Powerchip 力晶科技股份有限公司

2016

企業社會責任報告書

About "Powerchip 2016 Corporate Social Responsibility Report"

Powerchip is a company specializing in wafer fabrication. We strive for safety, health and environmental protection in all domains and have a management philosophy of sharing our achievement together with our employees, customers and society. We are willing to not only provide employees a safe and healthy working environment but also take environmental protection, green production, occupational injury prevention and corporate social responsibility as a part of our business and management. We strongly believe in achieving the final goal of sustainable development by implementing the environment, safety and health management system as well as building channels for communication with our employees, customers, contractors, suppliers, contract manufacturers, the public, and other stakeholders.

Report Scope and Boundary

As one of the members of the global village, we publish the "Powerchip 2016 Corporate Social Responsibility Report" in consideration of the social responsibilities that should be taken. It transparently presentsexplains the company's government, economic management, social responsibility, the achievement of sustainable environment development as well as strategic goals to the employees, customers and the public. This report is published in August, 2017. It contains all kinds of performance from January 1st, 2016 to December 31st, 2016. The boundary of the report extends to our P1/2, P3 Foundries in Hsinchu Science-based Industrial Park. The scope and boundary of the report is same as the version issued last November, and there is no need to re-edit the contents or change the scope of the last version. It has been one year since the "Powerchip 2015 Corporate Social Responsibility Report" was released. Revisions or statements with regard to the previous report are not required.

Editorial Principles

This report is disclosed with the G4 Sustainability Reporting Guidelines - Global Reporting Initiative (GRI G4) as the core. To ensure the public transparent and open presentation of our CSR results and strategic goals, we entrusted BSI Taiwan to inspect at a moderate level for the 2017 report based on the AA 1000AS and GRI G4. We will make CSR reports continuously every year and publish them on our official website.

Contact Information:

If you have any suggestions or advicesise about this report, please contact us:

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Table of Contents

Strategy and Vision

1.1 Words from the Founder

Founder： Frank Huang

We have held the operational policy of becoming the most advanced professional memory chip manufacturer since our establishment in 1994. With the changing of the global memory industry, we have transformed into the only manufacturer of integrated memory solution products in Taiwan by improving our process technology constantly, developing innovative products and promoting international strategic alliances, and leaped into the Top Five in the global wafer foundry market.

Advanced technology and delicate quality make us stand firmly in the semiconductor industry. The care for our employees, society and environment are our unchangeable mission statements. Though the financial crisis in 2008 had great impact on the global memory manufacturers including Powerchip, we worked in concert with our upstream and downstream partners to deeply understand the close and unbreakable dependent relationships of the company with employees and society. In the future, we will face challenges with a prudent and perseverant attitude, operate our business cautiously, grow and earn profits in adversity to protect the interests of our employees and shareholders. For society, we will advance our cultural tastes, give assistance and care to people who are in need through Powerchip Foundation, internal public welfare groups, Employees' Welfare Committee and other systems to take our corporate citizen social responsibilities. The Powerchip Environmental Protection Foundation will also keep promoting energy-saving and carbon-reducing to manifest the symbiotic relationship between our company and the environment.

We firmly believe that sharing the operating results with the employees, partners, the public, and the environment on the way to the growth and development of the company is the best selection for the creation of unfailing growing dynamics for an enterprise. We will face, communicate and handle all problems and challenges with an active and sincere attitude, as we always do, and we will hold this belief and become a great corporate citizen of sustainable development.

1.2 Words from the President

President：Alex Wang

I am delighted with the publication of the "Powerchip 2016 Corporate Social Responsibility Report". As a global leading manufacturer in the semi-conductor field, we create profit for our shareholders and take the responsibilities for the employees, customers, suppliers, economy, environment and society. We disclose relevant information in the 2016 CSR report in the hope to help all of the stakeholders understand our commitments and efforts, and demonstrate our emphasis and determination to implement the corporate society responsibility and sustainable development of Powerchip.

We have set the operating goal to become "a world-class leading technology company with competitiveness and stable profitability" and have exited the unpredictably problems of the DRAM industry with careful strategic deployments, sound financial plans, and accurate implementation actions. The wafer foundry business is prosperous. It not only creates stable profitability for the company, but also contributes cash to the operation of the business. Though the financial and operating conditions are gradually improved from the bottom of the valley, we are well-informed that fulfillment of the social responsibility is a more essential strategic thinking and duty of the company in addition to the basic responsibility of making profits and creating economic benefits. Therefore, we will use diverse development strategies and management models to turn external challenges into new business opportunities. Besides making profits for the shareholders, we have to create more value for all the stakeholders to mitigate the impact on the society, environment and economy and try our best to fulfill the corporate citizen responsibilities.

Last, we appreciate all the partners who grow together with us. We will try our best to manage business and reward all the stakeholders with actual operational performance. For our customers, we will study and develop all types of product technologies, satisfy different requirements of the customers for their production planning and strengthen their trust to us. For our investors, we will improve our performance and stable profitability, reduce investment risk for shareholders, create more profits and increase long-term investment willingness. For our employees, we will try our best to protect their interests, health and safety and provide encouragement in a timely manner. We will also develop a healthy and excellent occupational environment to attract outstanding talents. For our suppliers, we will implement every production plan to help them satisfy our requirements for all materials and components and reduce their operational risk of production and storage. We will hold the philosophy of "giving back to society what it gives us" and perform our corporate social responsibility continuously. We are also looking forward to suggestions from those who have been concerned about us to make us sturdy.

1.3 Social Responsibility and Commitment

Our vision comes from the logo of Powerchip. The three-dimensional square in the middle represents the application of our leading technology to the design and manufacture of high-performance semiconductor chips. The oval stands for our goal to fulfill different requirements from the world markets, professions and people of all kinds. We will realize our vision of globalization and international marketing with our professionalism, extraordinary quality and satisfactory service. The blue-green color displays the blue sky and the green earth. The color also shows that we also strive for environmental protection, resources preservation and corporate responsibility while pursuing its growth.

Powerchip is a company specializing in wafer fabrication. We strive for safety, health and environmental protection in all domains and have a management philosophy of sharing our achievement together with our employees, customers and society. We are willing to not only provide employees a safe and healthy working environment but also take environmental protection, green production, occupational injury prevention and corporate social responsibility as a part of our business and management.

We strongly believe in achieving the final goal of sustainable development by implementing the environment, safety and health management system as well as building channels for communication with our employees, customers, contractors, suppliers, contract manufacturers, the public, and other stakeholders. We promises to obey the following philosophy and criterion to create better quality of life for our employees and communities:

1	Managers at all levels commit themselves to providing required resources and implement daily environment, health and safety management to ensure the suitability, adequacy, and effectiveness of the management system.
2	Safety, environmental protection, production and quality are equally important.
3	We are compliant with Electronic Industry Code of Conduct (EICC),domestic ESH regulations and other relevant norms.
4	It is our direct responsibility to protect the environment, prevent predictable danger and control damage.
5	In consideration of the issues on the mitigation of climate change, adaptation, and sustainable use of resources, we will conduct energy-saving and carbon-reduction activities to promote efficient use of resources.
6	We will make review and improvement continuously to enhance the effectiveness for our environment, safety and health management.

Company Profile

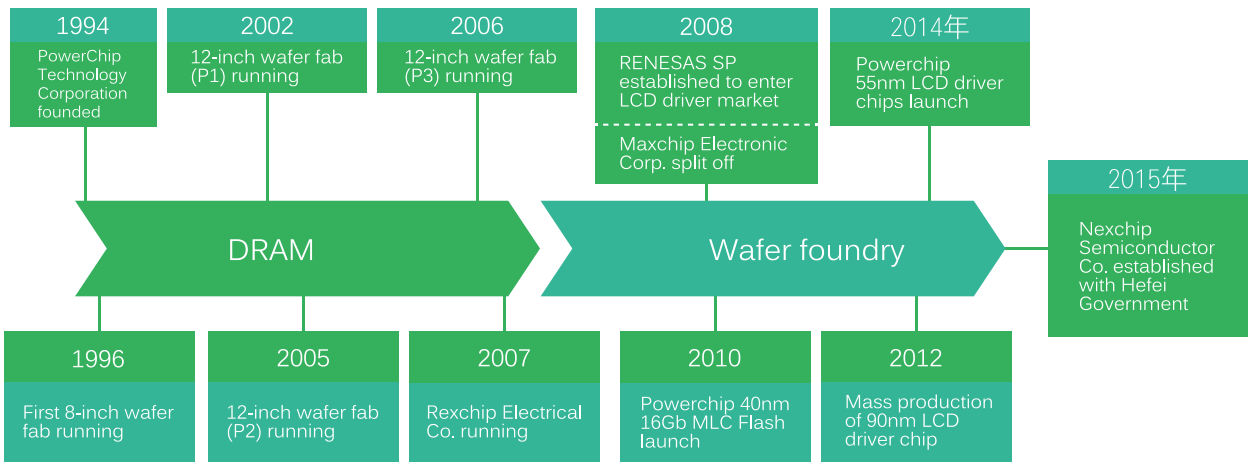
Sustainable development of the enterprise is our ultimate business goal. The professional manager and the open, clear decision-making mechanism are the foundation of our governance. We expect to follow the industry and market trends to develop new products and technologies actively to ensure steady growth of business performance. We share profits with our employees, shareholders, customers and partners to build a stable long-term cooperative relationship.

2.1 Introduction

Powerchip was founded in Dec. 1994 in Hsinchu Science-based Industrial Park in Taiwan. Our business scope covers various memory and logic products, CMOS image sensor chips, power management chip and foundry of power management ICs. We have 4813 employees and our capital reached NT$ 22.15 billion by Dec. 2016. The consolidated revenue in 2016 was NT$ 41.84 billion.

Our production base is located in Hsinchu Science-based Industrial Park. The first 8-inch wafer fab started the operation in 1996. Initially, we and Japan's Mitsubishi Electric Co. formed a strategic alliance in DRAM technology, production and sale to increase international competitiveness and technological strength. In 2003, Elpida took over the Mitsubishi DRAM business but our long-term cooperative relationship continues. In 2006, we and Elpida jointly ventured the Rexchip Electronic Corp. in Central Taiwan Science-based Industrial Park. We always uses the top DRAM process technology to provide domestic and overseas DRAM design companies with memory chip production and marketing services.

To adapt to the transformation strategy, we split the 8-in fab to become the independent Maxchip Electronic Corp. focusing on professional fabrication of panel driver IC and power management products. In 2013, we sold shares of Rexchip to American Micron and began to focus our resource on foundry. So far we have three 12-inch wafer fabs with total monthly 100 thousand wafers (P1/P2/P3 fabs). In Oct. 2015, we signed a cooperation agreement with Hefei City Construction and Investment Holding (Group) Co., Ltd. in Anhui Province to establish a joint-venture company, Nexchip Semiconductor Co. The construction of the plant was completed in April 2014 and machinery and equipment were moved in during the same period. It is expected to have a test production of display driver ICs at the end of 2017. With this joint-venture project, we may not only expand our wafer foundry business, but also work in cooperation with the upstream and downstream manufacturers in the supply chain in Taiwan to develop the semi-conductor market in China and create a win-win situation for the semi-conductor industries cross the Taiwan Strait.



With a great foundation of memory technology, we started to develop high capacity flash memory (NAND FLASH) technology on our own and became the only company in Greater China with the comprehensive technologies in design, process development and mass production of NAND FLASH. The high-capacity 16Gb MLC flash memory was the winner of the 2012 Taiwan Excellence award from the Ministry of Economic Affairs.

We focus on the technology of small display driver ICs in the logic technology field. The mass production of the 55nm LCD driver chips was launched in 2014. We are now one of the most important global small display driver IC manufacturers and the largest SDDI foundry and primary foundry partner for SDDI design enterprises in the world. As for the foundry technology fields such as the CMOS image sensing and power management, we provide customers with competitive, professional wafer foundry services with our advanced 12-in wafer technology. Now, we are the global leading manufacturer in the production of mobile phone display driver ICs, and have an unshakable position in the mobile device market.

Our vision is to use sophisticated technology and customer service to become a world-class semiconductor company with stable profits. With advanced technology and capacity, we provide multivariate, professional wafer foundry services for markets of information, communication and consumer electronics. In the future, we will continue to promote international cooperation strategy, introduce cutting-edge technologies, develop our own technology and steadily expand the market in order to accumulate competitive advantages in the rapidly changing high-tech industry, and become the professional wafer foundry supplier that can create a win-win situation for our customers.

2.1.1 Corporate mission

Our corporate mission is to build an effective management team, provide customers with the best product and service, and improve the quality of life for people and bring maximum benefits to investors (shareholders and employees). Our corporate culture emphasizes three major values: innovation, improvement and flexibility. These are our core and we integrate them into our core business philosophy. We may emphasize that Powerchip is a company growing and prospering with the society.

To keep growing in the fiercely competitive market, we are dedicated to the following operating strategies:

Promoting the “Open Foundry” wafer manufacturing mode;

Accumulating process capabilities and build a process platform with logic applications (DDIC, IMC, Sensor) and memories (DRAM, Flash) as the core;

Developing the forward-looking biotechnologies, vehicle ICs, and IoT applications in the semi-conductor field;

Enhancing the capacity adjustment flexibility to reduce the risk of business cycle;

Combining the upstream and downstream supply chains to development the China market;

Our business philosophy highlights the following:

Society - profit sharing:

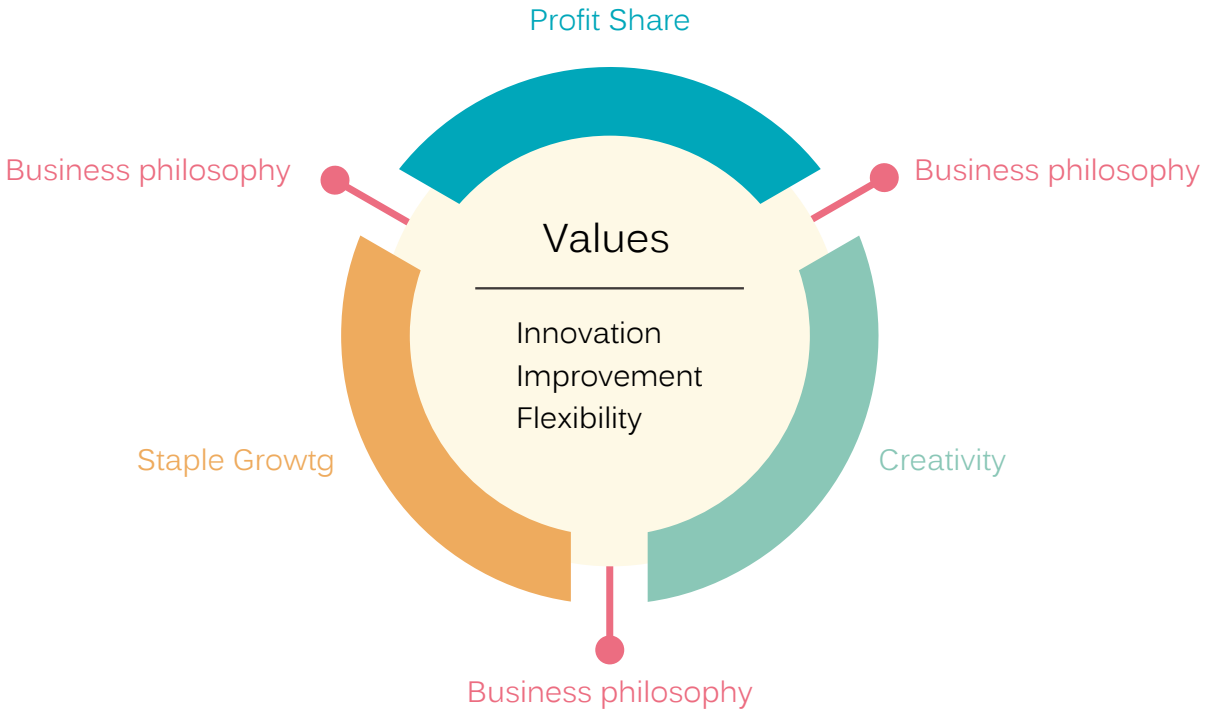
We share profits with employees, shareholders, customers and vendors.

Company -steady growth:

We follow the industry and market trends to ensure continuous, steady growth of the enterprise.

Employee-active innovation:

We develop new products and technologies actively, particularly the innovation of the work method, to increase our competitiveness.



We promise to comply with the Electronic Industry Code of Conduct (EICC) and give consideration to labor, health and safety, environment, management and code of ethics. We also promise to fulfill our corporate responsibility for positive and sustainable development of society.

2.1.2 Our service

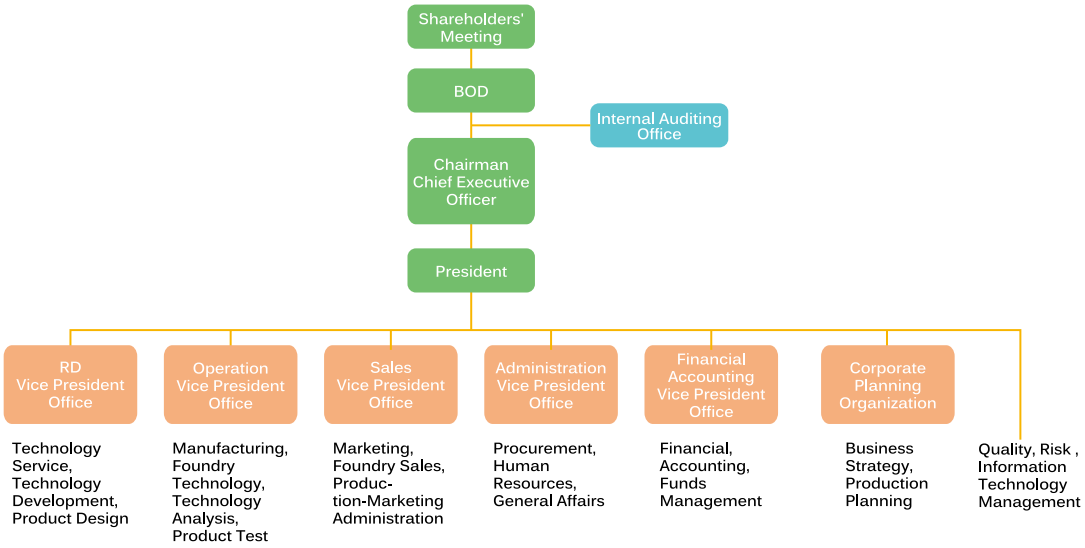
With Taiwan as our base, we have three 12-inch wafer fabs in Hsinchu Science-based Industrial Park. We provide professional foundry service in the fields of LCD drivers, CMOS image sensors, NFC, power management and various memory products (DRAM, NAND Flash, NOR Flash). Through our innovative “Open Foundry” model leading in the industry, we help customers to design chips, co-develop process technology with them and enhance our cooperative relationship with them. We make use of existing experience in memory development and production to develop integrated memory chips and integrate processes of various logic and memory chips. By doing so, we make ourselves different from other foundry competitors in the industry and tailor the most competitive wafer foundry services.

◎ Our location

Corporate Headquarters / Fab P1/2
FoundryFab P1 / Fab P2
Address: 12, Li-Hsin 1st Rd. Hsinchu Science Park, Hsinchu, Taiwan, R.O.C.
Tel: 886-3-5795000

Fab P3
Address: No. 16-1 Li-Hsin Rd. Hsinchu Science Park, Hsinchu, Taiwan, R.O.C
Tel: 886-3-5791000

2.1.3 Our organization structure



2.2 Corporate governance

We established our Articles of Association and various regulations based on the R.O.C. Company Act, Securities and Exchange Act and other relevant regulations. We formulate and implement the corporate governance structure on the premise that we follow the state laws, regulations and various internal regulations and systems. Our regulations associated with corporate governance are disclosed on our official website (http://www.powerchip.com.tw) for inquiry.

We set the BOD and supervisors in our corporate governance structure based on relevant legal regulations. The BOD is composed of directors. All directors and supervisors are voted by all shareholders. It is the duty of the directors to establish the vision, strategy, business and budget plan. The directors must also plan our med-term and long-term development direction, and supervise our business and plan and its implementation. It is the duty of the supervisors to monitor the implementation of our business and the diligence of the director and manager. The supervisors must also monitor the enforcement of our internal control system to diminish our financial crisis and business risk.

2.2.1 BOD

Our BOD is composed of 13 directors and 3 supervisors. It bears the responsibility for our operation, development and supervision. All of them have professional background and experience. They are very helpful in the operational decision-making and planning of operational strategies. Three of the thirteen directors are independent directors. The BOD invites experts of high social prestige and industrial status to participate in the corporate governance.

We arrange our directors and managers to participate in courses related to economy, society and environment every year. The implementation of continuing education of directors in 2016 is disclosed on Pages 24~25 of our annual report.

We have diligence regulations that expressly specify the recusal in the conflict of interests. The recusal due to conflict of interests is specified in the meeting regulations of the BOD. The director shall not participate in the discussion or resolution if he/she or the legal person represented by him/her has an interest therein. Relevant issues of recusal are recorded in the meeting minutes.

Our management team is composed of professional managers reviewed and approved by the BOD. All of them have professional knowledge in specific fields and extensive experiences in the industry. They are in charge of our daily operation and management. As for economic, social and environmental aspects, the Vice Presidents of Financial Accounting and Administration, as well as relevant high-level managers make decisions and deliver reports about these aspects at the meeting.

Chairman	**Steve R.L. Chen**（Representative of Zhi Ren Technology Co., Ltd.）
Director	**Frank Huang**
Director	**Tsai Guo-Zhi**（Representative of Powerflash Enterprise Co.,Ltd.）
Director	**Xu Qing-Xiang**（Representative of eMemory Technology Inc. ）
Director	**Alex Wang**（Representative of Li Yuan Investment Co., Ltd.）
Director	**Peter Ting**（Representative of PowerWorld Capital Management Corp.）
Director	**K.T.Tong**（Representative of Novax Technologies, Inc.）
Director	**Jerry Shao**（Reprensentative of Zhi Te Co., Ltd.）
Director	**Xie Zai-Ju**（Representative of Syntronix Corp.）
Director	**Tsukamoto Katsuhiro** (Representative of Zhi Xiang Investment Co., Ltd.)

Independent director	**Liu Jiong-Lang**（Former principal of National Tsing Hua University）
Independent director	**Nagasawa Koichi**
Independent director	**Zhang Chang-Bang**（Former Political Deputy Minister）
Supervisor	**Huang Chong-Heng**
Supervisor	**Chen Jin-Long**
Supervisor	**Lin Rong-Sheng**（Representative of AeroVision Avionics Inc.）

2.2.2 Management team

Operation Director	Steve R.L. Chen
Founder and CEO	Frank Huang
Deputy CEO	Xie Zai-Ju
President	Alex Wang
Senior Vice President	K. T. Tong
Senior Vice President	Peter Ting

Senior Vice President	Shi Yi-Qiang
Vice President of Investor/Public Relations and Spokesman	Tan Zhong-Min
Vice President of Sales	Wu Yuan-Xiong
Vice President of Business Development	Xie Ming-Lin
Vice President of Corporate Planning and Product Service	Liu Zhi-Neng
Vice President of Financial Accounting	Shao Zhang-Rong
Vice President of Administration	Peter Chen

2.2.3 Internal audit

Our Internal Auditing Office is an independent unit with designated auditors. It is subordinated directly to the Board of Directors and executes regular auditing operations according to the annual auditing plan approved by the Board of Directors. It also executes special audit cases, if required, to identify possible nonconformities in the internal control system and make improvement suggestions. The Internal Auditing Office incorporates the improvement proposals of the audited units in the audit report and take follow-up actions after the reported is submitted and approved to make sure that they have taken appropriate improvement measures in time. After the completion of various regular audits and follow-ups, it issues the audit and follow-up reports and reports them to the President, Chairman, independent directors and supervisors.

2.2.4 Diligence promotion

We encourage the employees to build an honest and trustworthy relationship with our suppliers during operation of the business based on fair, reasonable and legal principles. For this, we established the “Diligence Promotion Committee” on June 1, 2005 to help them understand that they shall strictly abide by the integrity and genuine principles while dealing with the upstream and downstream stakeholders associated with our business. The Committee also takes the responsibility for dealing with compromise of the integrity occurring during operation of the business and reported internally and externally.

We established the “Diligence Standards” on August 1, 2006. When handling lobbying, gift acceptance, business entertainment or other incidents involving in both personal and company interests, the employee shall abide by these rational, explicit and open standards. The “Diligence issue declaration/ reporting system” was launched officially on September 1, 2006. We have an email address for whistleblowers: ethic@powerchip.com. For any illicit conducts involved while our colleagues carrying out the operation, internal and external parties may report to the committee anonymously or by name.

2.2.5 Information security

Information security is an issue that may occur in any application node of the company. In consideration of the importance in the close relationship between the information security and the operation of the company, we establish a dedicated and independent “Information Security Office” with designated personnel and subordinate it directly to the President. Relevant regulations and control measures are available to protect the confidential information and continuous operation of the company and ensure the best benefits for the company and its shareholders, employees, customers, and suppliers.

We take the following control measures to ensure the security of the information assets that we and our customers or partners deliver:

1	We establish the “Information Security Policy” and “Information Security Management Regulations” according to ISO 27001, and amend the latter annually, if needed, depending on the current situation.
2	We establish the “Personal Information Management Regulations” with reference to the Personal Information Protection Act.
3	The “Information Security Committee” meeting is held every six months to discuss the issues related to information security. The President acts as the chairman of the Committee and the members are the representatives of the information, manufacture, R&D, human resources, risk management, information security, legal affairs, and quality management units.
4	Information security promotion, education and training activities are organized regularly for all the employees of the company to ensure that they have adequate information security awareness.
5	At least one information security audit is executed every year, and every unit is required to execute self-evaluation of information security once a year.
6	Action such as encryption of documents, control of peripheral equipment, management of outbound mails, printing and photocopying, and other IT control measures are used to minimize the disclosure risk of confidential information.
7	Door control and monitoring systems as well as the assess rights are inspected regularly to ensure best protection of the physical environment and important equipment.
8	Any employee who acts in violation of the information security regulations shall be reported to the human resources unit for further appropriate handling. Dismissal or litigation may be the result in case of serious violation.
9	We provide the “Partner’s Words” and “SIEM Information Security Incident Management Platform” at our portal. All the employees can leave a message about the issue of information security.

2.2.6 Associations/guilds and national/global reporting initiatives we've joined

Taiwan Environmental Management Association	Member
Environmental, Safety and Health (ESH) Committee of Taiwan Semiconductor Industry Association	Member
Innovation Forum for Taiwan Corporate Sustainability	Member
Taiwan Environmental Management Association	Member
The Allied Association for Science Park Industries	Director/General Convener of the Environmental Protection Committee/ Deputy Convener of the Security and Health Committee/Deputy Convener of the Joint Protection Committee
JEDEC Solid State Technology Association	Member

2.3 Business Performance

The consolidated revenue in 2016 was NTD 41.84 billion and the net income is NTD 6.57 billion. Since transforming into a wafer foundry company, we have had a surplus for three consecutive years to show our performance with stable profitability. The IC Insight, an international investigation institution, ranked us as the Top Five in its 2016 revenue statistics of global wafer foundries. We will surely make efforts to become the Top Four in the global wafer production industry.

Since our transformation to a wafer foundry service provider, we have demonstrated a performance of profitability for many years and paid off most of the loans to the bank. Considering the short supply of memories in the market and the strong demand for logic products, the OEM orders, gross margins and capacity utilization rates may remain at a higher level this year.

From now on, we will do our utmost to develop the open foundry technology and expand the foundry product portfolio to diminish the operational risk. We pursue an operation model with steady profits in the long run.

We will continue to reinforce the financial structure, pursue for stable profit, expand production cautiously and introduce strategies regarding new process and multivariate products actively. We integrate the effort of employees and create better operational performance. (For more information about our operating performance and annual financial statement, visit official website.)

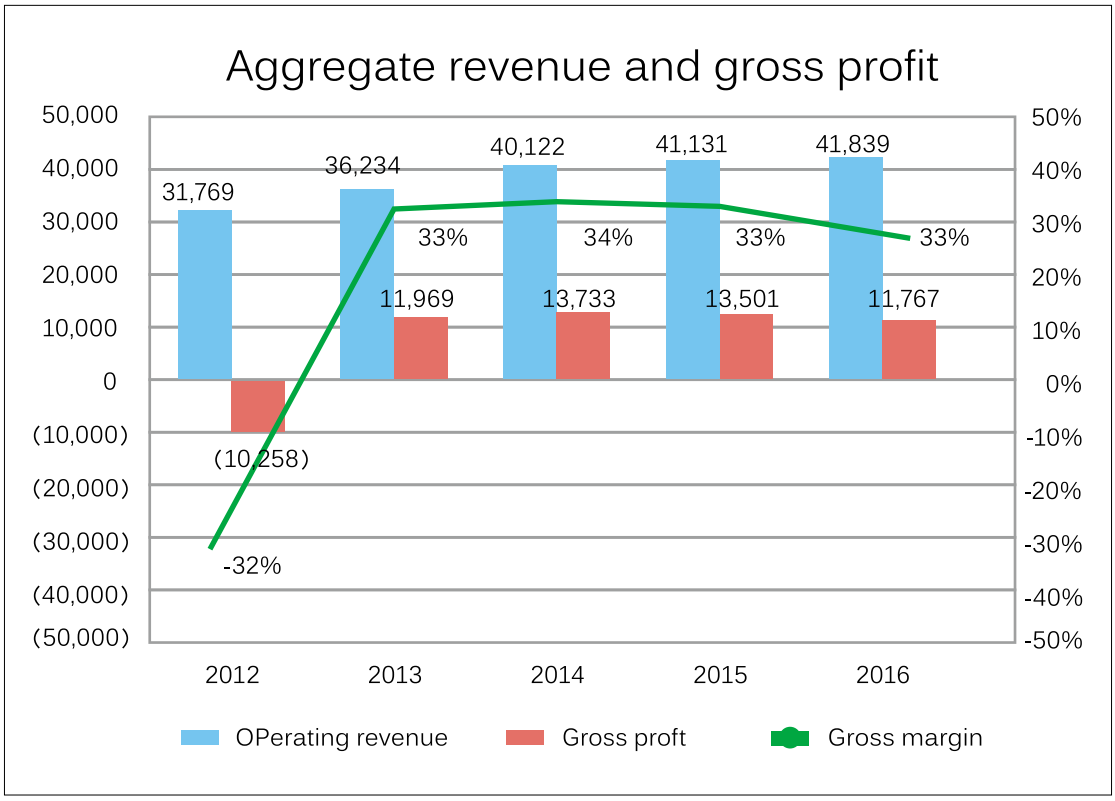
(http://www.powerchip.com.tw/?node=investment#financial)

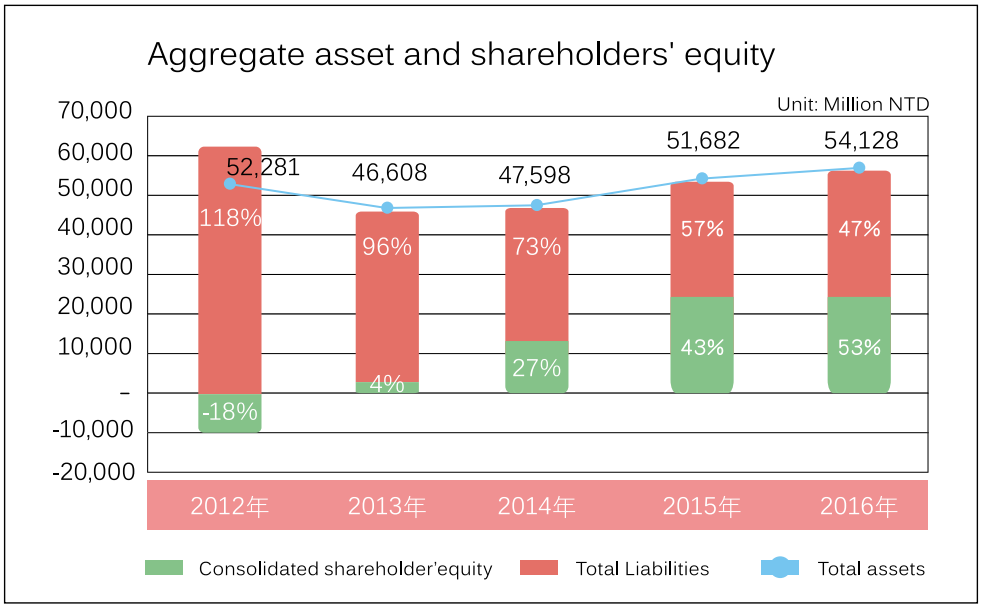
Our operation condition in the last five years

	2012	2013	2014	2015	2016
Employee welfare expenses (in millions)	5787	6275	7178	7502	9337
Tax expenditure (in millions)	41	43	44	53	46

Unit: million dollars

Item/Year	IFRS			Unit: million dollars	
	2012	2013	2014	2015	2016
Operating revenue	31,769	36,234	40,122	41,131	41,839
Gross profit	(10,258)	11,969	13,733	13,501	11,767
Operating income (loss)	(16,468)	11,584	10,488	10,101	7,865
Non-operating income (expense)	(3,913)	1,228	1,689	(282)	(1,294)
Pre-tax net profit (loss)	(20,380)	12,812	12,177	9,819	6,571
Deduction: Income tax expenses (profit)	9	1,153	48	(463)	4
Net income (loss)	(20,389)	11,659	12,129	10,282	6,567
Other comprehensive income for the period	(391)	(354)	429	(666)	(164)
Total comprehensive income for the period	(20,780)	11,305	12,558	9,616	6,403
Earning (loss) per share (dollar)	9.18	5.21	5.43	4.64	2.97
Gross profit (loss) margin	-32%	33%	34%	33%	28%





Note: The financial information of the Foundation is not incorporated in the assets.

2.4 Stakeholders' identification and communication

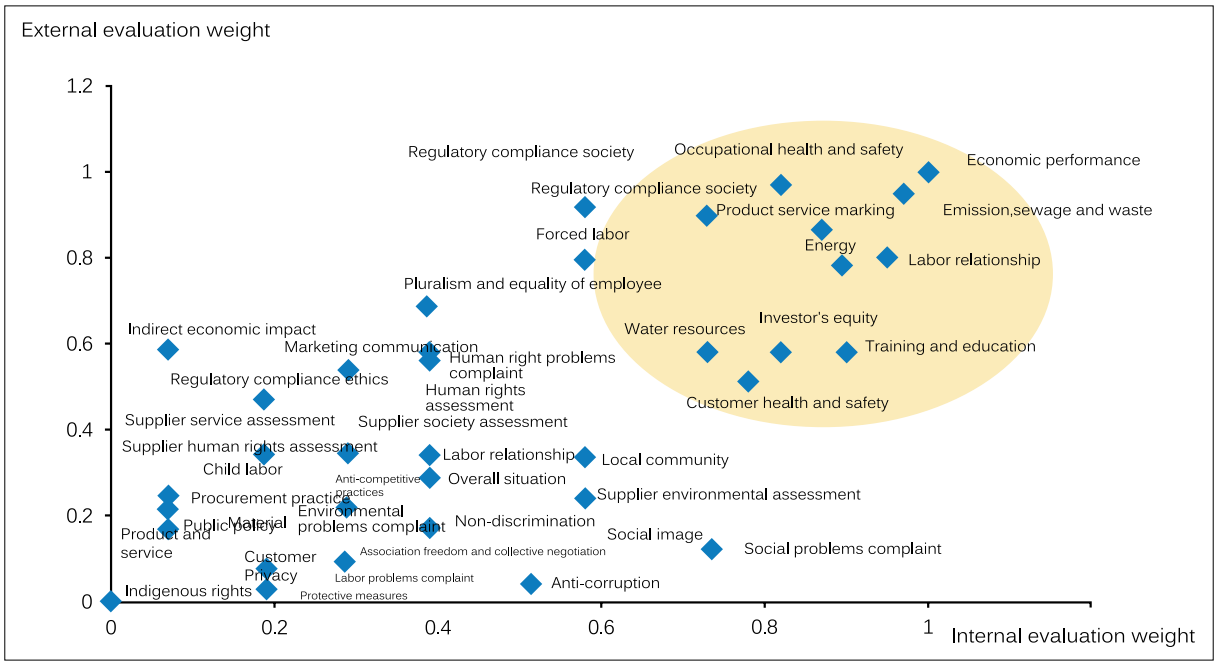
The departments of risk, safety and environment held a cross-department discussion and jointly established the “Powerchip Technology Stakeholders' Questionnaire Survey” to understand our stakeholders. The major stakeholders that are identified by influence and interaction frequency include the employers, job seekers, customers, contractors, suppliers, investors/partners, government agencies, public associations, reporters, and others (banks, nearby foundries).

The departments participate in public hearing/symposium/workshop activities, hold shareholders' meetings/symposiums/employees' quarterly meetings, issue annual reports/CSR reports, and organize educational training via internal and external websites as well as interactive web pages for employees/contractors/suppliers. They also communicate with stakeholders by email/phone and using other communication channels. The departments use different communication channels to collect, understand and respond to the issues that stakeholders are concerned about to ensure effective communication with them. The issues in which stakeholders are most interested, such as operation and management of the company, sustainable development and protection of the environment, and social responsibility, are announced externally in the annual, financial report and CSR reports issued every year.

2.5 Material issues

The departments collect the issues that stakeholders are most concerned about via the “Powerchip Technology Stakeholders' Questionnaire Survey” and “various communication channels. Only the issues that have a statistic percentage of more than 60% in their importance shall be listed as material issues after being discussed and assessed in cross-department meetings.

The material issues selected in 2016 include the “economic performance”, “energy”, “water resources”, “pollutant emission/restricted substance”, “supply chain management”, “employment relationship”, occupational health and safety”, “training and education”, “market presence”, “customer service”, and “anti-corruption”. These material issues will be disclosed in the report to demonstrate our management and performance.



Material issues and considerations					
Material issues and considerations	Organization boundary	DMA	Category	GRI	Reference Chapter
Economic performance	Internal: Powerchip External: Investor (shareholder)	2.3 Business Performance	Economy	G4-EC4	2.3 Business Performance
Energy	Internal: Powerchip External: Government agency	IV. Environmental Sustainability	Environment	G4-EN3	4.1 Resource Management
Water resources	Internal: Powerchip External: Government agency	IV. Environmental Sustainability	Environment	G4-EN10	4.4 Water Resource Management
Pollutant emission/ restricted substance	Internal: Powerchip External: Government agency, public association, customer,nearby foundry/neighbor	IV. Environmental Sustainability	Environment	G4-EN15 G4-EN16 G4-EN22 G4-EN23 G4-EN27	4.2 Greenhouse Gas 4.3 Air Emission Management 4.4 Water Resource Management 4.5 Waste Reduction and Management
Supply chain management	Internal: Powerchip External: Government agency, customer, supplier, contractor	3.1 Supply chain management	Society Labor	G4.HR11 G4.HR6 G4.HR5 G4.SO10	3.1.2 Sustainability regulations for the supply chain

Material issues and considerations	Organization boundary	DMA	Category	GRI	Reference Chapter
Employment relationship	Internal: Powerchip External: Government agency	3.4 Employment	Labor	G4-LA2	3.4 Employment
Occupational health and safety	Internal: Powerchip External: Government agency	3.3 Safety and Health Management	Labor	G4-LA6	3.3 Safety and Health Management
Training and education	Internal: Powerchip External: Government agency	3.4 Employment	Labor	G4-LA9	3.4.5 Training and development
Market presence	Internal: Powerchip External: Customer, investor (shareholder)	3.4 Employment	Labor	G4.EC5 G4.EC6	3.4.2 Selection and retention of talents
Customer service	Internal: Powerchip External: Customer	3.2 Product Service	Society	G4-PR5	3.2.3 Customer/product service and satisfaction tracking
Anti-corruption	Internal: Powerchip External: Customer	2.2.4 Diligence promotion	Society	G4-SO5	2.2.4 Diligence promotion

Stakeholder		Communication
1	Employee	1. We hold company quarterly meetings and one-on-one communicate with employees. 2. The executive of the department and the employee communicate with each other every six months. 3. We hold the employee physical examination regularly every year. 4. We establish a clinic as a channel providing employees and their dependents with health care medical services and health consultation. 5. We announce information on the real-time internal website, Employee Welfare Committee's website and "Partner Column" promptly and respond to problems. 6. We send health information to implement health education via email, website and health and management system occasionally. 7. We convene the ESH Committee meeting regularly every quarter. 8. We hold the anniversary/family day/year-end party/other activities regularly every year.
2	Candidate	1. Communication during interview 2. Company website
3	Customer	1. We respond to and communicate with customers anytime directly via real-time network platform (official website, phone and email) for the customer. 2. We carry out the real-time customer audit and give out the survey to receive response (with the audit response and OQC Waive Form). 3. We visit customers regularly or occasionally. We deliver a presentation, hold a discussion and make a report to share ideas. 4. We implement real-time customer satisfaction monitoring.
4	Contractor	1. We build a contractor network information system for communication. 2. The contractor signs the "Letter of Guarantee for Compliance with the Safety, Hygiene and Environmental Protection Rules for Contractors". 3. We set up a contractor consultative organization and convene regular meetings every month for communication. 4. We track the health condition of the contractor regularly every year. 5. Our 24/7 health center offers health consultation service to the contractor. 6. We provide health care to ill or injured contractors. 7. We hold a seminar to notify the contractor for the construction risk.
5	Supplier	1. We convene interactive business communication meetings regularly every year. 2. We organize a meeting for the inspection of chemical suppliers every year. 3. We hold communication and coordination meetings, carry out the vendor audit and promote company policies (e.g., environmental, safety and quality issues, payment policy, transportation, etc.). 4. We meet with suppliers face-to-face to promote the company policy or share the market information. 5. We convene the meeting to explain the environment, safety and health policy and corporate responsibility requirements occasionally according to the announcement of new company policy. 6. We convene the meeting for the company goal and the guidance for environment, safety and health.
6	Investor/partner	1. We report and explain to the investors in the shareholders' meeting every year in June and explain the issues they are concerned about. 2. We join the meeting for the domestic and international investment institution. 3. We join the project meeting regularly every year or exchange staffs for interaction and learning. 4. We provide the industrial safety and health information in the company annual report every year. 5. We issue company annual report/CSR report every year to let shareholders know our financial and operation information. 6. We disclose the company information on the Market Observation Post System (MOPS) regularly.
7	Government authority	1. The government agency appoints the auditors to our fab for auditing irregularly every year and we take cooperative actions for the audit. We also join various seminars organized by the government agency. 2. We irregularly interact with the National Taxation Bureau, Revenue Service Office, Hsinchu Science Park Bureau, Taipei Exchange (TPEx) by phone, email, public hearing and seminar.
8	Public association	1. We hold the discussion, communicate, respond or report information and application issues via official letter, Internet and phone. 2. We irregularly take part in the seminar and workshop for promotion of regulations. 3. We attend selection for various contests and provide relevant information and report response. We also participate in the audit and on-spot inspection for communication and interaction. 4. We subscribe relevant studies information based on business needs every year. 5. The analyst visits regularly or occasionally (including having a conference call with us) to exchange industry information. 6. We join overseas meetings.
9	Reporter	We establish the Public Relations Office to interview face-to-face with the media depending on the current requirement. We also hold phone interview, call press conference and provide news information, etc., if necessary.
10	Others	1. Accounting firm: We organize the business communication meeting for accounts, financial statement regularly every year. 2. Bank: We regularly explain our operating status and financial information to the bank. 3. Third party inspection/testing unit: We together with responsible and related departments help in provision of the information and report. 4. Competitor: We call press conference or issue a press release irregularly. 5. Neighbor/nearby foundry: We report accidents and conduct emergency response and support exercises.

2.6 Awards

Powerchip abides by domestic laws and regulations. Meanwhile, we also strive for environmental protection and improvement for pollution prevention. Our performance is recognized and awarded by relevant authorities. Relevant award information over the past 10 years is shown below.

Year	Award
2007	Annual award winner for Science Park Factory Green Landscaping
	The Sixteen Session of Enterprise Environmental Protection and Golden Dragon Award from Environmental Protection, Administration Executive Yuan, R.O.C.
	2007 Excellent Performance Award for Science Park Industry Environmental Protection
	2007 Water Conservation Unit Merit Reward
2008	2007 Excellent Company for Voluntary Industry Greenhouse Gas Emission Reduction
	2008 Premium Award for Excellent Carbon Reduction Corporate of Hsinchu Science Park
2009	Passed TOSHMS: 2007 Validation of Taiwan Occupational Safety & Health Management System.
	Received Excellent Staff Award for Labor Safety and Health from Hsinchu Science Park Administration Bureau
	Received Personal Excellent Performance Prize for the Fifth Session of Atomic Energy Safety Merit Award
	2009 Merit Award for Excellent Energy Conservation Company of Hsinchu Science Park
	Health Promotion Mark for Performance Assessment of Self-certification of Healthy Workplace
2010	Received the Forth Session of National Industry Safety Award from Ministry of Labor, Executive Yuan R.O.C.
	Received 2010 Excellent Unit Award for Labor Safety and Health from Hsinchu Science Park Administration Bureau (P1/P2 Foundry).
	Received 2010 Excellent Staff Award for Labor Safety and Health from Hsinchu Science Park Administration Bureau (Head Office).
	Received 2010 Excellent Staff Award for Labor Safety and Health from Hsinchu Science Park Administration Bureau (P1/P2 Foundry).
	Received 2010 National Waste/ Wastewater/Air Pollution Dedicated Staff Model from Environmental Protection Administration
	Receive 2010 Premium Award for Science Park Factory Green Landscaping
	PAS2050 Product Carbon Footprint Certification approved.
2011	Excellent Service Unit for the Nineteenth Session of National Labor Safety and Health Corporate Operations Group
	Personal Contribution Award for the Fourth Session of Safety Partnership Annual Meeting
	Received 2010 Excellent Staff Award for Labor Safety and Health from Ministry of Labor, Executive Yuan R.O.C. (Merit Award)
	Received 2011 National Waste/ Wastewater/Air Pollution Dedicated Staff Model from Environmental Protection Administration
	Received 2011 Excellent Weight-loss Workplace for the “100% Health, Go Taiwan” activity of Health Promotion Administration
2012	2011 Excellent Service Staff of National Labor Safety and Health Corporate Operations Group, Ministry of Labor
	Received Appreciation from TOSHMS Promotion of Northern Region, Ministry of Labor, Executive Yuan R.O.C.
	Received 2012 Merit Award for Energy-saving and Carbon-reducing Mark from Ministry of Environmental Protection, Administration Executive Yuan, R.O.C.
	Received 2012 Excellent Weight-loss Workplace for the “100% Health, Go Taiwan” activity of Health Promotion Administration
2013	Received 2013 Merit Award for Energy-saving and Carbon-reducing Mark from Ministry of Environmental Protection, Administration Executive Yuan, R.O.C. (P1/P2 Foundry)
	Received 2013 Excellent Company for Science Park Factory Green Landscaping and Environmental Preservation Competition
2014	Received Merit Award for Science Park Water Conservation
	Received 2014 Excellent Unit Award for Labor Safety and Health from Hsinchu Science Park Administration Bureau (P1/P2 Foundry).
	Received 2014 Excellent Company for Science Park Factory Green Landscaping and Environmental Preservation Competition

Year	Award
2015	Received 2015 Science Park Excellence Award for Labor Safety and Health Staff (P3 Foundry)
	Received 2015 Excellent Company for Science Park Factory Green Landscaping and Environmental Preservation Competition
	Received Excellent Corporate Award for Ammonia Wastewater Reduction (P1/2 and P3 Foundry)
2016	Received 2016 Science Park Excellence Award for Labor Safety and Health Staff (P3 Foundry-2 staffs)
	Received 2016 Science Park Excellence Award for Labor Safety and Health Unit (P3 Foundry)
	Received 2016 Excellent Company for Science Park Factory Green Landscaping and Environmental Preservation Competition
	Received 2016 EPA Excellent Award for Handling Performance of Toxic Chemicals (P3 Foundry)

Corporate Social Responsibility

The World Business Council for Sustainable Development (WBCSD) states that corporate social responsibility is a continuing commitment of the business to comply with ethical requirements and contribute to economic development while improving the quality of life of the employees and their families as well as the community and society at large. We include bring into this goal in our operation and continue to forge ahead toward this goal. We make economic contribution while improving work environment and caring about physical and mental health of the employees as well as their development at workplace. We integrate our employees, supply chain partners, community residents and associations to build a living area where we can all live happily, enjoy prosperities and carry out sustainable development.

3.1 Supply chain management

3.1.1 Building a sustainable partnership with the supplier

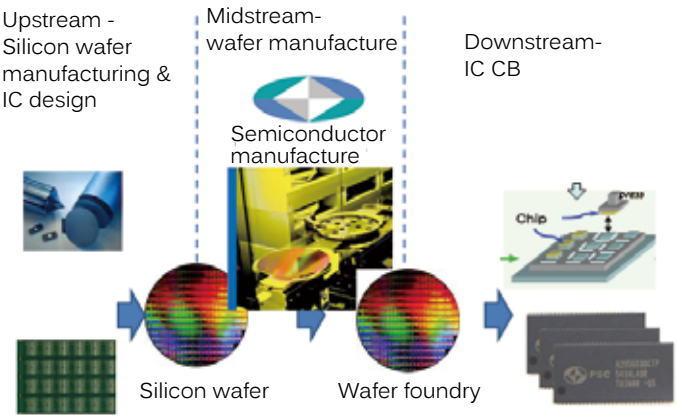


Fig. 3-1 Our process supply chain pattern

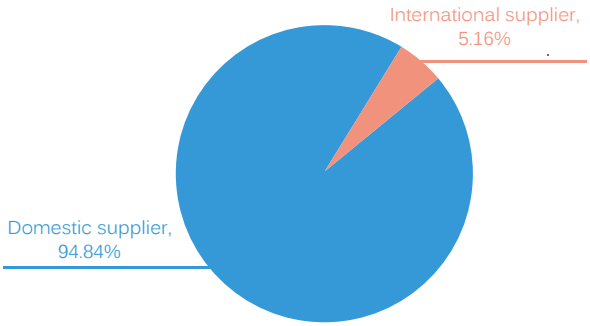


Fig. 3-2 Procurement ratio of domestic and international suppliers in 2016

In our intermediate process of semiconductor die, we etch the blank wafer according to the circuit diagram made by the IC (Integrated Circuit) design company, and then hand over the wafer to the downstream company to carry out chip packaging. We are very close to the upstream and downstream companies so we really care about the geographical relationship.

Taiwan science-based parks possess a complete semiconductor supply chain and provide us with prompt and robust support. Efforts and supports from local suppliers are indispensable essential elements for us to increase our competitiveness in the industry. By supporting the local supplier, we can reduce the shipping fee and time cost, create local work opportunities and promote the industry development to create mutual benefits and win-win status. Our local procurement ratio is considerably high. We make contributions to the support of the industrial supply chain and advancement of local development. (A domestic vendor refers to the supplier with a VAT number in Taiwan Area.)

3.1.2 Sustainability regulations for the supply chain

We request the suppliers to maintain great quality, meet delivery dates and comply with our ESH regulations. We also claim that the suppliers should contribute to the corporate social responsibility. We have a discussion with the suppliers and make audit every year. While helping them with the improvement of their internal process, we support them in the acquirement of relevant ISO certificates and increase its competitiveness.

We inspect for conflict metals and request the suppliers for the information of the latest version actively every time it is revised. None of our suppliers currently use conflict metals. We also request the suppliers to comply with national environmental protection regulations. We encourage them to be engaged in R&D and innovation, propose solutions for reducing the burden on the environment and live long with the environment.

Currently, 92 major material suppliers have signed the Supplier Code of Conduct (SCoC). We incorporate the labor, human rights and social impact in the supply chain management and no forced labor or infringement upon human rights is identified. We will continuously uphold the principles of integrity, reciprocity and fairness in the hope to grow together with our suppliers. We have started to make plans and compile documents for managing the suppliers of parts and components to ensure smooth supply and stable incoming quality.

3.1.3 Building a specific and effective contractor management system

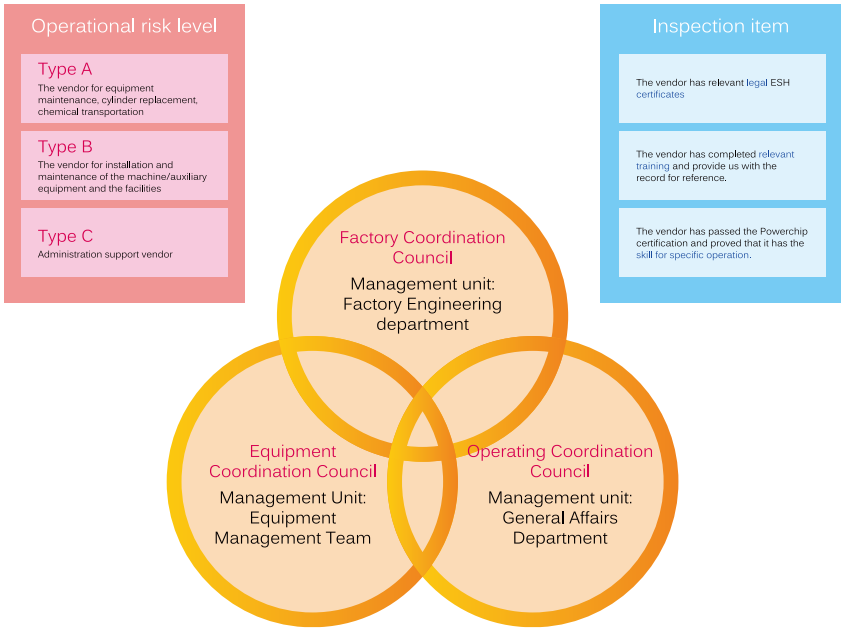
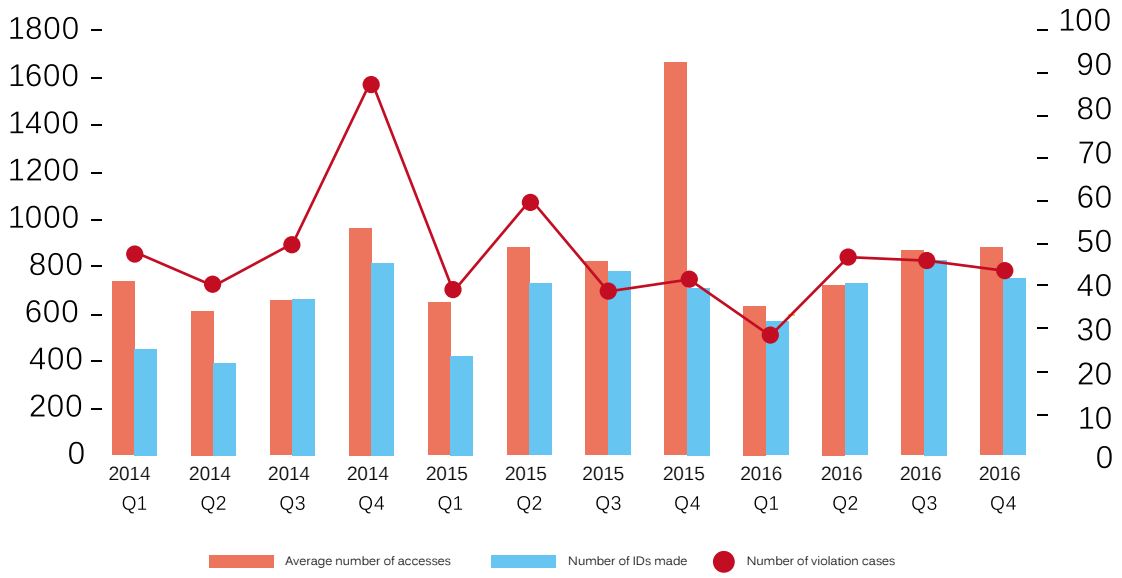


Fig. 3-3 Work division in management

By implementing a separate management system according to the property of the consultative organization (Fig. 3-3) in conjunction with the contractor electronic management system, all staffs of the contractor entering our plant can understand our regulations and environmental hazards in the plant area. We carry out the contractor evaluation system, personnel operating ability certification and operational control. Therefore, we can get feedback created from safety management tasks of the contractor from different stages and we can ensure the quality at every level. Extension of the contractor work permit was implemented in the factory area during 2016 to make sure the compliance of the contractor's qualification to assess our factory areas (Fig. 3-4). More contractors entered in our plant area in comparison with past years (Fig. 3-4). It was more often that we audited the performance of the contractor on the site. We notified the contractors of the hazard before the operation so that they could manage on their own on the site. 481 suppliers were subject to the verification and 367 of them (76.3%) finished it before 2016. No occupational accidents occurred thanks to strict control.



3.2 Product Service

3.2.1 Building a green supply chain and Green Product (GP)

Since 2002, we have introduced the production of lead-free products. We follow the international trend for environmental protection and correspond to the customer needs. Since 2003, we have actively promoted green design, green purchase, green manufacturing and green packaging. Since 2003, we have been approved and certified by international customers such as SONY and CANON and become a green partner of our customer. (Fig. 3-5) To carry out green management effectively, we integrate plant manufacturing with quality for easier implementation based on the spirit of ISO. We build a series of green management procedures to complete the Hazardous Substance Free (HSF) procedure and plan for product realization. The events include the selection of the green management representative, educational training for all employees, themed internal audit, annual audit of the vendors, continuous supervision of the material and product, customer feedback, and support for the vendors in the establishment of the hazardous material management system.


SONY

Notification of Green Partner Certification

KYOYO ELECTRO CORPORATION

Fig. 3-5 Green Partner Certificate

Our green management synchronizes with international regulations. For our products, we use the Life Cycle Assessment (LCA) system to find out the environmental impact of all products and assess the pollution improvements based on the impact. In addition, we comply with the Restriction of the use of certain Hazardous Substances (RoHS) in electrical and electronic equipment and Substance of Very High Concern (SVHC) for the sample assessment and purchase of the material, the packaging and delivery of the product, as well as the packaging material.

It is necessary to control the environmentally restricted material from the source. In consideration of the international regulations and the emphasis and restriction that many countries imposed on PFOS (Perfluorooctane Sulfonate) and PFOA (perfluorooctanoic Acid), we implemented the hazardous substance free plan for years and used the resistors without PFOS (Table 3-1). We have completed 62% of the replacement at the end of 2016. We will continuously make short chain PFAS tests in the hope to select the environmental friendly material with preference while maintaining a stable process.

料號	PFAS C1-C4	PFAS C5-C7	PFOS C=8	PFAS ≥ C-9	PFOA	Content ratio	Replacement
32-01-0051S	-	-	BARCs	-	-	-	Replaced
32-01-0009	-	-	BARCs	-		2.38%	Replaced
32-01-0035	-	-	BARCs	-	-	-	Replaced
32-01-0002	Resists	-	-	-	-	<0.01%	Substitute under verification
32-01-0008	Resists	-	-	-	-	<0.5%	Substitute under verification
32-01-0010	Resists	-	-	-	-	<0.01%	Substitute under verification
32-01-0011	Resists	-	-	-	-	<0.01%	Substitute under verification
32-01-0057	Resists	-	-	-	-	<0.5%	Substitute under verification
32-01-0014	Resists	-	-	-	-	0.04%	Replaced
32-01-0001	Resists	-	-	-	-	0.14%	Ceased,replaced
32-01-0031	Resists	-	-	-	-	0.41%	Ceased,replaced
32-01-0046	Resists	-	-	-	-	0.18%	Ceased,replaced
32-01-0059	Resists	-	-	-	-	0.03%	Ceased,replaced

Table 3-1 Our PFOS survey and corresponding confirmation form

Fig. 3-6 Supplier workshop

The amount of environmentally hazardous substances increases continuously. Due to the constraints on process technology, chemicals in a few processes are non-replaceable. Sometimes the chemicals are required by the customer or cannot be replaced with other materials. As for the plan for reduction of hazardous substances such as PFOA/PFOS, we have requested the suppliers to cooperate and send the material for PFOA/PFOS examination during the stage of new material assessment. After the product is put into production after going through the pilot run, we will send the material for examination again. We will make sure that the product meets the international regulations and the environmental protection criteria specified for the product by the customer. Furthermore, we control the green management of our own product and foundry product based on equivalent criteria.
We actively share our resource and green knowledge provided by the industry, government and academia with all customers, suppliers, outsourcing vendors and even competitors. We hope to ensure smooth interaction with the upstream and downstream suppliers to acquire their support in favor of continuous development of the green management.

We invited suppliers to the supplier workshop in 2016 to help them understand more about our requirements and directions with respect to the green environmental protection and product quality. (Fig. 3-6) We briefed the suppliers about our green control and quality requirements. Personnel of the SGS FAR EAST LIMITED were invited to give comprehensive explanation of the development of international green regulations and relevant restriction on substances. Other matters such as quality of material, control of chemicals, and Electronic Industry Code of Conduct (EICC) were somewhat disseminated in the workshop. The purpose of the workshop was to take more care of the environment together with the suppliers in order to coordinately improve the economic and environmental development, enhance interaction and relationship between partners, and incorporate them in the green supply chain.

Another important thing we do is to “start from ourselves”. We continuously provide courses related to management of hazardous substances, build GP e-Net, and help top management and all the employees finish the courses and pass the examination through training in the fields of environmentally restricted substances and e-Learning application. We also publish following green KIPs (Key Performance Indicators) on the GP e-Net:

The delivery provided in GP test report of productive (raw) material/letter of undertaking = 100%

Annual GP tests executing rate of Powerchip products = 100%

The indicator requirements were satisfied in 2016 under green management and control measures. For the execution of internal audit, we discuss the internal operation of the department with the group face-to-face or via e-auditing and make sure that employees can interact with each other for knowledge exchange. Through these training, we educate the employees and make sure they know that everyone is responsible for environmental protection. Control of hazardous substances is the obligation that we all must fulfill.

3.2.2 Customer privacy and data protection

We respect the maintenance of the long-term partnership with our customer. We also protect the confidentiality during the business contact. We have a specialized team responsible for customer contact and visit customers regularly and actively. Our common belief is to solve problems rather than creating them. No incident regarding customer complaint for privacy violation or data loss has occurred so far.

3.2.3 Customer/product service and satisfaction tracking

We value customer opinions and we are willing to solve problems with customers. We have specialized personnel, special line and specialized department for customers to contact us any time. We hold a face-to-face discussion meeting with customers regularly and give out surveys for them to report problems. We want to know the problems that the customers have anytime and solve them with the customer in the shortest time possible. We report the relevant records to the management at the operational performance meeting. The contents and results of the customer satisfaction survey in 2016 are described below:

1.Target/product/score:

Major customers (more than 2000 pieces put into production). The products included niche and standard DRAM and Driver IC, Power, CIS, and other OEM logic products. Rating was made for quality, technology, and delivery.

2.Survey:

(1) QBR (Quarter Business Review) of the reference customers was used as the baseline to integrate the survey results of different systems (QWEB Quality web/SAP Systems, Applications, and Products in Data Processing) in the factory.

(2) Quality, delivery, and technology involved in QC, Mfg, and integration departments were evaluated.

(3) Monthly self-evaluation and quarterly customer feedback and reply.

3. Results and descriptions of the survey in 2016: Customer satisfaction was 89% on average (Good).

(1) The number of MRB (Material Review Board) major cases was reduced by 57% in comparison with last year, indicating a substantial decrease of major quality cases.

(2) The delivery dropped by 20% because the specifications of delivery became unreasonable after change of the product portfolio. The delivery was improved at the end of 2016 (from 73% to 82%) after reasonable specifications were reestablished together with the customer.

4. Continuous improvement: With the FQIS (Foundry Quality Index System) as a platform, the quality system was reviewed and improvement proposals were raised at the management review meeting every six months.

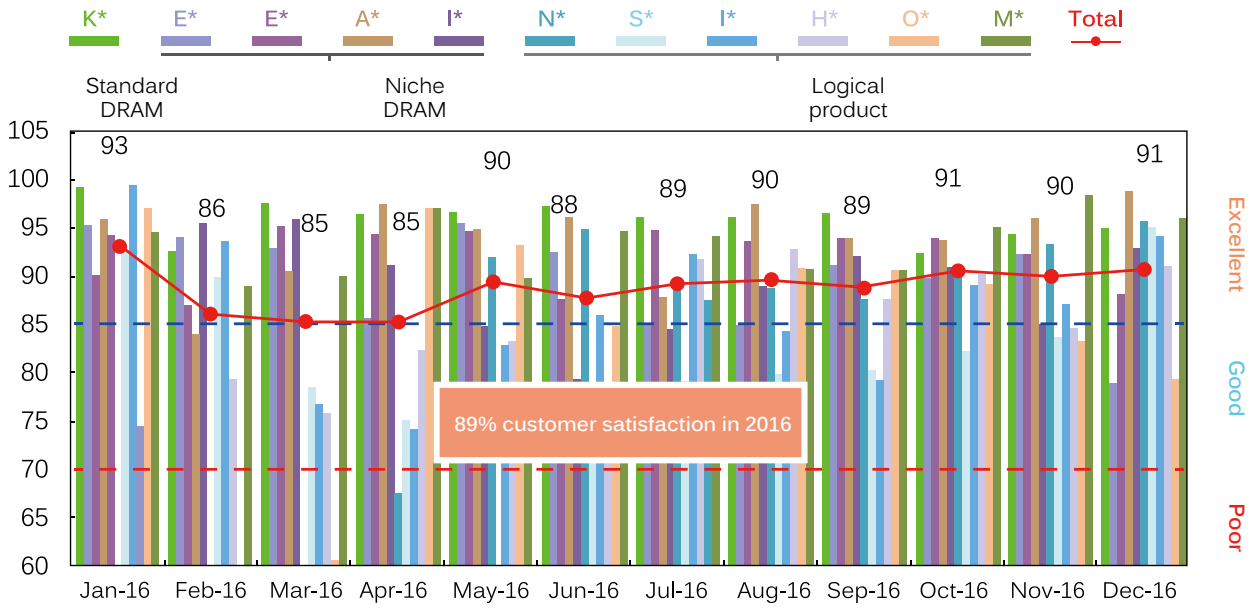


Fig. 3-8 Powerchip customer satisfaction

3.3 Safety and Health Management

We have three 12-inch semiconductor plants for now. We have almost 4,800 on-site operators. We use more than 1,000 types of chemicals and carry out tens of thousands of types of various process steps simultaneously. Relevant operating items and control measures shall be changed according to the process steps. Therefore it is important to plan and implement the perfect risk management process, and an appropriate daily management system must be established. We can control the physical hazards effectively only with complete integration and control of various systems linked with each other. Through these systems, we can reach the goal of maintaining the sustainable operation of the corporation.

3.3.1 Occupational Safety, Health and Environment Committee

We set up the "Occupational Safety, Health and Environment Committee" and raise suggestions for formulated safety, health, and environment policies. We review, negotiate and suggest safety and health related issues. This committee is composed of the President, executives of all departments and employee representatives (labor members up to 97.5%, which meets the regulations). We create the consulting and research system for our safety, health and environmental protection issues. Through management functions such as planning, implementation, examination and improvement, we accomplish the goal of and improve the HSE management standards. Therefore we can avoid occupational accidents, improve environmental health and guarantee the safety and health of our employees.

Title	Position	Number of people
Chairman	Deputy of the business manager	1
Secretary	Helping the committee with coordination of committee issues	1
Committee	Executive, supervisor and director	18
Committee	Engineering technician	23
Committee	Medical worker	1
Committee	Safety and health personnel	2
Committee	Employee representative	49

Table 3-2 Introduction of members of the Occupational Safety, Health and Environment Committee

3.3.2 Designating the HSE goal and relevant action plan

Our HSE goal for 2016 was to "pursue the sustainable environmental protection and fulfill the corporate social responsibility", "enhance HSE management results", "improve the environmental safety in the factory and enhance the emergency responding ability", and "diminish the operating loss due to the internal hazards". Specific outcomes are listed below:

(1) Innovative and sustainable environment development: The effective utilization of energy and resources was improved. The annual reduction rate of carbon emission to be achieved was set to 1% and actual carbon emission was reduced by 1%. (Energy saving and carbon reduction, process emission reduction, and source reduction)

(2 Strengthening the HSE management: We carried out numerous control measures such as implementing various on-site inspections and issuing deficiency notices for more than 7081 cases. Therefore, our FSI (0.06) was better than the industry standard (0.09), and the goal of zero significant environmental and industrial accidents was achieved.

(3) Reinforcing the environmental safety in the factory and the ability to respond to emergency: As for out specific outcomes, we have carried out the emergency response drill, appointed the instructor for each department to teach beginners, and established the ERT certification system.

(4) Diminishing the operating loss due to the hazards in the plant: As for specific outcomes, we have enhanced the disaster prevention ability of the contractor, audited the performance of the contractor, supplier and subcontractor, and set up the backup system for the damage prevention system.

3.3.3 Disabling injury

We provide excellent and safe working environment and mechanical equipment according to relevant laws and march forward with the “zero industrial injury” as the goal. Protection of the employees for their safety and health is the goal that we are making efforts to achieve.

The FSI, occupational disease rate, and absence rate over the past three years are statistically displayed in Fig. 3-9 and Table 3-3. Four lost-time accidents occurred in 2016, and analysis of the causes, review of the operation procedures, and planning of preventive measures were carried out among the factories to avoid recurrence of similar accidents.

The statistics for the [FSI (internal industrial injury/traffic accident)] shows that the traffic accident on the way to and from the office is the primary reason for loss of working hour. In addition to improvement of the operational safety training, we considered to plan different proactive measures such as reinforcement of the traffic safety awareness among the employees and provision of hands-on training courses to enhance the risk awareness and defensive driving concept of the employees.

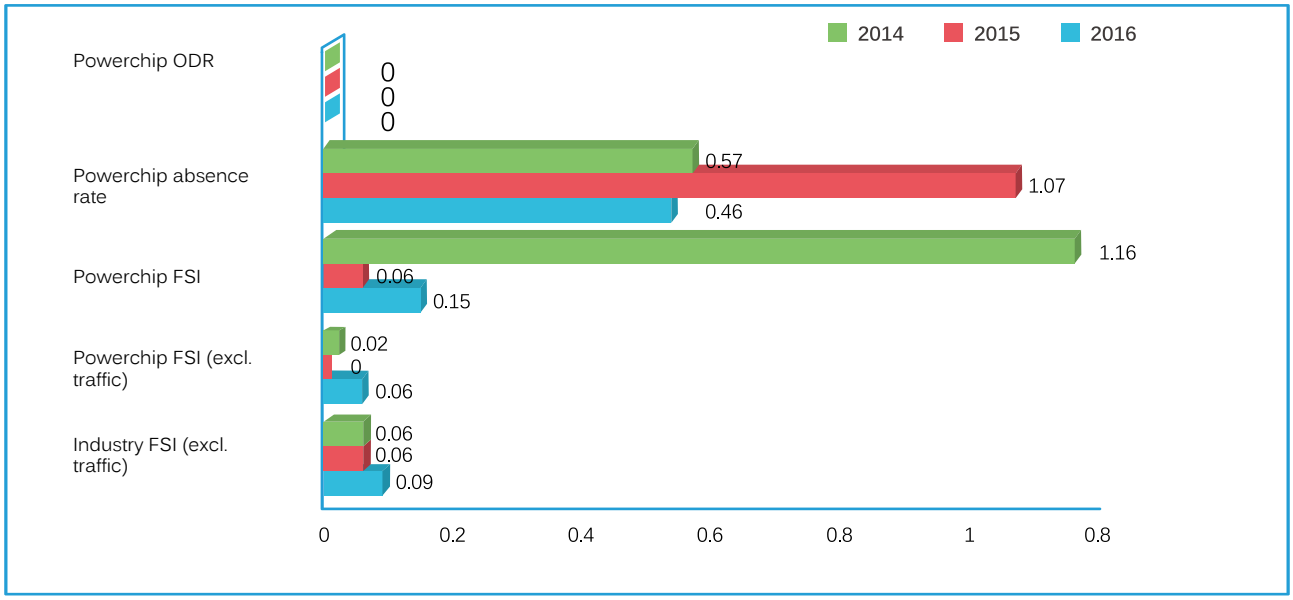


Fig. 3-9 The data trend of Powerchip's occupational accidents over the past three years

Item	2014	2015	2016
Occupational disease rate	0	0	0
Absence rate	0.57	1.07	0.46

Table 3-3 Occupational disease and absence rate

Note: Occupational disease rate = Total occupational diseases/total person-work hours (hour) *100%; absence rate = absence hours/total person-work hours (hour)*100% (person leave, sick leave, absent without leave)

3.3.4 Control of the HSE assessment

We comply with the spirit for continuous improvement of HSE management system. In 2016 we modified the risk assessment document and carried out the reevaluation of operation in major departments. In consideration of the operation in different factories, we updated the risk identification for capacity planning and response, as well as the confirmation of abnormal events. We have completely checked all operational risks of various operating activities in the plant and assessed the control outcome via the semi-quantitative method. We also made sure that the main points of the process activity and the risk assessment comply with the current operating activity. We listed the operations with high risk and potential health risk in the project for focused management. According to the summarized results of risk assessment from all departments in 2016, the ratio of working environment hazard (25%) and chemical hazard (23%) were higher than that of the rest of operational risk types. After evaluation and discussion, the Occupational Safety, Health and Environment Committee decided that all departments should observe the control measures, carry out the daily inspection, wear PPE during the operation, provide educational training regularly, implement management of waste sorting, and execute the emergency response drill to ensure that all hazards were under effective control. All departments should carry out control of on-site operation safety procedures and ensure that employees work at ease in a safe environment.

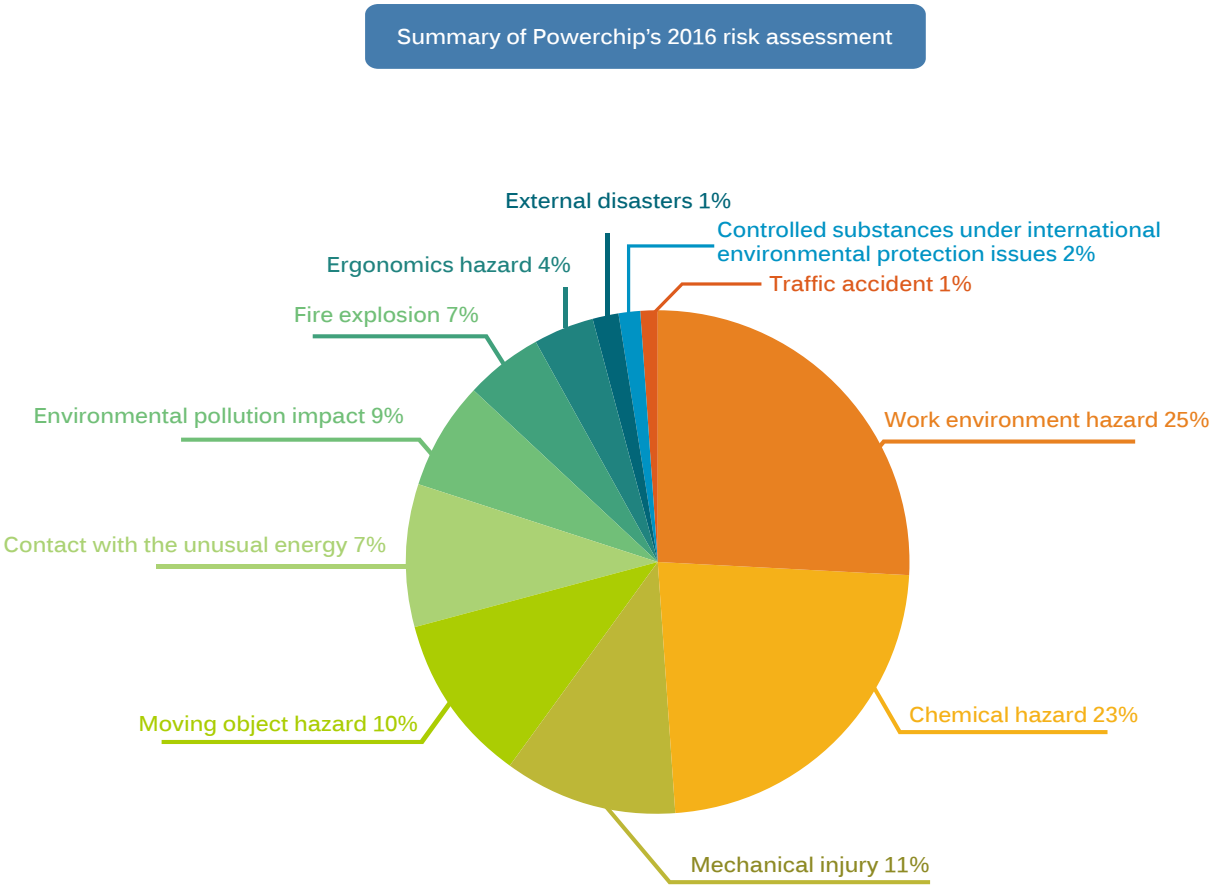


Fig. 3-10 Summary of Powerchip's 2016 risk assessment

3.3.5 Implementation of the change management

During the process of change control, the most important starting point is to learn the information of change in advance. While requiring all units to report the change information actively, we establish the layout change request system, sample assessment request system (chemicals and parts and accessories) and other electronic systems such as the Planning Web system (equipment/machine change information) and ECMS (Engineering Change Management System). We control the change information effectively in a systematic approach. According to the internal risk audit and impact assessment in 2016, 13 cases were identified as the changes with high HSE risk. These changes should be activated only after the departments of risk, safety and environment and other relevant departments in all factories made sure that these cases had no impact on existing safety protection.

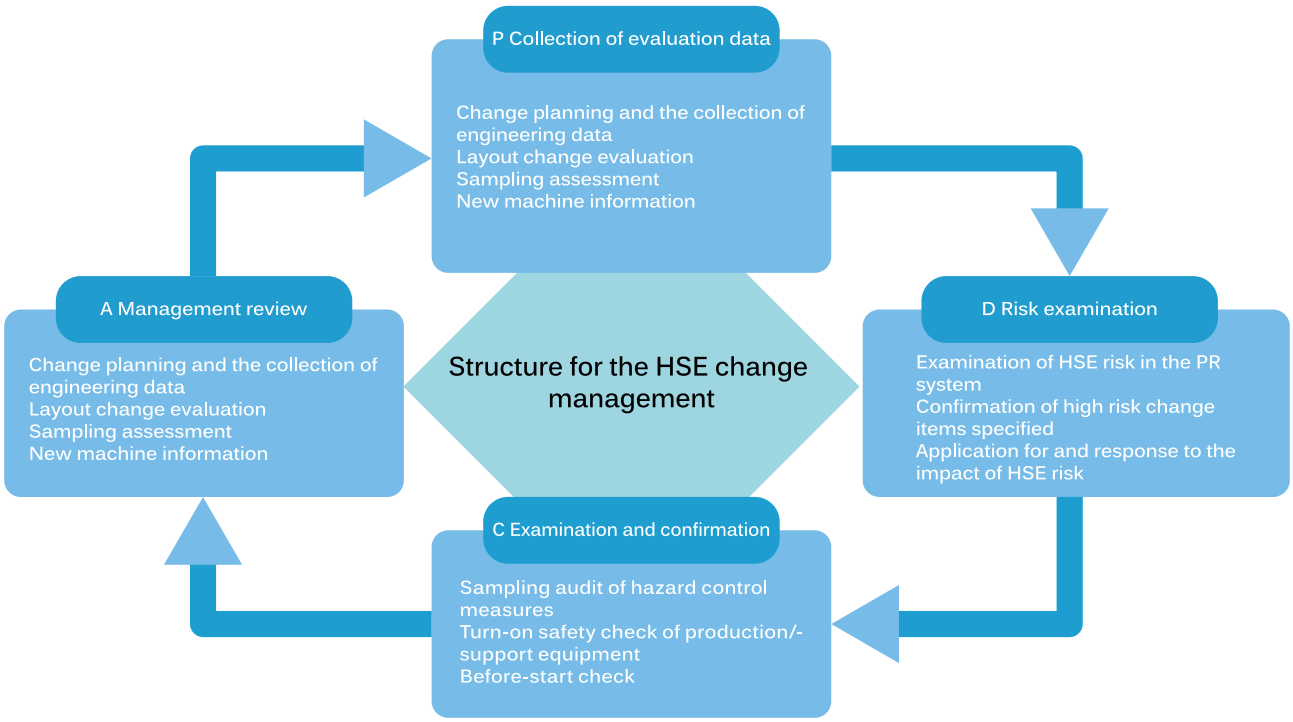


Fig. 3-11 Powerchip's change management structure

3.4 Employment

3.4.1 Numbers of employees and expertises

Employees are Powerchip's most important assets and drive the company to grow continuously and stably. As a result, we take talent cultivation seriously and strive to develop a better workplace. We provide complete educational training and welfare systems, and we expect that all employees have good healthy conditions mentally and physically when they work hard for the company. We also hope our employees make use of their expertises at work to promote personal and corporative growth.

Category	Age	Number		Percentage
		Male	Female	
Manager	Below 30 (incl.)	0	0	0%
	31-50	367	72	85.6%
	Above 51 (incl.)	66	8	14.4%
	Total	433	80	100%
Employee	Below 30 (incl.)	561	354	21.5%
	31-50	1806	1518	77.3%
	Above 51 (incl.)	34	17	1.2%
	Total	2401	1898	100%
Employment status	Full-time	2834	1979	100%
	Part-time	-	-	0%
Total		4813		
Seniority avg.		8.21 年		

Table 3-4 Total number of Powerchip's employees and manpower status in 2016 as of December 31, 2016.

Note 1: Managers are the personnel above the section level.
Note 2: 17 contracted staffs (male: 10; female 7) are not included.

3.4.2 Selection and retention of talents

The philosophy of the company is to respect and cherish talents and support them with excellent occupational environment as well as career development. We also hope to recruit suitable and sufficient professional talents through different channels, such as Internet media, print media, office of employment service institutions and so on. Furthermore, we also value the leisure time of our employees and provide them with all kinds of club activities and places for their leisure time, so that they can have healthy bodies and release their pressure after work to make balance between life and work.

As for talent retention, in addition to a complete insurance and retirement system, we give bonuses depending on our operational condition and personal performance to motivate the employees. Our annual employee compensation amount is up to NT$ 9.337 billion. Besides, we offer a fair evaluation and promotional system as well as exclusive educational training. We also encourage our employees to engage in self-learning and self-development and give them thorough career planning.

Appointment of all employment and human rights protection are compliant with the regulations. We do not hire children and the work conditions do not differ due to race, religious belief, gender, age, marriage status, or political standpoint. We hire people with 37 disabilities (27 males and 10 females at the end of 2016). There were 14 managers at the level above the assistant manager in 2016 and all of them are Taiwanese.

Category		New employee		Resigned (incl. retired)	
		Number	Percentage	Number	Percentage
Below 30 (incl.)	Male	209	4.3%	117	2.4%
	Female	89	1.8%	59	1.2%
31-50	Male	93	1.9%	161	3.4%
	Female	70	1.5%	81	1.7%
Above 51 (incl.)	Male	1	0.1%	7	0.2%
	Female	0	0.0%	3	0.1%
Total	Male	303	6.3%	285	5.9%
	Female	159	3.3%	143	3.0%

Table 3-5 Employment status (against the total number of 4813 employees)

Category	Male	Female	Total
2016 Expected number of reinstated people	8	40	48
2016 Actual number of reinstated people	5	26	31
2016 Reinstatement rate	62.5%	65.0%	64.6%
2015 Expected number of reinstated people	7	39	46
2015 Actual number of reinstated people	5	24	29
2015 Reinstatement rate	71.4%	61.5%	63.0%
2015 Retention rate	100%	87.5%	88.2%
2016 Qualified people	521	305	826
2016 People taking unpaid Parental Leave	7	34	41

Table 3-6 Unpaid Parental Leave

Formula:

Expected number of reinstated people = Number of expected reinstated people in the current year due to unpaid parental leave

Reinstatement rate = Actual number of reinstated people / expected number of reinstated people

2016 Retention rate = 2015 reinstated people who are still on the job on 12.31.2016 / 2015 actual number of reinstated people

Note: The number of qualified people is an estimated value.

3.4.3 Promotion of labor relation

As for interaction with employees, we not only have communication platforms for exchange of opinions but also hold labor relation meetings irregularly, so our employees can make suggestions directly and their problems can be solved in time. We also discuss about labor conditions in the meeting, including working hours, leave days and other relevant issues to protect the interests of all employees. Moreover, we participate in labor relation promotion activities and other relating seminars held by the government annually for the purpose of maintaining good labor relation and promoting positive interactions between the company and employees.

The main topics of the 2016 labor relation meeting was the 2017 annual schedule planning and discussion of the amendments of the Labor Standards Act, the representatives of both parties reach a consensus through rational and peaceful communication.

Session	Date
The sixth labor relation meeting of the 4th session	March 14
The seventh labor relation meeting of the 4th session	June 13
The eighth labor relation meeting of the 4th session	September 19
The ninth labor relation meeting of the 4th session	December 23

Table 3-7 2016 Powerchip's labor relation meeting date

3.4.4 Employee care

The human resource division has a staff relation department that offers our employees assistance, consultation, and referral service to release their emotional pressure and improve work performance. Moreover, the staff relation department has communication platforms, such as “employee care website” and “Partners' Words”, and a complaint pipeline for occupational bullying. These are established for reporting and communication of problems from different sources. We also provide our employees with a fair working environment without discrimination.

Employee's opinions through “Partners' Words”	
Category	Cases
Personnel system	24
Industrial safety problem	83
General affair problem	174
Welfare Committee problem	10
Others	54
Total	345
Total cases replied	345

Table 3-8 2016 Employee's opinions through “Partners' Words”

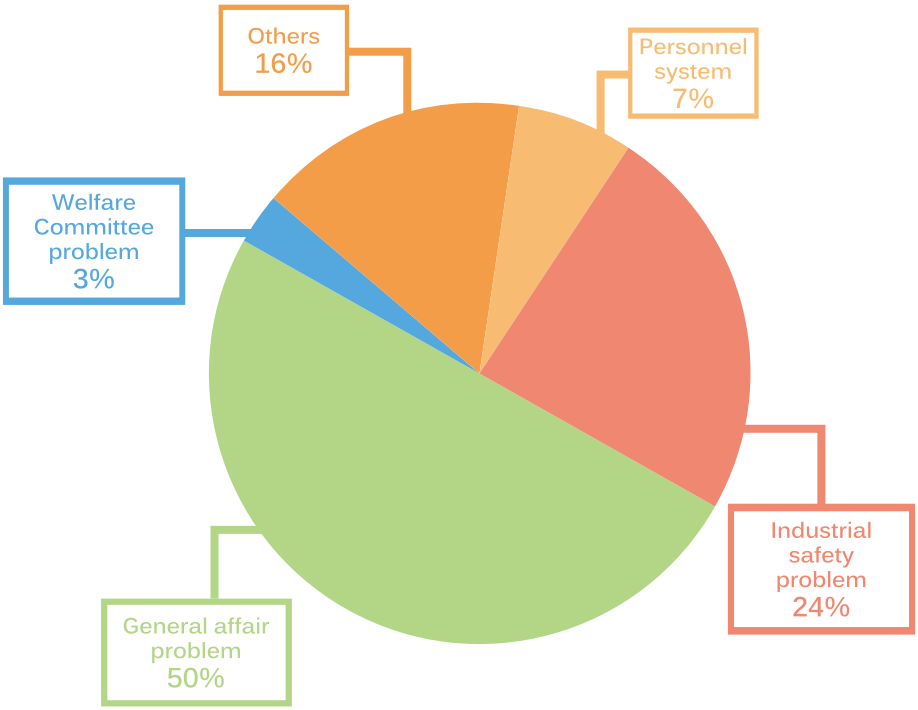


Fig. 3-12 2016 summary of Powerchip employee opinions

3.4.5 Training and development

For the growth of both the employees and the company, we have a series of educational training systems which was established on the basis of the company's business philosophy, long-term operation strategy and talent development strategy. The standard training courses include professional, management and general courses that were made with the participation of high-level managers in the education training committee, so that they can conduct personal competency evaluation to identify competency gaps and training requirements. Through internal and external training, our employees can enhance their working skills, adapt themselves to the rapid-changing environment, improve their performance at work, upgrade product and service quality as well as create both personal and organizational competitiveness. These enable mutual development of the personal career and corporate business.

We provided 208 training courses (include online-learning) in 2016. 14342 employees participated in these courses and 474 of them participated in human right related courses. The total training hours were 621 hours. 38% of the employees had participated in human right related courses as of December 31, 2016.

Note: Managers are the personnel above the section level

2016 average training hours per employee		
	Male	Female
Manager	21.1 hrs. /person	20.9 hrs. /person
Employee	18.3 hrs. /person	18.8 hrs. /person

Table 3-9 2016 average training hours per employee

3.5 Employee Welfare System

Powerchip Welfare Committee not only gives our employees holiday gift coupons, birthday gift coupons, wedding congratulation gifts, children allowances, hospital allowances, funeral allowances, scholarships for the children of our employees and emergency relief loans in various amount for different incidents. We also hope our employees have balancing development between their work and leisure. Accordingly, a multi-function gym was built on the 9th floor of the company. There are basketball courts, tennis courts, volleyball courts, billiard tables, table tennis tables and so on. Also, gymnasium, aerobics rooms, Karaoke and video rooms are build on the 5th floor of the company. These facilities offer the employees different places for leisure activities. The company also has a variety of clubs with different courses for our employees to choose and we also encourage them to enhance their social interaction, nourish their hobby and strengthen their physical fitness. More than 700 contracted stores provided discounts for the employees.

The Welfare Committee also holds many activities for our employees such as club competitions, drama appreciation, cultural and art activities and family days to enhance our care to the family members of the employees and also for the purpose of stimulating employee morale at the workplace and improving the quality of work.

3.5.1 Diverse club activities

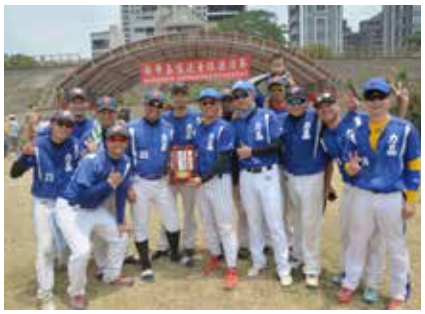
Powerchip encourages our employees to establish clubs and hold club activities. So far, we have 24 clubs including the badminton club, table tennis club, tennis club, volleyball club, billiard club, basketball club, book club, softball club, aerobics club, video club, public welfare club, mental health club. Our purpose is to make our employee enhance their social interaction, nourish their hobby and enrich their life. Various club activities are held on a regular basis. We had 2016 Powerchip Cup for group competitions in professional ball games such as basketball, softball, billiards, badminton, volleyball, table tennis, bowling and so on and 234 teams had joined the competition. In addition to competition within the company, Powerchip clubs participate in external competitions and win honor for the company enthusiastically. In 2016, the softball club won the 3rd Cooperative Bank Cup prize, the 2nd Hsinchu County Cup price, the 3rd Science Park Cup prize; the tennis club won the 2nd Science Park Cup prize for women; the volleyball club won the 1st Science Park Cup prize for men and the 3rd Science Park Cup prize for women; the basketball club won the 2nd Science Park Cup prize for men and the 1st Science Park Cup prize for women. Other sports prizes include the 2nd Cooperative Bank Cup badminton prize, the 4th Science Park Cup badminton prize, and the 1st Taoyuan City Mayor Cup Cycling Championships prize for the steel tub group.

Badminton team at the Cooperative Bank Cup

Cycling team at the Mayor Cup

Basketball team at the Science Park Cup for women

Tennis team at the Science Park Cup for women



Softball team at the Cooperative Bank Cup

Basketball team at the Science Park Cup for men

3.5.2 Cozy family activities

Powerchip cares about the family members of our employees and try our best to maintain and hold several family activities irregularly. We invite our employees to participate in the activities with their family members, so they can strengthen their family relationship and have a strong sense of belongingness with Powerchip.

Powerchip Family Day	The "Powerchip Family Day" is a special activity for our employees and their family members. We held the activity at Chunan Sports Park in October 2016 and about 2000 employees and their family members participated in the activity. It not only drove the husband-wife and parent-child interaction, but also aroused more extensive interpersonal communication. The participants enjoyed delicious food, experienced the happy time and joyful atmosphere, and admired splendid performance in the evening party.
Eighteen Peaks Mountain hiking	We held two family hiking activities at Chunan Riverside Park in November and December, 2016. 1520 employees participated in the activities with an attendance rate of 68% and 61%, respectively. Except for hiking, we also arranged some games, DIY activities, performances and lottery activities for the participants to enjoy together and strengthen their bodies.
Culture and art appreciation	We organize different culture and art appreciation activities every year, including parent-child theaters and seminars held by celebrities in order to bring employees more humanistic atmosphere and encourage parent-child interaction and learning. We planned 5 theaters in 2016 including two children theaters of Warawa - Dragon Knight (Just Apple) and The Light Princess (Ifkidsd) - and three theaters for adults - When Yuefei's Mother Tattooed (All U people theatre) and two Manzai dramas (Yubon). There were 4166 audiences coming to these dramas. All the participants were immersed in the enjoyable atmosphere while watching them. Both parents and children were satisfied mentally and had a wonderful as well as cozy time together. Apart from the theater, we also held many culture and art lecture activities with the topics of public welfare, motivation, health, education, and cosmetology. Chen Xin-Ling, Tan Dun-Ci, Tang Cong-Sheg, Lu Jit and other celebrities were invited to share their life experience and professional knowledge and help the employees understand more about other professional fields.






3.6 Employee Health Management and Promotion

Due to the philosophy that employees are the most important properties of the company, Powerchip is concerned about the health of our employees and wants them to receive a complete health care with a series of health planning from physical examination to health promotion activities. We are eager to achieve the goal of “double win situation for both work and health” to strengthen the entire corporate competitiveness!

The employee health management planning is extended from the prevention concept of the three sections with five levels. The first section of prevention - health promotion (the first level) : includes annual physical examination, health lectures. The first section of prevention - specific protection (the second level) : includes the project management for high-risk groups (special operators, high-risk group of cardiovascular diseases, senior labors, night-shift workers, maternity health protection personnel, etc.). The second section of prevention - early diagnosis and prompt treatment (the third level) : includes case diagnoses for overtime workers and interviews with occupational medicine doctors. The third section of prevention - medical treatment (the forth level - disability limitation, the fifth level - rehabilitation): referral assistance to appropriate hospitals for treatment, rehabilitation and other therapeutic measurements. The health management planning keeps our employees healthy physically, mentally and spiritually. As a result, the company has been taking relevant suggestions from specialists and scholars into account since 2007 in order to review the execution of internal business for its integration and planning. We establish the actions in our occupational diseases prevention management for the final goal of “work without pain and disease, live with health” to be implemented from the perspectives of Prevention, Return to work, Compensation (PRC). Meanwhile, we also review potential hazardous operations, update the list of these operations and incorporated them in the internal supervision.

3.6.1 Employee health management

Powerchip provides our employees complete and better physical examination annually. We also track every abnormal health items through the whole process to reach the purpose of “early detection and early treatment”. Besides, the employees who received special physical examination will be divided into levels for health management in accordance with the result of their diagnosis by the doctors in the health center:

Level-1 Management	The results of either the special physical examination or physical examination tracking items are normal or partially abnormal. Those who are diagnosed as normal.
Level-2 Management	The results of either the special physical examination or physical examination tracking items are normal or partially abnormal but not associated with work.
Level-3 Management	The results of either the special physical examination or physical examination tracking items are normal or partially abnormal and their relevance with work cannot be diagnosed. Employees who require further diagnosis of the occupational medical doctors.
Level-4 Management	The results of either the special physical examination or physical examination tracking items are all normal or partially abnormal. Those who are diagnosed as abnormal and it is associated with work. The employees will be listed and tracked by the health center and we will inform their department managers and the department of human resources. The company will abide by “Labor Safety and Health Act”. Besides, we will arrange them for occupational medical treatment, transfer them to another workplace and take other measures.

Table 3-10 Health management levels

We make case management tacking for high-risk groups (high-risk group of cardiovascular diseases, maternity health protection employees, special operators and so on), provide them with professional counseling service and transfer them to the occupational medical doctors for occupational health services to help them find suitable work. At the same time, we will provide the same health care management to the long-term contractors in Powerchip and request them to finish physical examination regularly for developing a healthy and non-infectious workplace.

3.6.2 Health promotion and psychological counseling

According to the health check up results and seasonal changes, the company will hold different types of ultrasound check ups, health promotion activities for losing weight, health care for group of cardiovascular diseases, checkups for breast cancer as well as cervical cancer and so on in order to take care of the physical health of our employees. Besides, we also hold various types of lectures and provide professional specialist consult services for improving the life competency and cultivate the right mental health for our employees.

3.6.3 IT health management

Our employees can check their medical reports for each year through the electronic health management system to manage their health condition. Moreover, they can also make appointments for hospitals, sign up for health promotion activities and consult for their health problems online. The system also offers various and comprehensive health services to strengthen our employees' abilities for health self-management and obtain the function of prevention and health care.

3.6.4 Powerchip clinic

The company has established Powerchip clinic in the factory to provide health management services such as clinic visit, health advisory, prophylactic inoculation and so on to our employees even to their family members, the employees of our affiliated companies and the contractors. There are doctors of occupational health services that offer health education and health guidance to help them find suitable work.

Fig. 3-13 Powerchip's clinical service information

We have full-time nurses who workwork in the factory for 24 hours a day, 7 days a week. They give professional services for health protection and care, hold health promotion activities and provide emergency rescue and relief acts for the complete health care for our employees.

3.6.5 Advocacy platform

• There are medical common sense and information of every activity on the home page of Powerchip health management website for our employee's references.

• The website also includes health Q&A and mom & baby websites that our employees can exchange information through their questions.

• We will update the bulletin boards on a regular basis , post health information and posters for health education and so on.

• Send e-mails of different types of health promotion activities and messages about health information for our employees' references.

Fig. 3-14 Powerchip's health management system information

3.6.6 Approaches for legal infectious diseases control

Large scales of infectious diseases haves been spread rapidly for the past years including avian influenza, MERS and so on. Thus, how to control these diseases has become a challenge of every corporate. The company has made [Preventive Plan of Infectious Diseases] in accordance with the related government regulations. The contents of the planning include information about infectious diseases (refer to the information on the website of Centers for Disease Control, R. O. C. (Taiwan)), the structure and authority for the crisis management team, the prevention policy of the company and procedures for related measures, related criterion of the prevention and how to face a sudden epidemic. The Preventive Plan of Infectious Diseases applies related approaches according to the level of the epidemic. We not only establish the “crisis management team for infectious diseases” to integrate the company's resources at the first place, the health center will also keep contact with our medical units and amend all of the prevention measures and advocacies such as preparation of the prevention reserves, body temperature monitoring of all staffs (including the manufacturers, visitors and family members of our employees) in the factory, set criterion for sterilization method and frequency (including every operational areas, staff dormitories, factory vehicles and so on), workplace isolation criterion as well as infection control criterion, etc. We also take more measures to promote the advocacy and hold educational training lectures about the infectious diseases to release the panic.

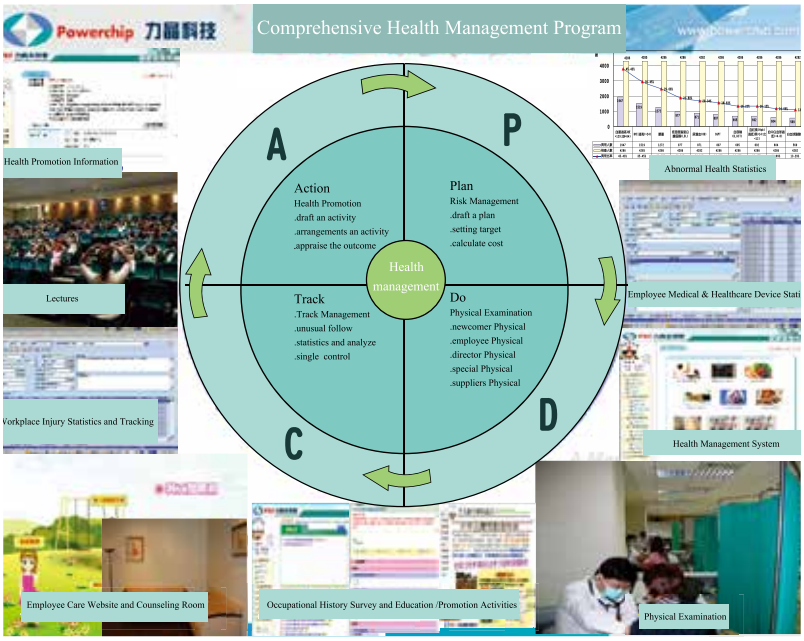


Fig. 3-15 Comprehensive health management

3.7 Social Welfare

3.7.1 Community care

We support the “Powerchip Cultural Foundation” and “Powerchip Environmental Protection Foundation”. Our employees found “Charity Club” voluntarily in 1994. Our main objects include promoting charity events and gathering kind employees willing to help others to participate in these events. We hope that our employees can understand the meaning of charity events through participation and service providing. We also hold charity seminars, encourage employees to experience the issues related to the volunteer service and stimulate the potential and idea as an individual and a group. We encourage employees to participate and support the social welfare service held by the government, companies or private institutions. We hope that our employees can support various charities and emergency relief services. We promote issues regarding physical and mental health, spiritual purification, promotion of environmental protection and other relevant volunteer services. The Charity Club helps the disadvantaged minority with love and care voluntarily. We provide convenient channels for internal fund-raising occasionally and spare no effort in encouraging employees to participate in charity campaigns.

3.7.2 Working on the community relationship

Participating in the educational activities at schools, providing financial support for education affairs of schools, assisting in the cultivation and training of talents

1. Sponsorship for talent cultivation for students in physics major in the College of Science of National Taiwan University
2. Providing scholarship and grant in every semester for students in Baoshan Township, Hsinchu City
3. Providing the education and expense for the volleyball team of National HsinChu Senior High School
4. Industry-academic cooperation with Chung Yuan Christian University
5. Donation of used computers, books and stationery to rural elementary schools in Wufeng Township and Jianshi Township

Participating in or sponsoring community events to get closer to the public and assist in community development.

1. Sponsorship for donation to Hanxi Tribe
2. Sponsorship for “Influence for 20 Years and the Next 20 Years Charity Concert”
3. Helping to organize the fair held by Family Help Center of Hsinchu City
4. Sponsorship for the fair held by St. Joseph Social Welfare Foundation
5. Sponsorship for the event held by the Foundation for Excellent Journalism Award
6. