.5)	(1)	(0.5)	(0.5)	(1)	(0.5)
Cash flows from Others	-	-	(1)	-	-	-
Decrease due to split-off	-	-	(1)	-	-	-
Net increase (decrease) in cash and cash equivalents	(0.4)	(68)	19	23	(70)	46
Cash and cash equivalents at beginning of the year	164	164	96	219	239	171
Effects of exchange rate changes on cash and cash equivalents	0.2	(0.1)	(0.05)	(4)	2	(6)
Cash and cash equivalents at end of the year	164	96	114	239	171	210

Independent Assurance Statement

To the Readers of 2017-2018 LS C&S Sustainability Report:

Foreword

Korea Management Registrar Inc.(hereinafter “KMR”) has been requested by of LS Cable & System (hereinafter “LS C&S”) to verify the contents of its 2017-2018 Sustainability Report (hereinafter “the Report”). LS C&S is responsible for the collection and presentation of information included in the Report. KMR’s responsibility is to carry out assurance engagement on specific data and information in the assurance scope stipulated below.

Scope and standard

LS C&S describes its efforts and achievements of the corporate social responsibility activities in the Report. KMR performed a Type 2, moderate level of assurance using AA1000AS (2008) as an assurance standard. KMR’s assurance team(hereinafter “the team”) evaluated the adherence to Principles of Inclusivity, Materiality and Responsiveness, and the reliability of the selected GRI Standard indices as below, where professional judgment of the team was exercised as materiality criteria.

- GRI Reporting Principles
- Universal Standards
- Topic Specific Standards

- Management approach of Topic Specific Standards
- Economic Performance: 201-1, 201-3, 201-4
- Market Presence: 202-1
- Indirect Economic Impacts: 203-1, 203-2
- Procurement Practices: 204-1
- Anti-corruption: 205-1, 205-2, 205-3
- Anti-competitive Behavior: 206-1
- Materials: 301-1, 301-2, 301-3
- Energy: 302-1, 302-2, 302-3, 302-4
- Water: 303-1, 303-2
- Emissions: 305-1, 305-2, 305-3, 305-5, 305-7
- Effluents and Waste: 306-1, 306-2, 306-3, 306-5
- Environmental Compliance: 307-1

- Employment: 401-2, 401-3
- Labor/Management Relations: 402-1
- Occupational Health and Safety: 403-1, 403-2, 403-4
- Training and Education: 404-1, 404-2, 404-3
- Diversity and Equal Opportunity: 405-1, 405-2
- Child Labor: 408-1
- Forced or Compulsory Labor: 409-1
- Security Practices: 410-1
- Rights of Indigenous Peoples: 411-1
- Human Rights Assessment: 412-2, 412-3
- Local Communities: 413-1
- Supplier Social Assessment: 414-2
- Socioeconomic Compliance: 419-1

This Report excludes a data and information of joint corporate, contractor etc. which is outside of the organization, i.e. LS C&S, among report boundaries.

Our approach

In order to verify the contents of the Report within an agreed scope of assurance in accordance with the assurance standard, the team has carried out an assurance engagement as follows:

- Reviewed overall report
- Reviewed materiality test process and methodology
- Reviewed sustainability management strategies and targets
- Reviewed stakeholder engagement activities
- Interviewed people in charge of preparing the Report

Our conclusion

Based on the results we have obtained from material reviews and interviews, we had several discussions with LS C&S on the revision of the Report. We reviewed the Report’s final version in order to confirm that our recommendations for improvement and our revisions have been reflected. When reviewing the results of the assurance, the assurance team could not find any inappropriate contents in the Report to the compliance with the principles stipulated below. Nothing has come

Independent Assurance Statement

to our attention that causes us to believe that the data included in the verification scope are not presented appropriately.

■ Inclusivity

Inclusivity is the participation of stakeholders in developing and achieving an accountable and strategic response to sustainability.

- LS C&S is developing and maintaining stakeholder communication channels in various forms and levels in order to make a commitment to be responsible for the stakeholders. The assurance team could not find any critical stakeholder LS C&S left out during this procedure.

