

2

0

1

8

Every
Resource
Counts

ECOVE Environment Corporation

Corporate Sustainability Report

ECOVE

Table of Contents



01

02 Messages from Chairman

03 Overview

- 03 About ECOVE
- 06 Sustainability Performance

07 Most Reliable



02

08 Corporate Governance

09 Sustainability Management

- 09 Advocating for CSR
- 13 Materiality Analysis
- 24 Sustainable Development Goals
- 26 Participation in External Entities

28 Integrity Management

- 28 Management Governance
- 31 Internal Control System
- 31 Legal Compliance
- 33 Information Disclosure
- 34 Risk Management
- 36 Management Performance and Industry Outlook

39 Innovations and Sharing

- 39 Innovative Research and Development
- 40 Service Quality
- 42 Sustainable Supply Chain Management

47 Most Reliable



03

48 Environmental Sustainability

49 Climate Change and Resource Utilization

- 49 Energy-from-Waste (EfW)
- 56 Circular and Low-carbon Economy

60 Mitigating Environmental Impacts

- 60 Energy and Resource Conservation
- 61 Effluents and Waste Management
- 63 Participation in Public Infrastructure

64 Most Reliable



04

65 Social Co-prosperity

66 Talent Caring

- 66 Talent Composition and Compensations
- 68 Human Rights Protection and Benefits
- 72 Talent Development

73 Safe and Healthy Workplace

- 73 Occupational Safety and Health Committee
- 78 Workplace Disaster Prevention
- 83 Occupational Safety and Health Management and Future Outlook

85 Social Participation

- 85 Community Activities that Link with Operations
- 88 Building a lasting community
- 90 Friendly corporate volunteering

93 Most Reliable



05

94 Appendix

- 95 About This Report
- 97 GRI Standards Index
- 103 Statement of Third-Party Assurance



Messages from Chairman

Having cultivated the Taiwanese market for many years, ECOVE Environment Corp. has always held true to our mission to innovate, and to provide optimized "resource cycling" efficiency™ services through advanced technical integrations. Moreover, the Company is always dedicated to developments in the Taiwanese society and to fulfill our promise to become "the most reliable" brand in practice. We launched our ECOVE brand last year in 2017, and everyone is unified and dedicated toward developing this new brand under the brand slogan of "Every Resource Counts." In 2018, we reached nearly NT\$4.9 billion in consolidated revenue, and over NT\$800 million in profit after tax. We have maintained an earnings per share (EPS) of over NT\$10 for 7 consecutive years, on top of achieving positive results in our three major businesses including energy from waste (EfW), solar power, and recycling. We have achieved a business mix with definite long-term development potentials while increasing our competencies while achieving stable growth.

ECOVE's persistence for open transparency and strengthening the functionalities of the Board of Directors has helped us to win the most positive recognition from the Corporate Governance Evaluation from the Financial Supervisory Commission (FSC) for five consecutive years, scoring among top 5% of all companies listed on the Taipei Exchange in terms of governance. While driving toward our collective CSR goal from everyone at ECOVE, the Company has also won various honors in 2018. First of all, the Company has again received a national-level award, the "National Sustainable Development Awards" from the Executive Yuan after receiving the "National Occupational Safety & Health Award" and the "National Standardization Award." At the same time, ECOVE has placed among top three in the Corporate Social Responsibility Award from Common Wealth Magazine for three consecutive years, as well as received Top 50 Corporate Sustainability Awards, Corporate Sustainability Report Award, Transparency and Integrity Award, and Circular Economy Leadership Award from the Taiwan Corporate Sustainability Awards (TCSA) for two consecutive years. Furthermore, ECOVE strives to achieve circular economy through our core business. Besides receiving the first BS 8001 Circular Economy verification certificate throughout the world, we have also received the first BS 8001 Circular Economy verification certificate for water resource cycling throughout Taiwan in 2018.

The strength of an enterprise comes from the collective effort of all of its member. Every step of ECOVE's fulfillment of CSR relies on the day-to-day efforts of our staff. Our employees are doubtlessly the greatest assets in ECOVE. Hence, ECOVE strives to build a safe workplace and to care for the mental and physical health of our employees. For instance, ECOVE undertakes blood dioxin inspection and monitoring for staff with elevated risk exposure and chances. In 2018, we have already continued this practice for 14 years. Such extensive, continuous blood dioxin monitoring is the first throughout Taiwan as well as one of the only companies to have done so throughout the world. Since ECOVE actively cares for our employees and provides a healthy and safe working environment, our employees will resonate and embrace our values naturally. It will generate stronger coherence and assist the Company in executing and expanding the impacts and benefits of CSR. Not only will this bring greater competitive advantage to ECOVE, create higher value for shareholders, but the external customers, society, and the environmental sustainability will also reap greater benefits. This is the true essence of CSR.

In 2018, we launched the ECOVE credit card and encourage our staff and their families to apply. Banks will allocate a fixed percentage of rebates toward the CTCI Education Foundation (CTCI EF) from monthly credit spending. The funds will help the CTCI EF to promote environmentally sustainable activities. Besides increasing the pride and recognition from our employees toward the Company's sustainability performance, it also helps to advocate for the development of environmental sustainability education in Taiwan. Internationally, the United Nations has announced the Sustainable Development Goals (SDGs) which see year 2030 as the ultimate target objective. In a nutshell, ECOVE's development strategies include integrating our three major businesses with 17 SDGs, in which we will internally and then externally inspect and evaluate how our core competencies, brand associations, and corporate responsibilities are correlated to 169 indicators and issues including climate change. These efforts will help us to comprehensively plan a sustainability roadmap in the aspiration that we may solve social and environmental problems through business activities. At the same time, we will also pay attention to the environment and care for the society during business operations, thereby initiating a full participation in CSR through linking business with lifelong career goals. We are in the process of preparing for a Sustainable Development Committee, which will shoulder the mission of fulfilling our duties toward the society and the environment, as well as to create sustainable value for the Company.

To realize our sustainability roadmap, ECOVE is also preparing for the new global industry revolution in the technical applications of artificial intelligence (AI) and the Internet of Things (IoT). We believe that we may only come out successful in this revolution and to contribute toward the society by possessing a long-term vision of understanding the future and by executing accurate strategies on such basis.

Year 2018 has been a year of abundance, and looking to 2019, ECOVE will continue to hold true to our visions of "enhancing "resource cycling" efficiency", "utilizing intelligent data-driven operational systems", "actively participating in national/rejoin agenda and policy", and "community collaboration and contributions." We will be committed to social welfare, to promoting environmental education, and to enhancing the environmental protection awareness throughout communities, thus creating a synergistic outlook for the industry, environment, as well as the society.

J. J. Liao

ECOVE Environment Corp.
Chairman

About ECOVE 102-1~7

ECOVE Environment Corp. (hereinafter referred to as "ECOVE") provides professional investment and management services for industries related to resource cycling. We are focused on developing and managing circular economies including renewable energy, renewable substances, and renewable water resources, and we are committed to cultivating three major businesses including energy from waste (EfW), photovoltaic power, and recycling.

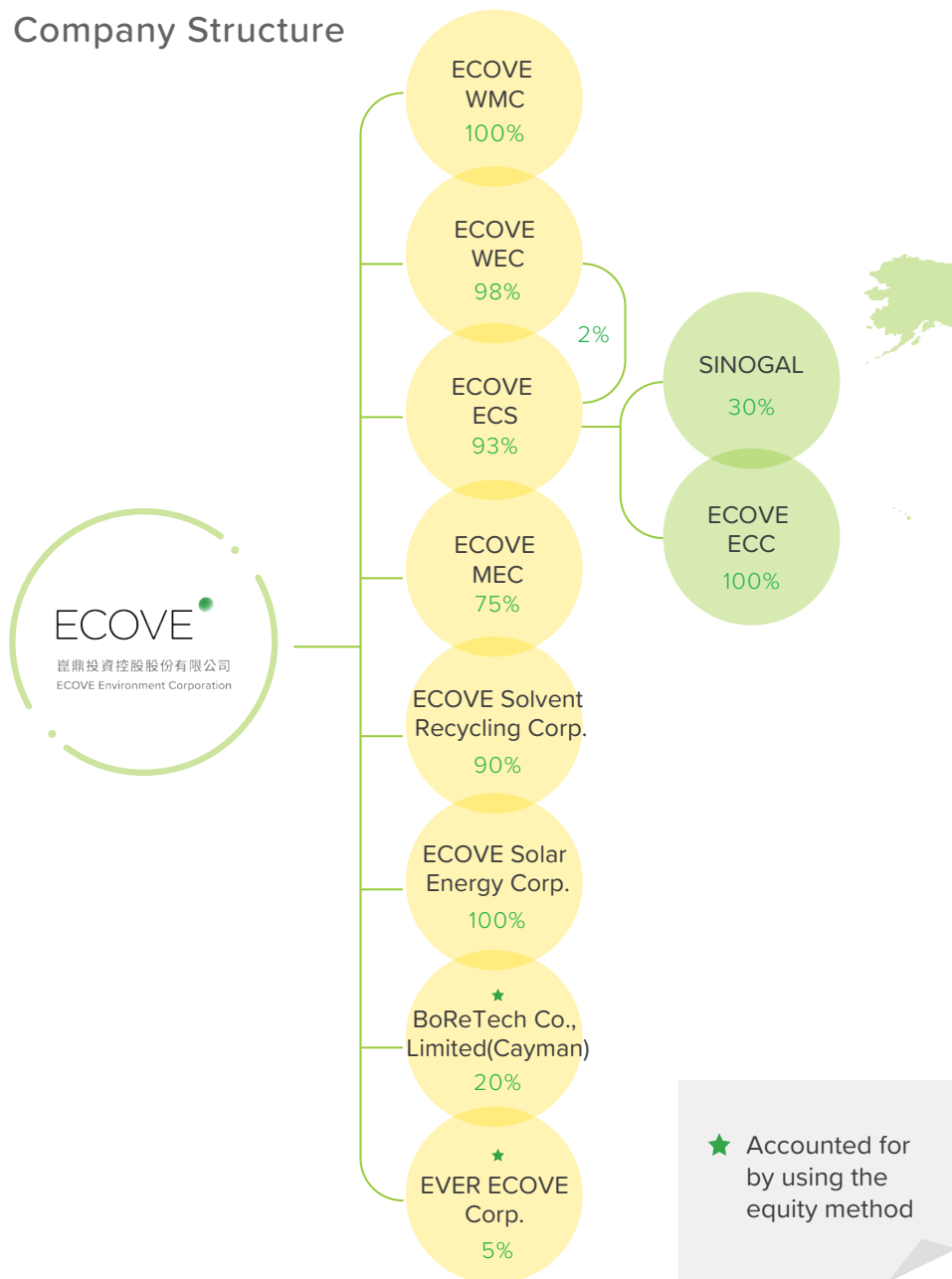
Our subsidiaries are all specialized in various environmental protection and green energy expertise, including operations and maintenance of environmental protection and machinery facilities, public-private partnership (PPP) of energy from waste plants, waste management, resource recycling, and solar power plant development and investments. We provide comprehensive, professional environmental protection services, and our clients include the public sectors and private enterprises from the Greater China region, Southeast Asia, India, and the United States.

ECOVE Environment Corp.	Founded in 1999
Stock Code	6803
Capital	NT\$670 million
2018 Consolidated Revenue	NT\$4.85 billion
Related companies	10 companies (7 domestic and 3 foreign)
Total employees at year-end 2018	988
Location of headquarters	10F., No. 89, Sec. 6, Zhongshan N. Rd., Shilin Dist., Taipei City
Company website	http://www.ecove.com

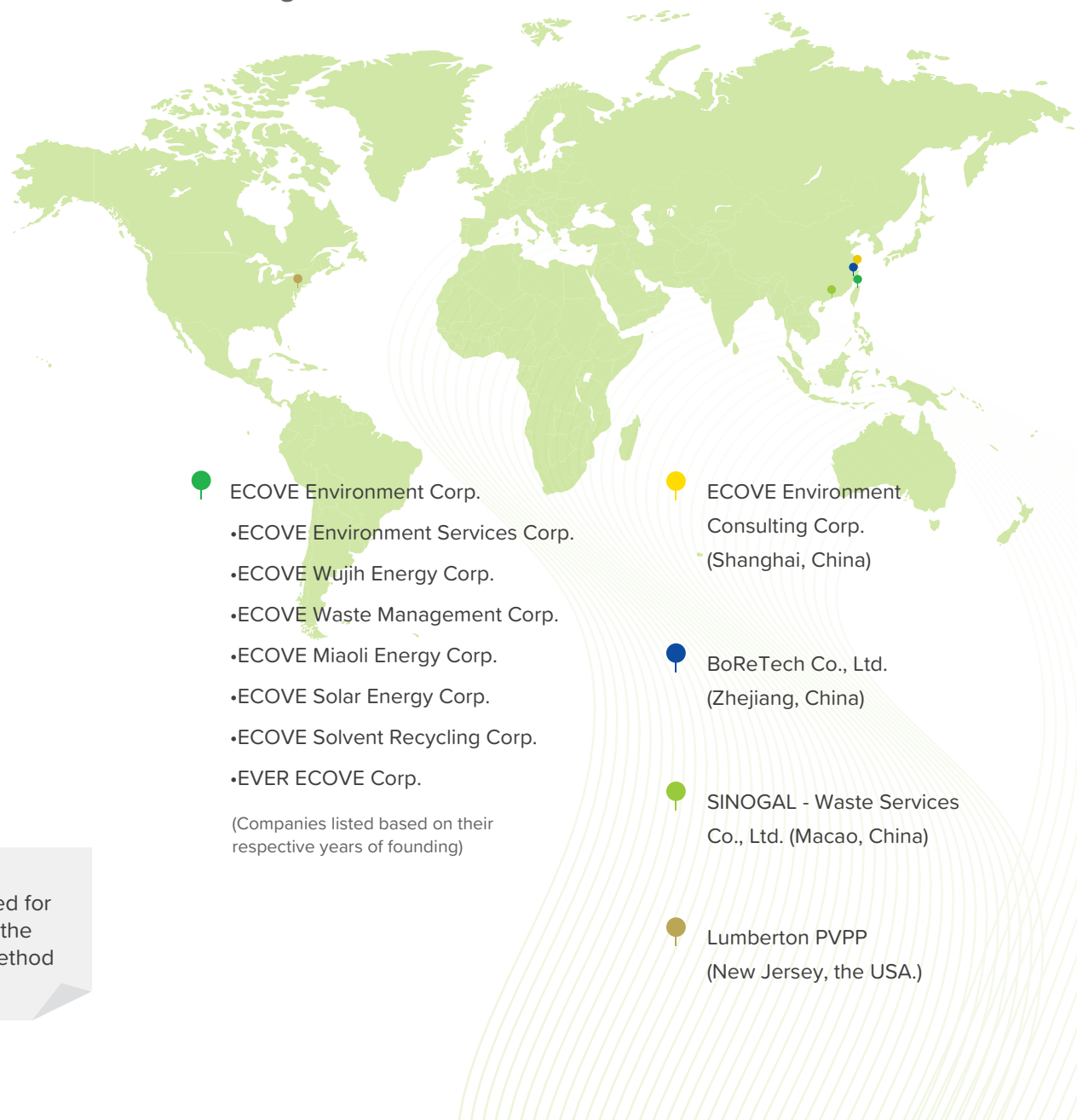
ECOVE provides localized environmental services including operations and management, consultancy, investment, and development in Taiwan, Macau, China, Southeast Asia, India, and the United States. We have 10 reinvestments, which play their respective supportive roles throughout the developments of circular economy services and together, construe a professional circular economy team.



Company Structure



Distributions of Important Operations Throughout the Globe

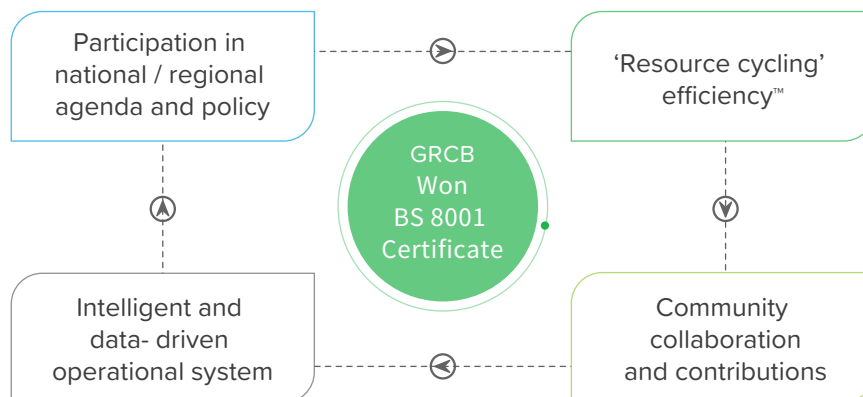


ECOVE's vision is to become the most reliable provider of industry-leading 'resource cycling' services. We see "advanced technical integration applications" and "optimized 'resource cycling' efficiency™" as our missions, and our brand slogan "Every Resource Counts" as our operational model and mind-set, where we enhance the resource recycling efficiency through intelligent solution system and data management while actively participate in environmental policy topics and collaborate with the community. At the same time, we are committed to incorporating SDGs into our strategic developmental roadmap to continue to work toward resource sustainability on this planet and the human living environment by blending our business with our lifelong goals.



Vision | to become the most reliable provider of industry-leading 'resource cycling' services

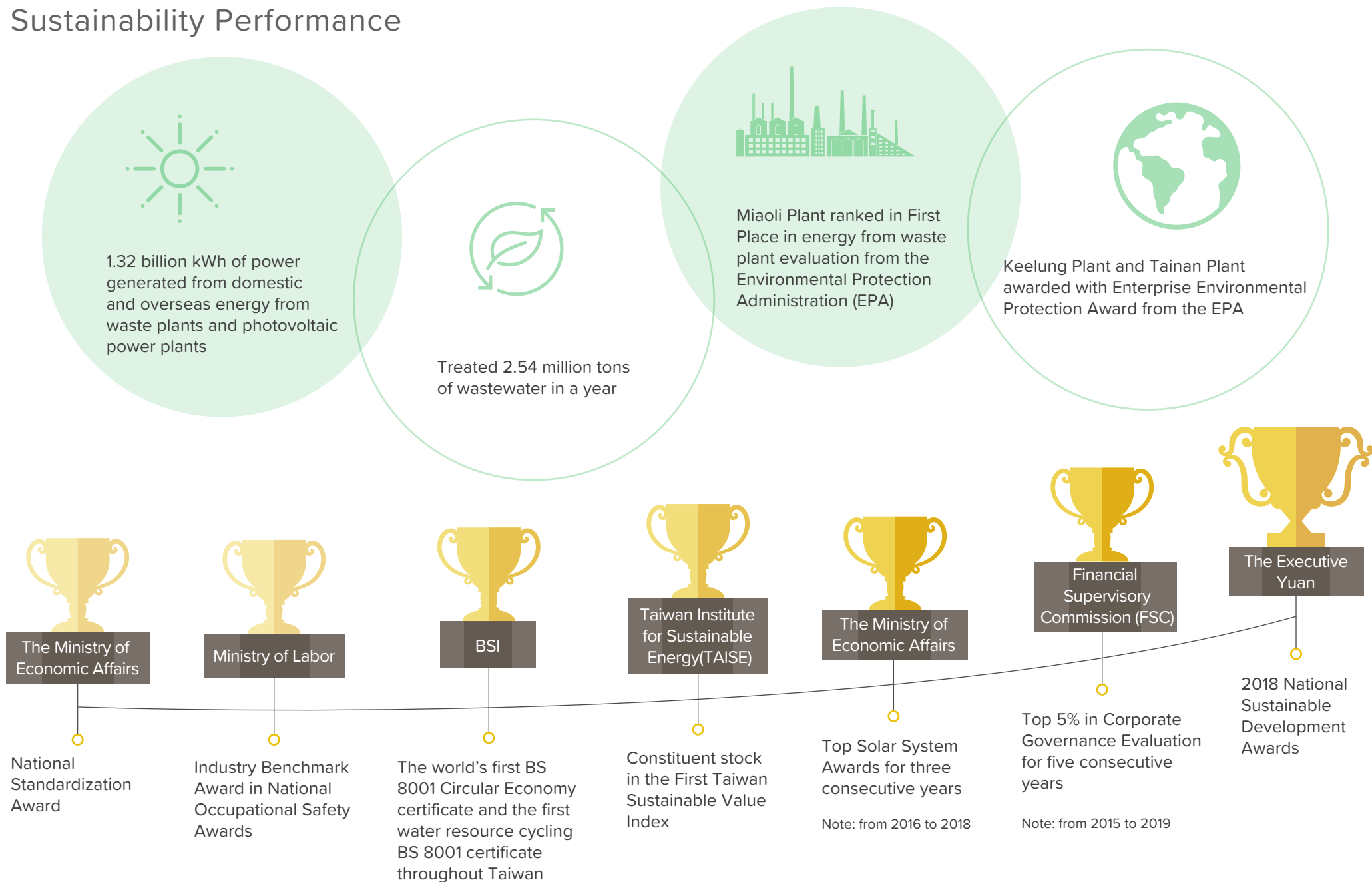
Integrate Brand Associations to Enhance CSR



ECOVE's corporate culture is "Professionalism, Integrity, Teamwork, Innovation," where we extend positive actions from each one of our business philosophies to serve as the basis for compliance for our management and staff. By demonstrating and fulfilling positive actions, we will continuously work toward our vision and mission for sustainability.



Sustainability Performance





0 accident

0 occupational accident has occurred



5 plants

Received attestation for five environmental education facilities located at Keelung Plant, Miaoli Plant, Houli Plant, Tainan, and Tainan Science Park Resource Recycling Center Plant from the EPA



3 consecutive years

Received Excellence in Corporate Social Responsibility Award from Common Wealth Magazine for medium-scale enterprise for 3 consecutive years



4,470 hours

4,470 hours of social service participation

Most Reliable

Honored with "National Sustainable Development Awards" from the Executive Yuan

ECOVE is dedicated to business operations, environmental protection, and social participation. At the same time, we care for our employees and lead our staff to care for the local community. We actively link our business with the environment, link different groups of people, and with the nature in friendly and effective ways, and sustainable development has been internalized in ECOVE's day-to-day operations, thereby promoting the sustainable development of the society and the country. Our efforts have won "Sustainable Enterprise Award" from the Executive Yuan's "2018 National Sustainable Development Awards," which recognizes ECOVE's dedication to each aspect of sustainability on a national level. This also marks a national honor for ECOVE after winning the "National Occupational Safety & Health Award" and the "National Standardization Award." As a part of ECOVE, we provide up-to-date integrative projects and services to effectively solve various problems through our internal corporate culture of "Professionalism, Integrity, Teamwork, Innovation." We fulfill CSR in practice on a day-to-day basis from economic, environmental, and social aspects. As the largest environmental resource management and service company throughout Taiwan, ECOVE is instrumental in integrating sustainable management visions into all of our actions so that not only do we benefit the current generation, but also for ages to come.



•• The ceremony for "National Sustainable Development Awards" was attended by colleagues who promoted CSR activities in each of our operations along with the Chairman

2018年國家永續發展獎

2018 National Sustainable Development Awards Ceremony

主辦單位：行政院國家永續發展委員會

Corporate Governance

09 Sustainability Management

28 Integrity Management

39 Innovations and Sharing

47 Most Reliable

We are committed to incorporating SDGs into the Company's development strategies and to solving environmental and social problems through management activities. Moreover, we are committed to have transparent disclosure of performance related to the SDGs to achieve sustainable business development.

Performance Highlight

National Sustainable Development Awards

2018 National Sustainable Development Awards from the Executive Yuan

TOP 5%

Top 5% in the 5th Corporate Governance Evaluation from the Financial Supervisory Committee (FSC) in 2019

Top Solar System Awards

2018 Top Solar System Awards from the Ministry of Economic Affairs

First-ever

Constituent stock in the First Taiwan Sustainable Value Index in 2018

Corporate Sustainability Report Award & Transparency and Integrity Award

Corporate Sustainability Report Award and Transparency and Integrity Award

Top 50

Top 50 Corporate Sustainability Awards from the 2018 Taiwan Corporate Sustainability Awards (TCSA)

Highest level of Circular Economy verification

2018 Top Solar System Awards from the Ministry of Economic Affairs

Sustainable Management

Fulfilling corporate social responsibility (CSR) is seen as an important part while carrying out ECOVE operations. Besides continuing to pay attention to both domestic and overseas CSR topics, we have also linked Sustainable Development Goals (SDGs) with our operating core. We pursue sustainable management and profitability to protect the rights and interests of each stakeholder and to fulfill CSR in practice, on top of promoting economic, environmental, and social progress to achieve the goals of sustainable development.

CSR Advocacy

102-19~21

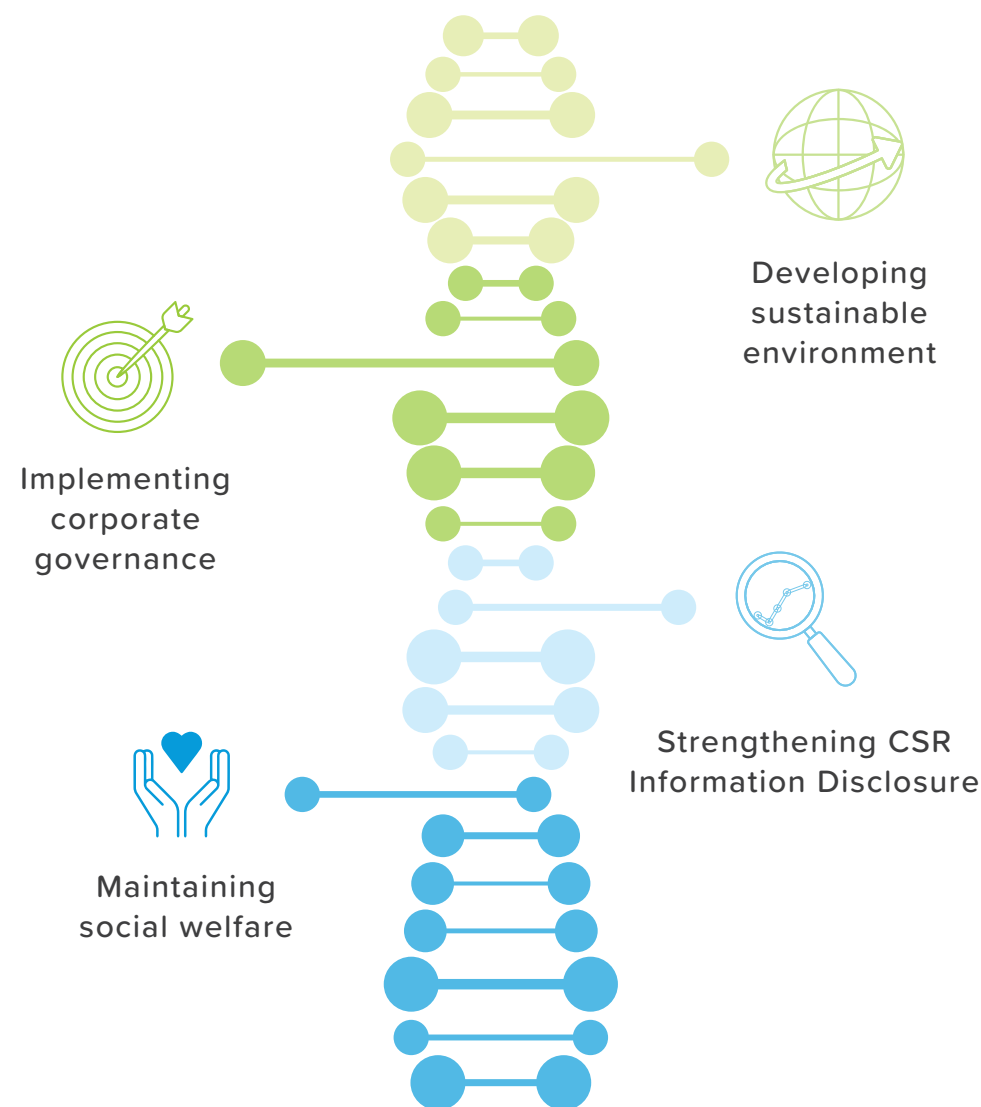
102-26

102-30~34

ECOVE attaches great importance to the implementation of corporate social responsibility and our contributions to society and the environment. Therefore, a CSR Committee was established in 2014, in which the Group Shared Services (GSS) is in charge of coordination and communications among the various work groups under the Committee and to hold meetings with each work group to supervise their results. This system enables the Company to achieve effective implementation of corporate social responsibility activities. To further strengthen the philosophy of corporate sustainability, the "ECOVE Corporate Social Responsibility (CSR) Best Practice Principles" were established, and various CSR-related activities are carried out in accordance with the Principles with the goal of fulfilling CSR to promote economic, social, and environmental balance and sustainable development.

The CSR Committee is the main decision-making and promotion unit of ECOVE's corporate social responsibility practices. The Chairman of the Company serves as the Chairman of the Committee and the highest-ranking executives as the members of the Committee. The Committee reports to the Board of Directors regularly on the effectiveness of CSR-related activities. The CSR Committee meets regularly in each year or as needed. The regular meeting is held in the fourth quarter of each year to review the CSR activities of the current year and to discuss major CSR topics for the next year. Meetings are also held as needed. The CSR Committee regularly reports to the Board of Directors its annual performance results in the fourth quarter of each year. To fully execute sustainable development activities, three work groups were set up under the Committee for Business Management, Social Engagement, and Environmental Protection, and each group was formed by personnel from related departments.

ECOVE Corporate Social Responsibility Best Practice Principles







Business
Management
Work Group

Environmental
Protection
Work Group

Social
Engagement
Work Group

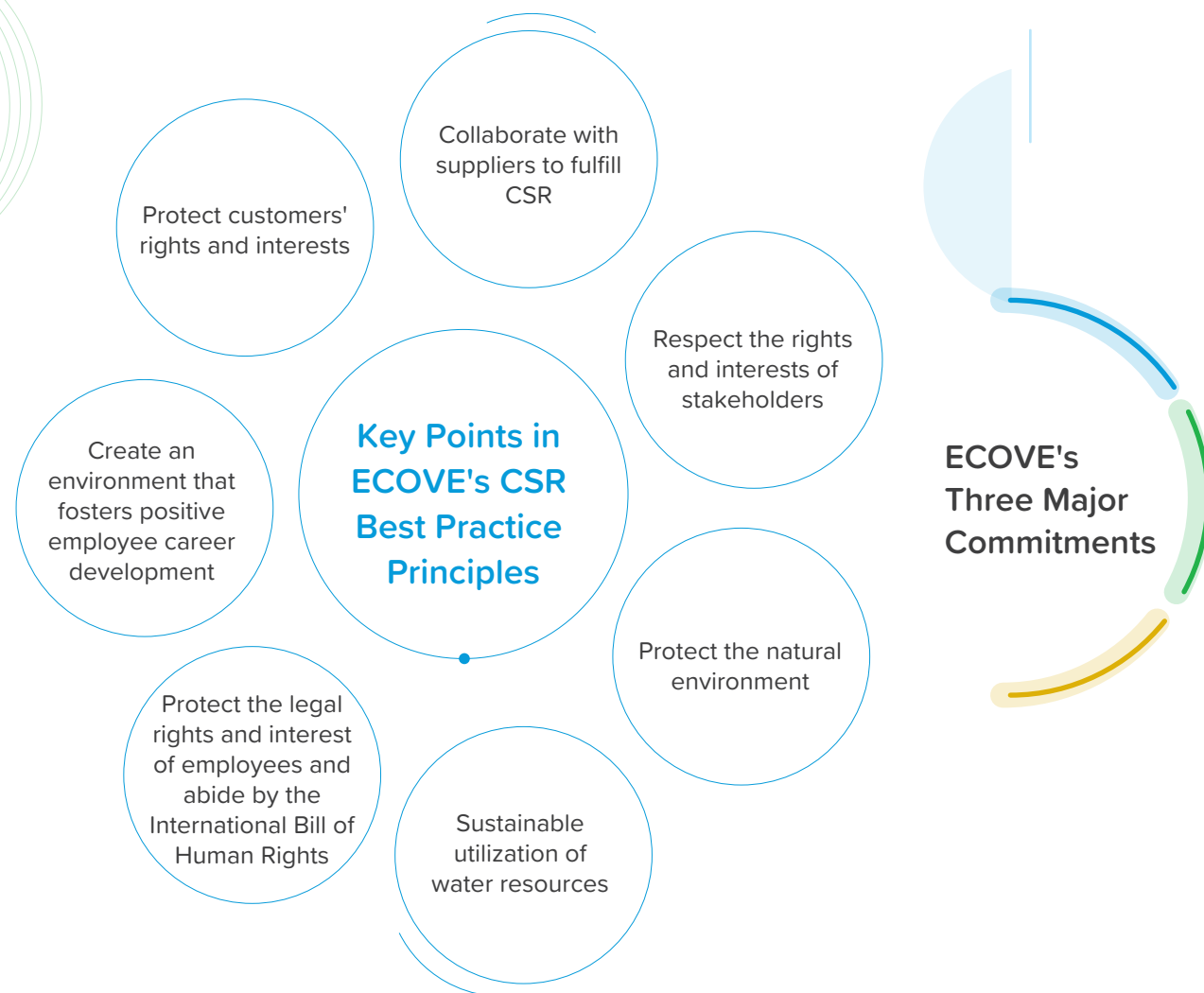
Statement of CSR Policy

The fulfillment of corporate social responsibility (CSR) has always been the principle of all ECOVE operations. Besides pursuing for the greatest interests and benefits for shareholders, we also protect stakeholders' rights and interests, abide by socially-recognized ethical standards, and advocate for energy conservation and carbon reduction to mitigate climate change. We hope to build a fair and just society and a sustainable, positive living environment by combining the efforts of all stakeholders on top of fulfilling three major commitments: strengthening the Company's management structure, striving to carry out environmental protection in practice, and fulfilling the social responsibilities as corporate citizen. ECOVE hopes to safeguard a beautiful environment for the next generation, and to collectively work toward a brighter future with the public.

ECOVE Corporate Social Responsibility Best Practice Principles

The statement can be downloaded at : http://www.ecove.com.tw/upload/comF/0901_CH/準則/rule16.pdf





- **Strengthening the Company's management structure**

Robust growth and sustainable development are the basics for a company in fulfilling its responsibilities, as well as the foundation to promoting social welfare and environmental protection. Therefore, on top of complying with legal regulations, ECOVE also continues to establish effective internal control system, maintain information security, carry out risk management, undertake open and transparent information disclosure, carry out self-discipline, and build a healthy management structure. We provide stable career development for our employees, stable yield for shareholders, and satisfactory quality for our customers.

- **Striving to carry out environmental protection in practice**

Besides being constantly committed to various environmental protection services over the long-term, faced with material environmental changes from climate change, ECOVE also strives to enhance technical competencies to provide professional services that best meet customers' environmental protection needs. Moreover, we also influence over partner vendors to maintain a sustainable, lasting ecological environment together.

- **Fulfilling the responsibilities as a corporate citizen**

Talent development is a corporate mission that ECOVE has dedicated to since its inception, as well as the most important way that we give back to the society. By long-term commitment to talent cultivation through various ways, we assist in enhancing professional knowledge sets. At the same time, we maintain positive neighborhood relations with the local communities and do our best to care for and to advocate for social welfare.

Materiality Analysis

102-40

102-42~44

102-47

103-1~2

ECOVE recognizes that the CSR Report is a platform for businesses to disclose both financial and non-financial information as well as a tool for communicating with stakeholders. We have conducted materiality analysis through participation and discussions from the CSR Committee in line with GRI Standards and AA 1000 SES standard. In terms of the sustainable context of the topics, we have identified 23 sustainable issues related to our operations by encompassing international standards and principles including GRI Standards and its Electric Utilities Sector Disclosures, the United Nations Global Compact (UNGC), International Labour Organization Conventions and Recommendations (ILO), and Sustainable Development Goals (SDGs) while referencing past reporting experiences, global competitors, and contents of communications with stakeholders as well as topics recommended by external institutions.

Identification



6

Major Stakeholders

Major stakeholders were identified through five principles based on the quantitative methods in the AA 1000 SES:2015 standard.



23

Sustainable Issues

Sustainable issues related to business operations were identified by referencing past reporting experiences, global competitors, and contents of communications with stakeholders as well as topics recommended by external institutions.

Analysis



10

Reporting Team had 10 members

To consider the impacts of the sustainable topics on business operations, an internal stakeholder questionnaire survey was conducted based on five major evaluation items including operations, cost, technical competencies, brand reputation, and employee cohesion.



389

questionnaires

Questionnaire surveys were disseminated to research the levels of concern for the sustainable topics from external stakeholders



9

material issues

By coordinating the levels of impacts on internal operations and levels of concern from external parties, 9 key material issues were decided after discussions from the CSR Team and reporting to the Chairman. Short, mid, and long-term goals and management strategies for related topics were also compiled.

Validation



9

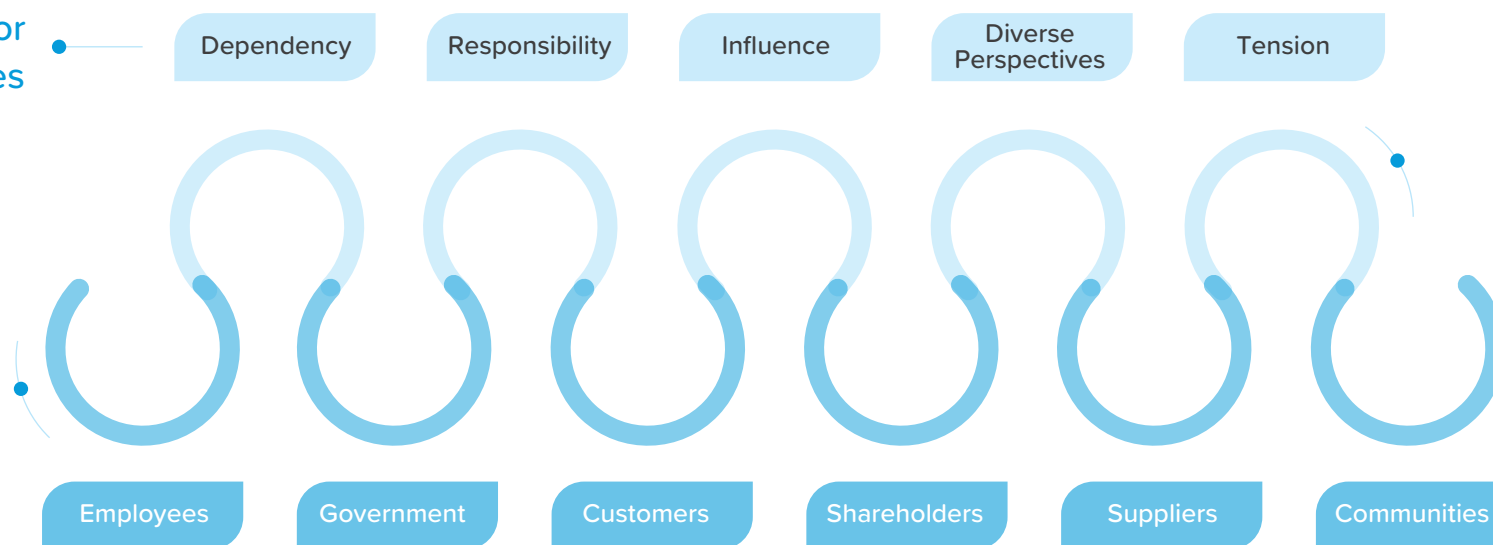
Material GRI Topics

- Based on the 9 key material issues selected, the work groups under the CSR Committee would determine their respective corresponding material topics, in which 6 GRI topics and other 3 topics specific to ECOVE's industry characteristics were selected, making for a total of 9 material topics.
- Since various material issues could occur in entities within the organization (ECOVE and other subsidiaries) or in value chains outside the organization (upstream, midstream, and downstream entities), the 9 material topics selected were individually evaluated by members of the CSR teams in determining the boundaries of information disclosure for this Report.

Stakeholder Communications and Feedback

By communicating with stakeholders, ECOVE can understand their aspirations and concerns, which serves as the driving force behind our improvements and enhancements. We evaluated the levels of influence from stakeholders to ECOVE's business operations based on five major principles from the quantitative methods of AccountAbility 1000 Stakeholder Engagement Standard:2015 (AA 1000 SES:2015), including Dependency, Responsibility, Influence, Tension, and Diverse Perspective. Finally, members of all CSR teams collectively identified 6 major stakeholders, including employees, government, customers, shareholders, suppliers, and the community. To respond to the topics of concern from the major stakeholders, ECOVE has built diversified communication mechanisms to listen to recommendations. By communicating with and responding to stakeholders in an effective way, ECOVE's operations and investments have reaped even greater benefits.

Five Major Principles



Six Major Stakeholders



Communications with Stakeholders

Stakeholders	Significance	Method of Engagement	Frequency	Topics of Concern	Our Feedback	Effectiveness of Engagement	Chapter
Employees	Conscientious employees are ECOVE's greatest assets.	<ul style="list-style-type: none"> Employee discussions Labor relations meetings, Occupational Safety and Health Committee, Employee Benefits Committee Advocacy during morning meetings, prework warning educational training, procedural control and onsite inspections Employee opinion platform, hotline, and designated mailbox 	Immediately	<ul style="list-style-type: none"> Occupational Safety and Health Human Rights and Benefits 	<ul style="list-style-type: none"> Results of advocating for occupational safety and health are explained and discussed in each quarter to achieve communications and improvements, so workers can be rest assured of safety and health Changes in the Labor Standards Act, the Company's activities, and related employee benefits system are explained to build employee cohesion and communications Hazard prevention is conducted in practice and awareness for safety and health is effectively enhanced to reduce the occurrence rate of employee accidents and to enhance productivity 	<ul style="list-style-type: none"> 4 rounds of labor relations meetings are held 32 meetings of the Occupational Safety and Health Committee were convened 81 benefit proposals are approved by the Employee Benefits Committee 	<ul style="list-style-type: none"> Talent Caring
Shareholders	Provide fair and transparent information for investors of the Company.	<ul style="list-style-type: none"> General Shareholders' Meeting Investor Conference Interim Shareholders' Meeting Phone debriefing 	Immediately	<ul style="list-style-type: none"> Corporate Governance Financial Performance 	<ul style="list-style-type: none"> External public financial, business and operational information disclosure, fostering positive ties with shareholders and to support Company policies, as well as attracting investors to boost share prices 	<ul style="list-style-type: none"> Held 1 General Shareholders' Meeting Held 4 Investor Conferences 	<ul style="list-style-type: none"> Business Integrity

Communications with Stakeholders

Stakeholders	Significance	Method of Engagement	Frequency	Topics of Concern	Our Feedback	Effectiveness of Engagement	Chapter
Communities	Promote public participation through environmental education and media channels by coordinating unique features in neighborhoods around our facilities.	<ul style="list-style-type: none"> Community activities Environmental education and visits 	Immediately	<ul style="list-style-type: none"> Air pollution prevention systems Environmental Education Activities Comply with environmental laws and giving back to the neighborhoods 	<ul style="list-style-type: none"> Community events in line with business operations Long-term community building Corporate volunteers to achieve synergistic growth 	<ul style="list-style-type: none"> Environmental education participated by 11,717 individuals (headcount) 4,470 hours of employee participation 	<ul style="list-style-type: none"> Mitigating Environmental Impacts Social Participation
Suppliers	Collaborate with material suppliers and partner vendors to innovate, develop and create value	<ul style="list-style-type: none"> Arrange for meetings in each month and to handle any problems immediately Annual repair safety and health coordination meeting Phone, email, or fax 	Immediately	<ul style="list-style-type: none"> Supply Chain Management Power generation efficiency Occupational Safety and Health 	<ul style="list-style-type: none"> Ensure purchasing quality and delivery schedule to maintain the stable operations of each plant and project Stable, successfully clearing out the incinerator bottom ash (IBA) and stabilizing chemical substances Foster bilateral positive partnerships to create win-win situations 	<ul style="list-style-type: none"> Held 28 supplier communication conferences 	<ul style="list-style-type: none"> Innovation and Sharing

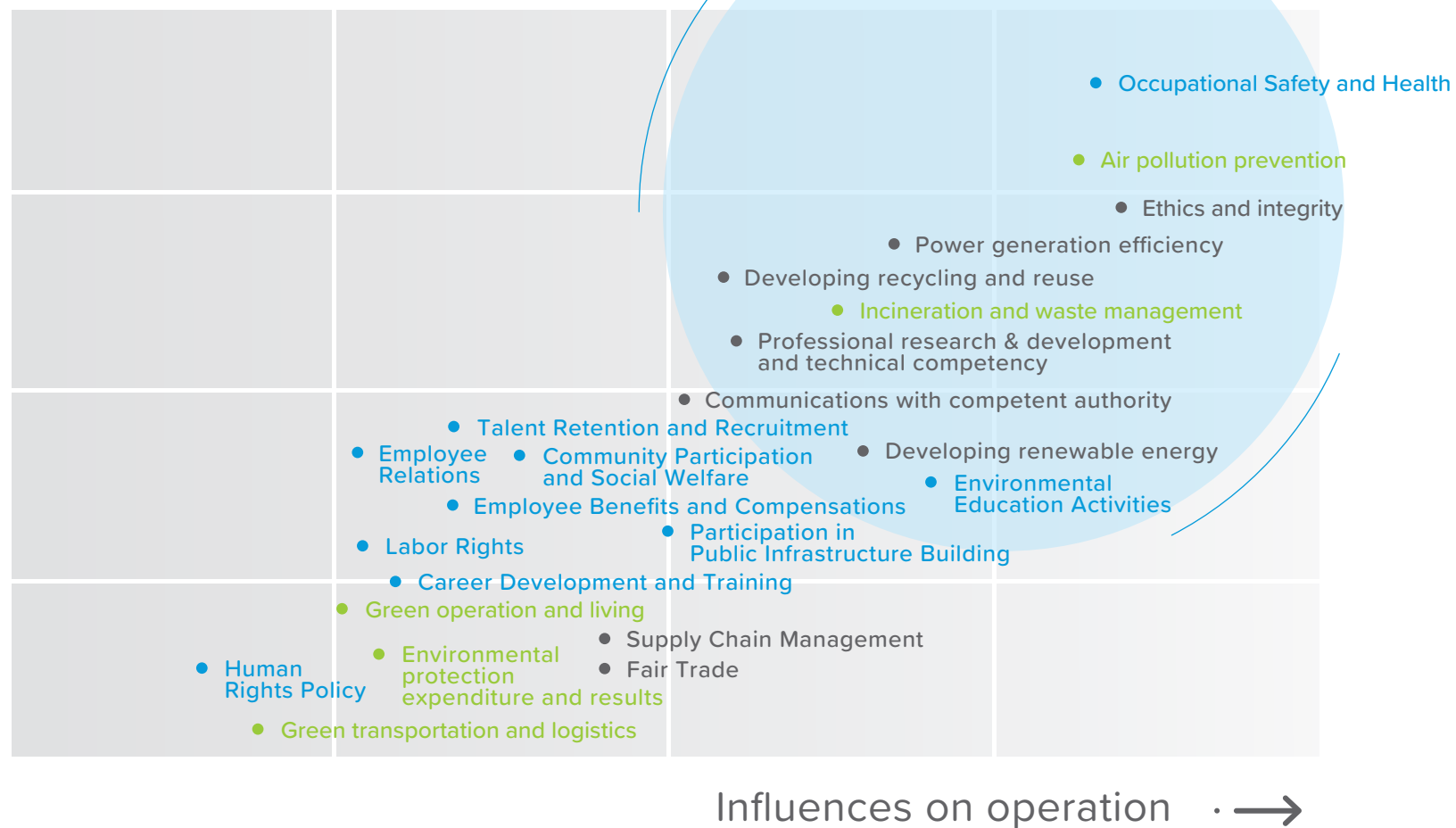
Communications with Stakeholders

Stakeholders	Significance	Method of Engagement	Frequency	Topics of Concern	Our Feedback	Effectiveness of Engagement	Chapter
Customers	ECOVE's Current and Future Sources of Revenue.	<ul style="list-style-type: none"> Value Sharing Business-related meetings Public conferences or bilateral meetings Questionnaires 	Immediately	<ul style="list-style-type: none"> Occupational Safety and Health Provide quality and comprehensive services 	<ul style="list-style-type: none"> Invite customers to participate in occupational safety and health practice drills and drills for service process-related mechanisms to enhance the service standards in various aspects throughout the waste management process Negotiate and communicate waste scheduling, maintain fluent bilateral communications to enable stable, successful waste treatment Receive customer feedback to optimize the Company's execution process for existing projects; and in terms of potential projects, to receive positive customer recognition to enhance the Company's business opportunities 	<ul style="list-style-type: none"> Carried out 3 rounds of occupational safety and health or service process training, which are topics of concern for customers 2 communication meetings 2 customer recommendations Work meetings held twice in every year Public conferences or bilateral visits or meetings held once in each quarter or as needed Questionnaire surveys conducted once every 6 months 	<ul style="list-style-type: none"> Innovation and Sharing Talent Caring
Government	Business carried out in compliance with existing laws.	<ul style="list-style-type: none"> Policies from competent authority and legal announcements Directive competent responses Company inspections letters from authority, from the or onsite 	Immediately	<ul style="list-style-type: none"> Communications with competent authority Amendments to policies and laws 	<ul style="list-style-type: none"> Carried out in accordance with relevant policies and laws Improvements are made within a certain timeline on matters that fail to comply with regulations, and violations are penalized in line with regulations 	<ul style="list-style-type: none"> In compliance with relevant laws Constant improvements are made in case of violation 	<ul style="list-style-type: none"> Business Integrity

Materiality Analysis Matrix

↑
Levels
of concern

- Economic topics
- Environmental topics
- Social topics








Material topics and value chain													
Material Topics	Importance on operations	GRI Material Topics	GRI Management Strategies (corresponding chapters)	Within the organization		Outside of the organization							
				ECOVE	Subsidiary	Upstream		Midstream		Downstream			
					ECOVE WMC \ ECOVE WEC \ ECOVE ESC \ ECOVE MEC	Municipal waste Family	General industrial waste Companies	Township Office Cleaning Squad	Waste disposal institution	Foreign waste treatment institution	Resource recycling (Energy from waste) plant	Waste treatment institution	Waste reuse institution
Ethics and integrity	ECOVE sees ethical business management as the basis to corporate governance and concurrently focuses on robust Company growth.	Anti-corruption (205)	Legal Compliance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Power generation efficiency	Enhance "Resource cycling"efficiency™.	Energy (302)	Energy and resource conservation	✓	✓	✓	✓	—	—	✓	✓	✓	✓
Developing renewable energy	Develop renewable energy and power generation and establish short, mid, and long-term power generation goals to further expand investment opportunities.	Specific to ECOVE	Circular and Low-carbon Economy	✓	✓	—	—	—	—	✓	✓	✓	✓
Professional research & development and technical competency	Utilize intelligent solution systems and data management.	Specific to ECOVE	Innovative Research and Development	✓	✓	—	—	—	—	✓	✓	✓	✓





Material topics and value chain

Material Topics	Importance on operations	GRI Material Topics	GRI Management Strategies (corresponding chapters)	Within the organization		Outside of the organization							
				ECOVE	Subsidiary	Upstream		Midstream		Downstream			
					ECOVE WMC \ ECOVE WEC \ ECOVE ESC \ ECOVE MEC	Municipal waste Family	General industrial waste Companies	Township Office Cleaning Squad	Waste disposal institution	Foreign waste treatment institution	Resource recycling (Energy from waste) plant	Waste treatment institution	Waste reuse institution
Developing recycling and reuse	Research and develop resource recycling services, technology and supply / sales competitiveness as well as customized products and quality enhancement.	Specific to ECOVE	Innovative Research and Development	✓	✓	—	—	—	—	—	✓	—	—
Incineration and waste management	Apply technical know-how to advance efficiencies in "resource cycling".	Emissions (305) and waste (306)	Energy from waste (EfW) and Waste Management	✓	✓	—	✓	—	✓	—	✓	—	—
Air pollution prevention	Control types of pollutants to be incinerated and impacts, and conduct real-time surveillance over waste gas to strive to reduce air pollution.	Emissions (305)	Energy from waste (EfW) and Waste Management	✓	✓	—	✓	—	✓	—	✓	—	—
Occupational Safety and Health	Promote occupational safety and health management system and enhance performance on related matters to reduce occupational injuries and prevent occupational disease. A healthy workplace is promoted to maintain safety and health for our employees.	Occupational Safety and Health (403)	Safe and healthy workplace	✓	✓	—	✓	—	✓	—	—	—	—
Environmental Education Activities	Actively participate in national and regional environmental policy and topics, community collaboration and contributions.	Local Communities (413)	Community activities that correlate with business operation	✓	✓	—	—	—	—	—	—	—	—




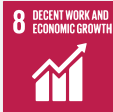

Short, mid, and long-term goals for material topics

Material Topics	Importance on operations	Strategy	2017	2018	2019 Goals	Long-term goals (2021)	SDGs	Corre- sponding Sections and Chapters
			Goal Implementation Status ▲ Behind schedule ● Completed ★ Ahead of schedule					
Power gener- ation effi- ciency	Power efficiency will directly impact the Company's revenue, and enhancing the power generation per ton of waste and achieving stable power efficiency will help the Company's operations to grow.	Continue to promote systematic energy conservation improve- ments and add inverters to large fans.	●	●	Reach 462kwh/T for power sold per ton of waste.	Maintain power sold per ton of waste at 462 kwh/T.		Energy from waste (EfW) and Waste Manage- ment.
Devel- oping renew- able energy	Solar power develop- ment is one of ECOVE's three core operations. We have already actively invested in a variety of project types and will work in line with the government's green energy policy in the future, which will help us to continue invest- ing in expanding the scale of operations.	Actively compete for development rights to large-scale projects and increase capacity in solar power-building in line with green energy development.	●	★	Cumulatively generated more than 18,000 kWh of solar power.	As of 2020, cumulative solar power generation will have reached 2.4 billion kWh or more.	 	Circular and low- carbon economy.
Devel- oping recy- cling and reuse	In addition to reducing environmental impacts, after process improve- ment, recycling and reusing waste can also enhance competitive- ness and help us to achieve sustainable management.	Optimizing PET bottle cleaning process and equipment improve- ments.	★	★	Equipment sale increased by 5% over that of 2018.	Cumulative cleaning equip- ment sale will have reached 200 in 2021 (comparative to reducing the use of 2.37 million ton of crude PET materials in each year)		Circular and low- carbon econo- mythat of 2018.
		Continue to invest in various waste reuse business to increase the rate of reuse.	Newly offered in 2019		Expanded into a new waste reuse business.	Cumulative reuse volume will reach 14,000 tons by 2021 (comparative to reducing 14,000 tons of raw material)		

Short, mid, and long-term goals for material topics

Material Topics	Importance on operations	Strategy	2017	2018	2019 Goals	Long-term goals (2021)	SDGs	Corre- sponding Sections and Chapters
			Goal Implementation Status ▲ Behind schedule ● Completed ★ Ahead of schedule					
Profes- sional research & devel- opment and technical compe- tency	Research and develop new engineering methods appropriate to the industry to increase understand- ing of technology and personnel productivity in pursuit of highly productive operations	Develop safer, faster, and higher quality engineering methods.	★	●	Received 3 patents.	Receive 3 patents in each year.		Innovative Research and Development.
Ethics and integrity	Integrity and honesty are the cornerstones to ECOVE's sustain- able management, as well as the basic principle that we value the most.	ECOVE has established internal regulations, conducts educational training and advocacy, and cultivates a culture of ethical business and legal through sufficient channels compliance providing reporting and protection.	Newly offered in 2019		No punitive records (fines exceeding NT\$100,000).	No punitive records (fines exceeding NT\$100,000).		Legal Compliance.
Energy from waste and waste manage- ment	Effectively monitor the quality of waste produced from the source of waste to stabilize the manage- ment over energy-from-waste plant operations and prevent processing risks.	Continue to maintain the ratio of physical inspec- tion over waste input to reduce the percentage of inflammable waste from entering the facility.	●	●	Rates of physical inspection over generic and industrial waste are both twice as high as the legal requirement.	Maintain rates of physical inspection over generic and industrial waste at 2X over legal require- ment.		Energy from waste (EfW) and Waste Manage- ment
		Implement waste input mixing, and to research and develop the improvement of combus- tion control system	●	●	Quality inspection approval rate for bottom ash reached 100%.	Maintain quality inspection approval rate for bottom ash at 100%.		

Short, mid, and long-term goals for material topics

Material Topics	Importance on operations	Strategy	2017	2018	2019 Goals	Long-term goals (2021)	SDGs	Corre- sponding Sections and Chapters
			Goal Implementation Status ▲ Behind schedule ● Completed ★ Ahead of schedule					
		Organize waste-producing source coaching and visit to understand the waste-producing status and advocate for relevant matters.	Newly offered in 2019		Conducted 80 waste-producing source guidance and visits.	Conduct 100 waste-producing source guidance and visits.		
Air pollution prevention	The quality of air pollution emissions is emphasized by all sectors, as well as a key indicator that ECOVE values and strives to improve..	Increase waste inspection to reduce the ratio of inflammable waste from entering facilities, maintaining normal operations of air pollution prevention systems.	●	●	Reached 100% approval rate for waste gas emission quality inspection.	Maintain 100% approval rate for waste gas emission quality inspection.		Energy from waste (EfW) and Waste Management
Occupational Safety and Health	Safety is emphasized throughout the Company to maintain a corporate image of safety. We implement safety management, health promotions and prevention of occupational hazards and disease.	Introduced ISO 45001 international standard to strengthen onsite safety as we work toward zero occupational hazard with a brand-new scale of operation.	●	●	0 work-related death/year.	0 work-related death/year.	 	Safe and healthy workplace.
			●	●	Annual incident severity ratio (ISR)<1.0	Annual incident severity ratio (ISR)<0.8		
			●	●	Annual incident frequency ratio (IFR)<0.3	Annual incident frequency ratio (IFR)<0.2		
			●	●	Annual total recordable case rate (TRCR) <0.3	Annual total recordable case rate (TRCR) <0.2		
Environmental Education Activities	Fulfilling CSR has always been a goal that ECOVE strives to achieve. Besides long-term commitment to enhancing our core business, we are also dedicated to social participation.	Select long term themes (Community events in line with business operations, Long-term community building, and Corporate volunteers to achieve synergistic growth).	Newly offered in 2019		<ul style="list-style-type: none">Reached 4,400 hours in volunteering services.Organized 20 rounds of "Step by step: Factories for sustainable environmental education" project.	Reached 5,000 hours in volunteering works.		Social Participation.

Sustainable Development Goals (SDGs)

ECOVE strives to incorporate global sustainable development vision into the road-map for our core business operations. We integrate the Company's sustainable goals with SDGs, coordinate organizational goals and actions, exert our core competencies, and continue to work toward sustainable activities. We internalize SDGs into our operating activities to strengthen the Company's sustainable development and reduce impacts from operating activities in order to build a sustainable, brighter future.



President calls each related department to adopt first an outwardly then inwardly perspectives in examining actionable SDGs for ECOVE

3 GOOD HEALTH AND WELL-BEING



SDG3

Good health and well-being

Protect occupational health and safety for employees

3.1、3.3、3.4、3.5、3.6、3.8、3.9、3.a、3.b

- Received certificate for ISO 45001 Occupational Health and Safety Management System.
- Total recordable case rate (TRCR) has been 0.21.
- Organized 150 rounds of training/seminars on health and work-related safety from experts in 2018.
- Provide employee health checkup, including following up on health checkup results to assist staff with elevated risks to seek for medical attention.
- Tracking the blood dioxin of employees.

6 CLEAN WATER AND SANITATION



SDG6

Clean Water and Sanitation

Participate in water resource recycling and reuse

6.1、6.3、6.4、6.6、6.b、6.c

- Obtained BS8001 Circular Economy certificate (water resource cycling and reuse)
- New Taipei City Gravel Water Treatment Plant treated 17,809,532 tons of wastewater cumulatively in 2018.
- Cumulatively treated 873,020 tons of wastewater at Zhonggang Water Resource Center in 2018.
- Linkou Water Resource Center cumulatively treated 6,705,790 tons of wastewater in 2018.

4 QUALITY EDUCATION



SDG4

Quality Education

Increase the environmental education standards for children

4.3、4.5、4.6、4.7、4.a、4.b

- Currently five operating energy-from-waste plants (Keelung, Houli, Miaoli, Tainan, and Tainan Science Park) have been accredited as environmental education facilities by the Environmental Protection Administration (EPA) to encourage more children to learn about environmental protection.
- Scope of which is further promoted from 2018-2020, in which three years of "Step by step: Factories for sustainable environmental education" project will be organized. Planned to promote fun-filled environmental education courses to 22 elementary schools in 2018.
- Industry-academic partnership: one school is picked from the northern, central, and southern Taiwan respectively, in which long-term internship is offered for students from these schools.

7 AFFORDABLE AND CLEAN ENERGY



SDG7

Affordable and Clean Energy

Renewable Energy

7.1、7.2、7.3、7.b

- The major businesses of ECOVE Solar Energy Corporation, an investment of ECOVE, include development, investment, supervision, and management of solar power systems. Total power generated in 2018 was approximately 44,090 MWh, or cumulatively equivalent to the amount of CO₂ that could be absorbed by 64 Daan Parks in a year.
- The heat generated during incineration process is transferred to power, which is supplied back to our facilities as well as sold back to Taiwan Power Company.

8 DECENT WORK AND ECONOMIC GROWTH



SDG8

Decent work and Economic Growth

Provide employment opportunities to the youth.

8.1、8.4、8.5、8.6、8.7、8.10

- Due to expansion of service scope and development of the Group Resource Cycling Business (GRCB), the number and ratio of new employees at ECOVE has reached new records in 3 years. We had 157 new employees in 2018, demonstrating our effort to provide many job opportunities.
- Recruited 7 physically or mentally challenged individuals (11 total after weighing in the factors of disabilities). Occupational disaster-related disability rate: 0%; number of deaths: 0.

11 SUSTAINABLE CITIES AND COMMUNITIES



SDG11

Sustainable Cities and Communities

Reduce hazardous impacts to the environment from the cities in terms of waste disposal and subsequent management.

11.5、11.6、11.7

- Received BS8001 Circular Economy standard (energy from waste (EfW) and waste management and efficiency enhancement).
- ECOVE's waste treatment and pollutant from energy-from-waste plants, as well as bottom ash and fly ash are all monitored and treatment in compliance with the laws.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



SDG12

Responsible Consumption and Production

While providing services, we strive to reduce energy and resource consumption to fulfill social responsibility, in addition to promoting public purchasing processes conducive to sustainable development.

12.4、12.5、12.6、12.7、12.8

- BoReTech Co., Limited, an investment of ECOVE, is equipped with manufacturing competencies of PET bottle recycling and cleaning systems and cleaning solution planning. We can reduce water resource consumption by building highly efficient recycling and cleaning facilities.
- The energy-from-waste plants that ECOVE operates and manages have sold approximately 1,029,948 MWh to power company in 2018. In other words, 81% of the total power consumption can be transmitted to Taipower's power grids, while the remaining 19% can be used and operated in-house.
- We promote green procurement and select products with environmental protection seals, including toner cartridge and energy-saving products. Due to replacement of environmental-friendly machinery and solar power modules in 2018, the green procurement amount of the year has increased by 40.5% over that of 2017.

13 CLIMATE ACTION



SDG13

Climate Action

In terms of mitigation and adaptation to climate change, the Company conducts early preventive warning and increases risk awareness, thus helping us to coordinate resources and fulfill energy management and to reduce greenhouse gas (GHG) emissions.

13.1、13.2、13.3、13.a

- Conduct climate change risk analysis for five climate-related sources of risk (high temperature, typhoons, thunderstorms, floods and droughts) to evaluate the scope of impact, impact to operations, and to draft management strategies.
- Various greenhouse inventories are regularly conducted for waste incineration and thermal energy conversion processes. In 2018, self-initiated inspections were conducted at each plant to further understand the GHG emissions so as to plan for GHG reductions from operations.
- Miaoli Plant facilitated EPA to establish the "waste treatment service" carbon footprint rules by product type and received carbon footprint verification.

Participation in External Organizations

Membership in Associations

By participating in various associations and organizations related to industry development, ECOVE can strengthen our connection with the industry and the latest technologies. On top of enhancing service competitiveness and realizing industry influence, we can also increase the opportunities to form strategic alliances to create opportunities for business growth.

Name of organizations
* Center for Corporate Sustainability (CCS)
Alliance for Sustainable Development Goals (A.SDGs)
Sustainable & Circular Economy Development Association
Chinese Institute of Engineers
The Chinese Institute of Environmental Engineering
Taiwan Boiler Association
Taiwan Telecommunication Engineering Industry Association
Taiwan Environmental Engineering Association
Taiwan Refrigeration & Air-conditioning Engineering Association of R.O.C.
Taiwan Water Pipe Engineering Association

Note: * indicates an association where a Director role is served.

ECOVE actively participates in national and regional environmental policies and issues, and we share more than 20 years of experience in resource cycling industry development and operating strategies with public and private groups from the government, industry, and the academia as well as the public in response to invitations from domestic and overseas government or non-governmental organizations. This helps to build cornerstones in resource cycling economy and to ensure that we stay on top of the trends.



Chairman attended the Global Corporate Sustainability Forum (GCSF) organized by the A.SDGs and gave a speech and was presented the Sustainable Actions Award.

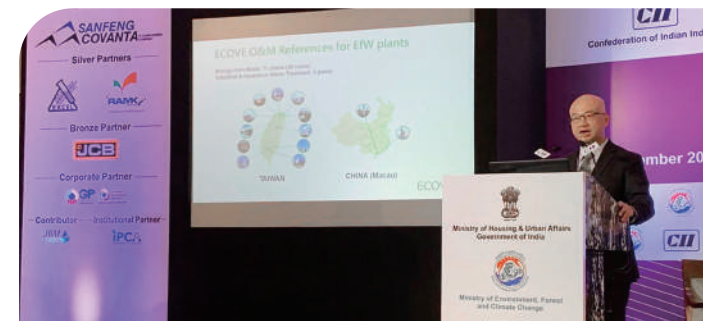
Participation in Seminars or Forums

Taiwan

Organizer	Content of speech/report
Green Techniques and Engineering Practicum from the Industrial Development Bureau	Waste solvent purification techniques to carry out volume reduction in practice and to create resource cycling applications
2018 Global Harbor Cities Forum organized by the Kaohsiung City Government	The role of an EfW plant in circular economy and sharing of sustainable O&M experience
27th Modern Engineering Technology Forum from the Chinese Institute of Engineers	Case study on recycling and reuse waste solvent
30th Annual Conference and Academic Seminar from the Chinese Institute of Environmental Engineering	Industry Development Overview and Discussion on the Waste Incineration Industry in Taiwan
2018 Cross-Strait Solid Waste Management Forum from the Chinese Institute of Environmental Engineering	Experiences and Characteristics of Operating Special Waste Incineration Plant
CTCI Foundation 2018 Cross-Strait Circular Economy Development Forum	Every Resource Counts. Create Resources from Waste.
2018 International Conference on Integrated and Innovative Solutions for a Circular Economy	Sustainable Material Management in Industrial Circular Economy
Global Corporate Sustainability Forum (GCSF) from the Alliance for Sustainable Development Goals, A-SDGs	From Participation to Fulfilling Circular Economy - Corporate Management in the Age of the SDGs
Composite Material Industry Circular Economy Forum from the Taiwan Composite Association	A Discussion on the Waste G-FRP Thermal Treatment Technology and Equipment
Circular Economy Topics Seminars from the National Central University	Promotions and Management of Circular Economy

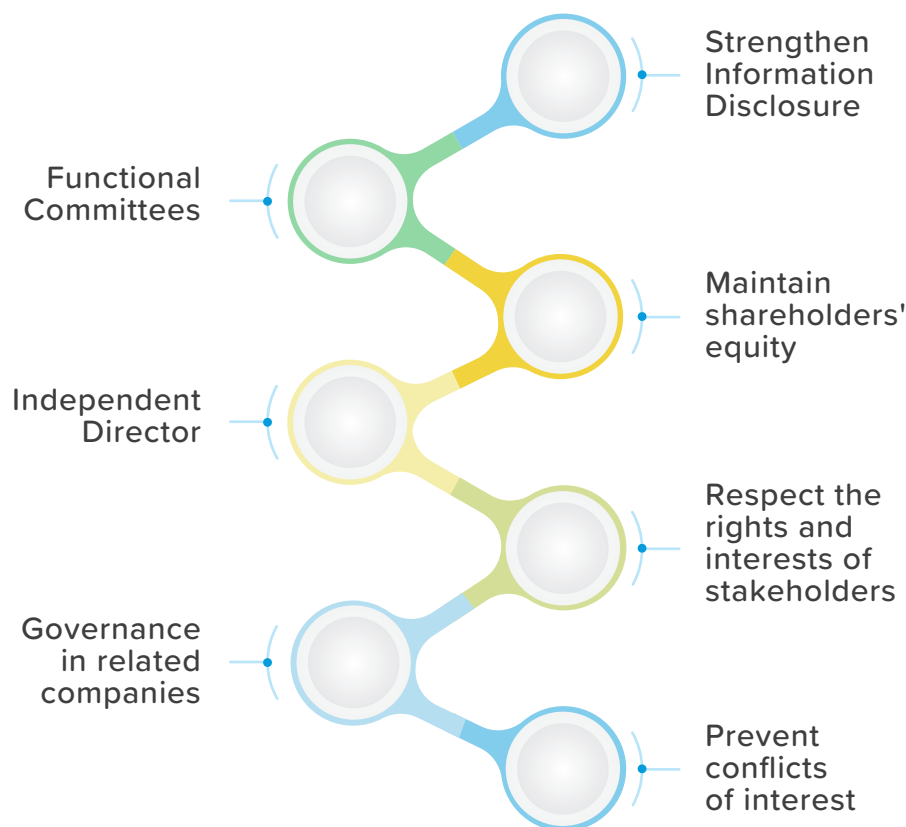
Overseas

Organizer	Content of speech/report
14th Cross-Strait Climate Change and Energy Continuous Development Forum (Beijing) from the Taiwan Institute for Sustainable Energy (TAISE)	Management model of reduced carbon emissions at waste-to-energy plant
Vietnam Environment Administration Environmental Protection and Management Forum (Vietnam)	Introduction of Tainan Science Park Resource Recycling Center In Southern Taiwan Science Park.
The International Solid Waste Association ISWA 2018 World Congress (Malaysia)	Intelligent Operation Management of Energy-From-Waste Plant
Confederation of Indian Industry (CII) International Conference on PPP Model for Waste to Worth Projects (India)	Intelligent Operation Management of Energy-From-Waste Plant
Euro-Arab Environment Organization First Arab Economic Eco-Tourism Forum and Protected Areas (Egypt)	Taiwanese Experience in Environmental Protection



• • Sales Manager Li-Chia Huang from ECOVE has given a speech at the overseas forum on the topic of "Taiwanese Experience in Waste Treatment"

Areas Covered by Corporate Governance



Integrity Management

The core to ECOVE's operations is to create circular use of the precious resources on this planet so that they could be reused and to create value, thereby enhancing the value and utilization of resources.

Circular economy has become a world trend, and as we enter the Age of SDGs, ECOVE will continue to strengthen the correlations between our three major core areas with circular economy SDGs. This will help to formulate ECOVE into a leader of resource cycling in Taiwan, and help us strive toward becoming the most reliable provider of industry-leading 'resource cycling' services.

Management Governance

102-18 102-22~25 102-27~28 102-36~37

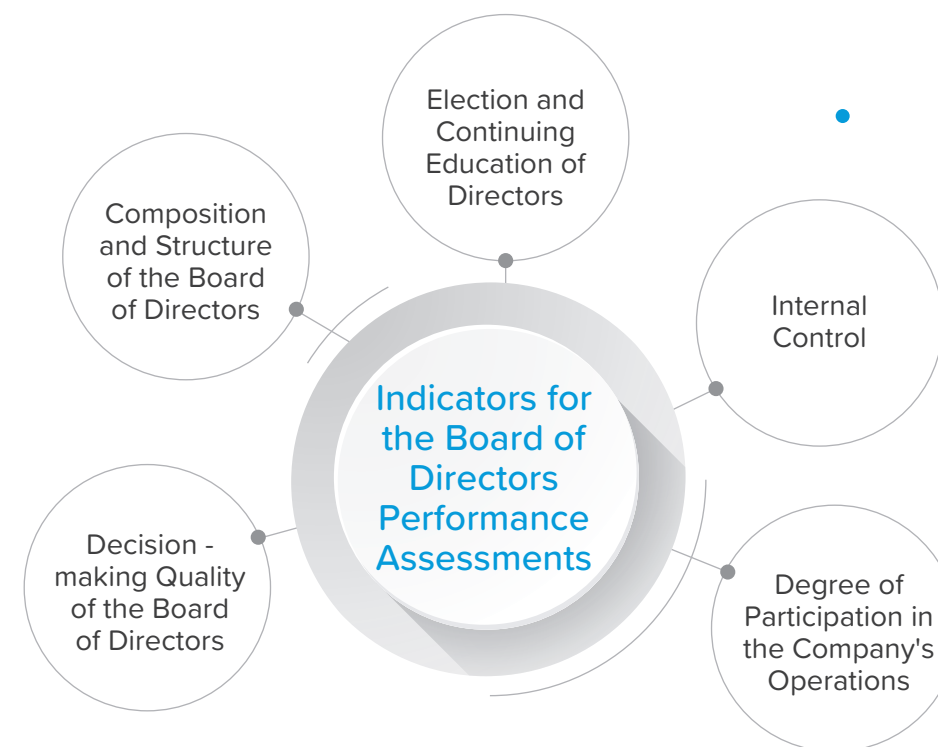
ECOVE always sees ethical business management as the basic principle of corporate governance, and it is our objective on top of focusing on robust organizational growth and satisfying investors and various stakeholders. In addition to focusing on environmental protection and resource cycling in our investment strategies, ECOVE places even higher emphasis on the execution of sustainable business development. Founded on transparent, professional and healthy corporate governance principle, we focus on the promotions of a robust corporate governance culture and fully disclose management information to strengthen the governance system.

ECOVE's efforts for governance have been widely recognized by external parties over the years. We have scored among top 5% in Corporate Governance Evaluation from the Financial Supervisory Commission (FSC) for five consecutive years, securing our place as a benchmark for business information disclosure and ethical business management. We will continue to uphold ethical management philosophy, value sustainable development, maintain a healthy governance structure, and fulfill our corporate social responsibility.

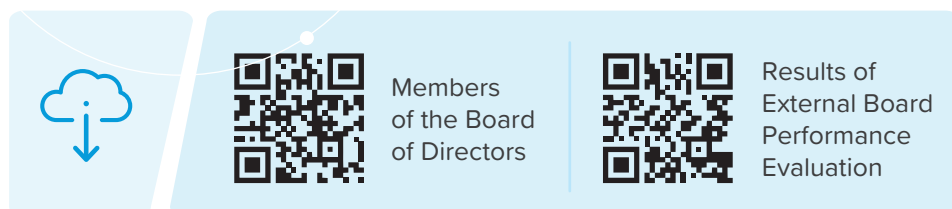
Composition and functionality of the Board of Directors

The Board of Directors is ECOVE's highest level of decision-making unit. Each term of the Board will serve for three years and election of directors adopts a nomination system. Directors can be reappointed if they are re-elected. The Board is formed by election of 9 directors (including 3 seats of Independent Directors) and is responsible for drafting the Company's business objectives and important strategies. The operations of the Board of Directors follow the Rules Governing Procedure for Board of Directors' Meetings, and will convene at least 1 meeting in each quarter. The Board meetings abide by interest recusal system, where in case a director's personal interest is involved in a proposal, the director shall automatically seek for recusal, and shall be prohibited from exercising voting rights on behalf of other directors. Currently, all members of the Board of Directors are males over the age of 50. In 2018, the average attendance rate of all Board members has been 92%.

To implement governance and enhance the functionalities of the Board of Directors, as well as to build performance objectives and reinforce the operating efficiency of the Board, ECOVE's Board of Directors has voluntarily established the "Regulations Governing the Board Performance Evaluation." The Regulations stipulate that the Board shall at least perform one internal Board performance evaluation in each year, and an evaluation from external, professional independent institution or external experts and scholars shall be conducted in at least every three years. Moreover, an annual performance evaluation shall be carried out at the end of each year. Results of the evaluation shall be submitted to the Board of Directors for review and improvement. The internal Board performance evaluation for 2018 has been completed and was submitted to the Board of Directors in March 2019. The internal Board performance evaluation contains five major evaluation aspects and 29 self-evaluation indicators, and all of which have received approval from all directors. Taiwan Corporate Governance Association would carry out the external Board performance evaluation, which contains 8 aspects and a total of 38 indicators. The external evaluation has been completed in February 2019, and has 5 follow-up recommendations for improvement. The Company will continue to undertake necessary improvements.



Members of the Company's Board of Directors have the professional knowledge, experiences, and characters to perform their duties, and include personnel from financial sector, attorney and related fields as well as as from the business sector. They have in-depth international perspective, decision-making, leadership, and crisis management skills to respond to changes from various economic, environmental, and social aspects. The directors undertake continuing studies pursuant to "Directions for the Implementation of Continuing Education for Directors and Supervisors of TWSE Listed and TPEX Listed Companies" to continuously enhance the Board's understanding for emerging issues as well as to continuously enhance the effectiveness of governance. In 2018, all Company directors have completed the required continuing education pursuant to "Directions for the Implementation of Continuing Education for Directors and Supervisors of TWSE Listed and TPEX Listed Companies," and each director has participated in at least 6 hours of such training.



Strengthen Functions of the Board of Directors

To prompt the Board of Directors to fulfill supervision, audit, and management mechanism in practice, ECOVE has established an Audit Committee and Remuneration Committee under the Board of Directors. In addition, an internal audit unit has been set up to comprehensively plan and carry out audit tasks. Besides regularly reporting audit tasks to Independent Directors, they also attend Audit Committee and Board meetings for reporting duties.

Remuneration Committee

Responsibilities:

Evaluates the remuneration policy and system of the directors and managers objectively and make suggestions to the Board of Directors accordingly for policy-making reference.

Convener : Shean Bii, Chiu
Members : Shuh-Woei Yu, James Tsai

Four meetings were convened in 2018. Average attendance rate from the three directors has been 100%.

Note:

term for the current Committee is from June 26, 2017 to June 25, 2020.



Remuneration
Committee's
Charter

Audit Committee

Responsibilities:

Audit Committee was voluntarily formed in 2014 to supervise the Company's fair presentation, appointment (and termination), independence and performance of CPA, effective implementations of internal control, compliance of relevant laws and regulations, and the control of existing or potential risks.

Convener : Shean Bii, Chiu
Members : Shuh-Woei Yu, James Tsai

Six meetings were convened in 2018. Average attendance rate from the three directors has been 94%.

Note:

term for the current Committee is from June 26, 2017 to June 25, 2020.



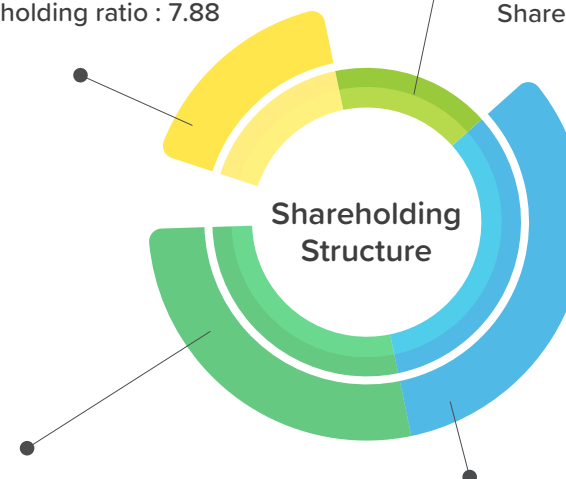
Audit
Committee's
Charter

Financial Institutions

Number of shareholders : 12
Ownership : 5,288,281
Shareholding ratio : 7.88

Foreign Company or Foreigner

Number of shareholders : 60
Ownership : 1,681,932
Shareholding ratio : 2.51



Other Legal Persons

Number of shareholders : 61
Ownership : 42,055,477
Shareholding ratio : 62.67

Individuals

Number of shareholders : 7,011
Ownership : 18,079,458
Shareholding ratio : 26.94

Total

Number of shareholders : 7,144
Ownership : 67,105,148
Shareholding ratio : 100.00

Base date is April 1, 2019

Internal Control System

EVOE's internal control system is structured upon the "Regulations Governing Establishment of Internal Control Systems by Public Companies" from the Financial Supervisory Commission (FSC). The purpose of which is to promote the healthy management of the Company, and to reasonably ensure the effectiveness and efficiency of operations, as well as reliability, timeliness, transparency, and legal compliance for information reporting.

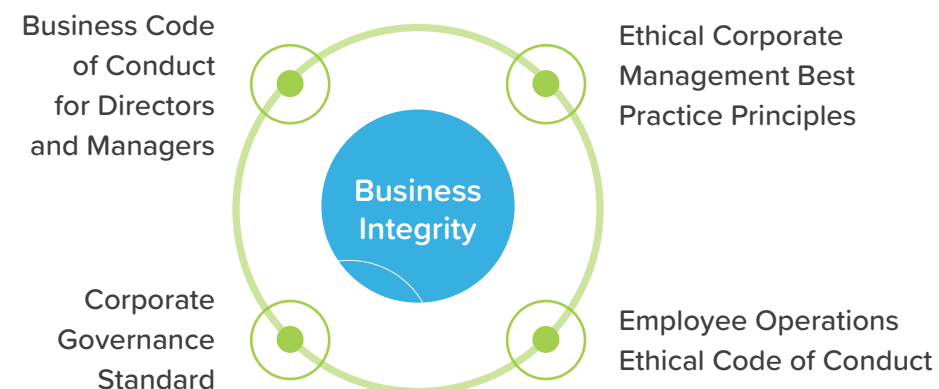
An Audit Office has been set up under the Board of Directors, which mutually assists the Board of Directors and managers to examine and review the defects in the internal control system and operating performance as well as provide recommendations for improvement in a timely manner along with the Audit Committee, so as to ensure that the internal control system can continue to be effectively implemented and as basis for review and improvement. The Audit Office carries out various audit tasks based on the annual audit plan approved by the Board of Directors. Defects and abnormalities found in the internal control system will be disclosed in an audit report, which will be reported and subsequently followed up. A follow-up report will be prepared on a quarterly basis until improvements have been made to ensure that relevant departments have adopted appropriate improvement measures on a timely basis. In addition to submitting progress of audit plan executions to the Independent Directors in each month, the Audit Manager will also attend Audit Committee and Board meetings to report on audit task reports to fulfill audit performance in practice.

Each department and subsidiaries of the Company will conduct at least one self-evaluation on internal control system in a year. In addition, the Audit Office will verify the aforesaid self-evaluation reports to assess the validity of the internal control system.

Legal Compliance 102-16~17 205-1~3

Based on ethical business management principle, ECOVE has established separate basic codes of conduct for directors, managers, and the average employees to ensure that day-to-day operations all comply with business ethics and integrity. These codes include "Ethical Corporation Management Best Practice Principles," "Code of Business Conduct and Ethics for the Board of Directors and Managers," "Code of Practices for Employees' Conduct," and "Accusation Management Regu-

lations." At the same time, work rules are also established as basis for compliance during day-to-day activities for all employees of ECOVE. Furthermore, to upkeep fair trade and prevent bribery and corruption, ECOVE requires that employees should not give discounts when conducting trading activities with stakeholders, and cannot ask for, make deals with, give, or accept gifts, entertainment, kickbacks, or bribes for him/herself or on behalf of others when carrying out his/her responsibilities.



Rules and Procedures



Corporate Governance Standard



Business Code of Conduct for Directors and Managers



Ethical Corporate Management Best Practice Principles



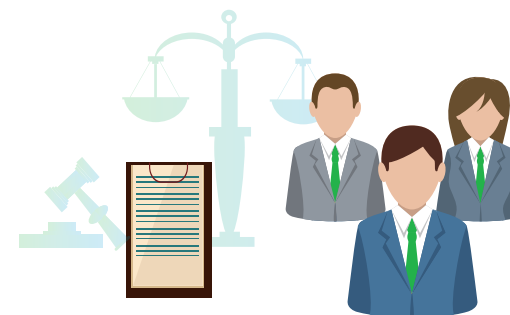
Employee Operations Ethical Code of Conduct

ECOVE is a member of CTCL, which sees "Most Reliable" as its brand positioning. To ensure that all employees clearly understand ethical business practices, the "Guidelines for Ethical Conduct" were stipulated in 2016 as the basis for compliance for employees' conduct. Moreover, a reporting website has been established on the Employee Opinion Platform. The website is established by third-party, independent Deloitte Taiwan to ensure that incidents reported are properly investigated and dealt with. In case anyone within the Group has found any internal inappropriate conduct to be causing or has caused negative effects to the Group or infringed the rights of all employees, the incident can be reported on the afore-said platform.

ECOVE and major subsidiaries have organized internal and external educational training related to ethical business management for all employees in 2017. Such training included promotional activities for communications with employees and corporate culture workshop, as well as online courses for employee ethical conduct. A total of 930 hours of courses have been organized for 2,115 participants. In 2018, we continued to train new employees, and a total of 257 hours of training was provided to 84 employees. In terms of the Board of Directors, 5 directors participated in the "A Discussion of Corporate Anti-Corruption and Information Security Advocacy from the Evolution of Bitcoin." Course materials were provided after the lesson to all directors to strengthen the awareness for ethical business management in the governance level.

Furthermore, to protect the rights and interests of stakeholders, ECOVE also requires all employees from related companies to sign "Declaration of Confidentiality Agreement, Prohibition on Participation in Competitive Business and Protection of Intellectual Property." ECOVE pursues sustainable business management and protects the rights and interests of the Company, on top of seeing "integrity" as a part of the Company's corporate culture. We actively promote ethical management policy, and no corruption or bribery incident has occurred in 2018. Our conscientious business image has also widespread recognition from our partners.

Employee Operations Ethical Code of Conduct



- ✓ Ethical Corporate Management Principle
- ✓ Confidentiality
- ✓ Fair Trade
- ✓ Principle of Equality
- ✓ Insider Trading
- ✓ Work Environment
- ✓ Encourages whistleblowing on any illegal activity or conduct in violation of the Principle
- ✓ Accurate written documentation and reporting
Refrain from conflicts of interest and pursuit of private interest
- ✓ Safeguarding and proper use of Company assets
- ✓ Political donations and activities
- ✓ Copyright

Information Disclosure

ECOVE emphasizes transparent information disclosure and provides symmetrical information for investors and stakeholders, fulfilling integrity and transparency in corporate governance. Various channels have been set up to provide relevant information for diverse stakeholders.

Investor Conference and General Shareholders' Meeting

- Regularly convened in each year
- Explain about Company financial and operations



Investor's Section

- Timely disclosure on information related to status of corporate governance, business announcements, financial statements, material information, Investor Conference, and internal audit.



Market Observation Post System (MOPS)

- Includes detailed information on Company operations and management.



Stakeholders' Section

- Designated personnel/section that responds to shareholders and stakeholders
- Shareholders and stakeholders may contact the Company via phone, fax, or email



Corporate Social Responsibility (CSR) Report and CSR Section

- CSR Report is released in each year to disclose information on Company operations, environmental protection, employee relations, and social participation and more, and is available for stakeholders to download.
- To seek for timeliness of the information, a CSR section is also set up on the Company website to provide information related to CSR for stakeholders



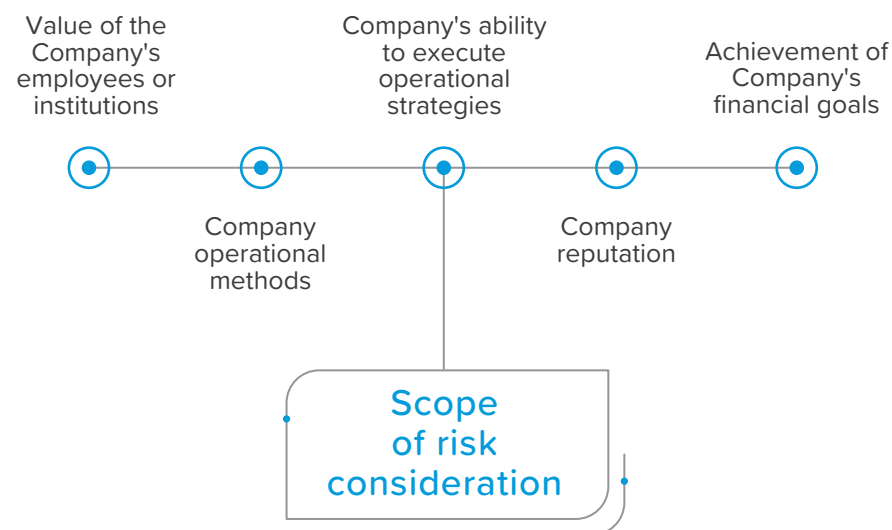
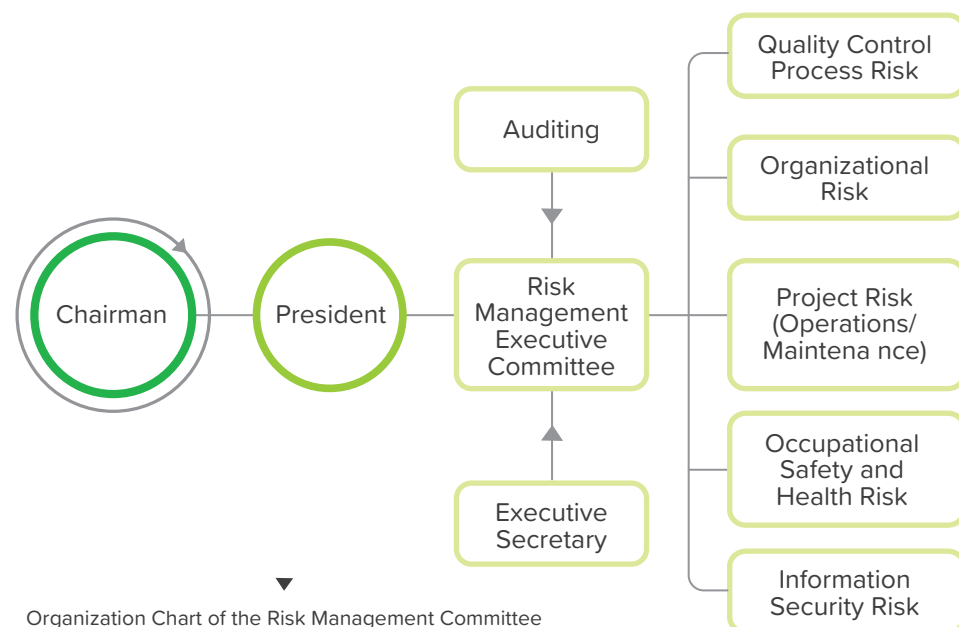
Risk Management 102-11 102-15~17

To strengthen the operational system and competitiveness of the Company and subsidiaries to systematically identify and evaluate possible risks during operations, "Risk Control Guidelines" were published in 2017 and a Risk Management Committee has been established. Members of the Committee comprise of ECOVE's department supervisors and Chairmen, Presidents, and senior managers from subsidiary companies. The Executive Secretaries of which are the Presidents from subsidiary ECOVE Wujih Energy Corp. (ECOVE WEC) and ECOVE Miaoli Energy Corp. (ECOVE MEC) respectively, who are in charge of coordinating meetings of the Risk Management Committee and compilation and follow-up of related information to ensure the continued effectiveness of the risk management mechanism.

The aforementioned committee controls various operating risks including information security, occupational safety and health, projects (including climate change issues), and organizational and quality control processes, so as to adopt effective actions to manage the risks or to seize potential opportunities. At the same time, a Risk Management Committee is established based on the principle. Meetings are

held regularly in each year, and risk topics are prioritized and ranked after discussion from the committee, and control measures will be proposed. ECOVE will continue to stay current on the implementation of control measures by reviewing audit to help the Board of Directors and managers to ensure that risks are effectively controlled.

As an holdings company, ECOVE maintains control on various aspects of subsidiaries and requires subsidiaries to submit monthly operations reports, so as to review and analyze management strategies and risk management. The results of such reviews and analysis are compiled into treatment principles or recommendations for amendments, and will be approved by responsible managers and the Chairman before being carried out by subsidiaries. In addition, the Company conducts supervision tasks over subsidiaries that the Company invests in. Risk management is undertaken for each subsidiary based on the nature of their respective industries to maintain appropriate risk separation and to maintain balanced and stable operations.



Information security

ECOVE values internal and customer information security. To reduce information security risk, we provide customers sustainable and fair services. We have leased the HiLink VPN network from Chunghwa Telecom, which is a closed physical network for enterprises, which can prevent Internet hacking and viruses. In terms of information security, we adopt centralized management to lower the possibility of leaks or stealing during data transmission. Moreover, our information data center is outsourced to Chunghwa Telecom's IDC, which has been accredited with international information security management mechanism and high-standard professional machine room including the "ISO/IEC 27001 Information Security Management System" and "ISO/IEC 27011 Supplementary Audit" from the National Communications Commission (NCC).

In keeping with the ISO/IEC 27001 spirit, the "Information Security Management Principles" were established in 2012, and in response to the Personal Information Protection Act, relevant measures and monitoring management mechanisms were added in 2013. A special erasing machine (adopts US DoD 5200.22 specification) would be used on hard disks in computers to be scrapped to prevent people from tracking or recovering or to manually dismantling and destroying the records in the hard disk.

By implementing the P-D-C-A cycle related to information security, we have not yet had any material information security incident in internal information system and information-related equipment to date. In the future, we will continue to improve and to review relevant processes to comprehensively enhance information security management in order to be more in line with international quality requirements.



Management Performance and Industry Outlook

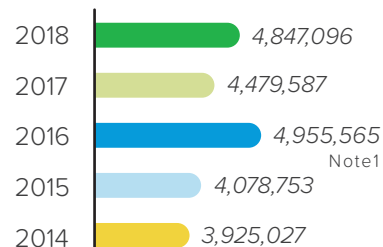
102-15 102-45 201-1



Management Performance

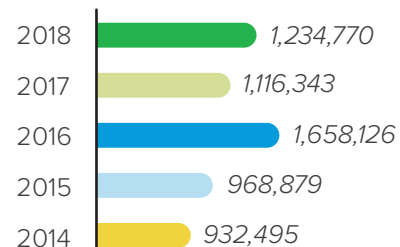
Consolidated Total Revenue

Unit : NT\$ 1000



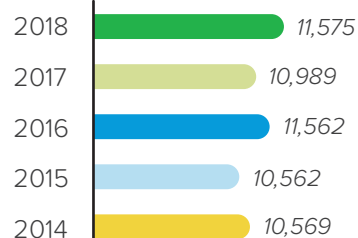
Consolidated Income Before Tax

Unit : NT\$ 1000



Total Market Capitalization

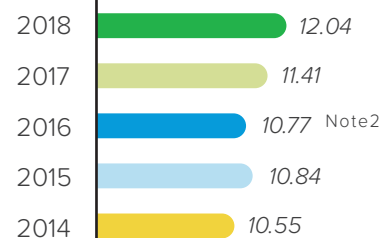
Unit : NT\$ 1000



Note: Calculated based on year-end share price in each year

EPS (Earnings Per Share)

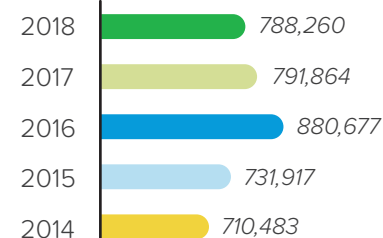
Unit : NT\$ 1000



Note : Consolidated Financial Statement

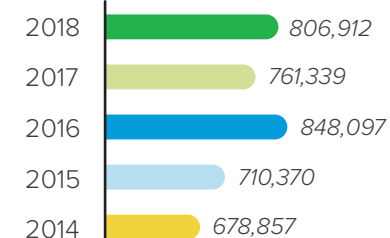
Individual Total Revenue

Unit : NT\$ 1000



Individual Income After Tax

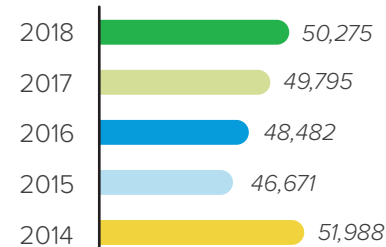
Unit : NT\$ 1000



Note : Net Income Attributable to Owners of Parent Company

Individual Operating Expense

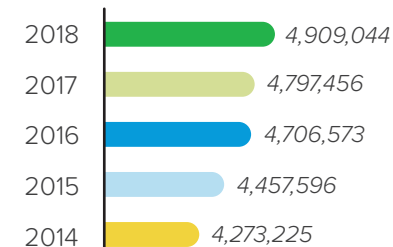
Unit : NT\$ 1000



Note : Operating cost + operating expense

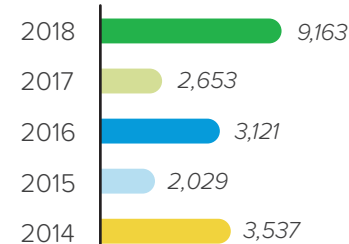
Individual Total Asset

Unit : NT\$ 1000



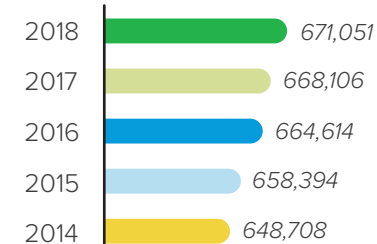
Individual Income Tax Expense

Unit : NT\$ 1000



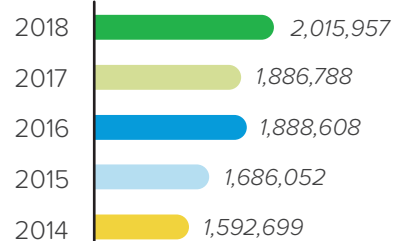
Individual Paid-in Capital

Unit : NT\$ 1000



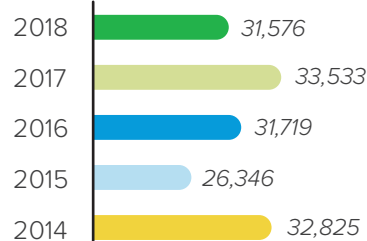
Individual Retained Earning

Unit : NT\$ 1000



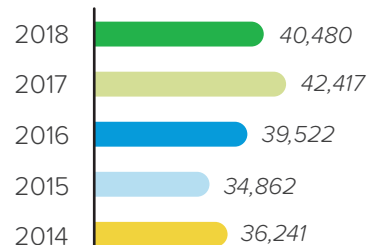
Individual Total Salaries

Unit : NT\$ 1000



Total Individual Employee Benefits

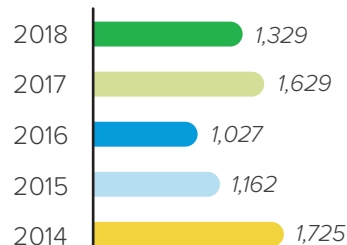
Unit : NT\$ 1000



Note : Individual Financial Statement

Total pension

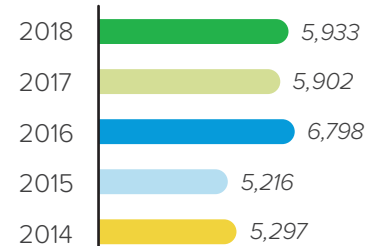
Unit : NT\$ 1000



Note : Individual Financial Statement

Average Operating Revenue Per Employee

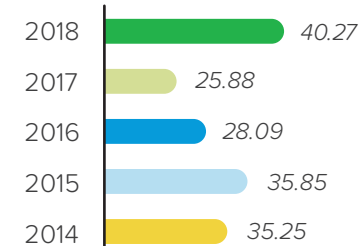
Unit : NT\$ 1000



Note : number of total employees at year-end ; Consolidated financial statement

Debt to Asset Ratio

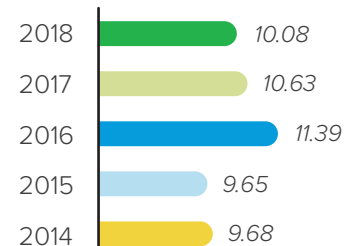
Unit : %



Note : Consolidated Financial Statement

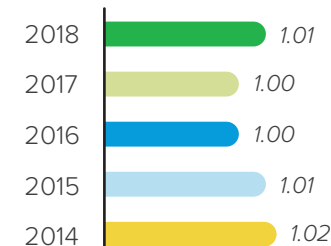
Return on Asset (RoA)

Unit : %



Note : Consolidated Financial Statement

Financial Leverage



Note : Consolidated Financial Statement

Note 1 : Consolidated total revenue in 2016 was higher than the average, which was mostly attributable to adjustment of selling price of power sold from SINOGAL, leading to increase in revenue after clarification and receiving approval from owners of the Company.

Note 2 : 2016 EPS (earnings per share) is after deduction of influences from SINOGAL

Note 3 : relevant items were adjusted in 2014 due to application of 2015 International Accounting Standards



Industry Outlook

In 2018, ECOVE reaped fruitful results in circular economy fields including "energy from waste (EfW)," "solar power," and "recycling" by integrating our three major businesses with 17 SDGs. Such accomplishments included using the new ECOVE brand to enter overseas market, buying back 100% of the shares from ECOVE Solar Energy Corporation to strengthen business strategic planning in solar power, establishing ECOVE Solvent Recycling Corporation and EVER ECOVE Corp. to strengthen the recycling business and to plan for a next-generation composite waste treatment facility. Looking forward to 2019, ECOVE will continue to integrate businesses with SDGs, cultivate domestic market in Taiwan, expand overseas position and strive for more project cooperation opportunities. This will be executed by enhancing the operation mode of Resource Cycling Efficiency™, demonstrating to the world the strength and techniques of Taiwan's resource cycling industry.

Energy from waste (EfW) and Waste Management



The Company shall continue to pursue tenders for large-scale comprehensive processing facilities and business opportunities in revamping existing incineration plants or outsourced operations in Taiwan. In overseas, the Company will forge strong partnerships with local companies to advance development and select appropriate targets to duplicate its successful model of public-private partnership (PPP) in BOT projects for incineration plants and sophisticated O&M capabilities overseas as it advances into ASEAN countries, India, and Mainland China.

Opportunities

Global warming, energy conservation and carbon reduction topics will make renewable energy gain attention, and may help to increase the selling prices of renewable energy. This is beneficial toward energy-from-waste business.

Risk

As greenhouse gases continue to impact the world, the average atmospheric temperature continues to rise over the years, causing existing steam-cooling system's efficiency to drop and power generation efficiency to decrease. Moreover, extreme climate such as El Niño and La Niña have led to more occurrences of rainstorms or droughts. Rainstorms brings floods, which lead significant amounts of low-thermal value and flooded waste to enter, lowering power generation efficiency. On the other hand, lack of water may cause systems to reduce loading or lower the efficiency in acidic gas treatment, leading to increase in water treatment chemicals.



Solar Power



We actively work in line with the government's non-nuclear and green energy policy, and prudently select investment objectives. We have fully committed to rooftop, ground-mounted and floating projects and seek to actively develop large-scale projects in Southeast Asia.

Opportunities

The government's green energy policy to accomplish 20GW of solar power generation system

installation by 2025 as well as the loosening of Renewable Energy Development Act and the Electricity Act have largely expanded the development opportunities for the solar power industry, presenting favorable opportunities for the Company to continue expanding our scale of investment.

Risks

As Taiwan is located in belts of frequent typhoons and earthquakes, the cost of installation and maintenance is higher. In addition, uncertainties brought by climate change, and any unreasonable and potential risks in the market (e.g. intensive industry competition, increase in raw material prices, and drop in wholesale power prices will all significantly increase the cost of investment, maintenance, and operating costs, increasing the difficulty in financial operations.)



Recycling



- The factory equipment is affected by the large-scale and high-standard trend, attracting large state-owned enterprises to invest. It bring BoReTech Co., Limited more business opportunities on system and equipment sale.
- Actively develop the recycling of other substances, including recycling and reuse of waste solvents, waste acid and alkali, and producing biogas from kitchen waste or animal manure for power generation.
- Besides the existing PET bottle recycling for remaking fibers, ECOVE will also evaluate pioneers in circular economy in Taiwan to seek for partnership opportunities in areas such as biomass power generation.

Opportunities

- Government policy, industry economy, or incentives from CSR.
- The government's promotion of renewable energy has led power acquisition prices to increase, thereby increasing the financial feasibility of renewable energy projects. The industry's adoption of renewable materials in implementing CSR will also lower production cost.

Risks

- Recycling material clearing
The recycling and reuse industry is heavily reliant on transportation. It is expected that the government may gradually increase the waste gas emission standards from transportation vehicles in response to climate change, thus increasing the procurement cost for clearing machinery.
- Recycling plant
To prevent secondary environmental pollution during the recycling process, the government may gradually increase the standards for factory waste emissions. The capital and pollution control system needed by plants and facilities may also increase accordingly.

Innovation and Sharing

Having always held true to the corporate visions of professionalism, integrity, teamwork, and innovation, ECOVE has become a tightly-connected team by collaborating with customers, suppliers, contractors, and employees. We help each other to achieve synergistic growth and to create positive service quality. In addition, we have also built close-knit and mutually-trusting relations, where we can work hand-in-hand with stakeholders toward an even more sustainable future.

Innovative Research and Development

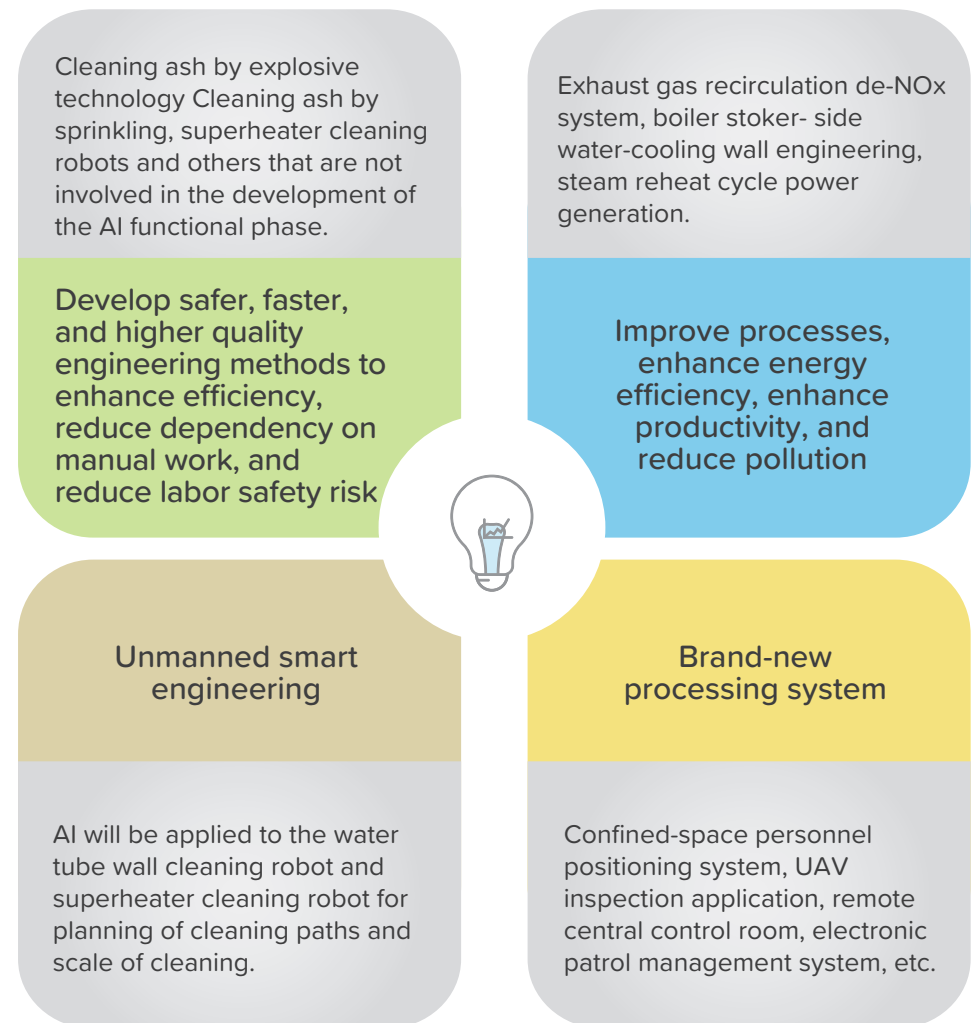
ECOVE is committed to integrating and searching for external new technologies in response to the needs of developing new businesses in the fields of energy from waste (EfW), waste management, recycle and reuse, and solar power. We seek for the optimized final treatment (e.g. enhancing the power generation efficiency of energy from waste plants, integrating the latest incineration technologies, and exhaust gas recirculation for de-NO_x etc), increasing the waste reuse ratio (e.g. reclaimed water, pre-waste sorting, purification of waste solvents, and biomass green energy center etc.), enhancing the additional value of waste resources (e.g. purifying base oil from waste engine oil) and enhancing energy production efficiency (e.g. solar power generation efficiency improvement, boiler hearth-side sinter suppression and residual heat recycling system, and investigation and adoption of the generator with optimal power generation efficiency and more).

In terms of refuse derived fuel, fuel gasification technology is adopted to effectively reduce the pollution of exhaust emissions. Advanced gasification technologies are better options for processing specific waste. Jointly develop incineration technologies for industrial waste including plasma gasification boilers and fluidized-bed gasification boilers.

In response to the Industry 4.0 trends in global technology, we shall introduce more advanced management tools, integrate big data from various plants, and apply mobile network technologies so that the critical information of the operations and management of each plant can be readily available through mobile devices. Any abnormality shall be promptly grasped to increase the performance of operations and management.

ECOVE also actively integrate technologies to develop intelligent management, control, and maintenance (e.g. remote central control room, repair incident review, high-temperature camera for furnace inspection, advanced combustion control

system, robotic slag removal, fixed-type shock wave ash-cleaning etc.). various important plant operation information IOI (Important Operation Index) can also be accessed from any time, any place via mobile devices (e.g. electronic patrol management system(EPMS), adding LINE to IOI) so that abnormalities can be grasped at all times to enhance effectiveness of operation and management. Moreover, we can also enhance employee training and teaching effectiveness (e.g. 3D models virtual reality (VR) training, guiding and teaching).



R&D Expenses Over the Years

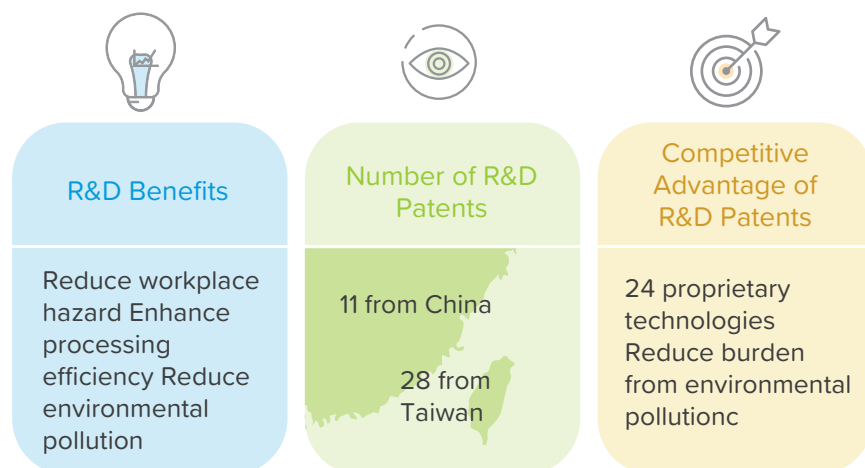
Unit: NT\$1,000

Item/Year	2014	2015	2016	2017	2018
Research and development (R&D) expenses (Note)	2,540	1,563	2,658	4,088	6,623

Note: R&D expenses are the labor expenditures incurred by the Research and Development Center for the development of new technologies and systems; the cost of each new technology or new system or the cost of integration with other project systems is attributed to the cost of each relative project.

R&D Results - proprietary technology

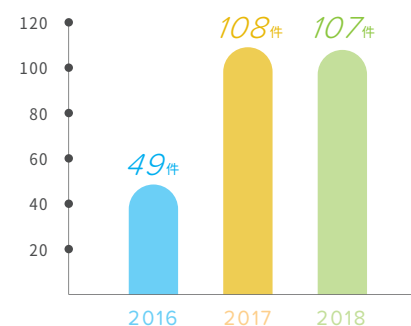
Looking at our R&D results, in 2018, three new patents were obtained, including "multi-purpose heat exchanger ash cleaning robot," "hearth-side sintering suppression and independent residual heat recovery system," and "self-guided multi-purpose heat exchanger ash-cleaning robot." As of 2018, we have received 28 technical patents from Taiwan and 11 from China. Most of these proprietary technologies have been put into practice. ECOVE also focuses on environmental sustainable development and promoting occupational safety and health. Out of all R&D results, 24 of our proprietary technologies can reduce environmental pollution as well as secure our competitive niche.



Service Quality

ECOVE closely works with the government, industries, and communities. Holding true to the philosophy of being "the most reliable," we accomplish every resource-cycling task with the attitude of enhancing resource-cycling efficiency. As natural resources are limited, ECOVE treasures every resource and makes it more valuable. ECOVE provides diversified service quality through professional technique and outstanding spirit. We listen and value the opinion from our customers. When receiving opinions from our customers, we response immediately and provide various fluent channels for feedback. We also have comprehensive processes designed to handle customer suggestions. We not only respond to customer's suggestions, but also require implementation departments to prudently and precisely analyze the cause of problem and to draft improvement plans and processes to prevent similar recurrence.


Number of Customer Surveys in the Past Three Years




Starting from 2017, we have added survey targets in each project to understand the level of satisfaction from senior managers and related departments from customers except for those in charge of the projects. Therefore, the number of surveys have increased.

Customer communication channels

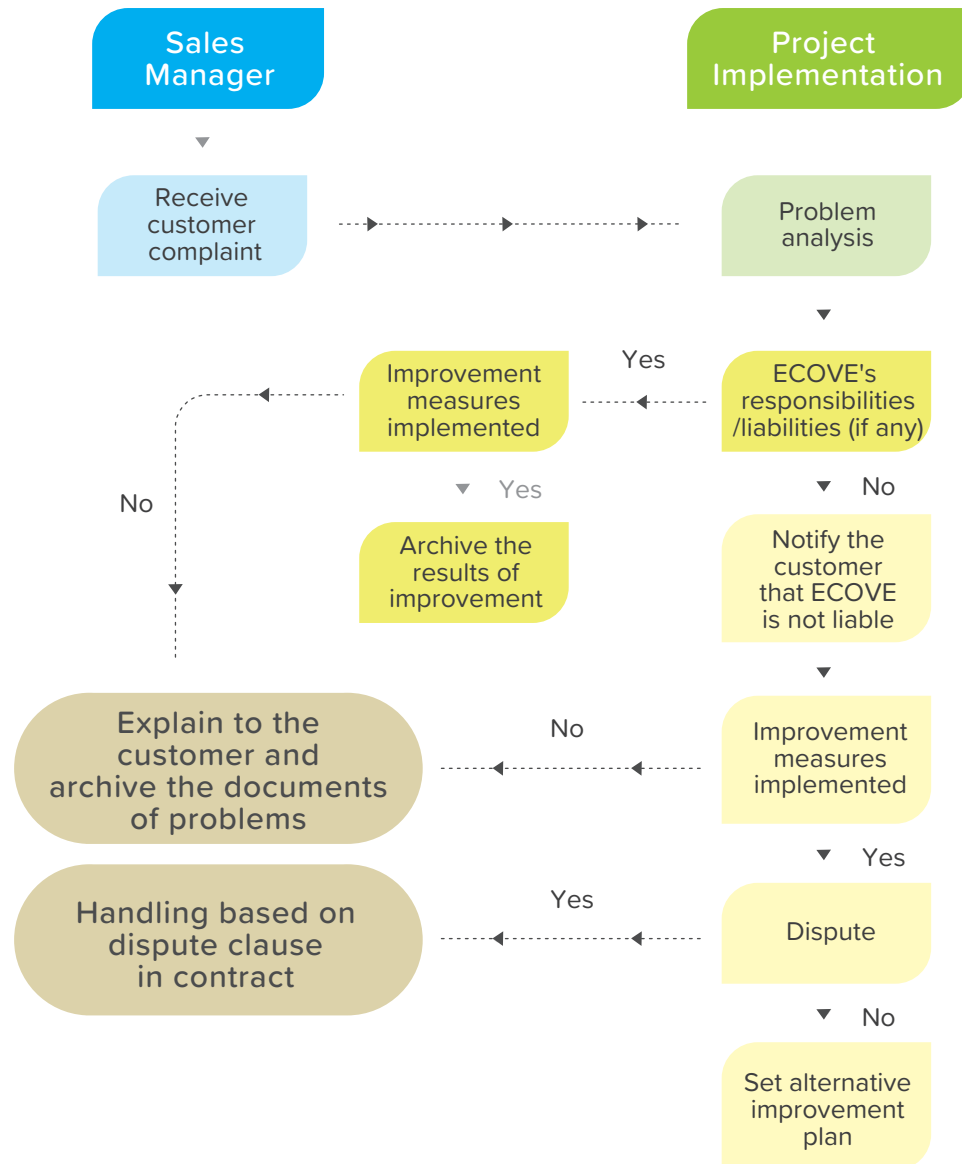
 **Telephone**
(02) 2162-1689

 **Fax**
(02) 2162-1681

 **Email**
sales@ecove.com

 **Questionnaire survey**
questionnaires are disseminated to each customer (owner)

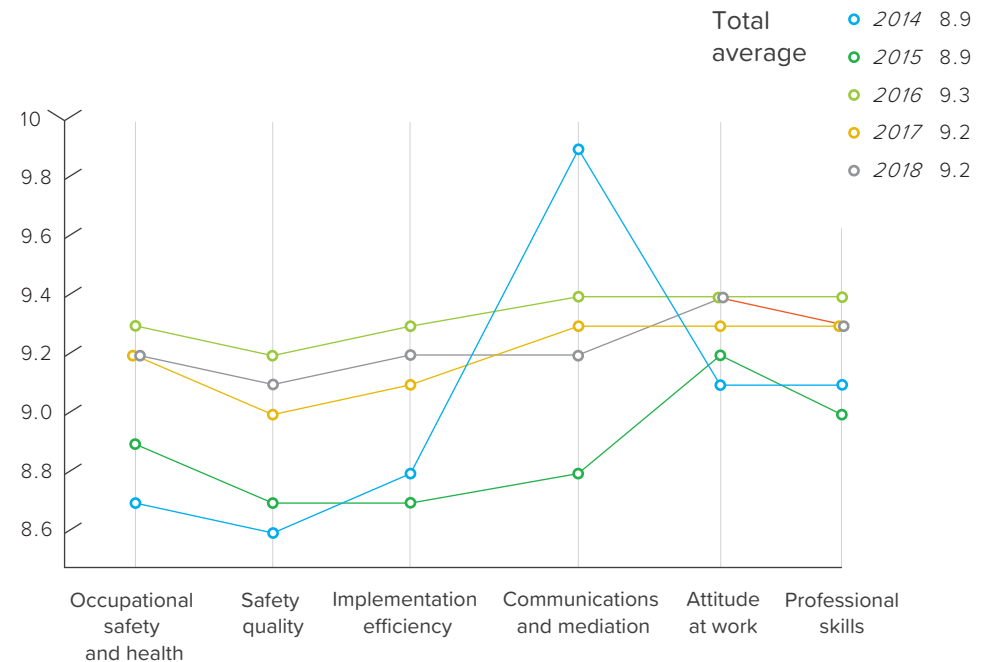
Customer (owner) service procedure



Surveys of customer satisfaction

ECOVE values ideas and suggestions from customers. We carry out customer satisfaction survey every year, and analyze customer feedback from various angles and propose suggestions for improvements in departmental/project manager meetings chaired by the President. Then related departments are required to propose solutions, ensuring that our service quality can satisfy customer expectations and requirements to build long-term partnership.

The customer satisfaction survey includes six major categories, which are: occupational safety and health, quality of work, implementation efficiency, communications and mediation, attitude at work and professional skills. In 2018, we have received an average score of 9.2 points out of 10, while points for all six categories have exceeded 9. In the future, we will continue to improve, and we will see a total average score of 9 points as the minimum standard in order to provide better quality and perfect service.



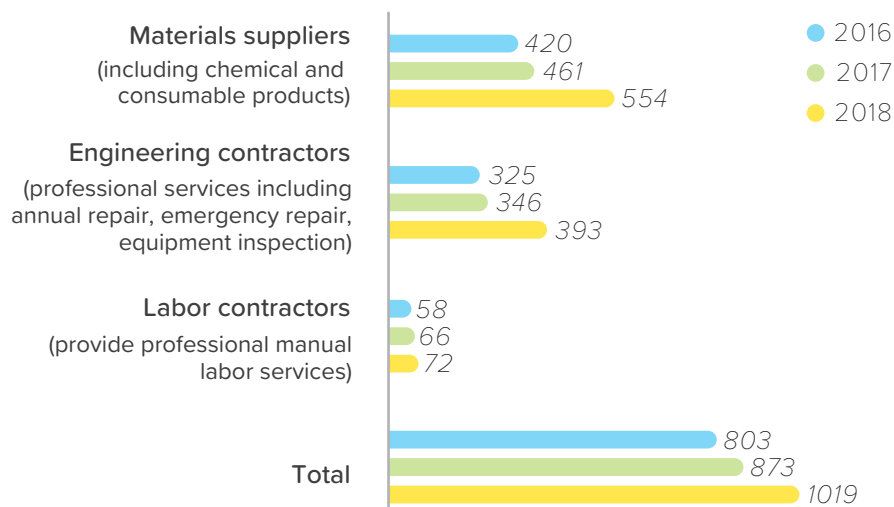
Sustainable Supply Chain Management

102-9 204-1 308-1~2 408-1 414-1~2

ECOVE has set "the most reliable provider of industry-leading resource cycling services" as a vision, and fulfills corporate social responsibility and our commitment to customers. We persist in service quality while prompting the Company and vendors throughout our supply chain to work toward sustainability by promoting a sustainable supply chain. This helps us to handle future risks and opportunities, and to increase resilience.

Overview of Supply Chain

ECOVE's suppliers include suppliers of machinery components and consumables (including chemical and consumable products), as well as contractors who provide professional services including annual repair, emergency repair, equipment inspection, and manual labor.

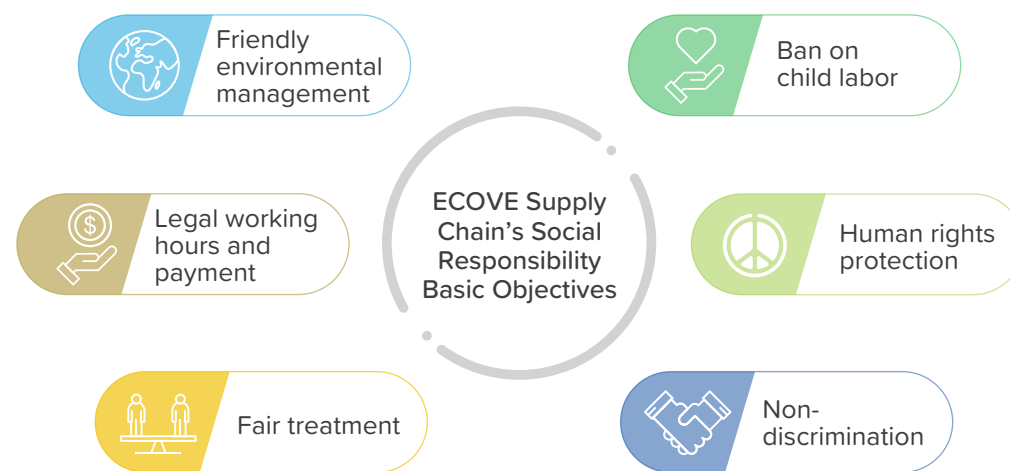


Cumulative number of suppliers are counted based on suppliers whose cumulative transaction amounts have reached NT\$300,000 or more under the parent company's authorization rights starting from 2015. Transaction amounts from contractors who meet this condition account for 98% of annual transactions, and the rest 2% are transactions that have not met the designated threshold.

Supply Chain's Social Responsibility Basic Objectives and Code of Conduct

ECOVE believes that the consensus and partnership throughout the overall supply chain for sustainable development will be the key to reach sustainability for the entire industry. Therefore, ECOVE continues to require suppliers and contractors for complete compliance to all local laws and regulations. Hence, the Supplier/-Contractor Social Responsibility Basic Objectives are established to request our supply chain to understand the objectives and to comply with related social responsibilities. We have always advocated and required for key points including the ban on child labor, protection of human rights, non-discrimination, fair treatment, legal working hours and pay, and friendly environmental management and more.

As for the requirement of labor rights, environmental protection, safety and health risk control on our supply chain, we adopt various measures to facilitate the suppliers and contractors to improve and to enhance service quality and management standards. This helps to reduce the management risk and operating cost of ECOVE, suppliers, and contractors, and thereby established solid and reliable partnerships that promote sustainable growth.



Supply Chain Code of Conduct

ECOVE is committed to promote CSR. Therefore, we have established ECOVE Supplier's Code of Conduct in references to human rights, labor and environmental regulations and standards, and anti-corruption regulations from international principles including the UN Global Compact, Universal Declaration of Human Rights, and UN Framework and Guiding Principles on Business and Human Right. All business activities of ECOVE suppliers shall completely comply with the Code and the local laws and regulations of its operating sites. The Code is applicable to all vendors who provide products or services to ECOVE, including suppliers and their subsidiaries, related companies, and contractors.

All business activities of ECOVE suppliers shall completely comply with the Code and the local laws and regulations of its operating sites. The Code is applicable to all vendors who provide products or services to ECOVE, including suppliers and their subsidiaries, related companies, and contractors.

ECOVE Supplier Code of Conduct



Labor and human rights

- Freedom to employment
- Child labor
- Working hours
- Payment and welfare
- Humane treatment
- Discrimination
- Freedom of association



Environment

- Environmental permit report
- Pollution prevention and resource conservation
- Hazardous substances
- Wastewater and solid waste
- Exhaust emissions
- Substances control



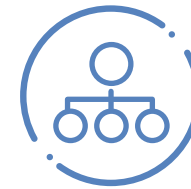
Health and safety

- Occupational safety
- Emergency response
- Workplace injury and occupational disease
- Occupational health
- Protection



Code of ethics

- Business Integrity
- Legitimate earnings
- Information disclosure
- Intellectual property
- Fair trade advertising and competition
- Privacy
- Source of mineral products



Management system

- Management responsibility
- Legal and customer requirements
- Risk evaluation and risk management
- Improving corporate responsibility performance
- Training
- Review and evaluation
- Improvement
- Documentation

Strengthening business integrity

In response to the Group's advocacy for reinforcing the business integrity with suppliers, when interacting with suppliers such as asking for quotations, or participating in tender meetings or ordering procedures, we will advocate for CTCI and ECOVE's determination for integrity using written or spoken statements and explanations addressed to employees and vendors. Prior to the tender meetings, we will conduct Integrity Moment actions, and explain about the Supplier Code of Contract to vendors and to announce the prohibition of private interests and the information on whistleblowing mailbox. We have also added the integrity statement clause on vendor ordering forms and engineering contracts.



Rules that Suppliers Shall Comply With

In addition to the Company's Supplier Code of Conduct, when offering prices to the Company, vendors shall also comply with and pay attention to the following rules:

- ▶ Vendors shall not pay commission, intermediary fees, kickbacks, or other benefits (such as dividends, gratuities, bribes, kickbacks, or any other form of improper interests) to relevant personnel of the project (organizers of the buyer, project member, organizers from client, or client) to promote the signing of the purchase contract.
- ▶ If any of the aforementioned illegal interest has been validated to be true, the vendor shall be stopped from continued participation in the tender of the project. If purchase contract for the project has been signed, it will be terminated and any of the buyer's losses will be sought.
- ▶ At the same time, vendors shall report on any ECOVE employee who breaches the ethical code of conduct. If allegations were true, suitable rewards will be given from ECOVE.
- ▶ Vendor reporting method: provide specific explanation and related proof, or submit to the designated reporting mailbox at (ctci@reportnow.com.tw).



Tender Meeting Integrity Moment

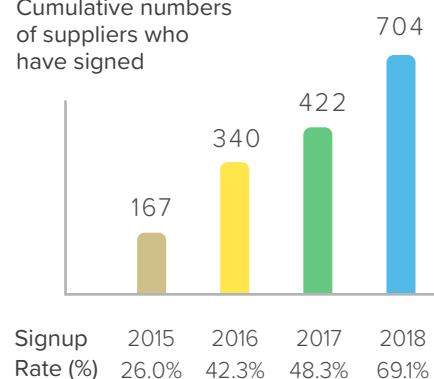
Supplier Social Responsibility Commitment

To further fulfill CSR with suppliers, ECOVE encourages suppliers to comply with relevant CSR and environmental issues, and has asked suppliers to sign the "Social Responsibility Commitment." ECOVE's Supplier/Contractor Social Responsibility Basic Objectives are established in reference to the International Labour Organization and the Social Accountability International 8000 (SA 8000) standard. The aspects of the objectives include ethical conduct, human rights protection and environmental protection, and both parties will commit not to interfere with the employees' freedom of association, do not use child labor, do not infringe the rights of aborigines, and do not undertake any matters that will harm human rights.

Since the completion of the statement in 2014, we have actively invited suppliers and contractors to sign the statement. As of 2018, as many as 704 suppliers/contractors have signed the statement, and the number continues to increase. This helps to promote suppliers and contractors to mutually acknowledge corporate social responsibility, and requires suppliers to develop awareness and to collaborate with us in terms of sustainable development of the supply chain, on top of being committed to social responsibility.

Signing Social Responsibility Commitment

Cumulative numbers of suppliers who have signed



Year	2015	2016	2017	2018
Signup Rate (%)	26.0%	42.3%	48.3%	69.1%

2018 Goals	Progress of target completion	2019 Goals
Signup rate from existing suppliers have grown by 10% over the previous year	Signup rate from existing suppliers grew by 19.9% (target achieved)	Signup rate from existing suppliers have grown by 10% over the previous year
New suppliers have all signed	New suppliers: 100% (target achieved)	New suppliers have all signed

Supplier Audit and Coaching

To understand the risks and competitiveness of the supply chain, ECOVE has set up audit and coaching mechanism for suppliers. The Purchasing Center, Quality Assurance, Safety and Health Office, and various project sites will undertake inter-departmental evaluation and audit for suppliers and contractors. Besides listing supplier/contractor quality, costs, service standards, environmental protection, work safety and health, and technologies into the evaluation items to ensure their quality and safety and health, we also require suppliers and contractors to make improvements on deficiencies in the spirit of P-D-C-A. In addition, we also provide necessary guidance to make ECOVE's supply chain stay at optimized competitiveness to mitigate the risk of operational disruption.



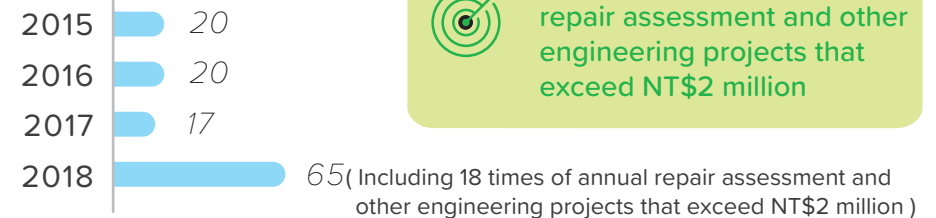
The Quality Assurance and Safety and Health Office will implement onsite audit and coaching at each site from time to time. In terms of hazardous substance use, such as chemicals, gas, and fuel, we require all suppliers to provide information on its components, safety information, and inspection report. All contracts have listed the "in case the supplier breaches its CSR policy, and causes significant influences on the environment or society, the Company may terminate the contract at any time" clause. Also, assessment is made for suppliers after the completion of each contract.

Supplier assessment is conducted during annual repair at each plant in 2018, and the scope of which has been expanded to include contract engineering whose project amounts to NT\$2 million. Any incompliance or defect is found on the evaluation or assessment results, the Company will facilitate the vendor to improve. In case improvement has not been made, the vendor will be listed as an unqualified vendor. Upon review and confirmation from the responsible manager, it will be included on the "List of Unqualified Vendors" and contract will be terminated. No unqualified vendor was found on the results of the 2018 assessment.

We plan to communicate and convey information on CSR in 2019 and to reward and encourage high-performing vendors. In addition, besides auditing vendors' onsite quality, safety, and legal compliance during the supplier assessment and inspection audit, we also take one step further to guide suppliers to fulfill CSR policy. Onsite supplier evaluation will be undertaken and result of which will be used as a reference in future purchasing tender.

Supplier Assessment and Audit

Number of assessment



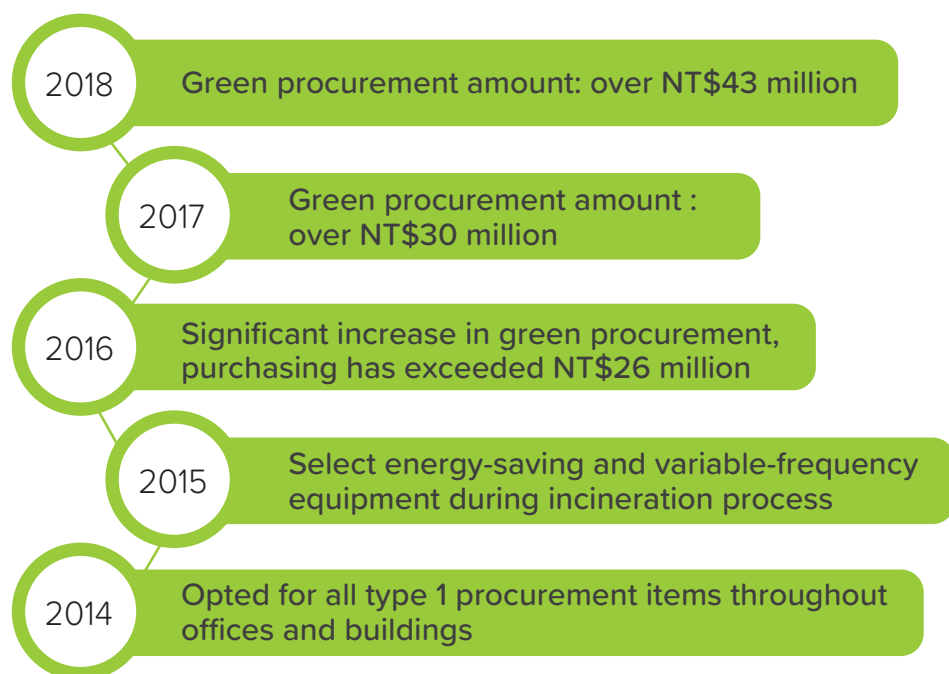
2019 Target:
Including 18 times of annual repair assessment and other engineering projects that exceed NT\$2 million

Note:

- Supplier assessment is conducted during annual repair at operating facilities. Supplier evaluation was conducted for 20 times in 10 plants during the first-half and second-half of 2015&2016.
- In 2017, assessments were conducted at 8 plants (excluding Xindian and Shulin) at Gangshan Plant during the second half of the year, for 17 times total. Starting in 2018, assessments were conducted at 9 plants (including Gangshan) for 18 times total. At the same time, assessment was also made for contract engineering projects that exceed NT\$2 million.

Green Procurement

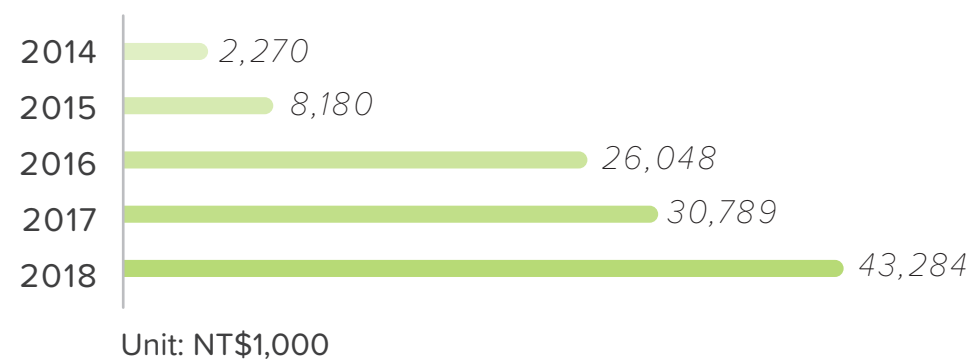
By working to mitigate climate change, ECOVE actively supports the SDGs, and prioritizes energy-saving equipment and products that pose less environmental impacts during procurement. We also encourage the use of green products. On the one hand, we help to promote the trend of green consumerism, and on the other hand, we can also promote energy consumption efficiency and reduce environmental pollution from energy use, achieving benefits of energy conservation, carbon reduction, and environmental protection. ECOVE tries our best to select products with the environmental seal, water-saving seal, energy-saving seal, green construction material seal, type 2 environmental protection product or carbon footprint seal to better conserve energy, reduce carbon, and to save our planet.



In 2018, except for continuous improving and selecting variable-frequency equipment, high-efficiency transformers, and LED lighting, ECOVE Waste Management Corp.'s waste clearing department has replaced vehicles with grab cranes and tractors with even higher environmental protection standards in line with new environmental protection standards from the Air Pollution Prevention Act. In addition, G.D. Development Corporation selects solar battery modules and transformers when setting up solar power stations. Total green procurement has exceeded NT\$43 million.



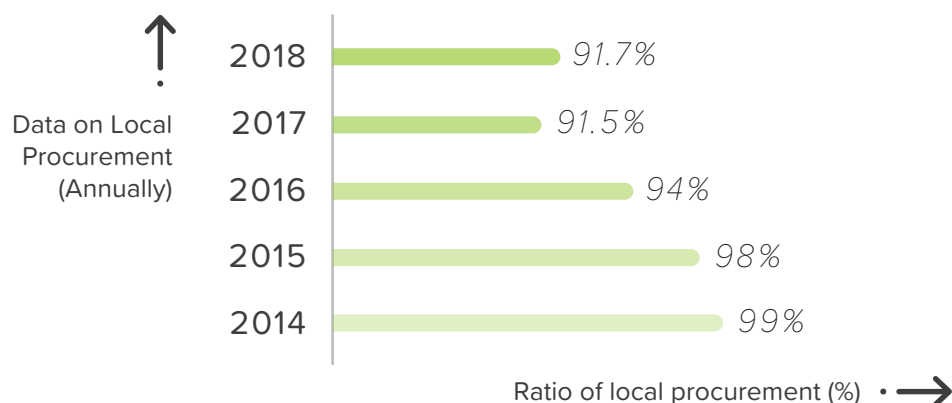
Green procurement amount



Local Procurement

As a leader in resource cycling in Taiwan, ECOVE is aware of our responsibility to Taiwan. Therefore, we continue to provide the safest, cleanest, and pollution-free service quality to the people of Taiwan. ECOVE actively build localized and autonomous competencies and experiences to be more localized, and to actively foster related industry chain. At the same time, we also create local employment and business opportunities.

Besides special machinery components, ECOVE strives to procure from local sources without affecting stable operations, safety, and fairness of procurement. We screen local manufacturers with potential for the re-engineering of worn parts and equipment, and provide them the opportunities to develop trials and to improve their autonomy. The contracting of spare part engineering is mostly sourced to local vendors to reduce carbon, waste, and to create local employment and business opportunities.



Explanation

- 1: local procurement is defined as purchasing transactions using the New Taiwan Dollar (NTD) with local vendors in Taiwan.
- 2: ratio of local procurement is affected by major and minor annual repair (minor repair in every 3 years and major repair in every 6 years) of major machinery (domestic and external components and technicians).
- 3: since incineration plant improvement projects are undertaken starting in 2017, to achieve better efficiency, new types of equipment and materials from original manufacturers were selected. Therefore, the ratio of foreign procurement of equipment and materials have increased, and ratio of local procurement has decreased slightly. In 2018, improvement projects were gradually completed, and externally-procured equipment and materials have decreased. However, the R&D Innovation department tested new technologies to clean fly ash in furnaces and introduced foreign mobile-type cleaning ash by explosive technology from the original manufacturer as well as purchased the fixed-type cleaning ash by explosive technology. Therefore, the ratio of local procurement was close to that of 2017.

Most Reliable

ECOVE ranked among top 5% in Corporate Governance Evaluation from the Financial Supervisory Commission (FSC) for five consecutive years

Results of the 5th Corporate Governance Evaluation co-organized by the TWSE and TPEx indicated that ECOVE has ranked among the highly sought-after top 5% among all 1,554 companies that were listed on the TWSE and the TPEx. In addition, since the implementation of the Corporate Governance Evaluation, only 26 listed companies managed to rank in the top 5% for 5 consecutive years.

ECOVE was named top 10% among the listed companies on TWSE and TPEx for "non-financial electronics companies with net worth over NT\$10 billion." We were the only company to be named for this ranking, securing our position as the best among environmental service companies throughout Taiwan. Seeing "the most reliable provider of industry-leading resource cycling services" as our mission, we have placed among top 5% on the Corporate Governance Evaluation since its beginning, demonstrating ECOVE's legal compliance and self-discipline. Our determination and performance in voluntary enhancement of governance system has won countless positive recognition. ECOVE is committed to continuously enhance in governance and information transparency, creating a robust operating system, maintaining shareholders' equity, pursuing environmental and sustainable business development, and to continuously living up to our brand of being "the most reliable." *Chairman attended the awards ceremony for the 5th Corporate Governance Evaluation, and was awarded the Evaluation Top 5% Award by FSC Chairman Wellington Koo.

Chairman attended the awards ceremony for the 5th Corporate Governance Evaluation, and was awarded the Evaluation Top 5% Award by FSC Chairman Wellington Koo.



Environmental Sustainability

49 Climate Change and Resource Utilization

60 Mitigating Environmental Impacts

64 Most Reliable

In response to climate change and global warming, we are committed to actively enhancing environmental protection performances during operating activities to make a sustainable environment.

Performance Highlight

Outstanding

Outstanding performance on waste to energy plant assessment from the Environmental Protection Administration (EPA) - Miaoli Plant

Enterprise Environmental Protection Award

Enterprise Environmental Protection Award from EPA - Keelung Plant, Tainan Plant

Outstanding Environmental Business

Outstanding Environmental Protection Business Award from the Ministry of Science and Technology (MOST) - Tainan Science Park Plant

Model for Green Energy Award

Outstanding Green Building Award and Model for Green Energy Award from Tainan City Government

Golden Sail Awards

Special Contribution Award from Golden Sail Awards, Taiwan International Ports Corporation Ltd.

Circular Economy Leadership Award

Circular Economy Leadership Award from Taiwan Institute for Sustainable Energy (TAISE)



Climate Change and Resource Utilization

Energy-from-Waste (EfW) and Waste Management

305-1~2

305-7

306-2

201-2

301-1

Waste Treatment Performance

After mining and processing, natural resources can bring convenience to human life. Nevertheless, the wastes produced from using these products have become environmental problems that we need to deal with in our daily lives. With the limited living space on our planet, if all waste is treated by landfill, it not only causes various pollution that impact and influence the quality of human habitation, but its anaerobic reaction will also produce an enormous amount of methane, resulting in greenhouse effects 28 times greater than that of carbon dioxide (IPCC AR5).

For ECOVE Environment Service Corp. (ECOVE ESC), a subsidiary of ECOVE Environment Corp., owning an energy with high environmental effectiveness will not only reduce the use of fossil fuel from power companies, but also prevent the environmental problems created from waste disposal. Since all waste to energy plants operated and managed by ECOVE ESC strive to properly incinerate waste and to achieve optimized utilization of the heat generated by effectively convert heat into power, we can transmit the power to end-users via power company. Besides achieving the greatest power generation efficiency through waste, ECOVE ESC's optimized operations and technology can also strive to enhance the surplus value from solid waste, exhaust gas, wastewater, and secondary pollutants to achieve complete utilization of various waste.

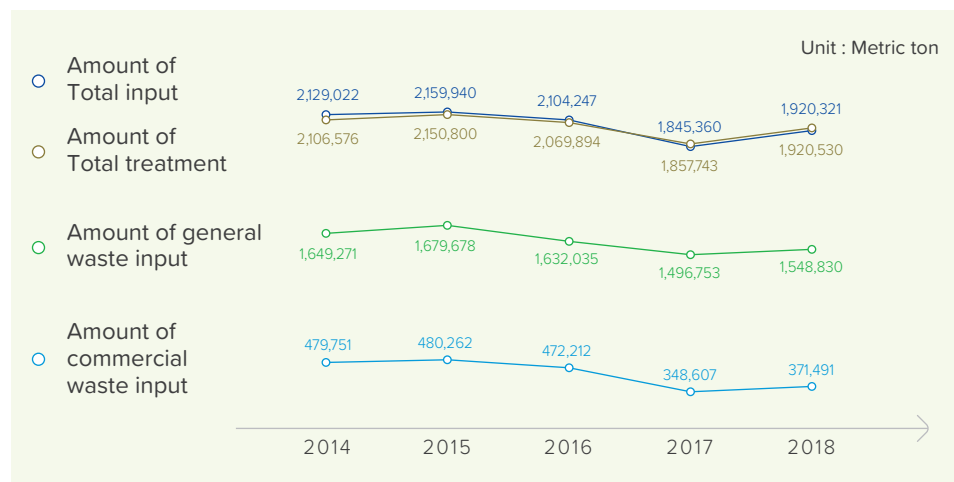
Currently, ECOVE ESC manages and operates seven waste to energy plants (Taoyuan Airport Plant and Tainan Science Park Plant are excluded because they are only responsible for treating waste from specific areas and do not treat common household waste), and the total waste received by these plants amounted to 1,920,321 metric tons in 2018. As the total waste input for 24 waste to energy throughout Taiwan in 2018 was 6,464,184 metric tons (<https://swims.epa.gov.tw/>

[swims/swims_net/Statistics/Statistics_Month.aspx](https://swims.epa.gov.tw/Statistics/Statistics_Month.aspx)) ECOVE ESC accounted for 29.71% of all waste input in Taiwan. In particular, volume of general waste amounted to 1,548,830 tons, accounting for 80.65% of all waste input in ECOVE ESC, while volume of general commercial waste amounted to 371,491 tons, accounting for 19.35% of all waste input in ECOVE ESC.



According to the 2018 statistical data from Waste Management Office of Environmental Protection Administration (EPA), Taiwanese citizen produces approximately 1.118 kg of waste on a daily basis (<https://erdb.epa.gov.tw/DataRepository/Statistics/TrashClearNationalProduce.aspx>). Therefore, ECOVE ESC services approximately 4.71 million people as well as received and treated waste from 16,500 institution.

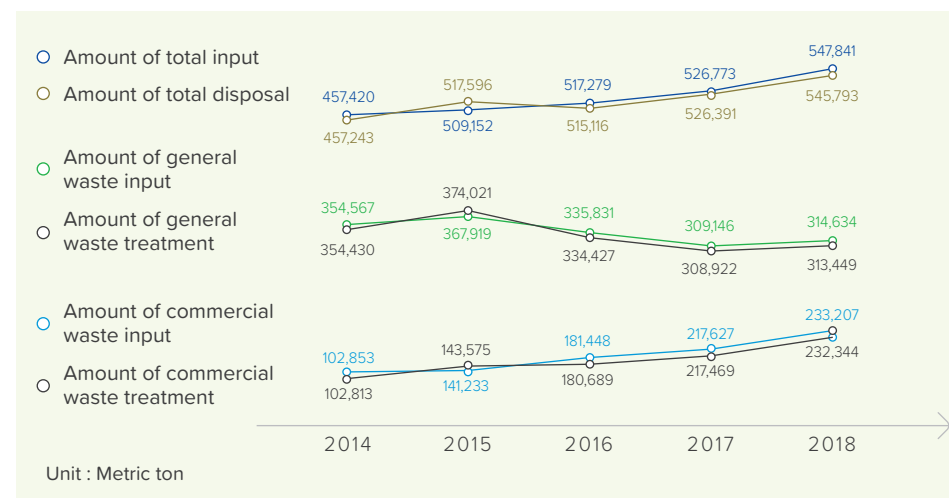
Total Amount of Waste Input and Treatment in ECOVE ESC's Waste Incineration Plant



Note : the difference between input and treatment is mostly attributable to water vaporization or adjustment of storage volume of the bunker.

Besides Taiwan, the general waste throughout Macau is treated by our subsidiary, SINO GAL, which serves a population of approximately 640,000. Total amount of waste input in waste incineration plant operated and managed by SINO GAL amounted to 547,841 metric tons in 2018. In particular, general waste amounted to 314,634 metric tons, accounting for 57.4%, while general commercial waste amounted to 233,207 tons, accounting for 43.6%. Based on the average data from the past five years, the annual average total input was 511,693 metric tons, while the total amount of treatment was 512,428 tons.

Total Amount of Waste Input and Treatment in SINO GAL's Waste Incinerators

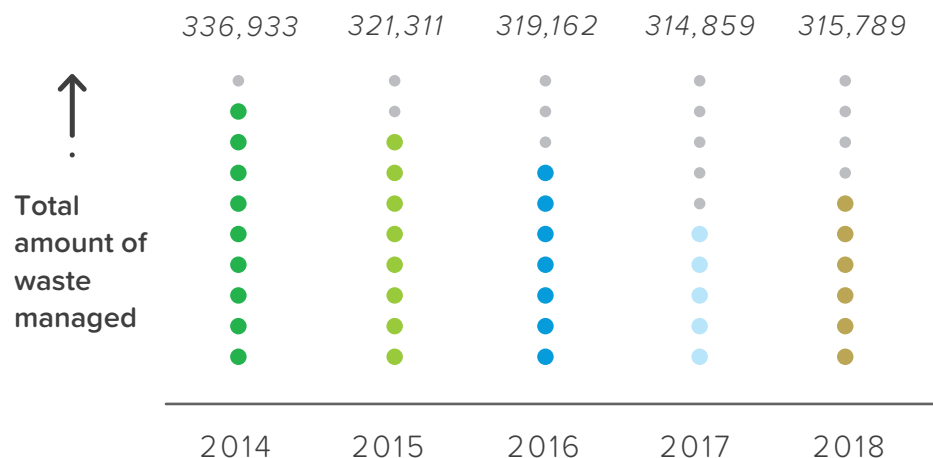


Note: the difference between input and treatment is mostly attributable to water vaporization or adjustment of storage volume of the bunker.

The total amount of waste managed by ECOVE subsidiary, ECOVE Waste Management Corp. (ECOVE WMC) in 2018 was 315,789 tons, while the average amount of waste managed for the past five years was 321,611 tons per year. The amount of waste that ECOVE WMC had managed as an outsourced vendor accounted for 29.4% of all waste that was outsourced to private institutions from domestic large-scale municipal waste incineration plant.



Total volume of waste managed by ECOVE WMC (in metric tons)



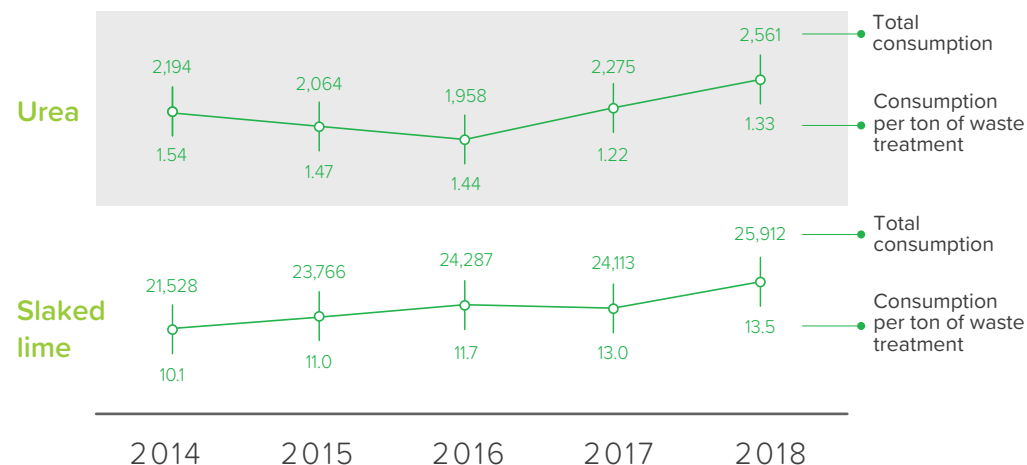
ECOVE WMC understands that the treatment efficiency of the incineration plant are deeply tied to the quality of waste. To effectively manage the quality of waste, ECOVE WMC monitors the source of the waste and undertakes onsite coaching and visit to understand their operating processes, waste-producing qualities, quantities, and storage. ECOVE WMC also advocates for environmental protection laws and key points of waste input management at the incineration plant related to waste outsourced treatment. This is to ensure that the sources can provide waste that meets the operating requirement of incineration plants to stabilize the treatment efficiency of the incinerator plants and to prevent processing risks.

Incineration Plant Pollutant Management

To prevent emissions of air pollutant from becoming environmental impacts from waste incineration, continuous monitoring stations have been installed at exhaust-emitting tubes at all incineration (waste to energy) plants operated by ECOVE ESC pursuant to the laws. 7 items are continuously monitored, including exhaust gas flow rate, oxygen content, sulfur oxides, nitrogen oxides, hydrogen chloride, carbon monoxide, and opacity. Information from the exhaust emission monitoring system is uploaded to the Environmental Protection Administration

immediately and available for the public to search (https://swims.epa.gov.tw/swims/swims_net/Statistics/Statistics_Month.aspx). Currently, information of Keelung Plant, Southern Taoyuan Plant, Miaoli Plant, Houli Plant, and Tainan Plant are available. In addition, onsite scheduled detection is conducted monthly or quarterly, and items of which include sulfur oxides, nitrogen oxides, hydrogen chloride, carbon monoxide, particulate pollutants and dioxin. Not only does ECOVE ESC's operating competencies allow for high levels of waste utilization, but we also strive to comprehensively control the quality of various pollutants emitted during waste incineration at the waste to energy plants. Through systematic and continuous improvement, the amount of chemicals used per unit of waste, in terms of urea (used in selective non-catalytic reduction, SNCR), has shown annually continuously reduced in the recent five years. In terms of unit consumption rate of slaked lime, the consumption has increased slightly due to the increase in the lower heating value of the waste. In the future, we will increase the efficiency of chemical utilization and decrease the chemical consumption per ton of waste.

Chemicals and Slaked Lime Usage at the Incineration Plant



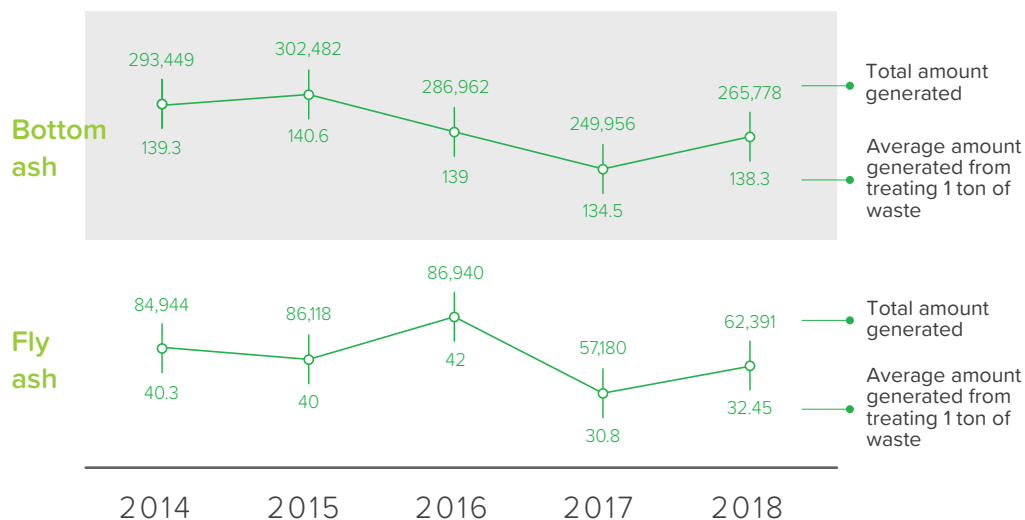
Unit :

Total consumption in tons

Average consumption per ton of waste treated in kilograms

Bottom ash generation volume was 265,778 tons in 2018. An average 138.3 kg of bottom ash was generated per ton of waste treated. In terms of fly ash (including products after reaction), the amount of fly ash generated in 2018 was 62,391 tons. An average 32.45 kg of fly ash stabilized product was generated per ton of waste treated. All bottom ash was inspected in compliance with the laws, and after being confirmed as non-hazardous, the bottom ash would be transported to bottom ash treatment plant for reuse. Alternatively, after stabilized treatment, the fly ash was packaged and quality inspection would be conducted. Thereafter, it would be sent to landfill for sanitary disposal.

Amount of Bottom ash and fly ash generated from incineration plant

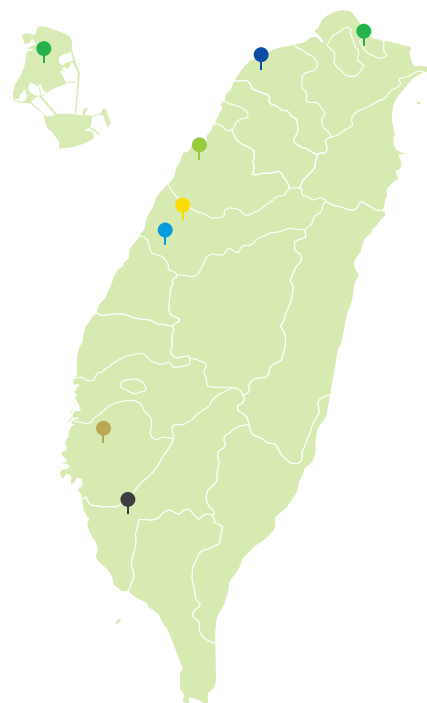


Unit :
Total amount generated (tons)
Average amount generated from treating 1 ton of waste (in kilograms)

Power Generation and Power Retail

Cumulatively, the waste to energy plants operated by ECOVE ESC has sold 1,029,948 MWh to the power company in 2018. In other words, approximately 81% of the total power generated can be transmitted to Taipower Company's power grid, while the remaining 19% would be used for operation by the waste to energy plants. Based on data from Taipower Company (<http://www.taipower.com.tw>) and Companhia de Electricidade de Macau (<https://www.cem-macau.com/zh/>), the average household power consumption in Taiwan and Macao were 301 kWh and 430 kWh per month respectively. Therefore, we could supply the year-round general power consumption for approximately 292,900 and 33,600 users in Taiwan and Macao respectively.

The reduction in carbon dioxide (CO₂) emissions from our power output was calculated to be approximately 670,900 metric tons of CO₂, equivalent to reducing approximately 264,700 tons of coal combustion (based on the calculation that 1 ton of coal combustion produces 2.5349 tons of CO₂e), and also equivalent to the volume of CO₂ that can be absorbed by 1,724.6 Daan Parks in a year (based on the calculation that Daan Park can absorb 389 tons of CO₂ in a year) <http://energy-monthly.tier.org.tw/outdatecontent.asp?ReportIssue=201107&page=5>. Moreover, based on 2010 research, the Forestry Bureau, Council of Agriculture had estimated that the fixed volume per hectare of forest can absorb 9.0 tons. Therefore, our 2018 performance was equivalent to planting approximately 67,765 hectares of forest.



Power Generation and Power Retail Energy from Waste Plant 2018

Keelung

Total power generated : **120,287.27** (MWh)
 Power retailed : **96,960.83** (MWh)
 Power generated per ton of waste : **0.62** (MWh)
 Amount of GHG reduction : **66,639,147.58** (kg)

Southern Taoyuan

Total power generated : **252,360.40** (MWh)
 Power retailed : **221,293.00** (MWh)
 Power generated per ton of waste : **0.57** (MWh)
 Amount of GHG reduction : **139,807,661.60** (kg)

Tainan

Total power generated : **85,689.60** (MWh)
 Power retailed : **58,723.44** (MWh)
 Power generated per ton of waste : **0.41** (MWh)
 Amount of GHG reduction : **47,472,038.40** (kg)

Gangshan

Total power generated : **196,254.50** (MWh)
 Power retailed : **151,648.20** (MWh)
 Power generated per ton of waste : **0.59** (MWh)
 Amount of GHG reduction : **108,724,993.00** (kg)

Macao

Note 1

Total power generated : **182,246.52** (MWh)
 Power retailed : **144,390.86** (MWh)
 Power generated per ton of waste : **0.33** (MWh)
 Amount of GHG reduction : **66,155,486.76** (kg)

Miaoli

Total power generated : **94,821.10** (MWh)
 Power retailed : **77,127.89** (MWh)
 Power generated per ton of waste : **0.57** (MWh)
 Amount of GHG reduction : **52,530,889.40** (kg)

Houli

Total power generated : **163,857.40** (MWh)
 Power retailed : **135,807.60** (MWh)
 Power generated per ton of waste : **0.57** (MWh)
 Amount of GHG reduction : **90,776,999.60** (kg)

Wujih

Total power generated : **178,281.68** (MWh)
 Power retailed : **143,996.07** (MWh)
 Power generated per ton of waste : **0.61** (MWh)
 Amount of GHG reduction : **98,768,050.72** (kg)

Total

Total power generated : **1,273,798.47** (MWh)
 Power retailed : **1,029,947.89** (MWh)
 Power generated per ton of waste : **0.53** (MWh)
 Amount of GHG reduction : **670,875,267.06** (kg)

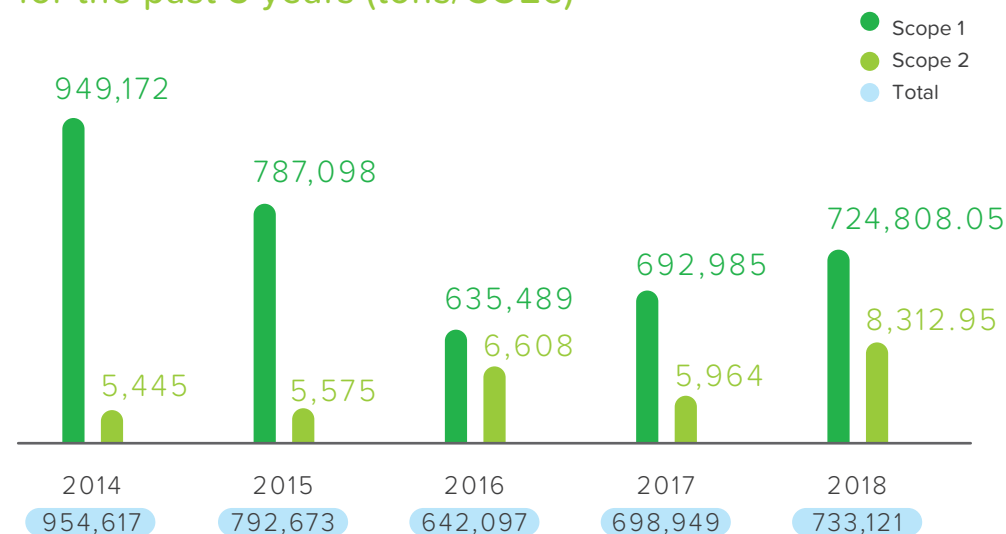
Note 1 : Macao's total power generated x 0.363 kg/kWh = reduction of kg CO₂ equivalent (Power emission coefficient: 0.363 kg / kWh was announced to be the power emission coefficient from Companhia de Electricidade de Macau)

Note 2 : Taiwan's total power generated x 0.554 kg/kWh = reduction of kg CO₂ equivalent (Power emission coefficient: 0.554 kg / kWh was announced to be the power emission coefficient from Bureau of Energy, Ministry of Economic Affairs)

Note 3 : Taoyuan Airport Plant and Tainan Science Park Plant do not have power retail systems.

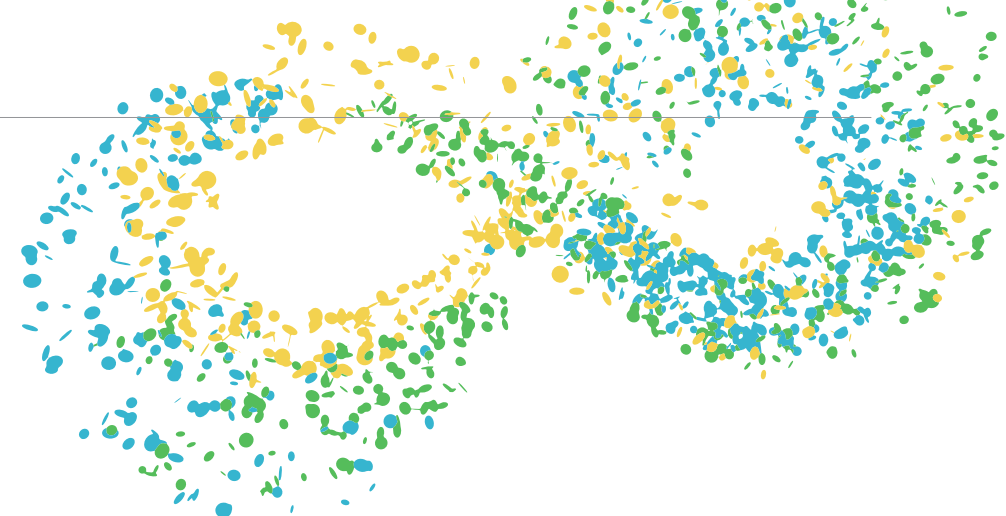
ECOVE ESC regularly conducts various GHG inventories during the waste incineration and the thermal energy conversion process. The fixed, processing, mobile, fugitive, and energy indirect emissions from incineration plant operations have cumulatively emitted 733,121 tons of CO₂e in 2018.

GHG emissions from incineration plant operations for the past 5 years (tons/CO₂e)



Note 1 : Scope 1 includes fixed combustion emissions, mobile combustion emissions, processing emissions, and fugitive emissions.

Note 2 : Scope 2 is power emissions, and the consumption coefficients are based on the volumes announced by the Bureau of Energy, Ministry of Economic Affairs: 0.519 (2013), 0.518 (2014), 0.525 (2015), 0.530 (2016), 0.554 (2017 and 2018) kg CO₂e/kWh, while the GWP value is IPCC AR4.



Autonomous Organizational Inventories

ECOVE ESC regularly conducts organizational greenhouse gas autonomous inventories for the incineration plants it operates. By setting 2014 as the base year, the amount of waste treatment in each of its incineration plants are lower than the base year in 2018, and the GHG emissions have all decreased accordingly. On average, 23% of GHG emission has been reduced from each plant.

Greenhouse gas emission reduction results in incineration plants operated by ECOVE ESC (ton/CO₂e)

2014 (base year)					2018				Reduction results
Plant	Scope 1	Scope 2	Total greenhouse gas (GHG) emissions	Biomass emissions	Scope 1	Scope 2	Total greenhouse gas (GHG) emissions	Biomass emissions	Reduction results
Keelung Plant	90,278.31	152.05	90,430.36	97,726.19	74,132.95	118.00	74,250.94	110,456.64	-16,179.42
Southern Taoyuan Plant	284,247.99	230.25	284,478.24	209,035.35	209,133.20	1,435.91	210,569.11	240,466.52	-73,909.13
Taoyuan Airport Plant	4,380.95	1,596.05	5,977	4,364.34	6,306.73	2,376.61	8,683.34	6,341.06	2,706.34
Miaoli Plant	86,376.71	55.12	86,431.83	75,119.80	76,357.28	91.74	76,449.02	82,921.84	-9,982.81
Houli Plant	230,930.30	200.24	231,130.54	130,711.09	165,291.85	826.96	166,118.81	142,343.99	-65,011.73
Wujih Plant	116,263.26	242.15	116,505.41	126,182.35	104,017.50	334.50	104,352	130,836.01	-12,153.41
Tainan Plant	120,557.28	243.29	120,800.57	118,181.98	74,522.22	276.07	74,798.29	105,898.50	-46,002.28
Tainan Science Park Plant	16,137.53	2,726.25	18,863.78	6,809.62	15,046.32	2,853.16	17,899.48	5,963.86	-964.30
Total	949,172.33	5,445.4	954,617.73	768,130.72	724,808.05	8,312.95	733,121	825,228.42	-221,496.74

Note 1 : biomass emissions equivalent are calculated based on waste sampling analysis

Note 2 : reduction results = 2018 total GHG emissions equivalent - 2014 total GHG emissions equivalent

Note 3 : 2018 emissions coefficient is from the 2017 power emissions coefficient of 0.554 kg CO₂e/kWh announced by the Bureau of Energy, Ministry of Economic Affairs, while the GWP value is IPCC AR4.

Product Carbon Footprint Label

Miaoli Incineration Plant, operated by ECOVE, has pioneered in the industry in assisting the Environmental Protection Administration (EPA) to establish the "waste treatment service" carbon footprint product category rules (PCR) in 2015. Through taking inventories of carbon footprint of "waste treatment service" via the guidance and resources of the EPA, we have achieved the product carbon label and being awarded the 2015 Excellence in Carbon Reduction Actions Award from the EPA, the Executive Yuan. After the Miaoli Plant, Tainan Plant has also participated in the "product carbon footprint label" accreditation activity organized by the EPA in 2016, and successfully received the "waste incineration treatment service" product carbon footprint seal after conducting GHG inventories, third-party inventories, and carbon labeling review. The results of the carbon footprint inventories indicated that the CO₂e emissions from treatment of every ton of waste at Chengxi Incineration Plant in Tainan was 340 kg. This carbon footprint inventories result provides other organizations with the understanding of the volume of carbon emissions from their products during each life cycle, which helps calculate related Scope 3 emissions.

Waste incineration treatment service life cycle emissions per ton (kg/CO₂e) and percentage (%)



Note:
The carbon footprint emissions was required during Tainan Plant's application of the carbon label. According to the "Operational Key Points for Promoting Product Carbon Footprint Labeling from the Environmental Protection Administration, Executive Yuan," the emissions volume announcement required to be expressed in levels; therefore, the emission volume announced was 340 kg CO₂e/ton of incineration treatment.

Incineration Plants' Risks and Responses to Climate Change

The Global Risks Report 2019 announced by the World Economic Forum (http://www3.weforum.org/docs/WEF_Global_Risks_Report_2019.pdf) indicated that three of the top five risks were related to climate change, and its impacts on incineration plant operations or power generation facilities were increasingly severe. Therefore, we regularly identify sources of risk and the scope of their impacts, and establish various responsive procedural standards to lower the operating impacts from the risks as well as to prevent operator accidents.







Risk Analysis for Climate Change

Sources of risk	Scope of impact	Impacts to operations	Management strategies
High temperature	The efficiency of cooling system in incinerators will decrease when the room temperature rises to a certain degree	Power efficiency will decrease and the loading on air conditioning system will increase	Respond by increasing the flow of chilled water and heat dissipation capacity. Relevant water restriction process principles will be amended or water storage volume within the plants will be increased in case of extreme rainfall leading to water outage.
Typhoons	Lead the power supply system and the power transmission routes relatively unstable	Disconnect with Taipower Company or to decrease the boiler load	Conduct five-step processes according to the Typhoon Standardized Operating Procedures, including collecting information on typhoon movement, setting up a typhoon prevention control center, confirming typhoon prevention works, confirming power supply and disconnection, and post-disaster relief.
Rainstorm	Lead the power supply system and the power transmission routes relatively unstable	Leads to disconnection or equipment abnormalities, and the instantaneous current may cause damages to computer systems	Weigh station manager will immediately notify the central control room upon hearing thunder or lightning based on the "Weigh station and central control room emergency response procedures during rainstorm." Test whether the incinerator is operating normally, and immediately notify repair units for maintenance and repair in case of abnormality.
Floods	Paths between facilities are cut off and floods occur at the plants	On-duty personnel could not handover tasks on site and floods at the plants lead to equipment damage	When ponding water occurs outside the plant, onsite personnel will notify the shift leader and operation section head based on Flood Standardized Operating Procedures. Respond accordingly or conduct disaster relief based on actual conditions.
Droughts	Water company may lower the pressure of water supply or conduct sectional water outage	Incinerators may need to reduce loading or even stopped due to lack of water	When three-tiered water restriction is announced, emergency response measures will be taken based on Water Restriction Standardized Operating Procedures. Maintain all levels of liquids in all water storage tanks at the sites and seek for external water sources.

Circular and Low-Carbon Economy

301-2 303-3~5

In line with the government's sustainable development policy, ECOVE Environment Corp. helps the emerging recycle and reuse technologies to reduce costs, enhance the operating efficiency of machinery, commercialize and popularize. To grasp the initiative of new business development, a "Technology R&D Team" has been set up in ECOVE's Market Development Department, which evaluates various recycle and reuse technologies. Therefore, we have set PET bottle recycling, reclaimed water, waste solvent recovery, biomass, and waste acid and alkali recovery as key development areas. With strong demand and expectations from the industry, ECOVE is actively committed to the evaluation and development of waste solvent recovery, and initial results have been achieved under the efforts of our team. The Company is expected to formally invest in the waste solvent recovery business in the second half of 2019, in which we will assist the industry to recycle waste solvent through highly efficient processes. This will help to convert waste substances, be submitted to treatment plants, into valuable industrial-grade solvents, achieving true substantial and economic cycle.

	PET bottles		Water resources		Solar power	
	2017	2018	2017	2018	2017	2018
						
Budget (NT\$)	NT\$9.35 million	NT\$14.47 million	NT\$52.20 million	NT\$64.44 million	NT\$168 million	NT\$225 million
Labor input (persons/day)	134	154	10	34	11.7	16
Economic benefits (NT\$)	NT\$719 million revenue	NT\$649 million revenue	NT\$28.47 million revenue	NT\$74.97 million revenue	NT\$185 million revenue	NT\$268 million revenue
Environmental benefits	Reduce consumption of 150,000 tons of crude PET materials	Reduce consumption of 270,000 tons of crude PET materials	Purify 51,470 tons of water resources	Purify 25,388,333 tons of water resources	Total power generation of 33,482,621 kWh	Total power generation of 44,909,321 kWh
	Reduce 340,000 tons of CO2 emissions Note 1	Reduce 640,000 tons of CO2 emissions Note 1	Increase 6.5 hectares of beautified ecological space	Increase 6.5 hectares of beautified ecological space	Reduce 17,712 tons of CO2 emissions	Reduce 24,880 tons of CO2 emissions
Social benefits	Provide 134 job opportunities	Provide 154 job opportunities	Provide 10 job opportunities	Provide 34 job opportunities	Provide 640 job opportunities	Provide 2,413 job opportunities

Note 1:

According to the WARM calculation from the US EPA, recycling one 600 ml (approximately 27 grams) bottle can conserve 16.2 ml of petroleum = reduce 63.4g of CO2 emissions. We reduced 273,000 tons of crude PET materials in this year, equivalent to reducing 64,100 tons of CO2 emissions. (<https://www.epa.gov/warm/documentation-chapters-greenhouse-gas-emission-and-energy-factors-used-waste-reduction-model>)

PET Bottles

BoReTech Co, Limited, an ECOVE reinvestment company, has a series of recycling and cleaning system manufacturing and cleaning solution planning competency specifically for PET bottles, which helps to build a highly effective recycling and cleaning equipment. To provide well-rounded solutions for customers, we have pioneered the industry in launching B2B PET bottle recycling and cleaning production line and chemical fiber-grade PET bottle recycling and cleaning production line. Through user-oriented interface and professional whole plant planning, we develop products with stable function and decent quality, significantly reducing the production cost of PET bottle recycling and cleaning facility and reducing production loss while increasing the quality of the products. In the face of domestic and international legislation to ban plastic products, this technology of re-manufacturing polyester into functional fiber can comprehensively explain the concept of resource cycling.

Resource Cycling Effectiveness of BoReTech Co., Limited

Geographical Scope

Operates over 157 cleaning lines in 32 countries and regions around the world

Scale of recycling

BoreTech Co, Limited supplies approximately 1.62 million tons of PET recycling capacity

Product quality

B2B grade: treat approximately 260,000 tons in each year, and the bottle chips produced can be used as raw materials for producing PET bottles.
Chemical fiber grade: treat approximately 1.21 million tons per year, and the chemical fibers produced can be used as raw materials for functional clothing.
Sheet grade: treat approximately 150,000 tons each year

Awards

1. Significant R&D in Zhejiang Province
2. Silver Medal in Scientific Advancement Award from Zhejiang Province
3. First Piece (Set) of Crucial High-Tech Equipment in Zhejiang Province
4. First Piece (Set) of Crucial High-Tech Equipment in Jiaxing City
5. Patent Model Enterprise in Zhejiang Province
6. Four Major New Businesses in Pinghu City



Waste Solvents

To enhance resource cycling usage rate and achieve sustainable living environment, ECOVE Solvent Recycling Corporation was established in 2018 to provide purification and reuse of waste solvents. This helps waste solvents to re-enter the market supply chain as industrial raw materials, thus reducing the consumption of petroleum raw materials and resources from this planet.

Some industrial waste solvents contain only a small amount of impurities after use it is a pity to throw them away. By recycling and reusing these waste solvents using purification technology can reduce the costs of purchasing raw materials and processing wastes, on top of achieving the goal of resource cycling. By investing in the waste solvent recycling and reuse business, ECOVE is expected to recycle approximately 6,700 tons of waste solvent every year in the future and concentrates them into industrial-grade raw materials to be returned to the market supply chain. Not only will this greatly reduce losses of resources from earth, but will also reduce carbon dioxide emissions by approximately 4,900 metric tons every year.

Appearance of ECOVE Solvent Recycling Corporation



Water resources

Besides the existing gravel wastewater purification facility and subsequent Zhongli Wastewater Sewage System (BOT) project and Fengshan River Reclaimed Water Project, ECOVE has also received the Linkou Water Resource Center operations project in 2018. The four projects encompass three types of key works, including freshwater rehabilitation, wastewater treatment, and water resource reclamation. Utilizing ecological engineering method, biological treatment, and advanced treatment method to remove pollutants from the water respectively. The gravel purification utilizes natural engineering method, in which the wastewater in rivers are purified through the gravel treatment facility. It serves ecological conservation, landscaping, educational and recreational functions, and is a natural, ecological technology. Linkou Water Resource Center and Zhongli Wastewater Sewage System converges the sewage from the residents of Linkou District in New Taipei City and Zhongli District in Taoyuan City through the sewers, and secondary treatment is used at the water recycling center to achieve discharge standards. In particular, some of the wastewater will be recycled after going through tertiary treatment. Fengshan River Reclaimed Water Facility will further purify the wastewater which has been treated by the resource recycling center. To achieve the purpose of recycling, the water will be subsequently transported to the industrial area of Linhai Industrial Park for industrial water use.

Water Resource Development and Expected Technical Performance



Gravel Water in New Taipei City | expected daily water treatment (tons) : **136,700**

Item

New Taipei City Gravel Water and Zhonggang Water Resource Center

Technical principle

Utilizes natural engineering method, in which the wastewater in rivers are purified through the gravel treatment facility



Linkou Water Resource Center | expected daily water treatment (tons) : **23,000**

Item

Linkou Water Resource Center

Technical principle

Converges the sewage and secondary treatment is used at the water recycling center to achieve discharge standards

Besides striving for environmental protection, ECOVE also focuses on maximizing the value of resources and sustainability during operation and maintenance. In 2018, Linkou Water Resource Center has cumulatively treated 6,705,790 tons of wastewater, significantly improved water quality of the river and the surrounding environment. In addition, 45,000 tons of discharged water was recycled and used toward our facilities as well as external entities in 2018. In the future, we will work toward achieving higher recycling ratio and consumption rate.

2018 Wastewater Treatment Volume

<ul style="list-style-type: none"> Linkou Water Resource Center (6,705,790 tons) New Taipei City Gravel Water Treatment Plant (17,809,523 tons) Zhonggang Water Resource Center (873,020 tons) 	wastewater treatment 25,388,333 tons	wastewater treatment 69,557 tons
---	--	--

By applying ECOVE's experiences of incineration plant development technologies toward Linkou Water Resource Center and Gravel Water Treatment Plant toward various efficiency enhancement activities, Linkou Water Resource Center and Gravel Water Treatment Plant have both achieved stellar results in the assessments from Construction and Planning Agency, Ministry of the Interior and the Environmental Protection Administration, the Executive Yuan in 2018 respectively. To show their gratitude for our employees' hard work, these clients have bestowed thank you letters to us to show their appreciation, and we aspire to do more for the environment in the future.



- Received thank you letter for New Taipei City Gravel Water Treatment Project

- Received thank you letter for Linkou Water Resource Center Project



Solar power

With the popularity of global climate change topics, G.D. Development Corporation (GDDC) was established in 2011, with major businesses ranging from development, investment, building, to operation of solar power systems. A former joint venture between ECOVE and Gintech Energy Corporation, 100% ownership of GDDC was acquired by ECOVE in 2018. GDDC's management and outstanding performance have also repeatedly won positive recognition from government institutions including the Kaohsiung City Government and the Bureau of Energy, Ministry of Economic Affairs.

To date, we have won 16 medals including Gold, Silver, Bronze, and Special Award from the Kaohsiung City Government Photovoltaic Intelligent Building Certificate, 2 medals from the 3rd Top Solar System Awards from the Bureau of Energy, Ministry of Economic Affairs, 1 medal from the 4th Top Solar System Awards, 1 medal from the 5th Top Solar System Awards, 1 Gold Medal each from 13th Top 10 Enterprise and Manager Awards, and 1 medal each from the Outstanding Enterprise and Model Entrepreneurship Award.

Besides continuing to focus on the development of solar power industry, with strong support from parent company ECOVE, GDDC is also committed to installation and operations of solar power systems with solid engineering planning and execution competency, as well as high-quality manufacturing competency. As of the year-end in 2018, many project installations have been completed with major partners (THSR, Kaohsiung MRT, Taipei MRT, Civil Aeronautics Administration, Port of Kaohsiung Taiwan International Ports Corporation, Ltd., and Tainan City Government and more). Results include: ground-type projects: 14 modules at 21.2MWp, rooftop types: 28 modules at 20.1MWp, and floating types: 7 modules at 3.2 MWp. Cumulatively the total installation capacity from the 49 modules amounts to 44.5MWp.



Ground

Lumberton, New Jersey, USA Solar power plant
9.5 MWp



Rooftop

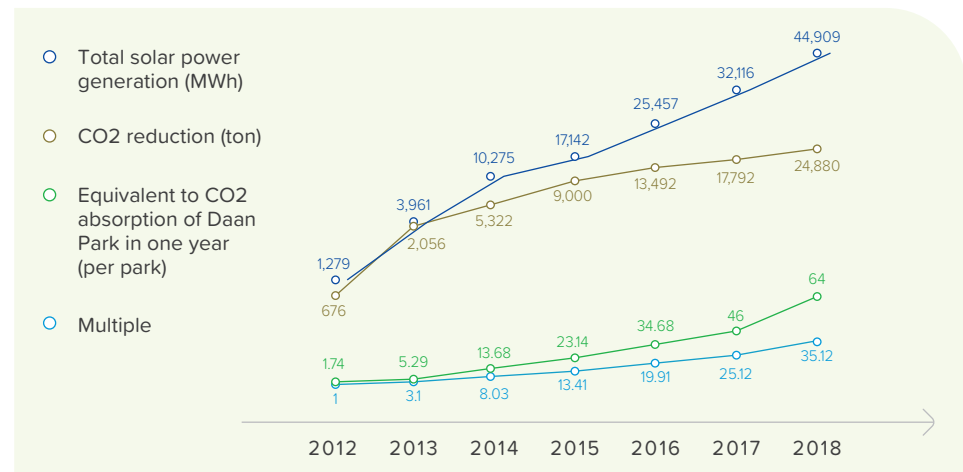
Taipei Rapid Transit Corporation Beitou Depot Power Generation
3.8 MWp



Floating

Chianan Irrigation Association Project
2.0 MWp

Total power generation from GDDC and subsidiaries in each year (including Lumberton)



Note :
the volume of reduced CO2e consumption coefficients are based on the volumes announced by the Bureau of Energy, Ministry of Economic Affairs: 0.519 (2013), 0.518 (2014), 0.525 (2015), 0.530 (2016), 0.554 (2017 and 2018) kg CO2e/kWh, while the GWP value is IPCC AR4.

Mitigating Environmental Impacts

Energy and Resources Conservation

302-4 306-4

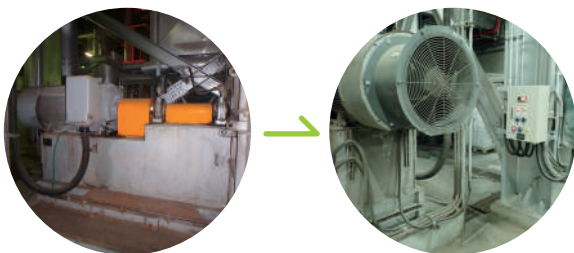
All plants will continue to replace lighting in boiler area, ventilation room, and process areas every year. Approximately 2.8 tons of CO₂e/year was reduced in 2018. Keelung Plant used energy recovery device to recycle excess kinetic energy, and inverter was added to the primary air fan to control its motor speed. The fan operated at full speed before improvement and the output air was controlled by the opening angle of the baffle. After the improvement, motor speed is adjusted via inverter to better control the air volume and to save energy. Miaoli Plant also upgraded air compressor with inverter-type air compressor, which regulated the air volume based on peak and non-peak hours to save energy.

2018 ECOVE ESC Energy-Saving Measures and Performance

Plant	Energy-saving measures	Power saved in each year after improvement (kWh)	Benefits per year (NT\$)	CO ₂ e reduction in each year(kg/CO ₂ e)
Miaoli	Upgrading air compressor with inverter-type air compressor	255,128	535,768.8	141,341
Keelung	Inverter added to primary air fan	522,432	1,097,107.2	276,367
Each plant	Energy-saving from management	53,272	111,871.2	27,941

Note 1 : Benefits per year is calculated based on average price of NT\$2.1/kWh.

Note 2 : Carbon reduction in each year is calculated based on the 2018 emission coefficient of 0.554kg/kWh of CO₂e from the Bureau of Energy.



- Primary air fan improvement project can effectively conserve energy and reduce emissions

To optimize the entire waste treatment process and prevent unnecessary environmental impacts, ECOVE WMC has achieved the performance of GHG reduction by decreasing transportation routes and number of vehicles needed. A total of 24 various types of vehicles are presented. Besides properly planning the optimized transportation route to reduce energy consumption, we have planned to gradually purchase Emission Standard 5 environmentally-friendly vehicles since 2012. As of 2017, 9 have been purchased, and 3 more were purchased in 2018. We expect to purchase 1 more in 2019. Statistical data has indicated that in terms of energy (diesel) consumed by Emission Standard 5 environmentally-friendly vehicles operated by ECOVE WMC in 2018, the fuel consumed by the eco-friendly vehicles accounted for 46.68% of the annual consumption, and the effectiveness of black smoke reduction was 18.67%.

Performance of ECOVE WMC's Eco-friendly Vehicles in Environmental Impact Reduction

Item	2014	2015	2016	2017	2018
Diesel consumption volume from operating vehicles (liters/year)	339,427	398,902	357,634	277,371	194,181
Diesel consumption volume from eco-friendly vehicles (liters/year)	7,500	46,209	40,169	50,947	90,635
Ratio of diesel consumption from eco-friendly vehicle on annual consumption(%)	2.21	11.58	11.23	18.37	46.68
Black smoke reduction on annual emission(%)	0.88	4.63	4.49	7.35	18.67

Note 1 : pursuant to Vehicular Air Pollutant Emission Standards, the black smoke effluent standard for Emission Standard 5 vehicle was 15% pollution rate, while the black smoke effluent standard for Standard 4 vehicle was 25% pollution rate.

Note 2 : Diesel consumption from Emission Standard 5 vehicles on total annual consumption

$$(A) = \frac{\text{Diesel consumption from Standard 5 vehicles}}{\text{Diesel consumption from operating vehicles}} \times 100\%$$

Note 3 : Black smoke reduction on annual emission = $\frac{(\text{Black smoke effluent standards from Standard 4 vehicles} - \text{Black smoke effluent standards from Standard 5 vehicles})}{\text{Black smoke effluent standards from Standard 4 vehicles}} \times A$

Effluents and Waste Management

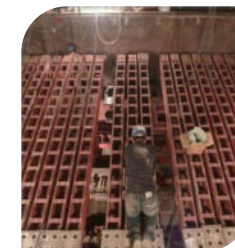
In line with the government's sustainable development policy, ECOVE is actively working toward the target of resource reuse. At the same time, in consideration of international issues including the conversion and sustainable utilization of the energy resources from Earth and greenhouse gases. We strived to promote the concept of fulfilling Environmental Protection 6R in our daily lives to implement the 6R management of waste we produce. ECOVE studies waste reduction and incorporates environmental education advocacy into our key interactions with the communities. We focus on implementing the environmental education of waste reduction from the source, and to recycle old and worn products to allow for circular utilization. The latest technologies will be adopted for products that can be repaired, and existing technologies will be integrated and enhanced to enhance effectiveness. We refuse to use products that fail to comply with environmentally-friendly concept and opt for green products. We either reuse, reduce, or eliminate the waste emissions during processes, and redesign to enhance effectiveness and take circular reuse in our design conception to realize the circular economy philosophy of reducing the terminal waste (Cradle to Cradle (C2C)).

6R

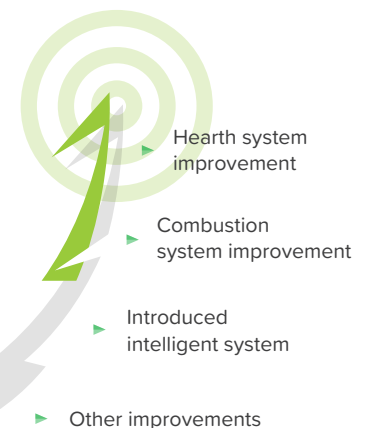


- Paperless office processing platform has been established for each project and operating site (ECOVE website: e-bulletin system, working hour management system (MH), purchase order management system (PRS), and webpage newsletter system (WebSMS)).
- We try our best to deliver information electronically to reduce paper use. For instance, at meeting rooms and vehicle ordering system, and data files for monthly reports from each plant (originally, a paper-based report was required to be submitted to plant management department but now electronic files are sent. In addition to saving copying and mailing costs, they also require much less storage space).
- We promote green procurement and select products with environmental protection seals and badges such as toners and energy-saving products.
- We also continue to use the Maintenance Management Information System (MMIS) to effectively understand the equipment life cycle. It allows us to replace critical parts and components at any time to expand its useful life.
- Residual materials such as iron, stainless steel, and lubricants and more after plant operations, were collected and categorized, then stored in proper containers. Thereafter we commission the cleaning departments from townships and counties to treat and reuse them to achieve circular consumption of the waste.
- The waste oil and waste materials generated from production processes and repairs and maintenance are categorized and reused.
- Project Department 1, whose main responsibility is to evaluate the reformation, enhance efficiency, and to extend the life cycle of incineration plants. Take Gangshan Plant in Kaohsiung for instance, during the first phase of the plant improvement, the improvement of the hearth and combustion system was completed. The daily processing capacity was increased by nearly 300 tons, and the operation rate was also increased to 100% from 73%, effectively relieving the pressure on waste treatment in Kaohsiung City.

Effectiveness Enhancement of Gangshan Incineration Plant was Praised by Customers

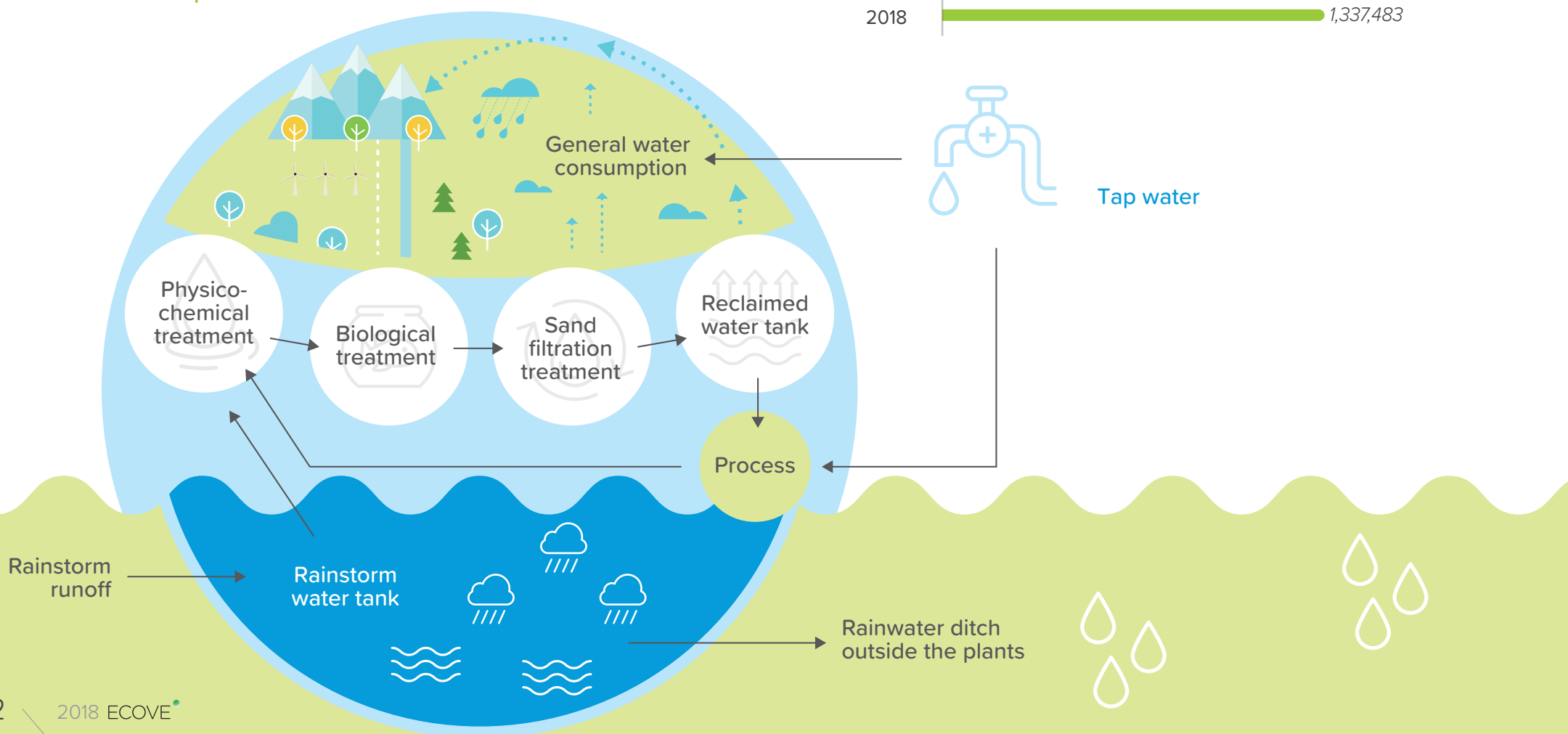


Gangshan Plant began operation in 2001. When ECOVE took over the plant on July 1, 2017, the daily processing capacity had increased by more than 300 tons since January 2018.

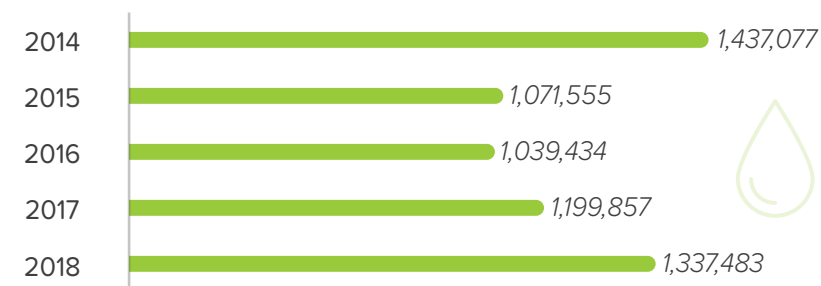


During the scope of ECOVE ESC operations, all sources of water consumption was tap water, and therefore no water source was significantly impacted. In terms of wastewater treatment, all water from boilers, processing, cleaning, general consumption, or car washing was reintroduced to the recycling system at the plant. All water was recycled and reused after physico-chemical, biological, and tertiary treatment procedures, achieving "zero wastewater effluent." Water consumption rose in 2018 compared to previous years. This was mostly attributable to ECOVE ESC took over the operations and maintenance of Gangshan Plant. Therefore, water consumption volume from 3 boilers was added.

Waste to energy Plant Circular Water Consumption Flowchart

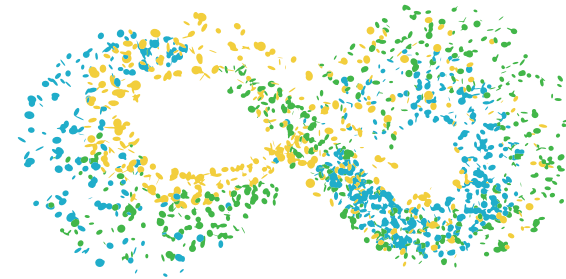


Total water consumption within ECOVE ESC's operations (tons)



Participation in Public Infrastructure 203-1

As the leader in waste treatment throughout Taiwan, ECOVE ESC continue to properly treat general waste and general commercial waste for the Taiwanese society. The waste incineration plants managed by ECOVE ESC are stable with excellent effectiveness. Thermal energy produced from waste incineration can be converted to power. Besides supplying the power for use autonomously throughout our plants, we also sell the excess power back to Taipower Company to contribute toward energy conservation and carbon reduction for the planet.



Note: Please see Circular and Low-carbon Economy for details on solar power

Energy-from-Waste (EfW) and Waste Treatment

- Keelung City Incineration Plant
- Taoyuan County Southern District BOT Incineration Plant
- Taoyuan City Biomass Center construction, operation, and transfer (BOT) project
- Miaoli County BOT Incineration Plant
- Taichung City BOT Wuri Incineration Plant
- Taichung City Houli Incineration Plant
- Tainan City Chengxi Incineration Plant
- Kaohsiung City Gangshan Incineration Plant
- Southern Taiwan Science Park (Tainan Science Park) Resource Recycling Center
- Operations and maintenance of incinerators at Taoyuan International Airport Waste Treatment Facility
- Pollution prevention equipment improvement engineering for Taoyuan International Airport Incineration Plant
- 2018 Incineration plant equipment annual repair and technology and service improvement for Kaohsiung City Central District Resource Recycling Plant
- 2018 equipment maintenance and professional dumpster operation service for Kaohsiung City Southern District Resource Recycling Plant
- Professional Kanding Incineration Plant efficiency repair service for Kanding Plant of Taiwan Sugar Corp
- Emergency equipment upgrade for Kanding Incineration Plant of Taiwan Sugar Corp.
- 2018 annual repair and major repair for Kanding Incineration Plant of Taiwan Sugar Corp.
- 2018 repair in the public area of the west wing of main plant for Kaohsiung City Central District Resource Recycling Plant after fire



Public Transportation

- Air conditioning, fire prevention, and electrical equipment maintenance for Red and Orange Lines of Kaohsiung Rapid Transit
- T&C work for Circular Line of Taipei Rapid Transit (MRT)
- T&C work for Green Line of Taichung MRT



Air Transport

- Electrical equipment operations and maintenance for Taoyuan International Airport
- Air bridge replacement for Terminal 1 of Taoyuan International Airport



Water Resources and Wastewater Management

- Operations and maintenance of Xindian River Gravel Water Purification Treatment Facility
- Operations and maintenance agreement for New Taipei City Linkou Water Resource Center
- Air conditioning system operations and maintenance for Kaohsiung Veterans General Hospital



Others

- 2018 joint channel management and maintenance of Minzu Road from Public Works Bureau of Kaohsiung City Government
- Outsourced operations of Zhonggang Fumigation Treatment Plant from Taichung Branch of Bureau of Animal and Plant Health Inspection and Quarantine, Council of Agriculture, Executive Yuan
- Outsourced operations of Kaohsiung Port Health Inspection Center from Kaohsiung Branch of Bureau of Animal and Plant Health Inspection and Quarantine, Council of Agriculture, Executive Yuan
- Maintenance, management and operations of Trial-run program of mobile environmentally-friendly ghost money burner in Tainan City





- ECOVE's environmental education team was well-received during the 95th anniversary celebration of Tucheng Elementary School, Tainan City

Tainan Plant invited visiting students to collectively join the World Environment Day



- Students from Zhaoxiang Elementary School in Gangshan experienced DIY lesson of recycling and reusing waste paper during environmental education course



Most Reliable

Received the highest level of environmental protection honor for enterprises, the "ROC Enterprise Environmental Protection Award"

Organized by the Environmental Protection Administration (EPA), the Enterprise Environmental Protection Award is currently the best award a Taiwanese enterprise can receive for environmental protection activities. It reviews all aspects of CSR activities of enterprises, and publicly awards high-performing companies. Keelung Plant and Tainan Plant both had extraordinary performances whether in operations and management of incineration plants or social participation. Therefore, the two plants were both awarded. ECOVE has always been committed to promoting CSR, and having received this award symbolizes positive recognition for our "full CSR participation" philosophy. In the future, ECOVE will continue to participate in national environmental protection policies and issues, provide quality, professional incineration plant operations and management services, and to become the most reliable leader in sustainable resource.

- President received the Enterprise Environmental Protection Award at the Office of the President, R.O.C.



Social Co-prosperity



66 Talent Caring

73 Safe and Healthy Workplace

85 Social Participation

93 Most Reliable

We are committed to investing resources in each year toward long-term advocacy for a friendly workplace, a safety and healthy work environment, and to carry out environmental protection education, so that ECOVE's values are not limited to industry net worth.

Performance Highlight

0 Incident

No major occupational disaster occurred in 2018

Excellent Occupational Health and Safety Entity

2018 Excellent Occupational Health and Safety Entity from the Ministry of Science and Technology (MOST)

Badge of Accredited Healthy Workplace

Keelung, Miaoli, Houli, Wujih, Tainan, and Tainan Science Park Plants received 2018 Badge of Accredited Healthy Workplace from the Ministry of Health and Welfare

Occupational Safety & Health and Outstanding Environmental Protection Personnel

2018 Occupational Safety & Health and Outstanding Environmental Protection Personnel Accreditation from the Ministry of Labor and Ministry of Science and Technology

5 Accredited Environmental Education Facilities

Received five environmental education facilities certificates at Keelung Plant, Miaoli Plant, Houli Plant, Tainan Plant, and Tainan Science Park Plant from the Environmental Protection Administration (EPA)

3rd Place

Received 3rd Place in Excellence in Corporate Social Responsibility Award from Common-Wealth Magazine for medium-scale enterprise

Talent Caring

ECOVE builds a happy, safe, and friendly workplace, and provides employees a balanced work environment where employees can work at ease. On top of providing fair and competitive pay and benefits, investing in resources to care for and to train employees, the Company also assists employees to grow with ECOVE through various human resources management actions. The Company implements international human rights standards and builds a safe and healthy work environment to cultivate a humanistic culture.

Talent Composition and Compensation

102-8 102-36 201-3 202-2 401-1
404-3 405-1~2

Employee Composition and Distribution

ECOVE focuses on circular economy, and the recruitment and development of professional talent are also aspects that ECOVE is highly committed to. Total number of employees in 2018 was 817 (excluding overseas personnel and directors). Due to the field and nature of our business, the employees are predominantly male at 83.7% of the total. In addition, we recruited 7 physically or mentally disadvantaged employees in 2018. In terms of the types of employment, most of our staff are full-time employees, accounting for 80.5% of the total. ECOVE has not recruited foreign nationals in Taiwan, and the ratio of local employment of the management staff is 100%. In September 2018, ECOVE acquired G.D. Development Corporation (GDDC) and GDDC is expected to be included in the data for this Report starting in 2019.

Employee Numbers and Genders



★ Part-time and contractual workers

2016

Total
729人



Full-time employees	Number of Persons	537	100
	Percentage	73.7%	13.7%
Part-time ★ employees	Number of Persons	83	9
	Percentage	11.4%	1.2%

2017

Total
759人



Full-time employees	Number of Persons	530	69.9
	Percentage	69.9%	14.6%
Part-time ★ employees	Number of Persons	102	16
	Percentage	13.4%	2.1%

2018

Total
817人



Full-time employees	Number of Persons	547	66.9
	Percentage	66.9%	13.6%
Part-time ★ employees	Number of Persons	137	22
	Percentage	16.8%	2.7%

Number of Employees and Age Distribution

2016

Under 30

Number of Persons	71	11
Percentage	9.7%	1.5%

30-50

Number of Persons	434	89
Percentage	59.6%	12.2%

Over 50

Number of Persons	115	9
Percentage	15.8%	1.2%

2017

Under 30

Number of Persons	74	17
Percentage	9.7%	2.2%

30-50

Number of Persons	430	99
Percentage	56.7%	13%

Over 50

Number of Persons	128	11
Percentage	17%	1.4%

2018

Under 30

Number of Persons	99	20
Percentage	12.1%	2.4%

30-50

Number of Persons	457	103
Percentage	56%	12.6%

Over 50

Number of Persons	128	10
Percentage	15.7%	1.2%

Gender Distribution for Managerial and Non-managerial Roles in 2018

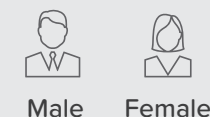
Job Category		Female	Male
Managerial		19	156
Non-managerial	Engineering	12	101
	Technology	20	417
	Others	82	10

Managerial roles : supervisors with ranks of Head of Team or above.
Non-managerial roles : Engineering - professional engineering staff; Technology - technical onsite operators; Others - personnel from financial, accounting, legal, HR, administrative or general affairs departments.

New Employees and Turnover

The Company had 157 new employees in 2018, accounting for 19.2% of all employees, and 89.2% of all new employees are male. Most of the new employees were recruited as manpower needed for new projects in 2018. In terms of age distribution of the new employees, most of whom were aged between 31 to 50. In terms of employee turnover, 60 had left the Company, accounting for 7.3% of all employees. In addition, 5 employees met the criteria for retirement and filed for voluntary retirement. Turnover ratio has dropped by 63.1% in 2018 from the previous year, mostly attributable to the expiration of our contract with Shulin Plant in 2017. The Company matched employees who wished to remain at Shulin Plant, leading to increased turnover ratio in 2017. The turnover ratio has since stabilized in 2018.

Age and Gender Distribution of New Employees Over the Past Three Years



2016

Total : 144
Total percentage : 19.8%



Under 30	Number of Persons	45	7
	Percentage	6.2%	1.0%
30-50	Number of Persons	77	8
	Percentage	10.6%	1.1%
Over 50	Number of Persons	6	1
	Percentage	0.8%	0.1%

2017

Total : 176
Total percentage : 23.2%



Under 30	Number of Persons	37	12
	Percentage	4.9%	1.6%
30-50	Number of Persons	86	22
	Percentage	11.3%	2.9%
Over 50	Number of Persons	19	0
	Percentage	2.5%	0.0%

2018

Total : 157
Total percentage : 19.2%



Under 30	Number of Persons	40	7
	Percentage	4.9%	0.9%
30-50	Number of Persons	81	10
	Percentage	9.9%	1.2%
Over 50	Number of Persons	19	0
	Percentage	2.3%	0.0%

Age and Gender Distribution of Employee Turnover in the Past Three Years

2016

Total : 173人
Total percentage : 23.7%



Under 30	Number of Persons	36	8
	Percentage	4.9%	1.1%
30-50	Number of Persons	88	15
	Percentage	12.1%	2.1%
Over 50	Number of Persons	19	7
	Percentage	2.6%	1.0%

2017

Total : 150人
Total percentage : 19.8%



Under 30	Number of Persons	27	5
	Percentage	3.6%	0.7%
30-50	Number of Persons	85	11
	Percentage	11.2%	1.4%
Over 50	Number of Persons	21	1
	Percentage	2.8%	0.1%

2018

Total : 60人
Total percentage : 7.3%



Under 30	Number of Persons	11	4
	Percentage	1.3%	0.5%
30-50	Number of Persons	33	2
	Percentage	4.1%	0.2%
Over 50	Number of Persons	10	0
	Percentage	1.2%	0.0%

Promotion and Compensation

Under a fair and competitive compensations and benefits structure, ECOVE conducts both internal and external review structure in setting compensations. Besides providing higher salaries than the local minimum wages, we also strive for internal, external, and individual fairness. We conduct prudent assessment through internal and external evaluation mechanism to tie compensations with performance.

The Company conducts annual performance evaluation for all employees in the fourth quarter (Q4). Standards of salary adjustments and bonus payment do not differ based on the type of employment, gender, or age. In terms of career development, we wish to put the right persons in the right places. The Company always inquires employees on their willingness before internal rotation is conducted, so that employees can have access to learning opportunities for cross-departmental functions and development. In case that employees transfer due to business needs, or employees are willing to be transferred, both parties will spend time to negotiate and discuss so that sufficient preparations and adjustments for business arrangements and employee preparations can both be achieved. In case of significant operational changes, we will notify the employees in advance in compliance with the laws on announcement periods.

Ranks \ Year		2018 (base salary ratio)	2018 (compensations ratio)
		Female / Male	Female / Male
Managerial		1	1.144
Non-managerial	Engineering	1	1.467
	Technology	1	1.266
	Others	1	1.072

Note:

1. Base salaries are the same for both females and males for all positions. The differences between compensations between each ranks are related to individual seniority. No difference is found between the standards of base salaries and compensations for the same ranks and seniority.
2. Compensations include allowances, bonuses, benefits, overtime payment, compensated leaves and any other forms of incentives. This data does not include compensations for temp workers.
3. Managerial roles: supervisors with ranks of Head of Team or above.
4. Non-managerial roles: Engineering - professional engineering staff; Technology - technical onsite operators; Others - personnel from financial, accounting, legal, HR, administrative or generalaffairs departments.
5. Due to safety consideration, female workers do not participate in shifts; therefore, no nighttime duty-related incentives were distributed as a part of their compensations.

Human Rights Protection and Benefits

401-2~3

402-1

406-1

408-1

ECOVE has clearly established in the Employee Code of Conduct that no form of discrimination shall be made based on factors including genders, race, religions, political inclinations, sexual preferences, occupational ranks, nationalities, or age. In addition, all employees shall collectively maintain a healthy and safe work environment, and no form of sexual harassment or acts of violence or threat will be tolerated. Moreover, to protect the human rights and equality of all employees, related regulations are stated on the Employee Handbook and strongly advocated to employees during new employee training.

A "Sexual Harassment Grievance Handling Committee" has been set up at ECOVE to be in charge of handling related incidents. The afore-said committee comprises of 3 members, and the Manager of the Group Shared Services (GSS) serves as its convener. Other members include the Executive Vice President of the GSS, and selected from among Company employees by managers of each department. The ratio of female committee members shall not be less than one-half. The committee strictly adheres to confidentiality and non-disclosure policy. In addition, results of investigation must be submitted three months after a complaint has been filed. Designated channels for handling relevant complaints include a complaint hotline (02)2162-1688#56112 and mailbox: HR@ecove.com.

ECOVE is dedicated to protecting the employees' freedom of association, and in addition, no child labor is used. We provide a fair work environment and unimpeded channels of communication through the missions of taking care of employees and sharing our profits. No sexual harassment complaints or illegal discriminatory incidents had occurred in 2018.

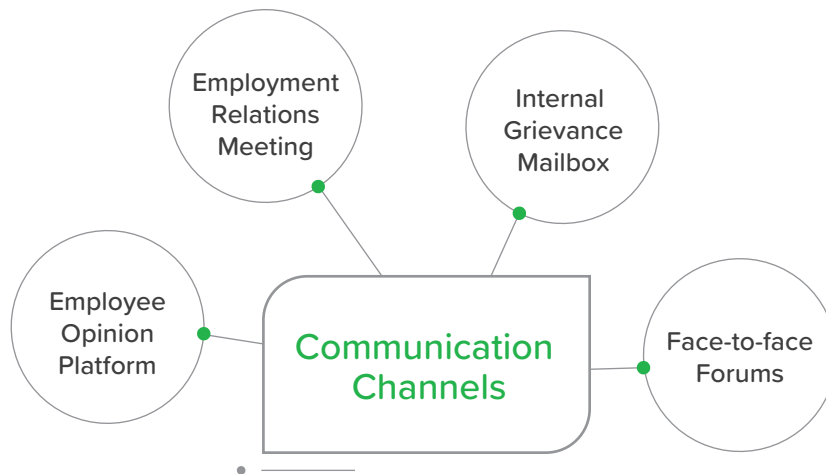


Communication Channels

To fully communicate with employees, an "Employee Opinion Platform," which contains channels for employees to speak their minds, has been established at ECOVE. Five types of channels exist on the platform: facility management, employee mailbox, proposal for improvement, sexual harassment complaint, and whistleblowing on violations against the Ethical Code of Conduct. All complaints are handled in confidentiality to protect the rights and interest of the whistleblowers.

Furthermore, ECOVE has also nominated employer and employee representatives according to regulations. Representatives for each side account for 50% of the committee, and in order to promote communications and harmony between the Company and the employees, labor relations meetings are organized in each quarter to discuss matters on labor conditions, benefits, and productivity.

To solve problems on a timely and practical manner, senior managers of the Company also directly meet with employees from each department face-to-face on a regular basis in each year. In addition, employees can also express their opinions through the internal complaint mailbox (HR@ecove.com) on a day-to-day basis. With unimpeded communications between both sides of the labor-management relations, no violation of the Labor Standards Act due to labor disputes and resulting in penalties has occurred in 2018.



Employee Caring

Caring for employees and providing a workplace with balanced life and work are important parts of a business's robust growth. ECOVE continues to invest resources and never lags behind in terms of employee caring. In turn, our employees are passionate and committed to their work, thereby motivating the entire business toward continuous growth. ECOVE gives out bonuses for holidays, birthday bonus, childbirth funds, and also consolation funds for hospitalization, critical illnesses, and deaths. For employees on overseas assignments (in China or Macao), besides providing information on local living environments, the Company also provides four round-trip tickets and holidays for them to visit their families in Taiwan. Employees on overseas assignments can also receive expat bonuses in acknowledgement of their hard work. Pursuant to relevant laws including the Gender Equality Act, ECOVE has stipulated the "unpaid parental leave" regulations. Five employees have applied for "unpaid parental leave" scheme in 2018, setting a new record for recent years, and indicating that ECOVE has provided a workplace with balanced work and life and properly cares for our employees.

ECOVE conducted an employee satisfaction survey in 2016, in which 319 copies of effective questionnaires were received, showing a satisfaction rate of 60% (average Taiwanese industry standard for similar survey contents was also 60%). Subsequent execution plans would be proposed for items that employees did not agree with, along with communications and explanations. Since we expected to obtain feedback for the previous satisfaction surveys in 2018, employees had responded that they wished to understand changes in labor laws for compliance' sake (e.g. issues on one fixed and one flexible holiday) and the Company's future development goals. Therefore, the HR department organized multiple forums for senior managers with entry-level employees, and the Company dispatched personnel for advocacy and communications to each plant in every quarter. Promotions were focused on labor laws, the Company's recent business outlook, and safety, health, and environmental education. In 2018, a subsequent survey was conducted based on the results of the 2016 employee satisfaction survey. We received 749 effective responses, achieving a 98% response rate, and a 77% employee satisfaction rate. This demonstrates that ECOVE's efforts have won positive recognition from most of the employees.

Career development opportunities

Senior management

Learning and development

Personnel allocations



Items on the Subsequent Employee Satisfaction Survey

Performance management

Employer branding

Communications

Duties and tasks

Rewards & recognition

Data on unpaid childcare leave



Male



Female

Applicants during 2018



2016	1	2	Total : 3
2017	2	0	Total : 2
2018	4	1	Total : 5

Number of employees who qualified for unpaid parental leave in 2018



2016	24	3	Total : 27
2017	14	2	Total : 16
2018	13	2	Total : 15

Number of employees applying for reinstatement in 2018



2016	0	3	Total : 3
2017	1	2	Total : 3
2018	1	1	Total : 2

Number of employees who were supposed to be reinstated in 2018



2016	0	3	Total : 3
2017	2	2	Total : 4
2018	2	1	Total : 3

Number of reinstated employees who have worked at ECOVE for one year



2016	0	1	Total : 1
2017	0	2	Total : 2
2018	1	0	Total : 1

Number of employees reinstated in the previous year



2016	0	2	Total : 2
2017	0	3	Total : 3
2018	1	2	Total : 3

Application rate (%)



2016	4.17	66.67	Total : 11.11
2017	14.29	-	Total : 12.5
2018	30.77	50.0	Total : 33.33

Reinstatement rate (%)



2016	-	100.0	Total : 50.0
2017	50.0	100.0	Total : 75.0
2018	50.0	100.0	Total : 66.67

Retention rate (%)



2016	-	50.0	Total : 50.0
2017	-	66.67	Total : 66.67
2018	100.0	-	Total : 33.33

Retirement and Benefits

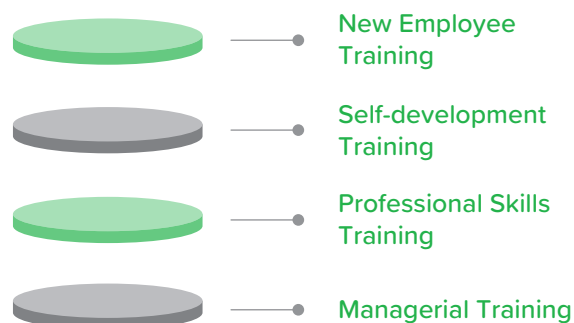
ECOVE has established the "Labor Pension Reserve Supervisory Committee" according with laws and regulations, and set up a designated account in a financial institution appointed by the government. After actuarial accounting, the pension funds under the older scheme comply with government laws and the full amount has been appropriated accordingly. The appropriation rate of the new scheme is 6%, in which 6% of the workers' salaries will be appropriated to the individual pension account at the Ministry of Labor. This is applicable for all employees who meet the criteria for the new scheme.

Moreover, ECOVE has also set up an Employee Welfare Committee. In addition to the President being a member de facto, the other 13 committee members are elected by the employees. Funds for the Employee Welfare Committee come from monthly revenue appropriations and appropriations from employees' salaries. The committee organizes employee travel within Taiwan, on top of birthday gifts, holiday gifts, and various incentives and allowances so that employees can feel rest assured and be more committed to their work. In addition to the fundamental labor insurance and National Health Insurance, group insurance, health checkup and employee stock ownership trust, the Company will file for insurance and the full amount of life and accidental insurance on the first day of job for all employees. In addition, employees and their families are offered the alternative and allowances for other insurance items. This helps employees to perceive the additional protection that the Company offers to their family income, as well as the choice to opt for cancer risk planning.

To encourage employees to conduct regular health checkup, ECOVE reviews the health checkup items offered by contractual hospitals every other year, as well as provides free health checkup for employees. We continue to care for employees and promote health management, as well as provide a safe, healthy, and friendly work environment. To attract and retain talent needed by the Group as well as to inspire employees and to enhance cohesion, the Company has established Employee Stock Option Issuance and Subscription Procedures to co-create interests for the Company and shareholders. Employees can voluntarily appropriate 5%~15% from their monthly salaries to subscribe to stock options. Currently, the scheme is participated by 358 persons, accounting for 43.8% of all employees. The Company will give back 50% of the voluntary appropriations as reward for subscription.



Talent Development 404-1



In response to the unique nature and professionalism required of our business, ECOVE has established the "Employee Continuing Studies Management Procedures" to train and foster professional competencies in employees. The Procedures are used for planning and executing annual employee training programs and subsequent performance review. In addition, to enhance competitiveness and global perspective, the Company provides online English channel for all employees to strengthen their language competencies.

As Taiwan is relatively in lack of academic programs and resources for energy-from-waste (incineration) field, ECOVE has jointly set up a series of training courses with related companies in relevant fields. In addition, the Company has also signed memorandum of cooperation for bilateral technical consultancy and information exchange with Tamkang University, Chia Nan University of Pharmacy & Science, Feng Chia University, Fooyin University, Tajen University, National Kaohsiung University of Science and Technology, National Kaohsiung Marine University, and National Yunlin University of Science and Technology.

The Company received 2 interns in 2018. To effectively

utilize resources from both parties, the students could learn at ECOVE while receiving school credits, building a successful partnership between the industry and the academia.

In response to rapidly developing businesses, talent development is increasingly challenging. We plan to add 7 internship opportunities in 2019, and the internships will be spread out through EfW plants in northern, central, and southern Taiwan respectively. We are currently engaging with schools with departments related to environmental engineering, electrical engineering, mechanical engineering, and chemical engineering for collaborative opportunities in the goal of developing young talents to rapidly cultivate manpower. Global Training System (GTS), an educational training platform developed by the Group, provides

various professional engineering knowledge on 13 professional fields ranging from EfW plants, operations and maintenance to environmental protection for employees. This reinforces online learning function helps employees to learn and to grow their professional know-how from anytime, any place. Moreover, our strong management mechanism helps to effectively implement the employee training system and development blueprints.

Total employee training hours amounted to 22,121 hours in 2018 and included professional skills training such as incinerator operations and maintenance, safety and health training, self-guided health courses, and general and management training. Total annual training expense was approximately NT\$2.511 million.

Year		2016			2017			2018			
Ranks		Gender	Number	Total hour	Average	Number	Total hour	Average	Number	Total hour	Average
Managerial		Female	16	499	31.2	15	696	46.4	19	584	30.7
		Male	162	7,279	44.9	151	8,275	54.8	156	6,323	40.5
Non-Managerial	Engineering	Female	8	194	24.2	13	225	17.3	12	245	20.4
		Male	92	2,516	27.4	96	2,406	25.1	101	1,940	19.2
	Technology	Female	19	266	14.0	17	331	19.5	20	323	16.1
		Male	355	11,640	32.8	375	13,195	35.2	417	10,892	26.1
	Other	Female	66	1,237	18.7	82	1,478	18.0	82	1,520	18.5
		Male	11	343	31.2	10	400	40.0	10	293	29.3
Total		Female	109	2,195	20.1	127	2,730	21.5	132	2,672	20.2
		Male	620	21,778	35.1	632	24,276	38.4	684	19,449	28.4

Safe and Healthy Workplace 403-1~10 419-1

Occupational Safety & Health Committee

ECOVE has established Health Safety and Environment (HSE) policy and sees execution of environmental protection and building a safe and healthy work environment as the principle. Moreover, we are dedicated to maintaining the physical and mental health well-being of employees and all contractors and partners.

✓ Safety First	Ensuring safety of the workplace; striving to achieve zero occupational casualty in Company operations and project execution.
✓ Promotion of employee health and welfare	Actively promoting self-management of occupational health, strengthening protection and care for physical and mental health, creating a healthy work environment, and enhancing overall well-being.
✓ Environmental protection and sustainable development	Providing professional services that meet environmental regulations, promoting energy conservation and carbon reduction, pollution prevention, and resource cycling, and enhancing overall well-being with stakeholders.
✓ Implementing risk management systems	Identifying, assessing, and handling risks in safety, health, and environmental aspects, preventing occupational hazards and pollution, continuing to improve overall performance in safety, health, and environmental aspects.
✓ Meeting regulatory and contractual requirements	Identifying applicable laws, regulations, and contractual terms, supervising and implementing safety, health, and environmental plans, ensuring the Company and its project processes meet safety, health, and environmental requirements and fulfill contracts.
✓ Promoting employee participation in training	Encouraging participation in safety, health, and environmental training, enhancing awareness and abilities in safety, health, and environmental matters; providing effective channels for safety, health, and environmental consultation, communication, and feedback for partner contractors and employees.
✓ Continuing to improve safety, health, and environmental systems	Continuing to review and optimize safety, health, and environmental processes, ensuring the completeness and viability of safety, health, and environmental management systems, improving the applicability, relevance, and effectiveness of safety, health, and environmental management systems



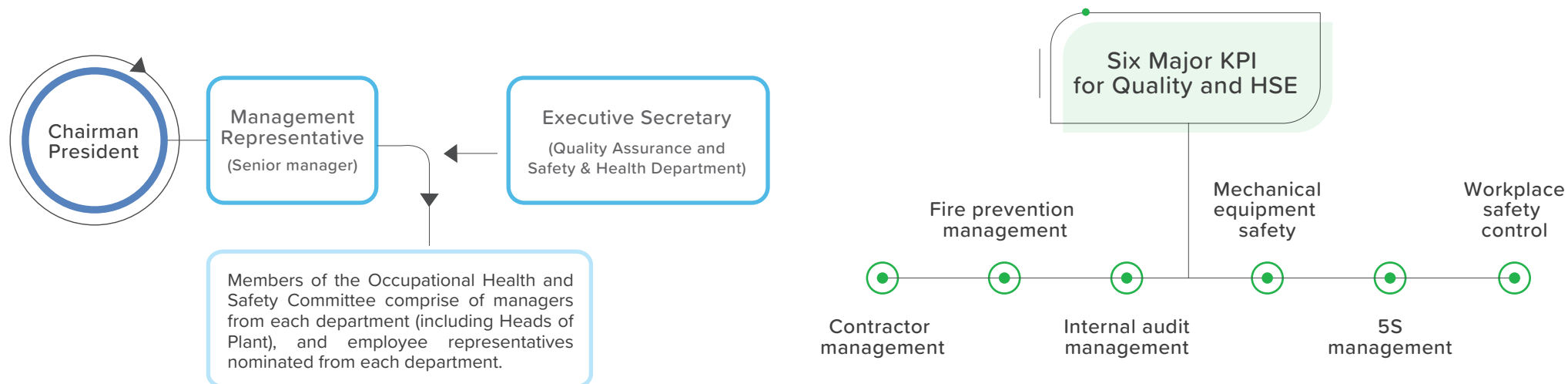
ECOVE's Quality Assurance and Safety & Health Department was invited to share experiences on corporate occupational health and safety practices at the Taoyuan International Airport for its outstanding worker safety and health performance

Occupational Health and Safety Committees have been established at subsidiaries ECOVE Environment Service Corp. (ECOVE ESC) and ECOVE Waste Management Corp. (ECOVE WMC) but not yet at other smaller-scale subsidiaries which did not meet the required number of personnel. ECOVE and all subsidiaries are committed to implementing safety and health management and to receive supervision from the Committee, whether said committee has been established or otherwise. In the case of ECOVE ESC, the Occupational Safety and Health Committee convenes one meeting in each quarter. The committee has 40 members, and 14 of whom are employee representatives, accounting for 35% of the total. The President chairs the committee, and all meeting results are announced on the internal website to achieve the effects of information sharing and dissemination, as well as for following up on improvements.

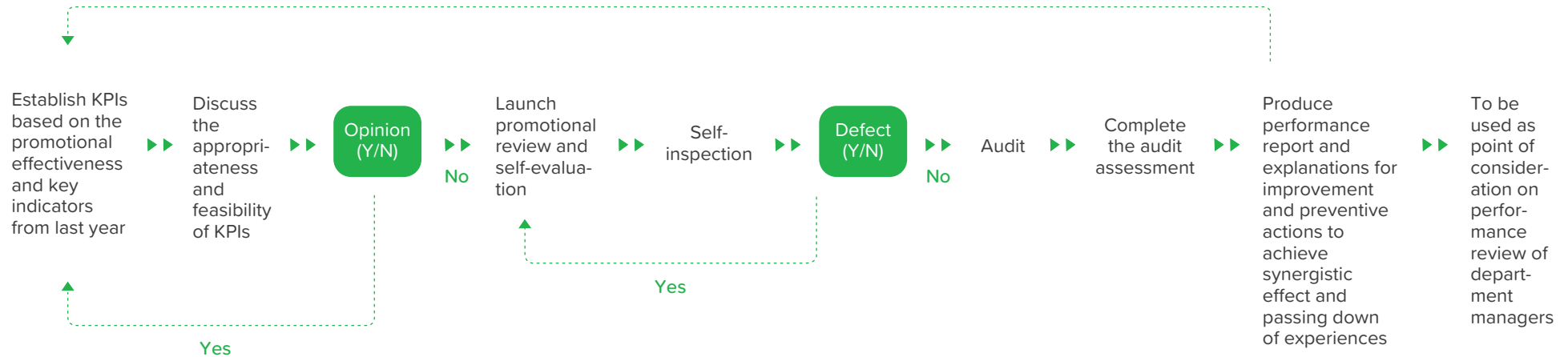
Quality and HSE goals are set up based on the HSE policy in each year, and key performance indicators (KPI) are established based on the needs of onsite safety and health management. KPIs include six major categories, which are: contractor management, workplace safety control, mechanical equipment safety, fire prevention management, onsite 5S, and internal audit management. The Quality Assurance and Health and Safety Department will inspect each operation with no prior warning or scheduling in each quarter, and the review results will be compiled and submitted to management meetings and the Occupational Safety and Health Committee.



Organization of the Occupational Safety and Health Committee

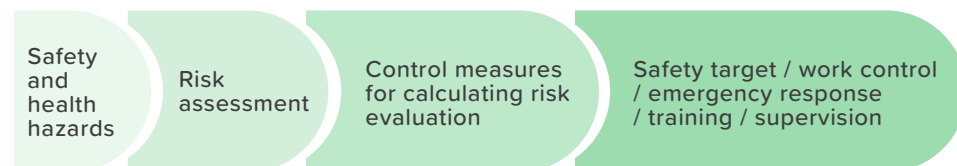


KPI Evaluation Process Flowchart



Risk Evaluation and Workplace Safety Control

In terms of risk control on occupational safety and health, the Company conducts risk evaluation on every work process, chemical substance, tools, and environmental exposure through the occupational safety and health management system, and separately establishes processing standards and regulations based on their levels of risk. At the same time, the Company also reviews the reasonableness of processing standards through onsite inspection to meet the appropriateness of processing standards.



The management system evaluates the safety control regulations for more dangerous and hazardous work processes such as open-flame procedures or working from heights, rotating equipment, hanging operations, electrical equipment inspection, and fixing abnormal equipment. Work assignment is conducted through the Maintenance Management Information System (MMIS) developed by ECOVE ESC on a daily basis. The Job Safety Analysis (JSA) promotions are carried out during morning meetings. To achieve the zero-disaster target, operations can only begin after employees have filed for application based on the risk of the jobs and work safety control regulations, and one-by-one confirmation for power outage, isolation, locking, and labeling on site with the operators, maintenance, and safety and health personnel.

Mechanical equipment management, key inspection and job checks

As for machinery and equipment management, the MMIS system includes each machine or equipment at each EfW plant that the Company manages into schedules, and maintenance planning and repair follow-up will be conducted on an Internet-based system to avoid any negligence. Moreover, automated inspection plan is established on equipment before processing, and pre-work inspection, onsite observation and inspection during processing, and after-work onsite confirmation and review are conducted in practice. To control processing safety, various safety control processes are adopted, and Internet-based permit and license query is also used to effectively confirm the validity of permits and the qualification of operators.

Before outsourcing engineering work, ECOVE clearly states the safety and health regulations and hazardous factors related to said engineering work on the Outsourced Engineering Prospectus after evaluation so that we could search for suitable contractors. To enhance contractors' awareness for safety and health, the Company also conducts contractor safety and health work education training at northern and southern Taiwan respectively in each year. HSE policy and the contracts both include occupational safety laws that shall be complied with (e.g. the right to refuse imminent work pursuant to Article 18 of the Occupational Safety and Health Act). The educational training also teaches workers to protect themselves under unsafe and unhealthy conditions.

Before work is carried out, the organization will announce hazardous factors and convene a mediation organization, in which the hazardous factors and preventive measures to be adopted during the working period shall be announced one-by-one to strengthen the acknowledgement and awareness for safety and health during plant processing. Moreover, the machinery and equipment to be used will be inspected one-by-one to ensure safety of use. During the engineering period, toolbox meetings will be conducted every day and audit will be conducted from time to time. Immediate rectification will be required whenever deficiencies is found, and review meeting will be required based on actual needs. After the implementation, performance evaluation for the six occupational safety and health KPIs during the engineering period will be conducted. In case evaluation results fall short of Company requirements, the contractor will be blacklisted as an unqualified supplier.

As for access control, facial and fingerprint recognition system will be used at each plant. In addition, qualification review is conducted for the engineering personnel. After permission has been granted, personal traits will be scanned into the identification system to strengthen access control over the onsite personnel as well as contractors. During the engineering period, besides the aforementioned review and announcement training, the Company will also conduct blood pressure or sobriety test on the workers from time to time. In case of abnormality, the worker in question will be suspended for the day to prevent any personnel physical hazards from conducting constraining, elevated or high temperature work. Personnel are also reminded to autonomously monitor their own physical health and discipline at all times.



- Installed facial and fingerprint recognition system to control the entering contractors



Reinforced Safety Management and Audit

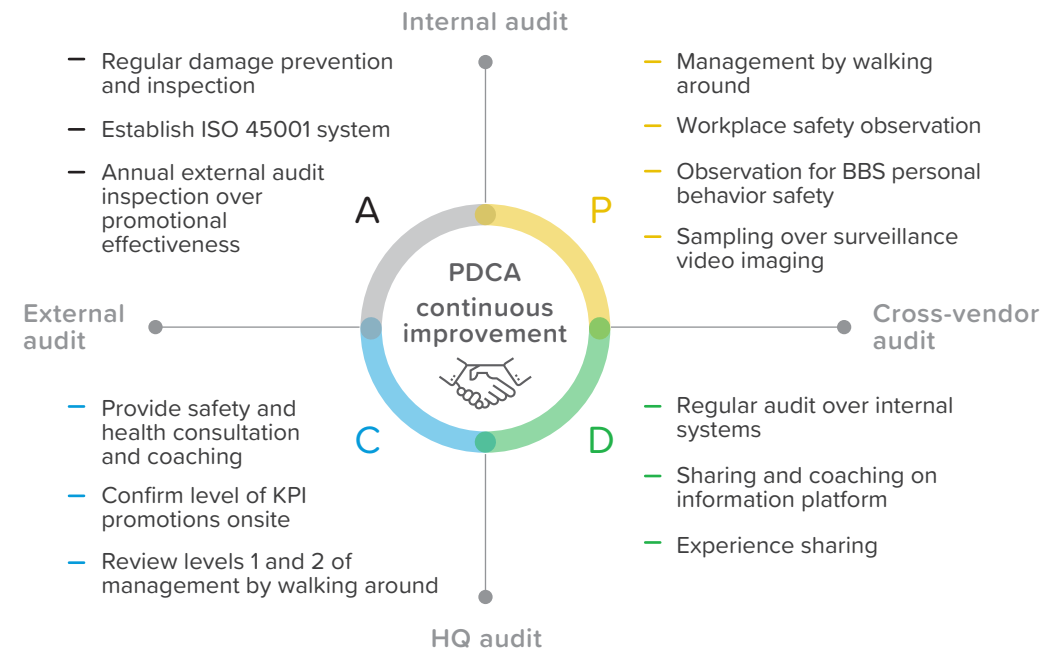
To strengthen safety management, systematic control with effective continuous operations is fairly important. Therefore, we gradually and continuously improve to achieve enhanced safety management through auditing system. At the same time, employees' safety knowledge and competencies are also verified and confirmed via audit. Weaknesses are understood and incorporated into the training system and as reference for amendments to the work standards. ECOVE ESC actively conducts a three-tiered audit management system, in which onsite engineers will carry out the onsite safety and health level 1 management, the safety and health personnel and onsite managers will carry out level 2 safety and health audit (including self-evaluation from each plant), and the Company will subsequently conduct a level 3 safety and health supervision audit. By integrating the auditing system with evaluation, we can implement the safety management and audit system in practice.

Three-level management and audit



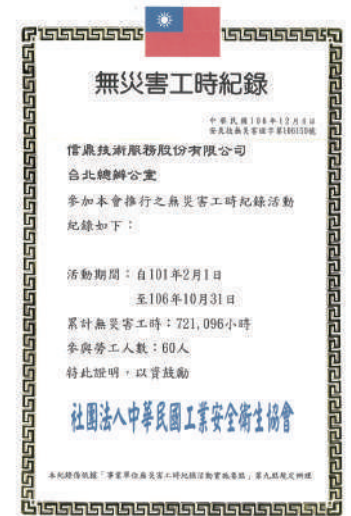
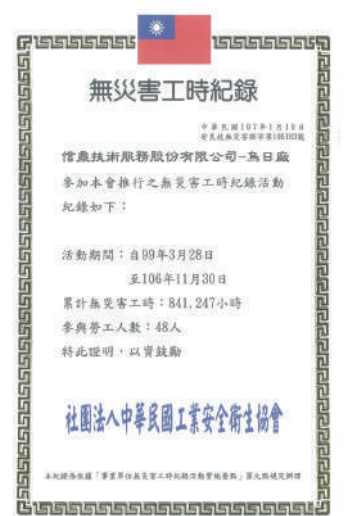
To verify whether operations are in compliance with various legal regulations and to evaluate the effectiveness of existing management standards over systems, meticulous and frequent auditing activities and auditing inspection from various auditing departments and professionals are conducted to early detect problems and to adopt appropriate rectification measures. Moreover, root causes of the problems found during audits are reviewed to build a full-audit system to ensure the effectiveness and appropriateness of the quality, environment and the safety and health system, thereby optimizing quality and enhancing reliability and trust. Auditing deficiencies are analyzed for reasons by units under the Quality Assurance and Safety and Health Department and relevant improvement measures are sought for. After confirmation, improvement measures will be undertaken and, and relevant Company departments (Factory Affairs or Project Department I or II) and the Quality Assurance and Safety and Health Department will be notified. Improvement results will be explained in a senior management meeting and the case will be closed.

PDCA Flowchart for Audit Levels 1 to 3



Occupational Disaster Prevention

ECOVE has always been very focused on occupational safety and health, and we actively invest in related resources to provide an even friendlier work environment for employees. All employees are deeply aware that safety is related to their personal well-being, and are dedicated to carrying out and seeing zero-disaster as the priority in our processes. By promoting various plans and systems and upholding the core value of being "people-oriented," we invest manpower and resources toward maintaining the safety and health of employees at work. We build a safe and healthy work environment and have set sustainable management as a vision in building an environment with zero-disaster. By referencing industry standards and data measured by the Ministry of Labor and by rigorously setting baseline standards in HSE goals, we implement onsite risk evaluation, self-management, and strengthen the HSE awareness of onsite personnel through "safety moment" to effectively reduce the onsite occupational risks and hazards.



Definition	Classification	Year	ECOVE's actual achievement rate
Based on Occupational Health and Safety Administration, USA	Total Recordable Case Rate , TRCR	2018	0.23
	Days Away, Restricted , or Transferred Incidence Rate, DARTR		0.23
Description :			
<p>1. No major occupational disaster occurred in 2018. A total of 9 inspections were received by inspection units within jurisdictions of our operations, and 3 penalty cases were received. The 3 were minor bruising injuries, joint operational agreement incident, and minor falling incident. These have been filed in Safety Moment as well as the morning meeting promotions at each plant and operation for reinforced supervision to prevent any recurrence.</p> <p>2. DARTR: (Days Away, Restricted, or Transferred Incidence Rate)*200,000/total accumulated work hours in a year; TRCR: (OSHA Total Recordable Case Rate) (Note 1)*200,000/total accumulated work hours in a year; OSHA the total number of incidents that can be recorded as deaths, disabilities, restrictions, or exchange of work and medical care.</p> <p>3. Data on the table includes Taiwan and all subsidiaries and investment companies in Macao and Zhejiang</p> <p>4. 2018 TRCR KPI = <0.4</p>			

2018 Educational and Training Courses	Round	Number of people	Coverage ratio (%)
General employee safety and health education training	10	308	6.7
Special processing and hazardous education training (Open flame, controls over restricted space, heights, rotating equipment separation etc)	30	749	20
Contractor safety and health training	5	179	3.3
Earthquake, fire fighting and emergency response training (fire extinguisher, CO2, hose, fire fighting sprays etc)	18	346	12
Other education training (Road safety, equipment processing safety training, legal compliance, gesture training etc)	87	1,716	58

Various work-related injuries in last 3 years

Item	2016	2017	2018	Calculations
Disabling Frequency Rate	0.41	0.00	0.10	Number of persons with disabling injuries/ losses x 200,000/total numbers of working hour
Occupational disease rate	0	0	0	Occupational illness x 200,000/ total numbers of working hour
Severity of Disabling Injuries	4	1	0.79	Total working days lost x 200,000/ total numbers of working hour
Deaths	0	0	0	—
Number of false alarms	0	0	0	—
Disabling Frequency Rate	0	0	0	Number of persons with disabling injuries/ losses x 200,000/total numbers of working hour
Occupational disease rate	0	0	0	Occupational illness x 200,000/ total numbers of working hour
Severity of Disabling Injuries	0	0	0	Total working days lost x 200,000/ total numbers of working hour
Deaths	0	0	0	—
Number of false alarms	0	0	0	—

*In 2018, the Disabling Frequency Rate, Severity of Disabling Injuries and number of deaths for contractors and outsourced vendors were all 0.

	2016	2017	2018
Falling	1	1	0
Caught in machine or crushed	1	0	1
Falling objects	0	0	0
Cut or slicing wounds	0	0	0
Burns	3	0	0
Being hit	0	0	0
Electrocution	1	0	0
Falling	1	1	0
Muscle or skeletal injuries	0	0	2
Traffic accidents	5	5	0
Total	12	7	3

* The two injuries sustained in 2018 were both male.

* Types of injuries sustained by contractors or outsourced vendors in 2018 were 0.

In keeping true with the safety and health first mission, ECOVE has established risk management, legal compliance, communications training, and continuous improvement policies. We have received OHSAS 18001 and TOSHMS certifications in as early as 2009, and in response to policy from the Ministry of Labor in 2011, we have transitioned TOSHMS certification to CNS 15506; moreover, we also have obtained the ISO 45001 certification in 2018. All operational sites are 100% included in the verification process for the certification, and also includes all employees, contractors, outsourced vendors, and in essence, all workers throughout the workplace.

Awards

To actively foster a culture of safety and health and to strengthen the autonomous management over safety and health, ECOVE ESC encourages each department to participate in external safety and health assessment. Numerous awards have been won, demonstrating that our outstanding performance in advocating for safety and health have received awards and positive recognition from external parties.

Name of Award	Awarding Association	Winner
Excellent Industrial Safety Entity Award	Southern Taiwan Science Park Bureau, MOST	Tainan Science Park Plant
Occupational Safety and Health Excellent Employee Award_Performance Award	Ministry of Labor	Miaoli Plant
Occupational Safety and Health Excellent Employee Award_Occupational Safety Benchmark Award	Bureau of Labor Affairs, Tainan City Government	Tainan Plant



2018 Occupational Safety and Health Outstanding Personnel



- Occupational Safety and Health Excellent Employee Award_Performance Award from the Ministry of Labor



- Occupational Safety and Health Excellent Employee Award_Occupational Safety Benchmark Award from the Tainan City Government



- Occupational Safety Excellence Award_Occupational Safety Benchmark Award from the Southern Taiwan Science Park Bureau

In addition to actively fostering employee safety awareness and creating a culture of workplace safety, we also actively communicate with competent authority and participate in promotions of relevant government policies. For instance, the Company was invited to share experiences on safety and health management practices to the Safety and Health Family Activities at the Taichung City Labor Inspection Department in 2018. Through our experienced managers' interactions and sharing with external entities, we could disseminate the concept of safety and resources to work toward a better future.

Organizers	Content of speech
ESH Workplace Seminar from Chang Jung Christian University	Aspects of Environmental Protection, Health, and Safety
Taoyuan International Airport	Practicum on Building A Corporate Culture of Workplace Safety
Taichung City Labor Inspection Department	Safety and Health Family: Sharing Experiences on Safety and Health Management



Invited to share experiences on safety and health management practices during the Safety and Health Family Activities at the Taichung City Labor Inspection Department in 2018

Occupational Health Management

In consideration of employees' work environment and conditions, ECOVE has planned comprehensive health management system and provides health checkup and specialized health checkup for every new employee. This is better than the minimum legal requirements and our gesture to care for employees. Currently, a general health checkup is conducted every 2 years, and specialized health check-

up once every year. In addition, work environment detection is carried out regularly based on employees' work conditions and possible hazard exposures. To carry out environmental and employee health management, employees with possible hazard exposures, such as airborne dust, will undergo specialized health checkup. Currently, health checkups are carried out with positive effects, and no related occupational diseases have been found during specialized health checkups.

In terms of services for occupational health, we organize related education training courses and provide consultation for hazardous factors that employees are more likely to be exposed to at work. This helps employees to gain full awareness for their work environment and to further understand ways to protect their own health and to mitigate health impacts.

2018 Occupational Health Services	Round	Total number of participants
The Danger of PM2.5 - Education training	1 session	38persons
Dehydration preventions and heat exhaustion prevention training	2 sessions	35persons
Occupational disease prevention training	1 session	10persons
Ergonomic hazard prevention training	1 session	39persons

In terms of health promotions, we also organize smoking cessation clinics, alcohol cessation and healthy dietary courses to enhance employees' awareness for maintaining their well-being and willingness to participate. We highly encourage employees to actively participate and to put healthy living in practice.

2018 Health Promotion Activities	Round	Total number of participants
AED and CPR training	10sessions	282persons
Health education (liver disease prevention, tobacco prevention)	7sessions	201persons

● Health Management and Seminars

ECOVE pays much attention to our employees' health. In addition to providing necessary basic health examinations for new and current employees and staff whose work involves hazardous tasks, we are also concerned with the results of the examination results. In the case where an employee needs a job transfer due to health concerns, we will also conduct necessary measures accordingly on top of providing adequate protective gear based on said employee's work conditions and risk exposure levels. In response to amendments of the Occupational Safety and Health Act, ECOVE has established and continues to carry out four major protection schemes. In 2018, 22 sessions of educational training (occupational health service and health promotions) were organized, in which nurses, occupational medicine doctors, and firefighters were invited to conduct risk evaluation and guidance at ECOVE plants and provided a series of seminars, ranging from fatigue management, smoking cessation advocacy, CPR and first aid, and AED use, etc. Improvements were made based on the opinions of experts from various fields, helping to alleviate our employees' work-related stress and increase the health awareness levels for all ECOVE staff.



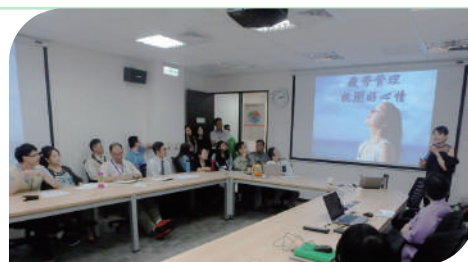
Taichung City Fire Fighting Department taught CPR and AED use at Wujih Plant



External experts were invited to lecture on the use of AED



Emergency Rescue Center taught the use of fire extinguishers



External nurses taught about stress management

● Healthy Week

Based on employees' health checkup results, "Healthy Week" activities would be organized in each year, in which themes would be decided based on recent events. To encourage everyone to start a healthy and balanced workplace culture, primary theme for 2018 was "LOHAS Living and to Stay Fit," and the contents of which covered myocardial infarction, metabolic syndrome prevention, Aerobics 123, and Health 123.

Year	2014	2015	2016	2017	2018
Theme	Remaining Fit Healthy Exercise	Aerobics 123 Healthy and Revitalized	Healthy Eating Happy Workout Weighing Yourself on A Daily Basis	Healthy Diet Cardiovascular disease prevention	LOHAS Living Stay Fit



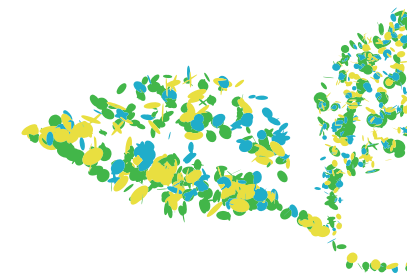
Healthy Week_Weight Measurements



Healthy Week_Blood Pressure Measurements



Aerobics 123 and Health 123



● Safety Moment

CTCI has been initiating Safety Moment activities since 2017. Safety Moment needs to be carried out at the beginning of every meeting of five persons or above. Different from traditional classroom lectures or a top-down advocacy, Safety Moment allows every employee to share their experiences. We aspire that by sharing about safety awareness and reflecting upon recent work-related incidents or the news, the speaker could remember about safety more clearly as well as to interact with everyone and to mutually remind each other of the importance of each aspect of safety, health, or environmental protection.

ECOVE has also learned about the "Pointing and calling" in Japan through Safety Moment and introduced it to the Company. Pointing and calling used to be a safety confirmation action from railway workers, in which a worker will look at an object, point at the object, while speaking out the confirmation signal during each process. This process helps them to focus and to reduce accidents from human errors. As ECOVE is focused on personnel safety, pointing and calling is carried out for processes with high risk and high frequency within the plants. In order to focus on the safety first mentality throughout each process, currently, processes that require pointing and calling are maintenance isolation of rotating equipment, initiation of rotating equipment, waste dumping and inspection, and stacker driving.



Spoken confirmation of serial number of rotating equipment to be initiated



pointing and calling of stacker driving route

Occupational Safety and Health Management and Future Outlook

Besides setting work standards to various processes and providing personnel training, ECOVE also confirms the feasibility of work standards through inspections of material activities to fulfill the objective of safe processes. In addition, to prevent the occurrence of any occupational disaster, work-safety related themes are planned in each year and annual safety and health promotional objective from the Ministry of Labor is introduced, on top of reviewing all false alarms or work-related incidents. The themes for the Work Safety Week organized for the past five years have also focused on promoting a well-rounded culture of safety, including "the road to safety" and "the appropriateness of the system." Furthermore, pointing and calling has been introduced to our sites and first began at processes with higher risk and frequency. By confirming each key process, we can reduce employees' hazard exposure and promote safety and health at each turn.

2014 Work-safety control, power outage isolation, and the importance of confirmation

2015 Hazard of being caught in machine and hazard prevention for working in confined space

2016 Electrical process safety

2017 Stacker hazard prevention

2018 Hazard of being caught in machine and preventive driving

4,470 hours
Social
participation



Community activities that link with operations



Building a lasting community



Friendly corporate volunteering

Taiwan in My Eyes 120H

Step by step: Factories for sustainable environmental education

Environmental education facilities, cultivate green future

Get along with neighbors, integrate into community

Safeguard community environment, be a good neighbor

Friendly charity, concern for the disadvantaged

Green lifestyle, energy-saving and carbon-reduction

4,470
hours

Social Participation

As a corporate citizen, besides being committed to the Company's operations, giving back to the society and fulfilling corporate social responsibility have always been the philosophy and goal ECOVE adheres to. Hence, apart from advancing in its main business, the Company is committed in long-term social participation with specific themes. The three main themes are, linking operations with community activities, building a lasting community, and friendly corporate volunteering. It encourages employees to participate in happy and meaningful volunteer activities, and contribute to the society through actual action, striking a balance between work and life. In 2018, 1,480 employees participated in volunteer service, with a total of 4,470 hours, and there were 268 environmental education courses conducted, with a total of 11,717 participants.

Community Activities that Link with Operations

203-2

413-1

Environmental protection requires environmental education and environmental channels to promote public participation. Hence, ECOVE actively promotes environmental education, and five of its operation plants have obtained Environmental Education Facilities Certification. They are entertaining and educational centers for environmental protection, as well as designated visiting facilities for the international event, "Taiwan in My Eyes 120H". Together with CTCI Education Foundation (CTCI EF), ECOVE launches the 3-year "Step by step: Factories for sustainable environmental education" project, taking the initiative to reach out to Taiwan's elementary schools, teaching our future leaders about sustainable lifestyle.

2 consecutive years

Taiwan in My Eyes 120H

Since 2017, CTCI Education Foundation (CTCI EF) and Center for Corporate Sustainability (CCS) have been organizing the international event, "Taiwan in My Eyes 120H", and ECOVE has been invited to be a designated visiting site. The event is participated by teams from local tertiary institutions, and each team needs to consist of foreign members. It aims to let local and foreign students learn about the current status of Taiwan's sustainable development. In 2018, it incorporates United Nations'17 sustainable development goals as its theme. ECOVE's two 5-star environmental education facilities Miaoli plant and STSP Resource Recycling Center, have once again been selected as the designated visiting sites. Students from 22 countries participated in 2018 "Taiwan in My Eyes 120H". ECOVE's certified environmental education lecturers are committed in promoting Taiwan's improvement and development in sustainability. During the site visits it lays the foundation for sustainable education, playing a part for sustainability.



Group photo of students from various countries at STSP Resource Recycling Center



Group photo of students from various countries at Miaoli Plant

3-year plan

Step by step: Factories for sustainable environmental education

To allow more people learn about the relationship between human and natural environment, and between human and man-made environment (include society, economy, etc.), ECOVE cultivates the basic concept, values and appropriate sustainable lifestyle for the environment. It has been cooperating with CTCI Education Foundation (CTCI EF) since 2018, targeting at elementary schools in the country, in organizing the 3-year "Step by step : Factories for sustainable environmental education" project. It deepens its roots in Taiwan and reaches out to campuses to promote environmental education, teaching the children about sustainable lifestyle.

The teaching materials of this event are based on ECOVE's main business, with content designed for different ages. It has DIY courses which incorporates environmental protection concepts, and are promoted in line with current environmental topics. Students can learn about the concept of Energy-from-Waste, Eco Label, garbage classification, etc. through the entertaining and educational learning process. Another theme in 2018 is "Love the earth; recycle, reuse, and reduce plastic". Through a movie, the children learn that there is 100 million tons of plastic waste in the ocean, inspiring the children to refuse plastic bags. In 2018, "Step by step: Factories for sustainable environmental education" has reached out to 20 elementary schools in Taiwan, including Keelung's Wulun Elementary School in the north, Pingtung's Kanding Elementary School in the south, and even Penghu Magong's Zhongxing Elementary School. A total of 22 sessions were conducted, and 3,171 students participated. ECOVE hopes that through the three years of continuous promotion, environmental education can influence the families through the students, and expand to the neighborhood and society, attaining sustainable living environment.



- Magong Elementary School's principal awards a certificate of appreciation



Group photo of Gangshan Wanli Elementary School



Taoyuan Nanxing Elementary School making recycled paper for the first time



- Certificate of Appreciation presented by Jhaosiang Elementary School

Taichung Neipu Elementary School shares its course experience Through Facebook



- Lower grades elementary students express their love for the earth through recycled paper projects

5 Plants

Environmental education facilities, cultivate green future

Environmental education facilities refer to professional facilities on land regions with environmental education resources, incorporating professional environmental education capabilities, professional courses and appropriate environmental education resources, to provide professional environmental education for school students and general public, in attaining the goals of education, research, conservation, culture and recreation. This is in line with ECOVE's aim of cooperating with and contributing to the community. Hence, ECOVE actively participates in environmental education facilities certification, and base on the humanity, geographical and ecological characteristics of its plant, designs diversified courses by incorporating the concepts of energy-saving, water-saving and carbon-reduction. It has currently obtained 5 environmental education facility certificates, where Miaoli and STSP Resource Recycling Center were awarded the highest "5-star" certification. ECOVE's environmental education facilities not only have employees who are trained and certified as lecturers, but also have rich and interactive courses. Its environmental education attracts more than 2,000 people every quarter. In 2018, ECOVE provided 246 sessions of environmental education service, participated by 8,546 people.

ECOVE's Environmental Education Facilities Certification information

Plant	Date obtained	Date of expiry	Environmental education highlights
Miaoli plant	2014/12/29	2019/12/28	The design of Green Dream Works includes a group of colorful people from the Green Planet, making the environmental education center a lively space
Keelung plant	2014/12/29	2019/12/28	Exploration of EfW plant incorporates topics on incinerator, landfill and wastewater treatment
STSP plant	2015/12/21	2020/12/20	Garbage magician, experience making recycled paper from waste paper
Tainan plant	2017/11/13	2022/11/12	Main teaching subjects include waste incineration cogeneration, resource recycling DIY and food waste composting
Houli plant	2017/12/01	2022/11/30	Main teaching subjects include waste incineration and Dajia Creek water resource conservation



Group photo of Dingnei Elementary School at the lawn outside Keelung environmental education facility



Shin Shin Preschool students learn about air pollution prevention and control through interactive teaching materials at Miaoli environmental education facility



Group photo of Ssu Chang Li Junior High School during their visit to Houli environmental education facility



Jiaxing Elementary School learn about the importance of garbage classification at Tainan environmental education facility



Environmental volunteer training course conducts field trip at STSP environmental education facility

Building a Lasting Community 203-2 413-2

Several operating plants of ECOVE used to be places where the neighbors keep away from, as they give local residents a sense of disgust and insecurity. ECOVE takes the initiative in showing concern for the locals, and strives towards pollution reduction, energy-saving and carbon-reduction, and environmental beautification and greening. It also makes the effort to get along with the neighbors, safeguards the community environment, organizes coastal cleanup, participates in community activities, builds environmental protection facilities, and maintains a quality and safe living environment, transforming the place which people keep away from, into a facility welcome by everyone.

Get along with neighbors, integrate into community

As a corporate citizen, ECOVE emphasizes on interactions with the community and seeking common good with the neighborhoods. As at 2018, ECOVE has participated in Shilin Zhishan Cultural Festival for 4 consecutive years since 2015. This year, it incorporates 3C technologies and environmental education, by introducing smartphone microscope. Through interactive games, the public can observe microorganism in the water, learn about domestic wastewater treatment, and cultivate the concept of conserving water resources. Houli plant, which is situated in an old community in Taichung, has been organizing annual "Cultural Festival in Old Neighborhood" for 15 years. The event combines inherent traditional culture and new environmental protection concept, making it a characteristic of exchange and heritage. Tainan plant, which has rich ecological surrounding, cooperates with National University of Tainan increasing the first bio-friendly corridor, promotes ecological conservation in the community.

Besides contributing manpower and resources to the community, ECOVE's staffs, including employees and top management, actively participate in events organized by the community. ECOVE's officers and employees, together with their families, can be spotted in events such as Houli's "Cycling in Houli", Wujih's "Countryside floral walk", and STSP's "Health park, year of sports".



ECOVE sets up environmental protection booth at Shilin Zhishan Cultural Festival, introducing smartphone microscope course



Briefing of Tainan plant's dedicated garbage truck lane, a bio-friendly corridor

1,230Hour

Safeguard community environment, be a good neighbor

ECOVE is a pioneer in green enterprise, as well as a good neighbor. Throughout the years, it has been sparing no effort in maintaining the environment of the plant and its surrounding by conducting regular and irregular road cleaning, reducing dust, planting flowers and trees to increase greenery, and recycling waste for installation art, creating a quality living environment and cityscape. ECOVE's operating plants located in coastal areas such as Keelung, Miaoli and Tainan, organize coastal cleanup activities. Though the effect of coastal cleanup activities is limited in reducing ocean garbage, it stimulates employees' environmental awareness, implementing plastic reduction and refusal of plastic in everyday life. In 2018, it has accumulated 1,230 hours of community service, organized 7 coastal cleanups, and collected 659 kg of garbage. When the relationship between enterprise and society becomes closer, the role of enterprise is not only to create output value, but also to create its own "value". We believe that with the participation of business partners in the future, we will inject a stronger energy into the community, and we'd be able to implement friendly and sustainable lifestyle.



•• Taoyuan plant creates phytoncide green corridor



•• Wujih plant builds ecological park



•• STSP plant creates bicycle installation art from scrap



•• Road cleaning at areas around the plant



•• Keelung plant's coastal cleanup activities



•• Miaoli plant's coastal cleanup activities



•• Tainan plant's coastal cleanup activities



Friendly Corporate Volunteering

Employees from ECOVE set up "Friendly Charity Society" and take the initiative in organizing charitable activities. To further emphasize corporate social responsibility on the employees, ECOVE actively cooperates with external parties in practicing "green living" in everyday life.

Friendly charity, concern for the disadvantaged

ECOVE established Friendly Charity Society in June 2017, and this platform is open to employees to propose care actions, share ideas on public welfare and innovative charitable activities. 4 projects were conducted in 2018, and they are computer donation for underserved neighborhood, welfare for mentally challenged children, welfare for underprivileged children and families, and environmental volunteer training program. In addition, ECOVE will continue to organize receipt and second-hand clothing donation activities.



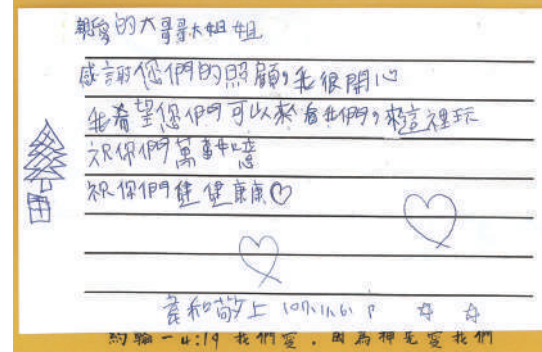
Welfare for mentally challenged children (Taoyuan Renyou Sanatorium)



Computer donation for underserved neighborhood (Taipei office)



Friendly Charity Society's lecturers conduct training for environmental volunteers at Keelung Family Support Center



Letter from the children of New Hope Foundation who participated in Welfare for Underprivileged Children project

Green lifestyle saves energy and reduces carbon footprint

ECOVE's employees promote and organize energy-saving and carbon-reduction activities such as "Winter Energy-Saving", "Office Greenery", "Eating Greens", "Light off in Summer", "Take the Stairs, Reduce Carbon Footprint", "Old Clothes Donation", "Use Chopsticks Love the Earth", etc. at 22 premises. The yearly carbon dioxide emission reduced in the past four years are 661, 15,829, 12,565, and 13,439 kilograms of carbon dioxide equivalent. The accumulated carbon reduction is approximately equivalent to 4.3 hectares of afforestation (reference research by the Forestry Bureau of the Council of Agriculture, based on 2010 estimates of annual carbon fixation of 9.9 tones for every hectare of forest land).



• ECOVE climbs stairs, reduces carbon footprint

Employees' enthusiastic response to second-hand clothing donation

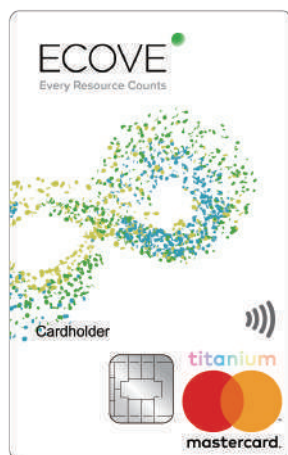


Winter Energy-Saving + Light off in Summer	Turning off light and air-conditioning by one hour during lunch break reduces 6969 kg of carbon emission per year (according to 2017 electric power emission factor published by the Bureau of Energy; each kWh emit about 0.554 kg of CO ₂ e)	6,969kg
Office greenery	The carbon fixation of Devil's ivy is 0.00181 kg/m ² -day. Assuming that we place 100 plants with diameter of 10 cm in every square meters, it will amount to 11.98m ² *0.00181 kg/m ² -day*365 day= 8kg	8kg
Eating Greens	1415 vegetarian meals will have a carbon reduction of 311 kgCO ₂ e (based on reduction of 0.22 kgCO ₂ e with 1 vegetarian meal)	311kg
Take the Stairs, reduce Carbon Footprint	Climb stairs to achieve the goals of exercising and carbon reduction, and attain carbon reduction of 528 kgCO ₂ e (carbon reduction for every floor climbed is 0.22 kgCO ₂ e)	528kg
Old clothes donation	Donate 803 pieces of clothing reduces 3373 kgCO ₂ e (one piece of clothing reduces CO ₂ emission by 4.2 kgCO ₂ e)	3,373kg
Use Chopsticks, Love the Earth	Not using disposable chopsticks for 22500 meals reduces 2250 kgCO ₂ e (not using disposable cutlery for a meal reduces about 0.1 kgCO ₂ e)	2,250kg
Total	13,439kg / CO ₂ e	

Note: Carbon reduction efficiency is calculated based on the factor by National Greenhouse Gas (GHG) Registry by the Environmental Protection Administration of the Executive Yuan.

ECOVE Affinity Card is Launched to Help Sustainable Education

To fulfill corporate social responsibility (CSR) in practice and to strengthen employee cohesion, ECOVE Environment Corp. (ECOVE) has decided to issue an exclusive credit card, namely, the ECOVE Affinity Card. ECOVE is combined by the word Ecology and Trove which represents the infinite treasure in the ecology are waiting for ECOVE to reuse; the green circle at the right corner not only represents the green energy on earth but also means the mission for ECOVE to protect the earth. ECOVE's logo and slogan "Every Resource Counts" is printed on the card which means the resource is limited on earth and ECOVE will keep increasing the performance of resource cycling, focus on detail and data management to ensure that every resource is effectively used. ECOVE hopes to make the employees proud of being a part of ECOVE by this ECOVE Affinity Card. Employees who consume by using this credit card can enjoy a rebate up to 1.6% and there is no limit on the rebate. The credit card can help the employees to avoid carrying a lot of cash. The other important function of the card is the "charity reward program." Differing from other credit cards, whenever a purchase is made through the ECOVE Affinity Card, the issuing bank will allocate 0.2% of the purchase as a reward for CTCI Education Foundation. The fund will further help the Foundation's efforts toward engineering education, environmental sustainability and welfare activities. Besides boosting employees' sense of pride and recognition in the Company's sustainable performance, it also helps to promote the development of environmental sustainable education in Taiwan.



- ECOVE Affinity Card is designed using green, yellow, and blue colors. The green represents resource recycling, yellow represents solar energy, while blue signifies water resource. The colorful scattered "oo" represents continuous, circling resources and lasting environment.



- ECOVE luggage tag

ECOVE Launches 「Water Elf」 LINE Stickers to Promote Environmental Sustainability

ECOVE in collaboration with the Water Resources Bureau of New Taipei City Government, launches "Water Elf" LINE stickers which prototype is "Colurella". The revenue will be used to promote environmental protection education and invite people to protect the environment. "Colurella" is a representative microorganisms at the Linkou Water Resource Center, the first secondary wastewater treatment plant built and operated by the New Taipei City Government. In January 2018, ECOVE got the operating project. The appearance of "Colurella" shows that under ECOVE's treatment the sludge has good sedimentation, the effluent water quality is good, and the waste water treatment efficiency is high.



Water Elf LINE stickers.



A colurella under the microscope.

Most Reliable

Dioxin tracking test

Employees are ECOVE's biggest assets. The Company not only creates a safe work environment, but also safeguards employees' health. Since 2008, it has delegated the Research Center of Environmental Trace Toxic Substances of National Cheng Kung University, to base on job nature, exposed environment and job tenure, carry out analysis and select more representative employees for dioxin testing and tracing. Blood test and tracing are carried out every 4 years, and it has since conducted 3 tests. Cross comparison is also carried out based on the evaluation questionnaire on employees' health, diet and occupational exposure. Results show that the dioxin concentration in the employees examined is lower than that of the general public of Taiwan, as well as the recommended dioxin concentration by World Health Organization. This is because EfW plants operated and managed by ECOVE have complete and effective air pollution prevention measures. In addition, the Company has improved on the implementation of employees' health and safety protection education, and raised employees' safety and health awareness, increasing the correct usage rate of personal protective equipment. The relevant results have been published in the academic journal. It is not only the first in Taiwan, but also one of the best in the world.

The Company adopts a serious attitude towards the danger of dioxin. As dioxin accumulation is mainly through intake of food, by reducing exposure to intake through food can significantly reduce dioxin accumulation. To prevent staffs from being exposed to environment with dioxin, regular annual maintenance occupational safety and health trainings are conducted before annual maintenance, where staffs are taught the correct way of putting on their personal protective equipment. During operation, occupational safety controls are implemented, and spot checks on wearing safety equipment and inspection by foreman/supervisors are conducted. If protective equipment is not put on and occupational safety control not implemented, the operation will be asked to stop immediately, and can only resume when the protective equipment is put on and safety control implemented. This is not only a safety requirement but also a commitment to the employees and family members. Leaving home happily and returning safely is no longer a slogan but an actual practice.



Diet and health questionnaire



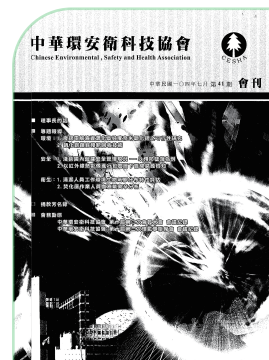
Health measurement



Blood draw



Pretreatment of separation of serum lipids



Published in the 41st Edition Journal of Chinese Environmental, Safety and Health Association



Invited by ISWA to participate in International Research Paper Publication

Appendix

95 About This Report

97 GRI Standards Index

103 Third-party assurance Report



About This Report 102-46 102-50~54

Ecove Environment Corp. (hereinafter referred to as "ECOVE" or "the Company") has published Corporate Social Responsibility Report ("CSR Report") for nine consecutive years since 2010. We actively disclose non-financial information to all stakeholders concerned about ECOVE to continue spreading our sustainable management actions, and to fully communicate with stakeholders and to respond to their needs. The 2017 CSR Report was published on June 2018, and the following Report is scheduled to be released in June 2019.

Contact Person

Chen-Tao Lee
Group Shared Services (GSS)
Tel:02-21621688 Ext. 56607
blueskyson0854@ecove.com



Time Period of Information Disclosure

From January 1, 2018 to December 31, 2018



Boundaries of Information Collection Inside the organization

The contents of this Report includes ECOVE and our related companies, in which actions from related companies will be separately specified in the Report.



Boundaries of Information Collection External to the organization

- Government
- Customer
- Shareholder
- Suppliers
- Communities



Data Quality Management

- Financial data from PricewaterhouseCoopers (PwC Taiwan)
- Quality information - ISO 9001: 2015
- Environmental data - ISO 14001: 2015 ISO 14064-1:2006
- Social Information - ISO 45001:2018
- Sustainability data - AA 1000 AS:2008



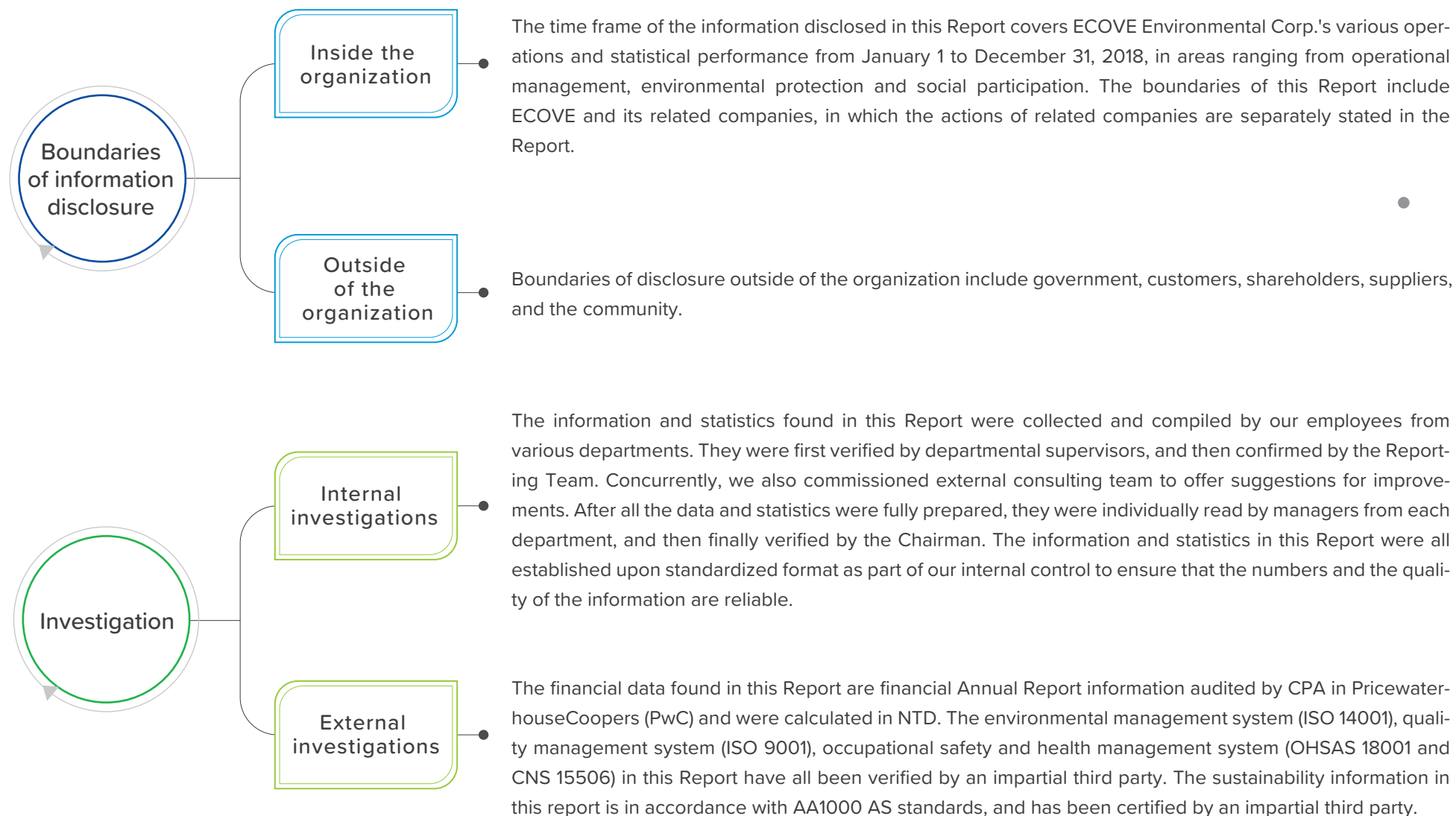
GRI level

GRI Standards Options



Assurance Level

Type II-High level of assurance



GRI Standards Index

Integrity and Business Ethics

GRI 205 : Anti-corruption

- 103-1 The management approach and its components
 - Materiality Analysis
- 103-2 Management policy and its elements
 - Materiality Analysis (Short, mid, and long-term goals for material topics)
- 103-3 Management policy assessment
 - Internal control
 - Compliance
- 205-1 Operations assessed for risks related to corruption
 - Compliance
- 205-2 Communication and training about anti-corruption policies and procedures
 - Compliance
- 205-3 Confirmed incidents of corruption and actions taken
 - Compliance

Power generation efficiency

GRI 302 : Energy

- 103-1 The management approach and its components
 - Materiality Analysis
- 103-2 Management policy and its elements
 - Materiality Analysis(Short, mid, and long-term goals for material topics)
- 103-3 Management policy assessment
 - Energy and Resource Conservation
- 302-4 Reduction of energy consumption
 - Energy and Resource Conservation

Development of Renewable Energy

Development of renewable energy (specific to ECOVE)

- 103-1 The management approach and its components
 - Materiality Analysis
- 103-2 Management policy and its elements
 - Materiality Analysis(Short, mid, and long-term goals for material topics)
- 103-3 Management policy assessment
 - Circular and Low-carbon Economy
- Develop power generation benefits from renewable energy and set short, mid, and long-term power generation goals to expand investment opportunities
 - Circular and Low-carbon Economy

Professional research & development and technical competency

Professional research & development and technical competency (specific to ECOVE)

- 103-1 The management approach and its components
 - Materiality Analysis
- 103-2 Management policy and its elements
 - Materiality Analysis(Short, mid, and long-term goals for material topics)
- 103-3 Management policy assessment
 - Innovative Research and Development
- Enhance the management effectiveness of incineration plants that ECOVE operates, and provides waste clearing technical advise, environmental protection, pollution prevention engineering and equipment maintenance and sales agency, incineration plant improvement planning and design of various services
 - Innovative Research and Development

Developing Recycling

Develop recycle (specific to ECOVE)

- 103-1 The management approach and its components
 - Materiality Analysis
- 103-2 Management policy and its elements
 - Materiality Analysis(Short, mid, and long-term goals for material topics))

103-3	Management policy assessment
	● Innovative Research and Development
	Research resource cycling products, technologies, and supplier and sales competitiveness, as well as R&D of customized products and quality enhancement
	● Innovative Research and Development

EfW and Waste Management and Air Pollution Control

GRI 305 : Emissions

103-1	The management approach and its components
	● Materiality Analysis
103-2	Management policy and its elements
	● Materiality Analysis (Short, mid, and long-term goals for material topics)
103-3	Management policy assessment
	● Energy from Waste (EfW)
305-1	Direct (Scope 1) greenhouse gas (GHG) emissions
	● Energy from Waste (EfW)
305-2	Energy indirect (Scope 2) greenhouse gas (GHG) emissions
	● Energy from Waste (EfW)
305-7	NO _x , SO _x , and other significant air emissions
	● Energy from Waste (EfW)

EfW and Waste Management

GRI 306 : Effluents and Waste

103-1	The management approach and its components
	● Materiality Analysis
103-2	Management policy and its elements
	● Materiality Analysis (Short, mid, and long-term goals for material topics)
103-3	Management policy assessment
	● Energy from Waste (EfW)
306-2	Waste by type and disposal method
	● Energy from Waste (EfW)
306-4	Transport of hazardous waste
	● Energy and Resource Conservation
306-5	Water bodies affected by release water and other (surface) runoff discharges
	● Circular and Low-carbon Economy

Occupational Safety and Health

GRI 403:2018 Occupational Health and Safety 2018

403-1	Occupational Safety and Health Management System
	● Safe and Healthy Workplace

403-2	Hazard identification, risk evaluation, and accident investigation
	● Safe and Healthy Workplace
403-3	Occupational Health Services
	● Safe and Healthy Workplace
403-4	Worker participation, consultation and communications regarding occupational health and safety
	● Safe and Healthy Workplace
403-5	Worker training regarding occupational health and safety
	● Safe and Healthy Workplace
403-6	Worker health promotions
	● Safe and Healthy Workplace
403-7	Preventing and mitigating occupational health and safety impacts directly related to business
	● Safe and Healthy Workplace
403-9	Occupational hazards
	● Safe and Healthy Workplace
403-10	Occupational disease
	● Safe and Healthy Workplace

Environmental education promotion

GRI 413 : Local Communities

- **103-1** The management approach and its components
 - Materiality Analysis
- **103-2** Management policy and its elements
 - Materiality Analysis (Short, mid, and long-term goals for material topics)
- **103-3** Management policy assessment
 - Community activities that link with operations
- **413-1** Operations with local community engagement, impact assessments, and development programs
 - Community activities that link with operations
- **413-2** Operations with significant actual and potential negative impacts on local communities
 - Community activities that link with operations

STANDARD DISCLOSURES PART I: Universal Standards

GRI 102: General Disclosures

Indicator	Description	Corresponding Sections and Chapters	Page
102-1*	Name of Organization	About ECOVE	03
102-2*	Events, Brands, Products and Services	About ECOVE	03
102-3*	Headquarters	About ECOVE	03
102-4*	Bases of Operation	About ECOVE	03
102-5*	Ownership and legal form	About ECOVE	03
102-6*	Markets served	About ECOVE	03
102-7*	Scale of the organization	About ECOVE	03
102-8*	Information on Employees and Other Workers	Talent Composition and Pay	66
102-9*	Supply Chain Aspect	Sustainable supply chain management	42
102-10*	Significant changes to the organization and its supply chain	The Company's organizational structure and management rights did not experience significant changes during the reporting period	-
102-11*	Precautionary principle or approach	Risk Management	34
102-12*	External initiatives	Participation in external organizations	26
102-13*	Membership of associations	Participation in external organizations	26
102-14*	Statement from senior decision maker	From the Management	02
102-15	Key impacts, risks, and opportunities	Internal control, risk management, operating performance, and industry outlook	31 、 34 、 36
102-16*	Values, principles, standards and norms of behavior	Compliance	31
102-17	Ethics-related recommendations and mechanisms of concern issues	Compliance	31
102-18*	Governance structure	Corporate Governance	28
102-19	Principle	CSR promotions	09

STANDARD DISCLOSURES PART I: Universal Standards

GRI 102: General Disclosures

Indicator	Description	Corresponding Sections and Chapters	Page	Indicator	Description	Corresponding Sections and Chapters	Page
102-20	Executive-level responsibility for economic, environmental, and social topics	CSR promotions	09	102-40*	List of stakeholder groups	Materiality Analysis	13
102-21	Consulting stakeholders on economic, environmental, and social topics	CSR promotions	09	102-41*	Collective bargaining agreements	Not signed	-
102-22	Composition of the highest governance body and its committees	Corporate Governance	28	102-42*	Identifying and selecting stakeholders	Materiality Analysis	13
102-23	Chair of the highest governance body	Corporate Governance	28	102-43*	Approach to stakeholder engagement	Materiality Analysis	13
102-24	Nominating and selecting the highest governance body	Corporate Governance	28	102-44*	Key topics and concerns raised	Materiality Analysis	13
102-25	Conflict of Interest	Corporate Governance	28	102-45*	Entities included in the consolidated financial statements	Management performance and industry outlook	36
102-26	The role of the highest governance unit in setting purposes, values and strategies	CSR promotions	09	102-46*	Defining report content and subject boundary	About This Report	94
102-27	Collective knowledge of highest governance body	Corporate Governance	28	102-47*	List of material topics	Materiality Analysis	13
102-28	Evaluating the highest governance body's performance	Corporate Governance	28	102-48*	Restatements of information	No restatements	-
102-29	Identifying and managing economic, environmental, and social impacts	CSR promotions	09	102-49*	Changes in reporting	No significant changes	-
102-30	The effectiveness of the risk management process	CSR promotions	09	102-50*	Reporting period	About This Report	94
102-31	Review of economic, environmental, and social topics	CSR promotions	09	102-51*	Date of the last report	About This Report	94
102-32	Highest governance body's role in sustainability reporting	CSR promotions	09	102-52*	Reporting cycle	About This Report	94
102-33	Communicating critical concerns	CSR promotions	09	102-53*	Contact point for questions regarding this report	About This Report	94
102-34	Nature and total number of critical concerns	CSR promotions	09	102-54*	Claims of reporting in accordance with the GRI Standards	About This Report	94
102-36	Compensation decision process	Management governance, talent composition and pay	28 、 66	102-55*	GRI Content Index	GRI Standards Index	96
102-37	Stakeholder engagements	Corporate Governance	28	102-56*	External assurance	Third-party Verification Certificate	102





STANDARD DISCLOSURES PART I: Topic-specific Standards

GRI 200: Economic Series

Series	Indicator	Description	Corresponding Sections and Chapters	Page
GRI 201 : Economic Performance	201-1	Direct economic value generated and distributed (EVG&D) on an accruals basis	Management performance and industry outlook	36
	201-2	Financial implications and other risks and opportunities due to climate change	Energy from Waste (EfW)	49
	201-3	Defined benefit plan obligations and other retirement plans	Talent Composition and Pay	66
GRI 202 : Market Position	202-2	Proportion of senior management hired from the local community	Talent Composition and Pay	66
GRI 203 : Indirect Economic Impacts	203-1	Development and impact of infrastructure investments and services supported	Participation in Public Infrastructure	63
	203-2	Significant indirect economic impacts	Community activities that link with operations	85
GRI 204 : Procurement Practices	204-1	Proportion of spending on local suppliers	Sustainable supply chain management	42
GRI 206 : Anti-competitive Behavior	206-1	Legal actions of anti-competitive behavior, antitrust and monopoly practice	No relevant incidents	-

GRI 300: Environmental Series

Series	Indicator	Description	Corresponding Sections and Chapters	Page
GRI 301 : Materials	301-1	Materials used by weight or volume	Energy from Waste (EfW)	49
	301-2	Renewable materials used	Circular and Low-carbon Economy	56
GRI 303 : Water and effluents 2018	301-3	Water withdrawal	Circular and Low-carbon Economy	56
	301-4	Water discharge	Circular and Low-carbon Economy	56
	301-5	Water consumption	Circular and Low-carbon Economy	56
GRI 307 : Environmental Compliance	307-1	Violation of environmental laws	No violation of environmental law has occurred	-
	308-1	New suppliers screened by environmental criteria	Sustainable supply chain management	42
GRI 308 : Supplier Environmental Assessment	308-2	Negative environmental impacts in the supply chain and actions taken	Sustainable supply chain management	42

GRI 400 : Social Series				
Series	Indicator	Description	Corresponding Sections and Chapters	Page
GRI 401 : Employment	401-1	New employee hires and employee turnover	Talent Composition and Pay	66
	401-2	Benefits for full-time employees	Human rights protection and benefits	68
	401-3	Parental leave	Human rights protection and benefits	68
GRI 402 : Social Series	402-1	Minimum notice periods regarding operational changes	Human rights protection and benefits	68
GRI 404 : Training and Education	404-1	Average hours of training per year per employee	Talent Development	72
	404-3	GRI 401: Employment	Talent Composition and Pay	66
GRI 405 : Diversity and Equal Opportunity	405-1	Benefits for full-time employees	Talent Composition and Pay	66
	405-2	Ratio of basic salary and remuneration of women to men	Talent Composition and Pay	66
GRI 406 : Non-discrimination	406-1	Incidents of discrimination and corrective actions taken	Human rights protection and benefits	68
GRI 408 : Child Labor	408-1	Major risks of using child labor at operational locations and by suppliers	Human rights protection and benefits and sustainable supply chain management	68 、 42
GRI 414 : Supplier Social Assessment	414-1	New suppliers that were screened using social criteria	Sustainable supply chain management	42
	414-2	Negative social impact and actions taken in supply chain	Sustainable supply chain management	42
GRI 415 : Public Policy	415-1	Political contributions	The Company takes a neutral political stance and does not engage in political donations	-
GRI 416 : Customer Health and Safety	416-2	Violations of health and safety regulations concerning products and services	No violation of health and safety regulations has occurred	-
GRI 417 : Marketing and Labeling	417-2	Incidents of non-compliance concerning product and service information and labeling	No such events occurred in 2018	-
GRI 418 : Customer Privacy	418-1	Substantiated complaints regarding concerning breaches of customer privacy and losses of customer data	Risk Management	34
GRI 419 : Socioeconomic Compliance	419-1	Violation of laws and regulations in the social and economic fields	Talent Caring	66

Third-party assurance Report



ASSURANCE STATEMENT

SGS TAIWAN LTD.'S REPORT ON SUSTAINABILITY ACTIVITIES IN THE ECOVE Environment Corporation's CORPORATE SOCIAL RESPONSIBILITY REPORT FOR 2018

NATURE AND SCOPE OF THE ASSURANCE/VERIFICATION

SGS Taiwan Ltd. (hereinafter referred to as SGS) was commissioned by ECOVE Environment Corporation (hereinafter referred to as ECOVE) to conduct an independent assurance of the Corporate Social Responsibility Report for 2018 (hereinafter referred to as CSR Report). The scope of the assurance, based on the SGS Sustainability Report Assurance methodology, included the text, and data in accompanying tables, contained in this report.

The information in the ECOVE's CSR Report of 2018 and its presentation are the responsibility of the management of ECOVE. SGS has not been involved in the preparation of any of the material included in ECOVE's CSR Report of 2018.

Our responsibility is to express an opinion on the text, data, graphs and statements within the scope of verification with the intention to inform all ECOVE's stakeholders.

The SGS protocols are based upon internationally recognized guidance, including the Principles contained within the Global Reporting Initiative Sustainability Reporting Standards (GRI Standards) 101: Foundation 2016 for accuracy and reliability and the guidance on levels of assurance contained within the AA1000 series of standards and guidance for Assurance Providers.

This report has been assured using our protocols for:

- evaluation of content veracity at a high level of scrutiny for ECOVE and moderate level of scrutiny for subsidiaries, joint ventures, and applicable aspect boundaries outside of the organization covered by this report;
- AA1000 Assurance Standard (2008) Type 2 evaluation of the report content and supporting management systems against the AA1000 Accountability Principles (2008); and
- evaluation of the report against the requirements of Global Reporting Initiative Sustainability Reporting Standards (100, 200, 300 and 400 series) claimed in the GRI content index as material and in accordance with.

The assurance comprised a combination of pre-assurance research, interviews with relevant employees, superintendents, CSR committee members and the senior management in Taiwan; documentation and record review and validation with external bodies and/or stakeholders where relevant. Financial data drawn directly from independently audited financial accounts has not been checked back to source as part of this assurance process.

STATEMENT OF INDEPENDENCE AND COMPETENCE

The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; environmental, social and sustainability report assurance. SGS affirm our independence from ECOVE, being free from bias and conflicts of interest with the organisation, its subsidiaries and stakeholders.

TWUPP5008 Issue 1904

The assurance team was assembled based on their knowledge, experience and qualifications for this assignment, and comprised auditors registered with ISO 26000, ISO 20121, ISO 50001, SA8000, EICC, QMS, EMS, SMS, GPMS, CFP, WFP, GHG Verification and GHG Validation Lead Auditors and experience on the SRA Assurance service provisions.

VERIFICATION/ ASSURANCE OPINION

On the basis of the methodology described and the verification work performed, we are satisfied that the information and data contained within ECOVE's CSR Report of 2018 verified is accurate, reliable and provides a fair and balanced representation of ECOVE sustainability activities in 01/01/2018 to 12/31/2018.

The assurance team is of the opinion that the Report can be used by the Reporting Organisation's Stakeholders. We believe that the organisation has chosen an appropriate level of assurance for this stage in their reporting. In our opinion, the contents of the report meet the requirements of GRI Standards in accordance with Core Option and AA1000 Assurance Standard (2008) Type 2, High level assurance.

AA1000 ACCOUNTABILITY PRINCIPLES (2008) CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

Inclusivity

ECOVE has demonstrated a good commitment to stakeholder inclusivity and stakeholder engagement. A variety of engagement efforts such as survey and communication to employees, customers, investors, suppliers, CSR experts, and other stakeholders are implemented to underpin the organization's understanding of stakeholder concerns. For future reporting, ECOVE may proactively consider having more direct two-ways involvement of stakeholders during future engagement.

Materiality

ECOVE has established effective processes for determining issues that are material to the business. Formal review has identified stakeholders and those issues that are material to each group and the report addresses these at an appropriate level to reflect their importance and priority to these stakeholders.

Responsiveness

The report includes coverage given to stakeholder engagement and channels for stakeholder feedback.

GLOBAL REPORTING INITIATIVE REPORTING STANDARDS CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

The report, ECOVE's CSR Report of 2018, is adequately in line with the GRI Standards in accordance with Core Option. The material topics and their boundaries within and outside of the organization are properly defined in accordance with GRI's Reporting Principles for Defining Report Content. Disclosures of identified material topics and boundaries, and stakeholder engagement, GRI 102-40 to GRI 102-47, are correctly located in content index and report. For future reporting, it is recommended to further engage sound investigation by people with recognized expertise, or by expert bodies with recognized credentials for getting reasonably estimable economic, environmental, and/or social impacts.

Signed:

For and on behalf of SGS Taiwan Ltd.

David Huang
Senior Director
Taipei, Taiwan
29 April, 2019
WWW.SGS.COM



AA1000
Licensed Assurance Provider
000-8

TWUPP5008 Issue 1904

ECOVE[®]

—
5Fl., No. 132, Xingshan Rd., Neihu Dist.,
Taipei City 11469, Taiwan, R.O.C
T: (886)2-2162-1689
F: (886)2-2162-1680
<http://www.ecove.com>
—

