LG Chem

re:act to zero

Covering fiscal year 2020 | Sustainability

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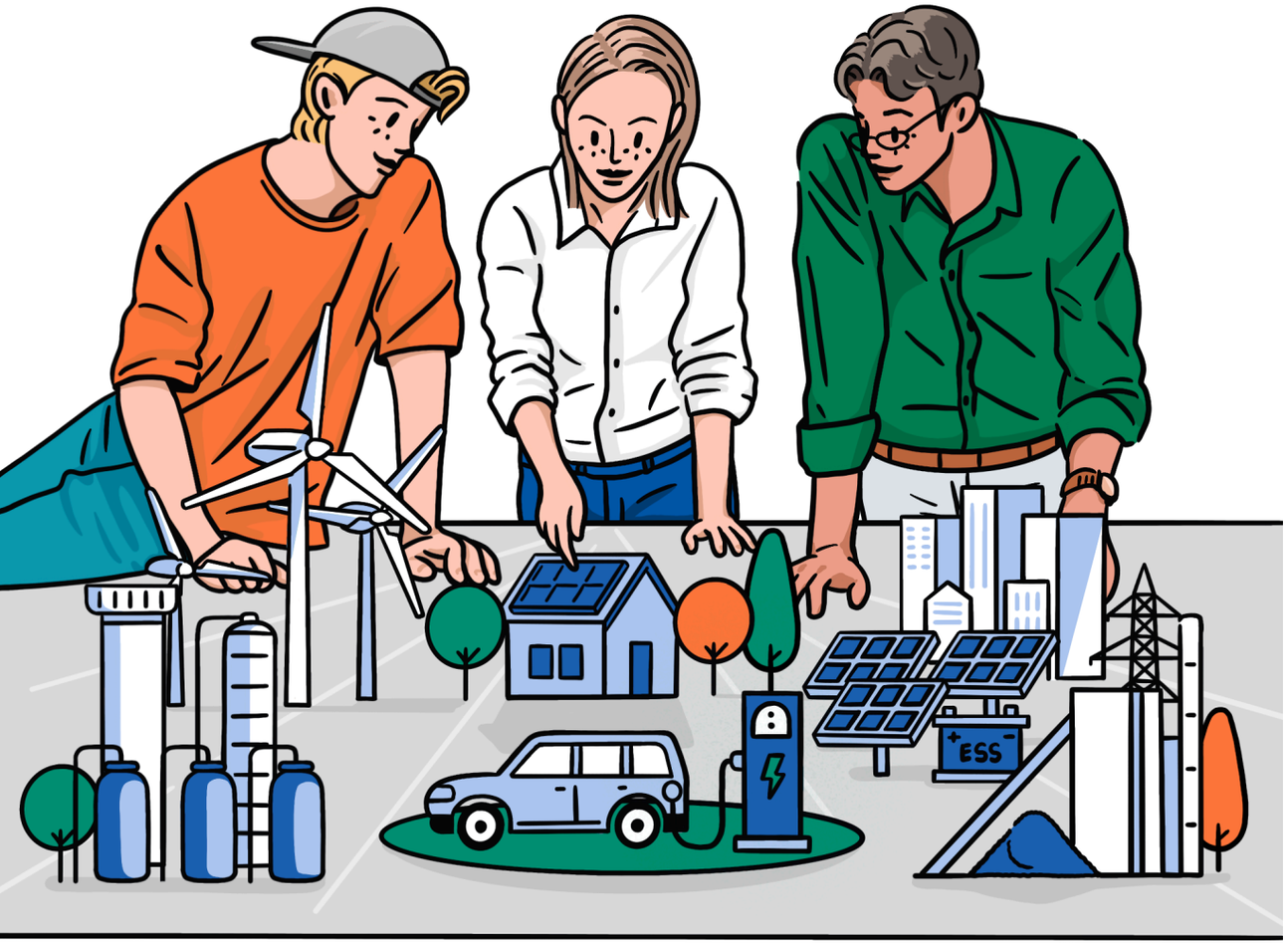
LG Chem disclosed ESG performance data on its official website to share our performance in the aspects of environment, social and governance with various stakeholders.

https://www.lgchem.com/sustainability/sustainability-reports

WELCOME

While we have endured the most difficult times amid the unprecedented pandemic of 2020, it did present us with an important opportunity to look back on the challenges faced by all of humanity. In particular, sustainability and environmental, social and governance(ESG) has become critical elements for a company to grow. LG Chem will do 'E'verything for 'S'ustainable 'G'rowth and staying ahead of current international trends. Now, let's look deeper into LG Chem's Sustainability.



LG Chem established its vision and strategy for sustainability in 2019 and announced its goal of achieving '2050 Carbon Neutral Growth' in 2020. This storybook has been written to share the strategy, achievements, and goals of sustainability management that LG Chem has forged over the course of 2020 in a transparent way, focusing on three key themes: Carbon, Circularity and People.
The international circumstances and social issues concerning these three themes have been explored, and by extension, what LG Chem set out to do last year has been described, and the challenges in moving on to the next step have been identified.

When you turn each page, you will meet three members, who represents 'Carbon', 'Circularity' and 'People'.
A visualization method has been used that is different from previous years, so that not only executives and employees of LG Chem, but also anyone outside the company can take interest in and understand easily. Sustainability cannot be fulfilled without participation and interest from all. I hope these three members will become a starting point for bringing positive changes to all who read this storybook.

Team re:act to zero

The team re:act to zero is a task force(TF) directly under CEO and linked to all departments in LG Chem. It was named “re:act to zero” because it intends to “react” to global trends and to turn carbon emissions, as well as other environmentally hazardous elements into “zero,” working toward the company’s goals. The team hold discussions with the CEO regarding sustainability matter and serve as a hotline to communicate with all executives and employees in LG Chem in all around the globe. The most important job of the team re:act to zero is to establish tasks to undertake and support them, while working on trend sensing and communicate with stakeholders about sustainability globally.

Solar

Solar has a keen insight in sustainability and she is considered as a lighthouse that sheds light on the path the team has to take. Sometimes with kind consideration and sometimes with strong leadership, she has the ability to organize and to lead to a conclusion by summarizing the opinions of the team members. Moreover, she collects issues that stakeholders value through active communication with various stakeholders outside the company, and strive to secure LG Chem’s sustainability competitiveness.

#carbon #esg #sustainability #stakeholder #communication #ecosystem

Ben

Ben is a main pillar and engine for the team, expressing his opinions through checking data meticulously. He is good at making rational decisions and is prudent, playing a pivotal role in collecting essential data and information for the team, and he is able to multitask. He always places an emphasis on principles, standards, and cleanliness, putting upcycling and recycling resources into practice in his life.

#circulareconomy #recycle #lca #bigdata #digitaltransformation

Felix

Having joined the company two years ago, Felix does not hesitate to ask questions. He expresses his opinions more directly than anyone else. Felix produces new and novel outcomes through his aggressive work attitude. He enjoys taking the lead in protecting nature and advocating human rights, living up to his reputation as an activist through action and practice, not by merely chanting slogans.

#people #green #humanrights #cooperation #supplychain

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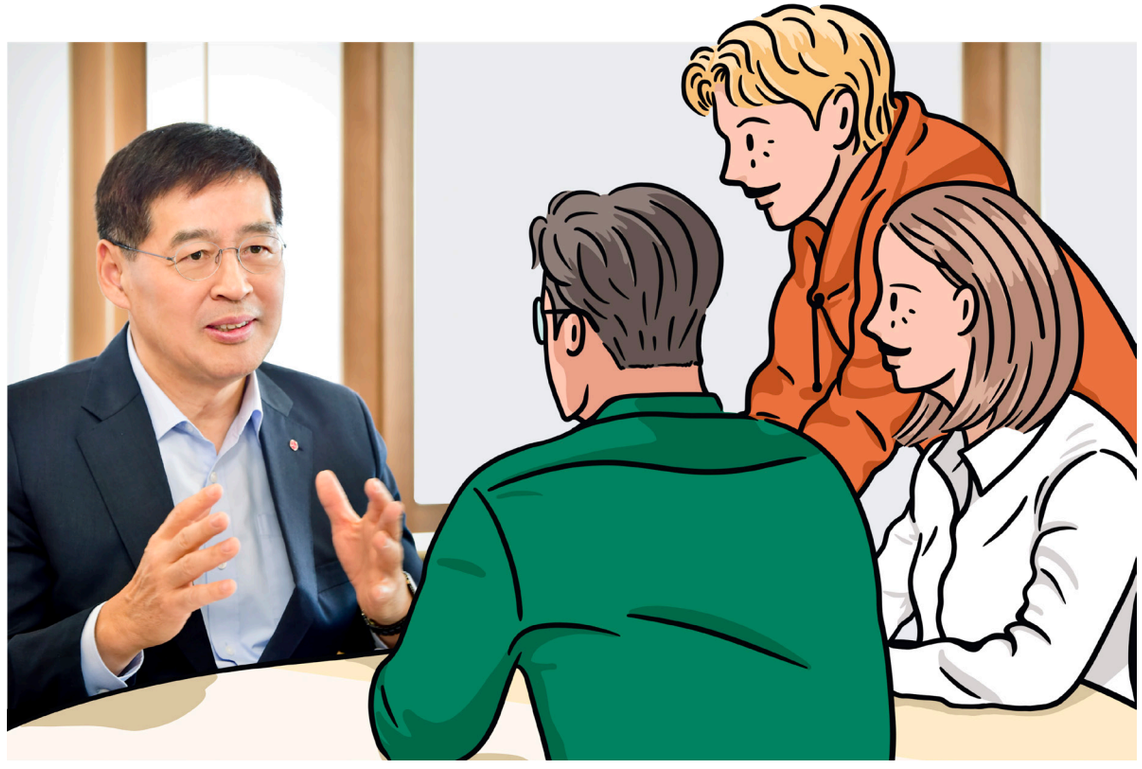
Chief Executive Officer's Q&A

Dialogue between CEO Hak Cheol Shin and the team re:act to zero

"Only companies that can change proactively in a new environment can be sustainable. LG Chem has prioritized sustainability as company's main competitiveness, which I think is the only way to survive and shoot up into a new prosperity."



2020 was a year of unprecedented crisis in which COVID-19 brought devastation to the whole world. How was it to you?

It was definitely the year of a crisis that caused immense human suffering. However, it was also an opportunity for humanity to witness the importance of climate change and sustainability after having been preoccupied with rapid growth. It was also critical year that reshaped the global trend around sustainability and ESG, which makes it all the more meaningful.