■ Materiality

Materiality is determining the relevance and significance of an issue to an organization and its stakeholders. A material issue is an issue that will influence the decisions, actions, and performance of an organization or its stakeholders.

- LS C&S is determining the materiality of issues found out through stakeholder communication channels through its own materiality evaluation process, and the assurance team could not find any critical issues left out in this process.

■ Responsiveness

Responsiveness is an organization's response to stakeholder issues that affect its sustainability performance and is realized through decisions, actions, and performance, as well as communication with stakeholders.

- The assurance team could not find any evidence that LS C&S's counter measures to critical stakeholder issues were inappropriately recorded in the Report.

We could not find any evidence the Report was not prepared in accordance with the 'Core Option' of GRI standard.

Recommendation for improvement

We hope the Report is actively used as a communication tool for stakeholders and recommendation for improvements.

The sustainability report of LS C&S has been consistently improved over the last eight years, and ensures sufficient quality in terms of comparability, reliability, timeliness and materiality. In future reports, focus on make it easier for readers to understand and accurately communicate your company's performance. It is recommended to continue to give efforts to enhance sustainability management performance and technique.

Our independence

With the exception of providing third party assurance services, KMR is not involved in any other LS C&S's business operations that are aimed at making profit in order to avoid any conflicts of interest and to maintain independence.

May, 10th, 2018

E. J. Hwang

CEO **Eun Ju Hwang**

KMR Korea Management Registrar



AA1000

Licensed Assurance Provider
000-129

GRI Standards

Category	Indicator			Page	Assurance
GRI 102: General Disclosures					
1. Organizational Profile	Core	102-1	Name of Organization	8	v
	Core	102-2	Activities, brands, products, and services	8, 10-11	v
	Core	102-3	Location of headquarters	8	v
	Core	102-4	Location of Operations	8	v
	Core	102-5	Ownership and legal form	20	v
	Core	102-6	Markets served	14-15	v
	Core	102-7	Scale of the organization	8, 9	v
	Core	102-8	Information on employees and other workers	80	v
	Core	102-9	Supply chain	57-63	v
	Core	102-10	Significant changes to the organization and its supply chain	3	v
	Core	102-11	Precautionary Principle or approach	21-23	v
	Core	102-13	Membership of associations	9	v
	2. Strategy	Core	102-14	Statement from senior decision-maker	8
3. Ethics and integrity		102-15	Key impacts, risks, and opportunities	24-25	v
	Core	102-16	Values, principles, standards, and norms of behavior	72	v
		102-17	Mechanisms for advice and concerns about ethics	71-73	v
4. Governance	Core	102-18	Governance Structure	20	v
		102-22	Composition of the highest governance body and its committees	20	v
		102-23	Chair of highest governance body	20	v
		102-24	Nominating and selecting the highest governance body	20	v
		102-30	Effectiveness of risk management processes	21	v
		102-32	Highest governance body's role in sustainability reporting	26	v
		102-35	Remuneration policies	20	v
		102-36	Process for determining remuneration	20	v
		102-37	Stakeholders' involvement in remuneration	20	v
5. Stakeholder engagement	Core	102-40	List of stakeholder groups	27-29	v
	Core	102-41	Collective bargaining agreements	104	v
	Core	102-42	Identifying and selecting stakeholders	27-29, 104	v
	Core	102-43	Approach to stakeholder engagement	27-29	v
	Core	102-44	Key topics and concerns raised	30-31	v
6. Reporting practice	Core	102-45	Entities included in the consolidated financial statements	14-15	v
	Core	102-46	Defining report content and topic Boundaries	30-31	v
	Core	102-47	List of material topics	30-31	v
	Core	102-48	Restatement of information	3	v
	Core	102-49	Changes in reporting	3	v
	Core	102-50	Reporting period	3	v
	Core	102-51	Date of most recent report	3	v
	Core	102-52	Reporting cycle	3	v
	Core	102-53	Contact point for questions regarding the report	3	v
	Core	102-54	Claims of reporting in accordance with the GRI Standards	99-100	v
	Core	102-55	GRI Content index	101-103	v
	Core	102-56	External assurance	99-100	v

GRI Standards

Category	Indicator		Page	Assurance
GRI 103: Management Approach				
	103-1	Explanation of the material topic and its Boundary	34-35	v
	103-2	The management approach and its component	30-31	v
	103-3	Evaluation of the management approach	30-31	v
GRI 200: Economic				
	201-1	Direct economic value generated and distributed	8-9, 27	v
GRI 201: Economic Performance	201-3	Defined benefit plan obligations and other retirement plans	81	v
	201-4	Financial assistance received from government	104	v
GRI 202: Market Presence	202-1	Ratios of standard entry level wage by gender compared to local minimum wage	104	v
GRI 203: Indirect Economic Impacts	203-1	Infrastructure investments and services supported	52-56	v
	203-2	Significant indirect economic impacts	27-29, 56	v
GRI 204: Procurement Practices	204-1	Proportion of spending on local suppliers	27-29	v
GRI 205: Anti-corruption	205-1	Operations assessed for risks related to corruption	104	v
	205-2	Communication and training about anti-corruption policies and procedures	72	v
	205-3	Confirmed incidents of corruption and actions taken	72	v
GRI 206: Anti-Competitive Behavior	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	104	v
GRI 300: Environment				
GRI 301: Materials	301-1	Materials used by weight or volume	87	v
	301-2	Recycled input materials used	88, 93-94	v
	301-3	Reclaimed products and their packaging materials	88, 93-94	v
GRI 302: Energy	302-1	Energy consumption within the organization	92-93	v
	302-2	Energy consumption outside of the organization	92	v
	302-3	Energy intensity	87, 91-94	v
	302-4	Reduction of energy consumption	91-92	v
GRI 303: Water	303-1	Water withdrawal by source	87	v
	303-2	Water sources significantly affected by withdrawal of water	87, 104	v
GRI 305: Emissions	305-1	Direct (Scope 1) GHG emissions	92	v
	305-2	Energy indirect (Scope 2) GHG emissions	92	v
	305-3	Other indirect (Scope 3) GHG emissions	92	v
	305-5	Reduction of GHG emissions	92	v
	305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	93	v
GRI 306: Effluents and Waste	306-1	Water discharge by quality and destination	93	v
	306-2	Waste by type and disposal method	88	v
	306-3	Significant spills	104	v
	306-5	Water bodies affected by water discharges and/or runoff	93	v
GRI 307: Environmental Compliance	307-1	Non-compliance with environmental laws and regulations	104	v
GRI 400: Social				
GRI 401: Employment	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	81	v
	401-3	Parental leave	66	v
GRI 402: Labor/Management Relations	402-1	Minimum notice periods regarding operational changes	104	v

Category	Indicator		Page	Assurance
GRI 403: Occupational Health and Safety	403-1	Workers representation in formal joint management-worker health and safety committees	78	v
	403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	75	v
	403-4	Health and safety topics covered in formal agreements with trade unions	78	v
GRI 404: Training and Education	404-1	Average hours of training per year per employee	82	v
	404-2	Programs for upgrading employee skills and transition assistance programs	82-83	v
	404-3	Percentage of employees receiving regular performance and career development reviews	82	v
GRI 405: Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	80	v
	405-2	Ratio of basic salary and remuneration of women to men	104	v
GRI 408: Child Labor	408-1	Operations and suppliers at significant risk for incidents of child labor	65	v
GRI 409: Forced or Compulsory Labor	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	65	v
GRI 410: Security Practices	410-1	Security personnel trained in human rights policies or procedures	65	v
GRI 411: Rights of Indigenous Peoples	411-1	Incidents of violations involving rights of indigenous peoples	104	v
	412-2	Employee training on human rights policies or procedures	65	v
GRI 412: Human Rights Assessment	412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	104	v
	413-1	Operations with local community engagement, impact, assessments, and development programs	56	v
GRI 413: Local communities	413-1	Operations with local community engagement, impact, assessments, and development programs	56	v
GRI 414: Supplier Social Assessment	414-2	Negative social impacts in the supply chain and actions taken	59-60	v
GRI 419: Socioeconomic Compliance	419-1	Non-compliance with laws and regulations in the social and economic area	104	v

Additional information on the Index

Indicators	Additional information			
102-41	All employees are subject to the results of collective bargaining agreements.			
102-42	Our stakeholders are: (1) those who are affected by business activities; (2) those who affect business performance; and (3) those who are legally, financially, and operationally responsible. We listen to their voices through a variety of communication channels and reflect them in our business activities.			
201-4	Government subsidies (unit: USD in thousand)			
	Category	2015	2016	2017
	Tangible assets			
	Land	14,790	14,535	14,535
	Buildings	1,791	1,665	1,539
	Machines and equipment	277	243	210
	Intangible assets			
	Development cost	452	216	76
202-1	The ratio of entry level wage to legal minimum wage is 263%.			
205-1	None of our worksites were found to have risks of any corruption cases according to the analysis results.			
206-1/419-1	We are striving to promote transparent and fair competition. However, some violation cases that occurred before implementing our compliance programs are still under investigation and subject to lawsuits. For further details, please refer to our 2017 audit report. Going forward, we will further strengthen our efforts to promote compliance activities of our employees and prevent any violations that could lead to market disruptions.			
303-2	Our water resources are from the Nakdong River for the Gumi/Indong plants, the Paldang Dam for the Anyang plant, and the Dalbang Dam for the Donghae plant. They are purified by the K-Water and provided from water supply offices in each area.			
306-3/307-1	There were no cases of harmful substance leakage and environmental violations in 2017.			
402-1	We disclose key information and major changes regarding management and employee welfare in real time through our website.			
405-2	Employees with the same positions and jobs are equally paid. There is no wage discrimination for reason of gender.			
411-1	There were no violations involving the infringement of the rights of local residents during the reporting period.			
412-3	When deciding new investment, including the establishment of a worksite, acquisition, and joint venture, we review and consider local labor practices. As of now, there have been no human rights issues. However, if newly invested worksites do not meet the international human rights standards, actions will be immediately taken to address these issues.			

Compliance with the UN Global Compact

10 Principles		Primary activities	Page
Human rights	1. Businesses should support and respect the protection of internationally proclaimed human rights and;	We respect the internationally declared standards and regulations on human rights protection including UN Global Compact based on our core values of One LS C&S. A lot of efforts have been made to protect human rights and prevent human rights abuse in accordance with the chapter 5 in our Code of Conduct.	62, 64-65
	2. make sure that they are not complicit in human rights abuses.		
Labor	3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;	We provide human rights education to promote mutual respect among employees with different cultural and social backgrounds. Our vision and values are shared with overseas subsidiaries. We prohibit unfair discrimination for reasons of gender, educational background, age, nationality, and religion and in regard to recruiting, promotion, and compensation in line with the chapter 5 in our Code of Conduct. We also strictly prohibit child and forced labor in accordance with the Labor Standard Act of Korea and the labor principles of UN Global Compact. We have promoted harmonious and cooperative labor-management relationship. As a result, there have been no labor disputes for the last 28 years since 1989.	64-67
	4. the elimination of all forms of forced and compulsory labor;		
	5. the effective abolition of child labor; and		
	6. the elimination of discrimination in respect of employment and occupation.		
Environment	7. Businesses should support a precautionary approach to environmental challenges;	We strive to contribute to sustainable social development by developing eco-friendly products and by running an environment management system. Efforts are made to prevent any environment and safety related accidents, to manage our performance, and to reduce GHG emissions. All of our worksites have maintained ISO14001 and OHSAS18001 compliance to promote environment management in a systemic manner.	84-94
	8. undertake initiatives to promote greater environmental responsibility; and		
	9. encourage the development and diffusion of environmentally friendly technologies.		
Anti-corruption	10. Businesses should work against corruption in all its forms, including extortion and bribery.	Based on Rule and Responsibility, one of our core values, we established our Code of Conduct to provide a framework that employees should consider and follow. Our Ethics Secretariat under the Internal Audit and Consulting Team is monitoring non-ethical acts such as violation of the Code of Conduct, and unfair transactions. In addition, we have a Cyber Reporting Channel and established a system called Clean Company that helps employees voluntarily report any past acceptance of money or gifts. As for case of irregularities and corruption, thorough investigations are conducted and disciplinary actions are taken.	68-73

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