What do you think is an urgent challenge faced by LG Chem from the perspective of sustainability and ESG?

Obviously, it is responding to climate change and reducing carbon emissions. Responding to climate change is closely linked to the survival of humankind, which is a global task. We should hold the increase in the global average temperature to well below 2°C above pre-industrial levels until 2100 as it is the common goal across the globe. The international order has completely shifted towards a low-carbon society with the European Union pushing forward its Green Deal, the U.S. rejoining the Paris Agreement and China announcing its vision of 2060 carbon neutrality. The government of Korea has also been following the global trend, announcing its goal of carbon neutrality by 2050 and promoting the "Green New Deal" to achieve the goal. LG Chem considered that a new business opportunity could be created under this kind of changing market order and decided to become an active player from the perspective of customers and markets, instead of merely responding passively to new trends and the new order.

The goal to achieve "2050 Carbon Neutral Growth" was announced last year. I remember it!

Yes, that's right. That was the goal announced proactively by the chemical industry in Korea. It is a very ambitious goal because it means that we will not emit more carbon than our carbon emissions in 2019 despite continuous business growth. If no specific effort is made to reduce carbon emissions, then we could expect them to reach around 40 million tons in 2050. Which means that in year 2050 we would have to reduce carbon emissions by about 30 million tons, considering that they were 10 million tons in 2019. It's not easy, is it? But I think rather than setting a realistic and passive goals, we have to set a challenging target and find out what we can do to achieve it, which I believe is the leadership LG Chem should demonstrate.

As LG Chem have set such an ambitious goal, I think you must have specific action plans behind. I wonder what the most important plan is.

First of all, we have been looking to create new business opportunities as well as to reduce carbon emissions by shifting our business portfolio from high-carbon businesses to low-carbon and eco-friendly businesses. Post-consumer recycled plastics, which utilize plastic wastes, enable a virtuous cycle of resources, contributing to carbon reduction. And plastics produced based on bio-materials can also help with carbon reduction by replacing fossil fuels, which can lead to the creation of a new market. In this way, switching to renewable energy is a key strategy of LG Chem that can contribute to carbon reduction by using "zero" electricity generated from fossil fuels. In recent times, various schemes related to renewable energy have been put in place globally. Making the most out of it, LG Chem will look into and carry out all available options, such as investment in shares and private power generation, We intend to achieve carbon neutral growth by switching to 100% renewable energy across all our operation sites.

It seems like we need to work more closely with many different sectors in order to reach the goal more effectively.

That's right. Developing innovative technologies to reduce carbon emissions cannot be realized with LG Chem's effort alone. It certainly requires active collaboration between the private and public sector. In particular, technologies like Carbon Capture and Utilization(CCU) can make a great contribution to carbon reduction, but it takes a lot of money and time to be commercialized. LG Chem plans to set up a common project to develop innovative technology for carbon reduction with industry and various research groups from the government, research institutes and private organizations, and make continuous investments from a mid-term and long-term perspective.

My heart is racing like an agent on an important mission. Is there anything more I should do?

Of course there is. I hope that you can let more people know about the background to our goals, our achievements so far, the main takeaways, and future plans. I want you to share what needs to be improved, not just our successes.

Lastly, do you have anything to say to the stakeholders who are interested in LG Chem?

LG Chem will continue to reinforce strategies and implementation plans to achieve its goals and disclose the contents transparently to stakeholders through various channels. Please give us support and encouragement to the future of LG Chem as we become a leading company in the new growing market.

re: act to zero

2020

May 2020

Declared the new vision and core values including sustainability

July 2020

Unveiled mid-term and long-term strategies for the 5 top-priority projects including the ‘2050 Carbon Neutral Growth’

August 2020

Succeeded in developing and mass producing world’s first white PCR(Post Consumer Recycled)-ABS(Acrylonitrile Butadiene Styrene)

September 2020

Succeeded in developing world’s first new biodegradable material

November 2020

Entered into a strategic partnership with Neste, the world’s largest biodiesel company to secured bio raw materials

December 2020

First Korean company to signed the renewable energy power purchase agreement(PPA) for the cathode material plant in Wuxi, China

2021

January 2021

First Korean company to announce its strategy correspond to climate change at the ‘The Davos Agenda 2021’ hosted by World Economic Forum(WEF)

February 2021

Promoting renewable energy conversion in domestic operations sites by participating in the ‘Green Premium Program’

April 2021

First Korean company to acquire ISCC PLUS certification for ‘Bio-balanced’ products

May 2021

Invested 150 billion KRW in Korea battery and ESG fund for promising companies dedicated to electric vehicle parts and ecofriendly plastics

May 2021

Participated in ‘Green Technology: Path Finder for Carbon-Neutral Society session’ of 2021 P4G Seoul Summit

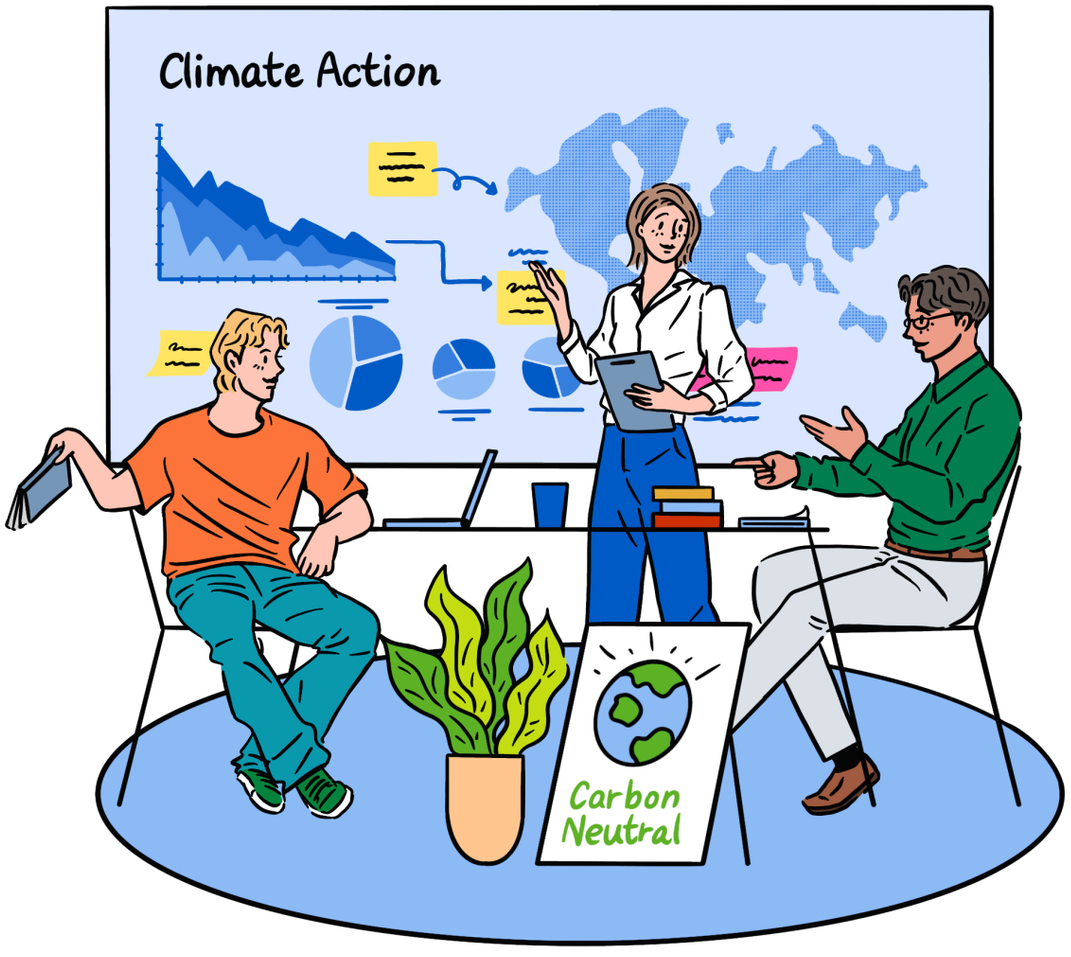
Carbon

How critical is the climate change to us?

“The biggest challenge is to reduce our carbon footprint.”

The Context

To Help us understand what climate crisis is about and update the current events regarding that matter. This will enhance our understanding not only of climate change but also of policies designed to reduce our carbon footprint, which will encourage to take part.



How is climate change different from global warming? Is global warming became real?

Climate change refers to a condition in which the climate system no longer returns to the average patterns, staying outside the range of natural climate variability that has been observed over a considerable time(30 years on average). On the other hand, global warming is the unusual increase in Earth's average temperature from the end of the 19th century. Climate change is caused by global warming and is the biggest threat facing humanity right now. As the graph on the top right demonstrates, the average global temperature began to rise at a faster rate than ever before after the Industrial Revolution, which took place from the mid-eighteenth century to the early nineteenth century. The graph on the bottom right demonstrates the number of natural disasters induced by climate change. The number of natural disasters has been on a steady rise since 1900, and has increased dramatically since 1980, including events such as floods and storms. In a nutshell, it shows that the recent extreme weather events witnessed throughout the world are closely correlated with rising global average temperatures.

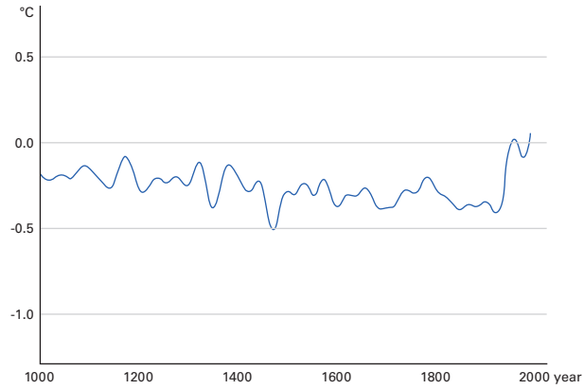
I am sure most of us know that continuously increasing Green House Gases(GHG) in the atmosphere causes Earth's global surface temperature to rise. Is there any other reason behind it?

Natural phenomenon can also contribute to climate change and the greenhouse effect. The eleven-year sunspot cycle or volcanic eruptions, or the cyclical variation in solar radiation reaching Earth due to changes in orbital eccentricity and the rotational tilt of Earth may also cause climate change. Water vapor is another natural factor causing the greenhouse effect because it absorbs and stores atmospheric heat. However, most scientists have reached the consensus that the rapid increase in global temperature has been driven by human-produced emissions of greenhouse gases.

Closer examination of data reveals more clearly that the main culprits of climate change are greenhouse gases.

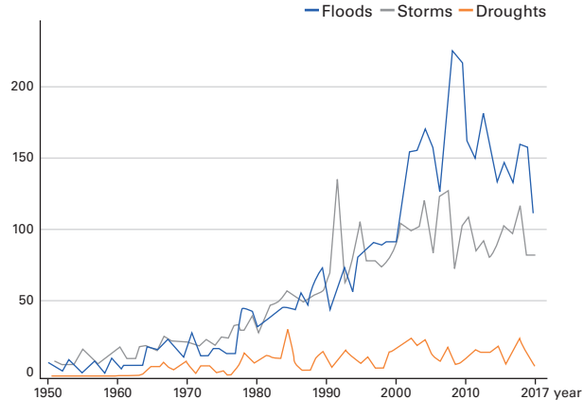
When discussing greenhouse gases, we are referring to six gases: carbon dioxide, methane, nitrous dioxide, hydrochlorofluorocarbons(HCFCs),

Temperature change in the northern hemisphere over 1,000 years



Source: IPCC(Intergovernmental Panel on Climate Change)

Number of Natural Disasters–Floods, Storms, Droughts



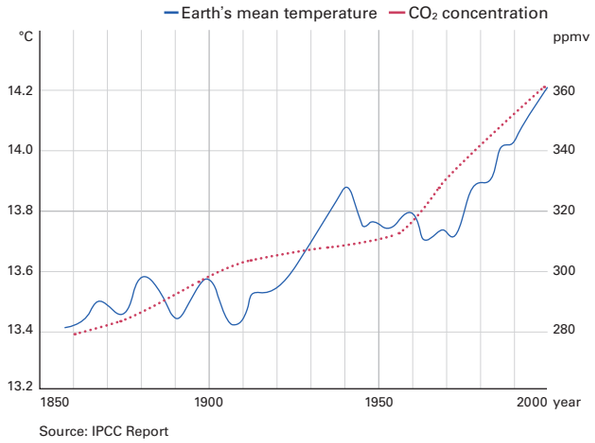
Source: European Academies' Science Advisory Council

perfluorocarbon(PFCs), and sulfur hexafluoride, of which carbon dioxide accounts for about 90%. The graph on the right shows the estimated change in the level of atmospheric CO_2 spanning 800,000 years from ice cores collected from various locations including Antarctica and Greenland, based on the amount of CO_2 in the atmosphere in 1950. Although atmospheric CO_2 stayed below 1950s levels during the seven cycles from the start to the end of the ice age, the concentration has increased significantly since industrialization. As is well demonstrated in the graph on the right, there is a correlation between the overall upward trend in concentrations of carbon dioxide and the global mean temperature.

Then we need to know who emits most of the green house gases and how much they emit.

The graph below shows the origin of about 5 billion tons of greenhouse gases emitted in 2016 by economic sector. The energy sector, which is directly related to greenhouse gases, accounts for 73%, the largest, of which the industry sector accounts for 24%. The industrial sector takes up about 30% of the total greenhouse gas emissions. In addition, as transportation, buildings, and waste are indirectly related to the industry, evidently the

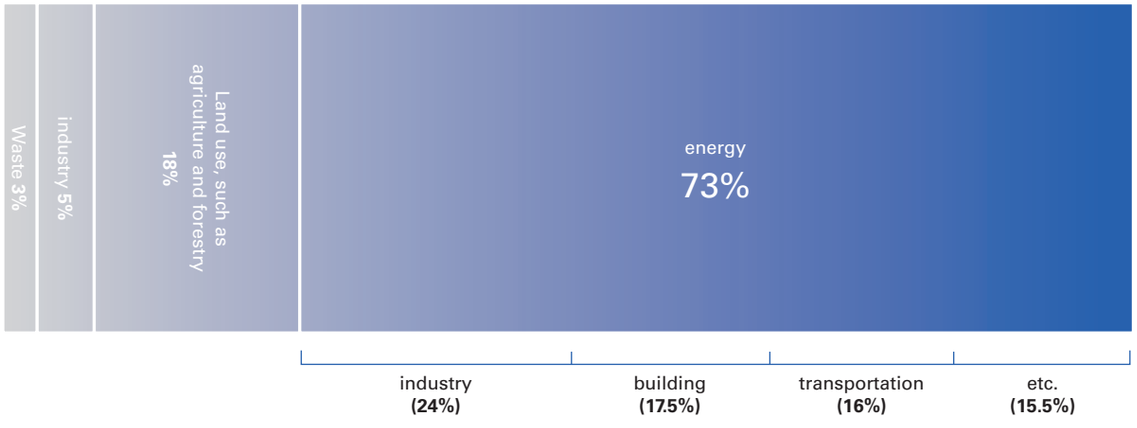
Correlation between CO_2 concentrations and mean temperatures



Source: IPCC Report

Share of greenhouse gas emissions by economic sector (2016)

Source: World Resources Institute(2020)



industry has contributed most to global greenhouse gas emissions. The analysis of CO_2 emissions by fuel suggests that reducing fossil fuel use is a key to curbing greenhouse gas emissions. This is because fossil fuels, including coal, oil and natural gas, account for nearly 100%.

Polar bears in North Pole or penguins in Antarctica are not the only ones affected by climate change. How is climate change affecting us socially and economically?

As melting glaciers cause sea level to rise and droughts accelerate desertification, environmental damages caused by climate change is becoming a reality. The consequences are now affecting society and economy as well. In response to this, it is imperative for society to expand its infrastructure and public services to prevent climate change from wreaking havoc. Otherwise low-income households, the most vulnerable to energy instability, will bear the brunt of climate change, perpetuating inequality. Natural disasters have inflicted heavy economic losses, including fluctuations in productivity, as well as asset and commodity prices.

Just worrying about it isn't enough to make any difference. How swiftly is the international community responding to it?

In line with international treaties on climate change agreed upon by the international community, countries have announced their own mid-term and long-term targets for carbon reduction of their greenhouse gas emissions, and the European Union, which is leading the way in reducing carbon emissions, has announced its ambition to achieve carbon neutrality(net-zero) by 2050. At the 'Leaders Summit on Climate' held in the United States in April 2021, the EU even revised its targets to a more ambitious level, planning to cut carbon emissions by at least 55% by 2030, compared with 1990 levels. In the U.S., the Biden administration has officially re-joined the Paris Agreement, pledging to reduce U.S. greenhouse gas emissions by 50-52% from 2005 levels by 2030 in an attempt to reclaim the leadership role of the U.S. on climate action; meanwhile, China, the world's largest greenhouse gas emitter, reaffirmed at the summit that it aims to achieve carbon neutrality by 2060.

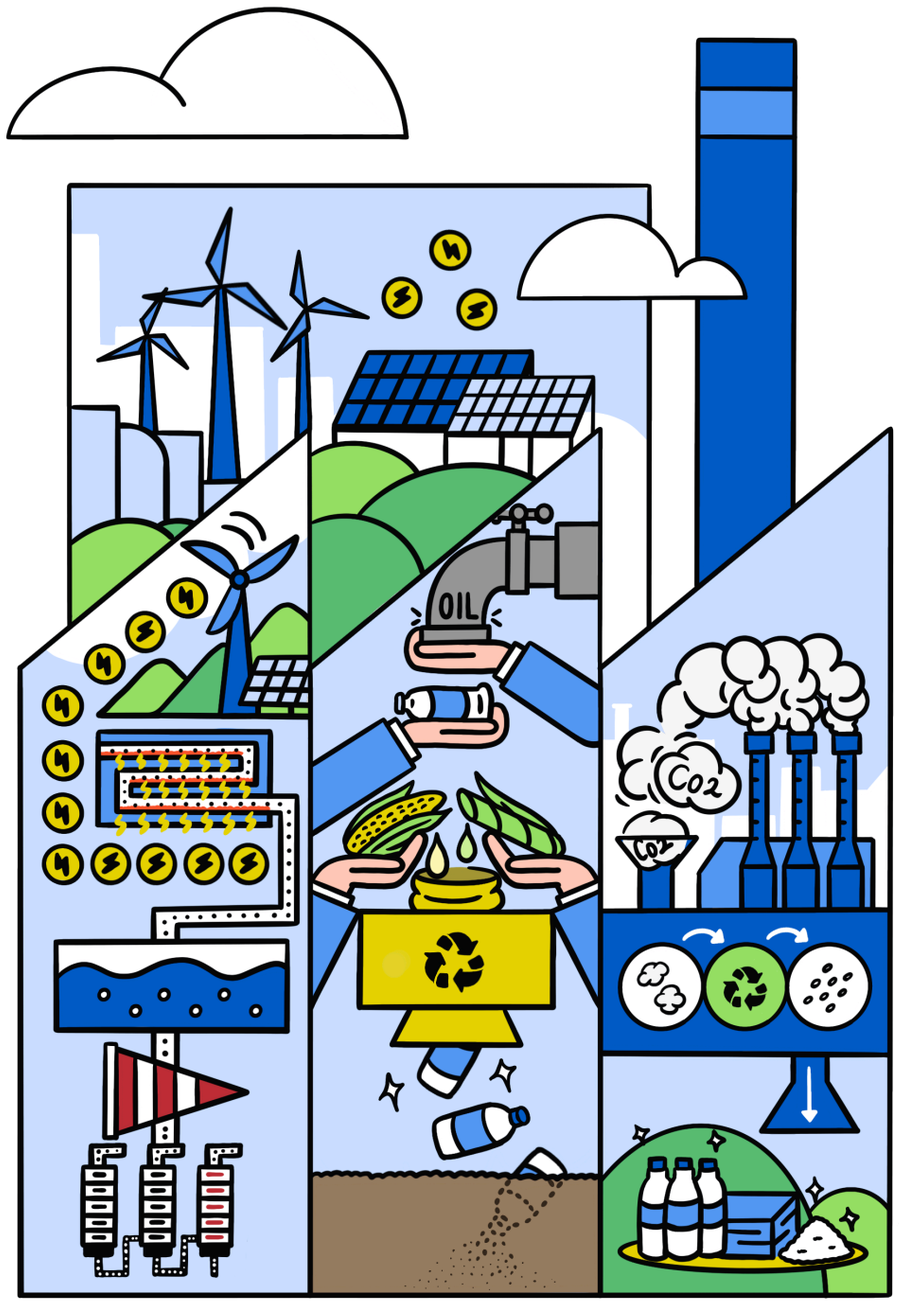
In addition to governments in different countries, investors in the financial market seem to be moving quickly. They don't hesitate to integrate responses to climate change into their business plans and strategies.

Investors in the financial market are putting the energy industry, which relies on fossil fuels, under intensive pressure, calling for a structural shift toward an eco-friendly one. For example, in 2020 and then in 2021, BlackRock, the world's largest investment management corporation, wrote to the CEOs of all companies it invests in, asking them to make public how they were integrating detailed plans aimed at reducing CO_2 emissions into their long-term business strategies. The international community and financial markets are urging all industries to swiftly move away from traditional carbon-intensive business models to decarbonizing or low carbon-based ones. From the company's point of view, this represents a change in the business environment, necessitating fundamental and immediate responses for survival, as opposed to an ideal that is to be achieved gradually in the distant future.

Reponses of the international community to climate change

The international community has agreed to make every effort to keep the increase in global average temperature to well below 2°C, preferably to 1.5°C compared to pre-industrial levels.

Explain the goals and practices of LG Chem to realize carbon neutral growth.



The Goal: 2050 Carbon Neutral Growth

LG Chem became the first Korean chemical company to declare '2050 Carbon Neutral Growth' correspond to climate change. LG Chem will curb carbon emissions in 2050 to 10 million tons, the level of emissions in 2019. Considering the current business growth, LG Chem's carbon emissions forecast in 2050 are 40 million tons, which means in 2050 more than 30 million tons to be cut in order to achieve carbon neutral growth. LG Chem established climate action strategy to achieve carbon-neutral growth goal by applying renewable energy to all manufacturing sites, improving energy efficiency, developing low-carbon products, converting to bio fuel and adopting new technology, such as a carbon capture and utilization(CCU).

Endeavering for transition to Renewable Energy

LG Chem plans to shift the energy use of its global business places toward renewable energy by 2050. LG Chem plans to produce products with 100% renewable energy by 2050 in all operations sites around the world— global operations sites by 2030 and Korea by 2050. LG Chem participated in the bidding of the Korean government's 'Green Primium Program' and secured renewable energy with an annual capacity of 120 GWh. In that way, a factory in Yeosu and the Tech Center in Osan could accomplish Renewable Energy 100%(RE100), and the plant in Cheongju, which produces cathode materials, a key material of EV batteries, could procure 30% of its power supply from renewable energy sources. In addition to that, the plant in Wuxi, China, which produces cathode materials, achieved RE100 by signing a power purchase agreement(PPA) for renewable energy. In order to achieve the goal of switching to 100% renewable energy, which is essential to achieve carbon neutral growth, LG Chem will take an active part in renewable energy schemes and push ahead with various plans, such as making investments in shares and building private power generation facilities.

Q & A

What is a power purchase agreement(PPA) and what does switching to renewable energy mean?

A PPA is a way of getting electricity at a fixed price by signing an agreement directly with a renewable energy power generating company. Its strength is that we can secure renewable energy in a stable way at efficient cost. Through this, the plant in Wuxi, China can run using 100% renewable energy, and as producing cathode materials generates minimal carbon emissions, we can make carbon emissions almost zero by running the plant.

Developing Low-Carbon Products Portfolio

Reusing or recycling products made from fossil fuels and switching to bio-materials are sure-fire ways to reduce carbon emissions, and can play a critical role in shifting LG Chem business toward a sustainable model. LG Chem has currently been building up low-carbon product lines by developing and producing products based on PCR and bio-materials. In the field of polycarbonate(PC), an advanced material, LG Chem has developed PCR-PC products by employing mechanical recycling since 2009, whose sales volume has been increasing mainly thanks to global customers in the IT sector. LG Chem will try to develop technology to increase PCR content and secure raw materials, aiming to achieve No.1 sales in the PCR plastic market by 2025.

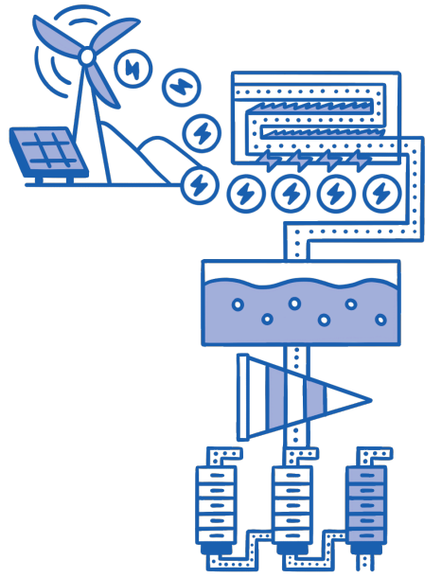
Raw biomaterials are effective in reducing the carbon footprint as they can take over from fossil fuels in the production of products, and they are considered carbon neutral since they remove carbon throughout their life cycle before becoming raw materials. LG Chem succeeded in developing new biodegradable materials based on using 100% corn content in September 2020. These new materials have the same properties as polypropylene(PP) which is a raw material for different kinds of plastic products and maintain transparency after being processed. LG Chem is pushing ahead with the product launch after forging a strategic partnership with Neste, the world's largest biodiesel company, in November 2020 to increase the supply of biomaterials. In April 2021, LG Chem obtained ISCC Plus certification for the first time in Korea. As the certification is awarded to the eco-friendly bio-balanced product, the sustainability of LG Chem's product has proven. LG Chem will continue to scale up production and business with products based on biomaterials.

Q & A

What is the background to the development of new biodegradable materials and how fast do these materials degrade?

As plastic wastes including microplastics has brought to attention across the world, regulations have become stricter, which has led LG Chem to conduct long standing research into developing eco-friendly materials. It has been verified according to the criteria of the European biodegradability standards that more than 90% of the new material developed by LG Chem biodegrades within 120 days.

Investing in Technology and Business to Reducing Carbon Footprint

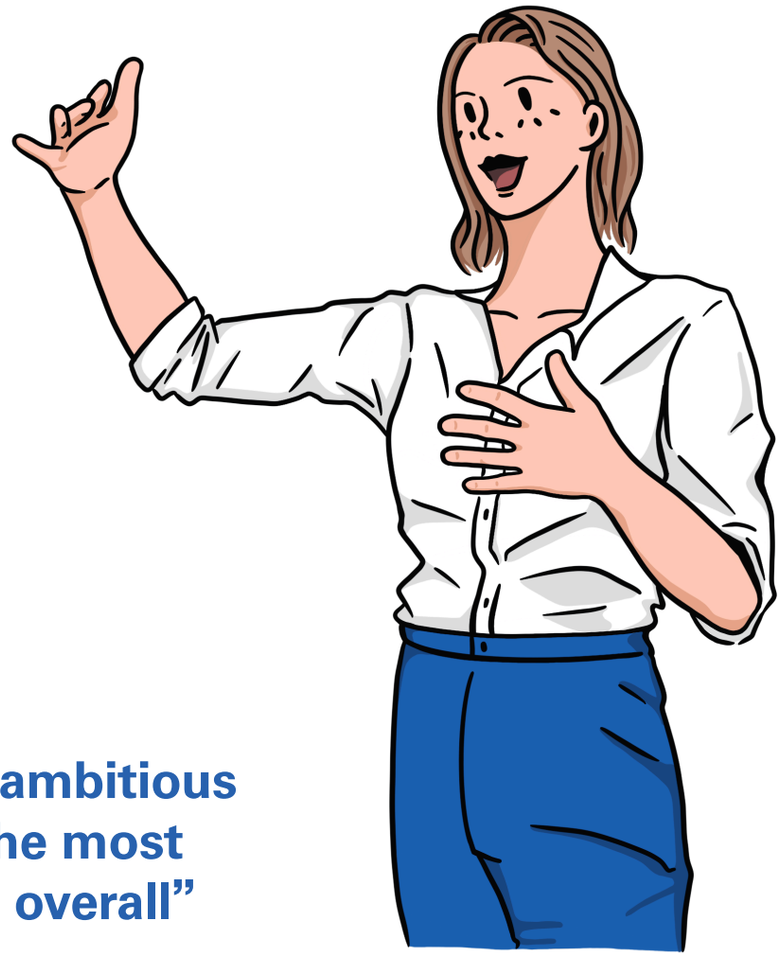


LG Chem also plans to make aggressive investments in future technologies that can directly contribute to carbon reduction. We are pushing forward with the development and application of technology to convert fossil fuel furnace(a process producing basic petrochemicals such as ethylene and propylene, which are the base materials for petrochemistry, by cracking naphtha at high temperatures) to renewable energy-based e-furnace at the naphtha cracking centers(NCC), which generate the most carbon emissions. In addition, we will make a long-term investment in developing technologies for carbon capture and utilization(CCU) that collect carbon dioxide emissions from sources and convert them into products, making an increasingly significant reduction in greenhouse gas emissions.

In addition to direct carbon reduction and indirect reduction through renewable energy conversion, LG Chem contributes to carbon reduction by investing in Clean Development Mechanism(CDM) projects in developing countries such as Zambia and Uganda in order to secure offset carbon emissions.

What we have realized and learned from looking into the global trend and the action plans of LG Chem, and keywords to remember going forward.

The climate change is a challenge for all of us that requires immediate action.



“Declaring ambitious target is the most important overall”

Setting passive targets that can be achieved easily with little effort does not go a long way towards attaining the medium-and long-term goal of cutting the greenhouse emissions across the globe. It could even raise doubts on the genuine intention to cut carbon emissions. Even if a challenging goal is not attainable at the current level, it is imperative to find viable ways to meet it. We have learned that it is necessary to make a commitment to taking a preemptive step if it cannot be put off any longer. LG Chem was the first Korean chemical company to establish medium-and long-term carbon reduction targets, which are very ambitious based on current levels. However, LG Chem will pursue plans to further reduce carbon emissions, never losing sight of the horizon as it continues to set the bar higher and tackle climate change with detailed plans, instead of stopping at the current goal of carbon neutral growth.

“Feasible programs should be promoted to demonstrate the effects of carbon emissions”

Once a challenging goal is set, it is necessary to identify programs that can be implemented in the short-term, and to push forward with them making the most of all available resources. In the same vein, LG Chem took the lead in participating in the ‘Green Premium Program’, a renewable electricity purchasing program that has finally gotten off the ground in the country. Each business division has established short-term and mid-term and long-term carbon reduction targets and drawn up detailed action plans for achieving them. In particular, innovative technologies to reduce carbon emissions with carbon capture or converting captured carbon into new products cannot be developed overnight. However, it is a breakthrough technology to achieve the “2050 Carbon Neutral Growth” goal, since in holds efficient carbon reduction effects by converting captured carbon into products. LG Chem is conducting research in such areas as innovative catalytic technologies and processing technologies that transform carbon into products by utilizing excellent internal research capabilities and working with external research groups. Going one step further from reducing carbon emissions, proving the effects of reducing the carbon footprint is also important in the transition to a low-carbon and eco-friendly business model. For this, it is necessary to evaluate and analyze environmental impacts throughout the life cycle of a product using the life cycle assessment(LCA), because it presents how low-carbon and eco-friendly products affect the environment in the real world compared to existing products. Specifically, it is essential to verify the effect of reducing environmental impact by performing the LCA throughout the product’s life cycle as represented in the case of cathode products made from EV batteries by the Advanced Materials Business Department. LG Chem is on it’s way to establishing an internal system to perform the LCA for all products by 2023 laying the foundation for enhancing the eco-friendliness of LG Chem’s products.

“Active communication and cooperation with various stakeholders are necessary”

Carbon reduction requires concerted efforts across the globe, and there are many issues that are hard to resolve through the efforts of LG Chem alone. It is essential to enlist the active cooperation of governments, petrochemical businesses and research institutes around the world where the business places of LG Chem are located. As for renewable energy, structural issues including easing regulations, infrastructure improvement and policy support should be addressed, and breakthrough innovations such as carbon capture and utilization(CCU) are costly and time consuming. That is why it is all the more important to create as many opportunities as possible for communications with external stakeholders, to actively explore areas where we can work together. LG Chem will spare no effort to fulfill carbon neutral growth while keeping stakeholders in the loop on the progress being made and future plans in the pipeline. LG Chem was the first Korean company to attend a session on climate change at the Davos Agenda hosted by World Economic Forum(WEF), delivering a presentation with three keywords: Commit, Operationalize, and Engage. LG Chem will join diverse global initiatives as well as the WEF, seeking collaborations to attain carbon neutral growth. Going forward, LG Chem will continue to mount its all-out efforts and, based on the achievements that result, communicate transparently with stakeholders.

Circularity

Why is it necessary to create a closed-loop for recycling?

“A circular economy for the earth and for all mankind”

The Context

We will once again look into what has been left unanswered and give updates on where we are now. This will enhance our understanding of the circular economy and its policy from various countries to encourage everyone's participation.

It is unimaginable to live without plastic even for a day; is plastic really worse than useless? Why did human beings develop plastic even though they knew it did its part in destroying nature?

Plastics were the greatest human invention of the 20th century, but in the 21st century it is considered as the key culprit behind the global waste crisis because of its non-biodegradable properties. However, surprisingly enough, plastic was developed as an alternative to natural materials in the first place. With the rise in popularity of billiards in the late 19th century, many elephants were killed for their ivory, a key material in the manufacture of pool balls. Because of this tragedy, the population of elephants decreased dramatically, allowing the prices of ivory to skyrocket; in the end, plastics were developed to replace it. Ironically, plastics were created to reduce and replace the consumption of natural materials such as animals and plants, and enjoyed widespread popularity upon its debut. As it was possible to mold plastic into any desired shape using heat and pressure while also having the choice of making it either soft or hard according to the material, plastic consumption increased dramatically in everyday life and everywhere else. In 1979, the production of plastic surpassed that of steel.

It is more accurate to say that plastic wastes are harmful than the plastic itself is harmful. How much plastic is thrown away?

Plastics were developed to reduce the use of natural materials, but as the global economy grew, plastic wastes increased rapidly due to massive amounts of its consumption, coupled with its non-biodegradable properties, which began to harm the environment. About 83 billion tons of plastic was produced from 1950 to 2015, of which a whopping 57 billion tons were either discarded or incinerated. Nearly 70% of plastic is single-use plastic, posing a grave threat to the environment.

What we need at this moment is a circular economy!

With the surge in plastic wastes, the international community came to realize that the existing linear economy model, where resources were collected, and products were created, consumed, and discarded, was not sustainable. As an alternative to this, the concept of a circular economy emerged, by which waste resources are immediately reused or raw materials from waste resources are extracted for recycling, contributing to reducing the use of raw materials while maintaining or increasing production. Since 2018, a circular economy has been embodied in policies related to the European 'Green Deal' and waste management initiatives of different countries including the European Union, the United States and China. In particular, more stringent regulations have been enforced due to the changing landscape of consumption and rapid increase in plastic wastes in the wake of COVID-19 in 2019-2020.

I think it is a goal that is hard to achieve without international cooperation. When did countries begin to take action?

The European Union and the international community have been pushing ahead with regulations and policies related to a circular economy. Starting with the European Strategy for Plastics in a Circular Economy in 2018, the EU announced the 'Green Deal' in 2020, banned the distribution of single-use plastic products in the region from 2021, and imposed a 0.8 euro per kilogram levy on nonrecycled plastic wastes. Tax revenues collected from the member states are earmarked for the 'Green Deal'. Furthermore, the EU has been implementing policies, giving producers greater responsibility, banning some plastic products from being marketed, and recycling more than half of plastic wastes in the mid-term and long-term while increasing biocomponent-derived materials in products by at least 60%.

Now, companies have made extra efforts to keep pace with the global trend, haven't they?

Recently, global consensus has been reached on reducing wastes and shifting industries to a circular economy, and stricter regulations have also been applied. As a chemical company that produces raw materials for plastic products, the transition to a business portfolio consisting of recycled plastics and bioplastic is a critical adjustment to keep up with the times, which will not only contribute to a circular economy by reducing plastic wastes, but will also serve as a starting point for opening up new business opportunities in the green market.

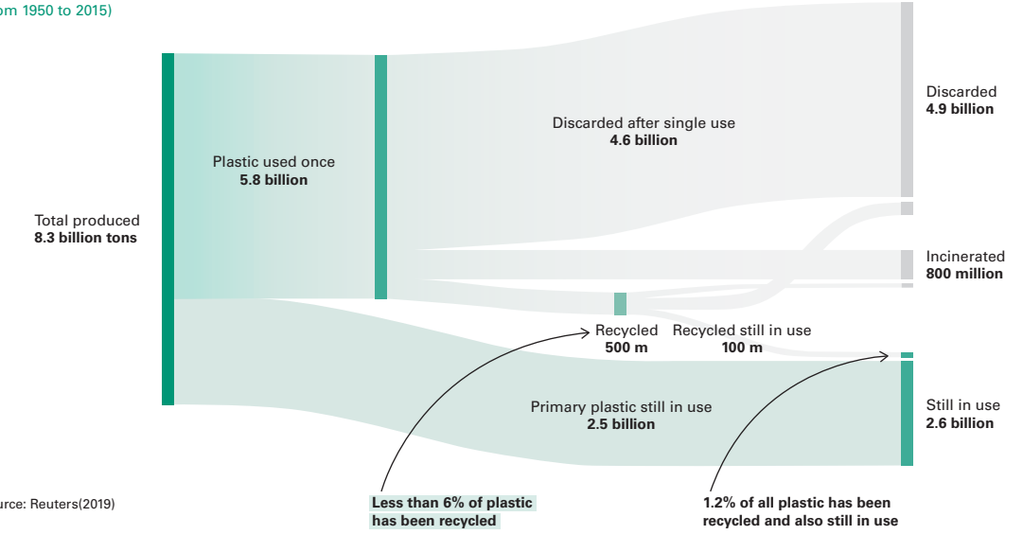
Circular Economy Policy of Major Countries

• U.S.
In the United States, the state governments have pushed for a variety of regulatory bills. New York State submitted a bill which would ban providing single-use plastic bags in 2018, and California enacted legislation banning the use of plastic straws in restaurants in 2019. Seattle took a step forward with the 2018 ban on the use of all single-use plastic, including plastic straws, in restaurants.

• China
China, the world's largest importer of waste, announced a total ban on its import of plastic wastes in 2018. The Chinese import ban on plastic wastes have forced countries around the world to speed up their transition to a circular economy. China has also imposed a ban on the use of non-biodegradable single-use plastic(straws, shopping bags, etc.), starting from 2021.

• Korea
Korea has also established a recycling system through the "Green New Deal" initiative in line with current global trends. Announcing the Comprehensive Measure for Waste Recycling in 2019, the Korean government laid out the clear goals of reducing key single-use plastic wastes by 35% by 2022 and increasing the amount of renewable content in plastic containers to 30% by 2030.

The Fate of Plastics
(from 1950 to 2015)



Source: Reuters(2019)

Our Approach

Explain the goals and practices of LG Chem to realize a circular economy by proactively pursuing recycling and bioplastic business, shows what the company is doing and how much it is committed through voices from within.

The Goal: A Transition to Recycling and Bio Business

Creating a virtuous cycle of resources can help successfully reduce the carbon footprint as well as waste. LG Chem intends to undertake the post-consumer recycled(PCR) project by promoting mechanical recycling in the short-term and chemical recycling in the mid-term and long-term. In addition to plastic, LG Chem is a manufacturer of cathode materials, a key material for secondary batteries. How to dispose of used batteries is also an important issue from the perspective of a virtuous cycle of resources as the demand for electric vehicles is rising across the globe.
LG Chem plans to find partner companies to obtain core raw materials from battery wastes and recycle them, expanding the introduction of recycled materials. Further in the field of bioplastic, we plan to ensure stable supply of bio-materials by partnering with various suppliers and gradually expand the production of biodegradable products.

Dominating Recycled Plastic Market

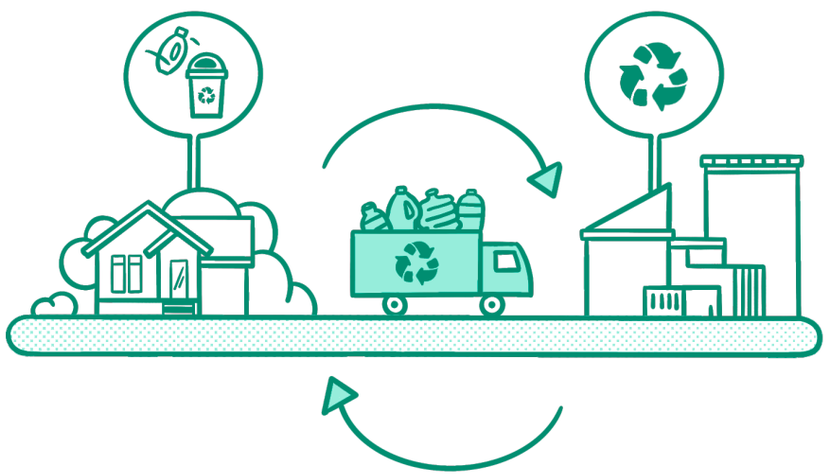
Plastic recycling is largely divided into mechanical recycling and chemical recycling. In mechanical recycling, plastic wastes is collected and sorted out and then put into a grinding machine that granulates it. Raw materials are then extracted and put back into the process to make a product. In case of mechanical recycling, a simple technology to extract raw materials from plastic wastes has already been commercialized, and it is expected to grow fast. LG Chem has put in the foreground plastic recycling business that recycle plastic wastes after its final use and turn it back into a product. In August 2020, LG Chem successfully developed and mass produced world's first white PCR-ABS products. The original PCR-ABS was produced only in black and gray as the recycled ABS weakened hardness and faded color. However, LG Chem has developed a technology that increases the recycled ABS property to the same level as existing products and makes it white. LG Chem uses acrylonitrile butadiene styrene(ABS) and polycarbonate(PC) as the key materials to produce PCR products by employing mechanical recycling, and plans to develop more diverse PCR products in the future by utilizing polyolefin(PO) and polyvinyl chloride(PVC).

Chemical recycling requires more advanced technology than mechanical recycling. Chemical recycling is a process that breaks down combined molecules of collected plastic wastes through thermochemical reactions and extracts raw materials or monomers that are used to manufacture new products. Unlike mechanical recycling, it can extract raw materials from mixed plastic wastes, with the product quality same with petroleum-based products. If the technology is successfully secured, this process can offer great potential for future growth. Although the technology has not been completely commercialized yet, making it hard to apply the technology right off the bat, LG Chem is planning to pursue its commercialization in the mid-term and long-term by taking the necessary next steps, including building a pilot plant for technical review.

Q & A

What was the difficult part when developing white PCR-ABS and what needs to be done down the road?

Unlike the original products, it is difficult to develop a product with the raw materials possessing uncontrollable characteristics. Although various techniques were applied to enhance the characteristics, there was still a limitation to overcome the inherent properties of the recycled materials – such as colors, dirts and physical properties. Even if LG Chem overcame this difficulty and succeeded in developing white products, it is necessary to build a system that can help separate and discard plastic with reuse and recycling in mind from the development stage of final consumer products in order to achieve sustained growth.

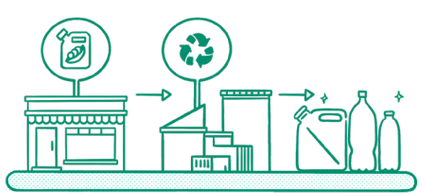


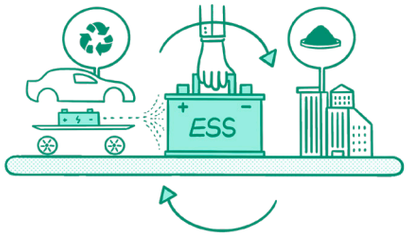
Developing Battery Recycling Technology

We are witnessing regulations imposed on vehicles with internal combustion engines and a rapid transition to electric vehicles in line with the global trends of reducing the carbon footprint and going green. The rapid increase in demand for batteries, a key component of an EV, has left us with a mountain of batteries after reaching their end-of-life. There are two options for recycling batteries: One is to simply switch batteries that still have remaining capacity to the energy storage system(ESS), and the other one is to disassemble batteries retired from EVs to recover core materials such as cobalt, nickel, manganese, and lithium and recycle them for the manufacture of cathode materials. LG Chem is producing a core material of battery: a cathode. To contribute to the virtuous cycle of resources, we are promoting a partnership with refining and smelting companies that can separate and extract core mineral materials from battery wastes. As a mid-term and long-term plan, we aim to include a larger amount of recycled raw materials into the manufacturing process and increase its proportion.

Expanding Bioplastic Market

The transition to bioplastic production from a fossil fuel-based one not only makes a significant contribution to reducing the carbon footprint, but is also of great help for a virtuous cycle of resources because bioplastic biodegrades more easily. Bioplastic can be produced with ingredients derived from bio-materials such as corn and sugar cane and bio-process technology like fermentation. Accordingly, LG Chem intends to produce bioplastic, partnering with different suppliers for each bioplastic product line. Furthermore, LG Chem will continue to expand the bioplastic business and produce as many biodegradable products as possible. FarmHannong, a subsidiary of LG Chem, has manufactured and marketed "Farmsbio," using biodegradable materials. Farmsbio is a mulch film used in plasticulture to cover the soil. In the past, mulch film was often disposed of through illegal incineration or landfills due to limited recycling options post use. However, Farmsbio is made of raw materials that are 100% biodegradable, so it can prevent environmental pollution and reduce carbon emissions while maintaining its inherent attributes.





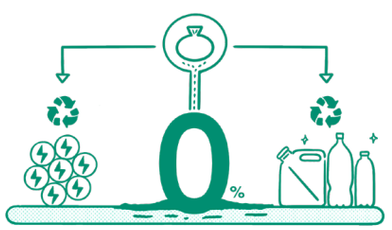
Q & A

What kind of process is needed to manufacture cathode materials with battery wastes?

A cathode is a rare but core material for battery. It is made by mixing the precursor-composed of nickel, cobalt, and manganese-and lithium. For the non-reusable battery wastes, remaining electricity is firstly discharged to eliminate any risk of explosion and it is crushed by a machine. After the crushing process, raw materials are separated using differences in magnetic properties or weight. From the separated raw materials, nickel, cobalt, manganese, and lithium are extracted and recycled to produce a cathode.

Achieving Landfill Zero at Every Operations Sites

For the virtuous cycle of resources, we need to do everything to make sure that not only waste generated after products have reached their end-of-life, but also waste produced at the places of business, are recycled instead of being buried or incinerated. LG Chem has formulated a policy mandating that any newly enrolled business obtain the Zero Waste to Landfill Certification in order to ensure that no waste goes to landfill, and the Michigan battery plant of LG Energy Solution, a subsidiary of LG Chem, earned the Zero Waste to Landfill Certification from NSF International, a certification body in the U.S., by successfully recycling more than 90% of the waste generated within the premise. LG Chem will further achieve waste reduction goal so that the existing and new operations sites can gradually receive the "certification".



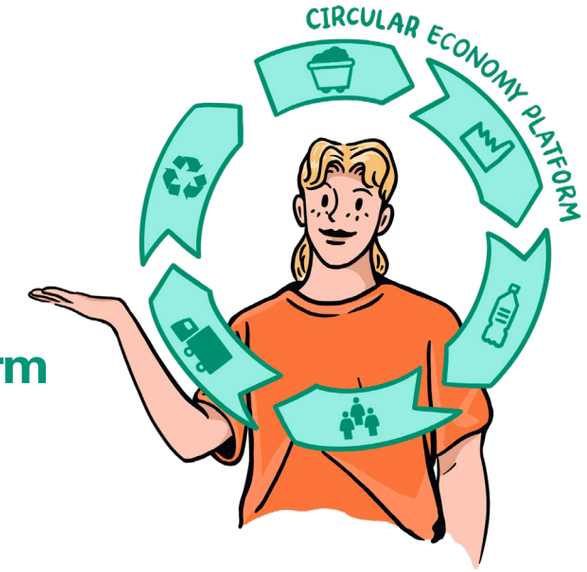
What we have realized and learned from looking into the global trend and the action plans of LG Chem, and keywords to remember going forward.

A circular economy is necessary to address the shortage of resources and waste problems.

A New Standard For a New Era.

“We need to get a solid grasp of the shifting industrial landscape triggered by the pandemic”

Amid the COVID-19 pandemic the global real economy has shrunk, but at the same time the industrial landscape has changed dramatically, including a boom in e-commerce and a surge in demand for personal hygiene products as the pandemic has made a contactless way of life the ‘new normal.’ Along the way, this has caused spikes in demand for plastic, leading to the increase in plastic wastes generation worldwide, which in turn boosts demand for greener products including recycled plastic material and bioplastic. End-users are willing to pay more for products that benefit the environment, even if they are more expensive, while LG Chem’s stakeholders, including customers and investors, are getting serious about sustainability, strongly demanding a shift to a business portfolio that champions decarbonization. This has made us realize the importance of making aggressive investments in the transition to such business portfolios, rather than becoming complacent about short-term sales growth. LG Chem will expand its product lines through mechanical recycling in the short-term and strengthen its strategy for a virtuous cycle of resources based on chemical recycling technology in the long-term.



“Establishing a platform for cooperation is necessary”

LG Chem cannot create products from recycled materials alone. It is critical to establish a platform for cooperation for the virtuous cycle of resources, including building supplier partnerships with companies providing a stable supply of recyclables separately collected and sorted out, and actively promoting end customer products made from recycled materials developed by LG Chem. In 2021, LG Chem established an eco-platform, signing an MOU with INNERBOTTLE, a social start-up company that develops eco-friendly cosmetic packaging containers. Developing a container with a silicon pouch in it, this zero waste packaging developer has shown innovation in providing a solution for recycling cosmetics containers, which were hard to recycle due to their content and composite plastic. LG Chem works together with INNERBOTTLE, by creating materials for the product it manufactures, collecting waste, and turning it into recycled products. Going forward, using the successful partnership with INNERBOTTLE as a springboard, LG Chem will continue to expand its collaborative efforts with different companies to build a healthy ecosystem for sustainable resource circulation.

“International efforts built on global initiative are a must-do”

Realizing a virtuous cycle of resources requires international cooperation as seen in the case of policies for carbon reduction. Global leaders including the EU, the U.S. and China have already signed the circular economy into law, and different countries and industries have formed a range of joint initiatives to respond to and shift a paradigm based on it. Under these circumstances, what’s important for companies is to have leadership capable of keeping one step ahead of the global trend, rather than simply following suit. We have learned that in order to lead the industry in the new environment, we must be actively engaged in initiatives, let our voices be heard, and put them into practice in many ways. Since LG Chem formulated a new strategy for sustainability in 2019 and announced its mid-to long-term goals in 2020, focusing on the top priorities, it has been involved in a variety of initiatives to take a leading role while working with different countries. Considering taking part in global initiatives for the virtuous cycle of resources to be essential, LG Chem joined the Global Battery Alliance(GBA) in September 2020 to build a circular economy within battery supply chains. In order to help build the circular economy of plastic, LG Chem has pushed forward with the goal of completing its joining initiatives to facilitate the virtuous cycle of resources, including Ellen McArthur Foundation(EMF) and Alliance to End Plastic Waste(AEPW) by the end of 2021. The EMF is an foundation that aims to realize various ideas for creating a circular economy through collaborative efforts among academics, policymakers, institutions, and companies by industry, and it is expected that there will be many more opportunities for LG Chem to participate in initiatives associated with the virtuous cycle of resources related to the chemical industry in the future. AEPW is an initiative targeted directly at reducing marine plastic pollution. By joining this global initiative, we can expect to undertake joint R&D activities for recycling as well as environmental cleanup projects with global petrochemical companies.

People

What makes a company better?

“A company that makes the world a better place”

The Context

We seek a better understanding on how a company should prepare for and respond to accelerating globalization and the emergence of new generations while encouraging everybody to take part.

There is one thing that I have learned after experiencing COVID-19: human beings are connected through one world. So why don't we talk about globalization now?

The term globalization appeared a long time ago, but only in the late 19th century and early 20th century the world economy and the connectivity of cultures start to grow rapidly. It was in the late 20th century and early 21st century that the concept of globalization was established in terms of trade and transaction, capital and investment, migration of people, and dissemination of knowledge. Increased connectivity among people, companies, and governments of different countries across the world has become even stronger based on the advancement of technology. Ironically, it is also globalization that has facilitated the spread of COVID-19 to all corners of the world. Companies have been benefiting from globalization. The development of transportation has made it possible to source raw materials from every corner of the world, securing supply chains and boosting the competitiveness of products. Thanks to the development of communication technologies, business in different countries and regions could be connected without having to meet in person, as they pursue integrated strategies tailored to their own unique local characteristics.

Then what are the new challenges posed by globalization?

Globalization also means that the management of a company has to encompass a complicated and wide range of responsibilities. For example, different problems occurring across supply chains outside the business areas of LG Chem are considered as common responsibility to be shouldered by all companies involved in the supply chains, not something to be tackled by the partner companies alone. The scope of responsibility has been expanding further to include a wide range of issues from human rights to resource depletion, anti-corruption, etc. Moreover, as businesses advance into larger areas in different countries and regions, how to manage issues raised by such diverse factors as gender, age, race, ethnicity and nationality and turn them into a competitive edge has also become an important topic.

I hear a lot that members of Generation MZ who have grown up experiencing globalization, like me, are clearly different from those of other previous generations. What kind of tendencies have been found?

Members of Generation MZ(Millennials and Gen Z) were born at a time when the concept of globalization was developed and grew up in the digital environment. They prize horizontal relationships and universal values, and put their "own happiness and satisfaction" first, unlike previous generations who attached importance to "us" and "groups." They have different consumption patterns, too. They "boycott" products of companies going against sustainability, while taking part in conscious consumption illustrated by donjjul(a newly coined Korean term combining "money" and "punish somebody," literally meaning punishing him/her with money for his/her good influence on society) of exemplary companies that have been committed to sustainability. Members of generation MZ have emerged as the main players in society, and serve as consumers in the market, executives and employees in companies, and investors in the capital market. In this way they have been able to bring about profound change. If a company doesn't understand or accept the changes of the main players in economy, it may ultimately lag behind its competitors and face rejection by the market, regardless of how outstanding its financial profitability might be.

The atmosphere in the companies where members of Generation MZ work together has changed a lot too.

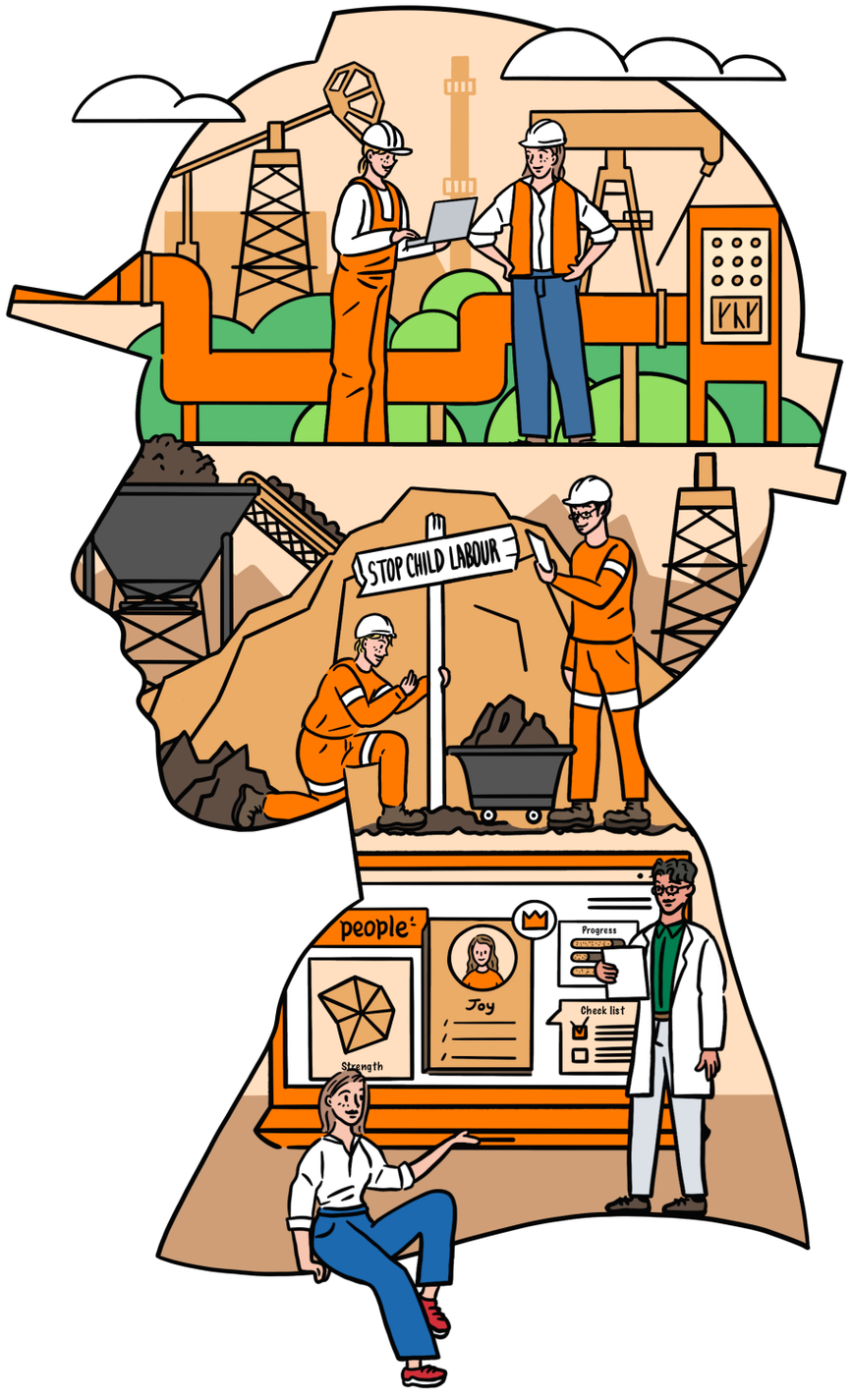
Members of Generation MZ, who have now become executives and employees, place importance on such values as transparency, rationality and fairness and lend their voices to and deal with non-transparency, irrationality and unfairness. It is in the same context that labor unions of office workers have been recently formed mainly with rather new employees of large companies. Their movement is not so much about unilateral demand for pay raises, as about demand that fair and transparent criteria for performance and wage raises should be established and made public, through which they hope that reasonable organizational culture and welfare benefits can be well established.

I think it's time to rethink the most essential value for companies. The responsibility for human beings is the most important, isn't it?

As globalization further expands and a new generation emerges, ushering in a changing economic order, the company's most essential value has become more important for a company: it should put people at the heart of all businesses and products. Protecting the dignity of all people across supply chains including partner companies, creating a safe and healthy working environment and workplace, providing executives and employees with reasonable and fair rewards, and building an organizational culture where transparent communication is possible based on diversity and dynamics are the essence and fundamentals of a company. The international community also sees the responsibility for people along with the environment as the basis of operating a company, as it endeavors to enact these into law. As part of this movement, the European Commission passed the laws requiring due diligence on ESG across the entire supply chains of all companies in the region, and the Department of Justice of the Republic of Korea has set up standard guidelines for integrating human rights into business management while trying to enact a basic act on human rights policy. Companies will have to take into consideration "greater responsibility for people" when they make any decision in the future under the new trends and economic order.

Our Approach

These plans articulate LG Chem's goals and actions to assume full responsibility for people. We show what the company is doing and how it strives to take full responsibility for supply chains, safe business places and organizational culture.



The Goal: To be more responsible for human dignity

It is an important duty and inevitable trend of the time for a company to continuously show that it has a responsible attitude towards supply chains, partner companies, environmental safety, and company culture.
LG Chem has been managing supply chains in a systematic and responsible manner to control dangerous situations that may happen. It has also put in place an efficient system for environmental safety, implementing the Magnolia Project(M-Project) to prevent serious accidents.
LG Chem intends to build a responsible organizational culture where everyone in the company can grow together by formulating detailed plans to make it a better company to work for.

Unveiling the responsible management of supply chains

LG Chem is managing suppliers in a responsible way to make its supply chains of raw materials 100% transparent and minimize the risk within them. In particular, in the case of cathode material, key raw materials such as cobalt, nickel, manganese and lithium are high-risk minerals. Responsible mineral regulations for supply chains triggered by Cobalt child labor issues are expanding to all minerals such as nickel, manganese, and lithium. An "assessment on risks within supply chains" was carried out by conducting third-party due diligence on Chinese cobalt refining companies and precursor suppliers in 2017 and on artisanal and small-scale mines in the People's Republic of Congo in 2018. Since 2019, as a member company of the Responsible Minerals Initiative(RMI), which is a consultative organization related to mineral supply chains under the Responsible Business Alliance(RBA), LG Chem has joined concerted global efforts. In 2020, LG Chem established and declared its "Responsible Sourcing Policy" to commit to procuring raw materials in a responsible manner. And now, "LG Chem Code of Conduct of suppliers" is being strengthened and expanded the scope to all suppliers.

Q & A
What is the RMI?

Founded in 2008, the RMI is a global consultative organization that conducts studies to trace the place of origin of battery raw materials including cobalt and four conflict minerals(tin, tantalum, tungsten and gold). It provides monitoring and certification of producing companies. RMI has about 380 member companies, including global car manufacturers and IT companies, such as Volkswagen, Reno, and Apple.

Pushing forward with the Magnolia Project to prevent with serious accidents

Thinking that "There is no sustainable future without making environmental safety right once and for all in an irreversible way," LG Chem has, since June 2020, been implementing the Magnolia Project(M-Project) to radically improve the management system of environmental safety. Its main objective is to put in place standards and a management system appropriate for a global company in all of its business places across the world after reviewing all the measures for environmental safety from the very beginning. Emergency safety inspections were conducted for high-risk process/facility/materials in all business places at home and abroad with plant managers overseeing them, and the "on-site management of CEO" was performed to check the progress made for improvement. After that, process/facility/safety engineers and outside organizations with expertise were working together, carrying out precise safety inspections to identify further risk of serious accidents due to fire/explosion or spill/leak. Improvements and investments are being made based on what was gleaned from the inspections. To further strengthen the check and balance of environmental safety, LG Chem has integrated the structural improvement of the organization and budget authority for investment into one environmental safety organization, a corporation, which is up and running. The CEO and senior executives have been working closely on the ground and check the progress made for the M-Project twice a month.

Q & A
Why the Magnolia Project?

M-project's 'M' represents the magnolia, which blooms in spring and has been in existence since the Cretaceous Period. It will help us to remind what happened in India and Daesan, Korea operation sites in spring 2020 and represents CEO's unwavering commitment to sustainable business environment by establishing environmental safety standards and management system suitable for global companies.

Establishment of environmental safety management system corresponding to its reputation as a global company

• Enactment and revision of guidelines on technologies	• Implementation of the Mother Factory scheme	• Improving the accident prevention system	• Taking emergency preparedness and response to the next level	• Improving early detection through digital transformation (DX)
In order for technological capacity for environmental safety to be on a par with the global level, international standards, laws, design standards, and operating know-hows are reflected through experts inside and outside the company.	A system in which business places with the highest level of technology are selected and the best practices in each area in terms of products and processes are introduced to the entire company.	Rigorous safety inspections before operating new or extended projects; improvements in the accident prevention system by conducting case studies on accidents at home and abroad on a regular basis.	Securing golden time in case of any harm to civilians, seeking uniformity in guidelines for emergency preparedness and response, and building individual capacity for emergency response.	pushing forward with development of a model that can detect a warning sign of anomaly in high-risk facilities.

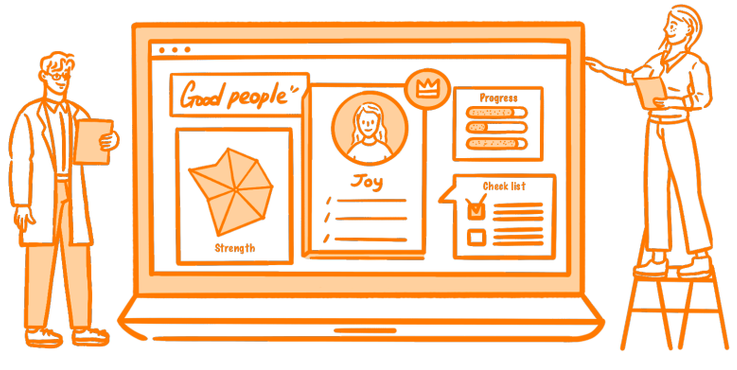
Improving organizational culture on the path toward "The Better Company"

One of the prerequisites for a company's continued growth and expansion is to secure top talent in a timely manner. Also, it is just as important to provide support for the current members of the organization that they keep producing results, and to help foster their growth toward greatness. In this pursuit, leading companies spare no effort in attracting and retaining the brightest talent. The prouder an employee feels about his or her company, the stronger the sense of attachment and belonging to the organization, hence the lower the departure rate and higher the productivity. This in turn affects the company's enhanced image and brand value, contributing greatly to attracting and retaining talent. LG Chem established its own employee value proposition(EVP), "The Better Company," after putting effort into boosting the EVP in the summer of 2020. Through practices and actions geared toward improvements, LG Chem helps employees to feel that they are growing together with their company, while creating a better company the brightest talent wants to join.

Q & A
What makes a company "The Better Company"?

"The Better Company" of LG Chem consists of three pillars: strengthening its competitiveness of rewards, growing together with the company and dynamic organizational culture.

- Strengthening the competitiveness of rewards: a company that rewards properly what has been achieved based on fair assessment
- Growing together with the company: a company that gives opportunity to enhance my value, growing through work that makes my heart beat fast
- Dynamic organizational culture: a company that responds to changes flexibly and swiftly, allowing opinions to be expressed freely in the smart working environment



What we have realized and learned from looking into the global trend and the action plans of LG Chem, and keywords to remember for the following.

Good companies take responsibility for people.

“The scope for which the company takes responsibility should be expanded”

It was in 2016 when Amnesty International raised the issue of child labor in the artisanal and small-scale mining(ASM) of cobalt, that issues related to responsibility for supply chains were first discussed. From that time on, through due diligence on the ground, all companies across cobalt supply chains have taken steps to address the issue of child labor. These steps involve removing mines that employ child labor from supply chains and implementing projects to ensure that children gain a proper education instead of spending their childhoods doing labor. Responsibility for supply chains has expanded to all minerals that can pose a risk within supply chains and other sectors such as the environment. LG Chem established the “LG Chem Code of Conduct for Suppliers” in 2017, based on which it has been managing the partner companies ever since. Furthermore, in connection with the sustainable development strategy LG Chem formulated in 2019, LG Chem intends to carry out more thorough checks not only on the compliance with laws in terms of working conditions, environmental safety, ethics, etc., but also on sustainability as a whole including greenhouse gas emissions and renewable energy use throughout supply chains. In 2021, LG Chem will launch a project to enhance the evaluation systems in which partner companies can take part, and will apply and manage a system to evaluate the sustainability of partner companies in 2022.

“Unwavering mindset and philosophy for environmental safety must be established”

LG Chem has invested in environmental safety, spending a whopping 500 billion plus KRW on it over the past three years. Nevertheless, while conducting the M-Project inspection, we learned that accidents took place in performing the work whose level of risk was considered low. Accordingly, in order to obtain a clear understanding of how safe we were, we specifically surveyed the perceptions of executives and employees, including management, listened to what employees working at our business places had to say, and conducted the so-called “CEO Speak Up Table” program, on top of other initiatives. As a result, we have learned that we could prevent accidents when each and every person working for the company has the ability to identify potential risks and has a firm mindset and philosophy for environmental safety. It is important to share the philosophy that environmental safety is “all or nothing” and that a workplace where environmental safety is guaranteed is the most efficient and highly productive. We have also learned that it is essential to take decisive actions to eradicate unreasonable practices that set unrealistic deadlines and force everyone to achieve the goal. LG Chem has secured know-how in process safety, attracted prominent talent to train employees in that area, and continued to nurture leaders capable of performing process risk assessment. In addition, LG Chem has developed educational programs to build the environmental safety capacity of each and everyone in the company and to help ensure the safety mindset sets in. LG Chem has also been running a systematic career path to develop the expertise of employees responsible for environmental safety. In order to improve the perceptions of executives and employees, the CEO announced a new environmental safety policy and reestablished environmental safety rules that must be complied with by all executives and employees. What’s more, LG Chem plans to create a tool to survey the level of perception on environmental safety, which is to be conducted semi-annually, and do what needs to be done based on the survey results. In this way, the principle of LG Chem that “a plant will not be running until the risk is eliminated” will be upheld, and the capacity for environmental safety will be enhanced further so that a swift and aggressive response can nip a serious accident in the bud.

“Various analysis and all-out efforts are needed to attract and retain talent”

LG Chem created a framework to analyze the current status, making reference to questions on the major recruit web portals such as whether it is, “a good place to work.” It has also conducted surveys with a number of companies, with executives and employees, and held focus group interviews. Furthermore, it ran surveys on perceptions through interviews with members of Generation MZ and job interviewees. It then analyzed all of these and identified what needs to be improved in the future. The surveys were divided into either business competitors or talent competitors, instead of focusing on the major competitors in the industry. We have continued to gather a wide variety of thoughts and opinions from as many different perspectives as possible with surveys on perceptions as well. Thus, we were able to draw significant lessons to attract and retain top talent, raise the level of satisfaction of existing members and enhance the employment brand, while finding out what strengths we need to further hone. As a result, we could identify what needs to be done in order to move towards becoming “a company that rewards properly what has been achieved based on fair assessment,” “a company that gives ample opportunity to enhance my value, growing through work that makes my heart beat fast,” and “a company with the environment that helps focus on important work, responding to changes flexibly and swiftly.” Different plans and measures have been drawn up for substantive changes, such as providing better rewards for achievements and exercising the leadership of those responsible for organizations. A roadmap to the career path will be presented through job analysis and diagnoses of strengths so that everyone can take an active part in enhancing their own capacity, and a counseling program will be provided both online and offline for executives and employees both at home and abroad. LG Chem has also been helping members feel proud of their development with support for nurturing female talent and so on. Going forward, LG Chem will seek a better way of doing work with detailed plans for improving the reporting and meeting culture, launching a campaign for expressing opinions more freely, and managing changes so that the smart-work environment can take root.

Partnerships and Recognitions

Governments, companies and research institutes need to team up in the face of the changing wave of sustainability. Overcoming a major crisis requires a united front. Organizations that LG Chem has joined are as follows:

Partnerships

World Economic Forum(WEF)
The world's largest conference organized by a non-governmental organization where globally eminent entrepreneurs, economists, politicians and the like gather to discuss current global political and economic issues and problems. LG Chem joined the forum in 2020, and in 2021 the CEO attended the 'Mobilizing Action on Climate Change' session in The Davos Agenda hosted by WEF and presented the strategy of LG Chem to respond to climate change.

UN Global Compact
An initiative under the United Nations that encourages companies across the world to join the efforts to improve sustainability and raise awareness on civic duties of companies and to present practical applications. Joining the initiative in 2013, LG Chem has been a member company together with the UN Global Compact Network Korea.

World Business Council for Sustainable Development(WBCSD)
A global, CEO-led organization of over 200 multinational companies that can help exchange different opinions on sustainable development and come up with items to be undertaken. Joining it in 2020, LG Chem has been working together to push forward with projects related to its businesses.

Responsible Minerals Initiative(RMI)
A global cooperative body to procure and build supply chains for raw materials for batteries such as cobalt, along with the four conflict minerals, in a responsible manner. Joining the RMI in 2019, LG Chem has been collaborating on addressing societal and environmental issues within supply chains.

Global Battery Alliance(GBA)
An initiative under the WEF, founded to create a low-carbon economy and establish sustainable battery value chains with various stakeholders in the battery industry. Joining the alliance in 2020, LG Chem has been working together to create a circular economy within the battery supply chain and build responsible supply chains.

Recognitions

2020 Scored a B rating on CDP Climate Change and A- on Water Security

2020 Listed on the S&P DJSI Asia Pacific & Korea

2020 Scored BB on MSCI ESG Rating

2020 Rated Medium Risk by Sustainaytics

re:act to zero

For further details on this storybook

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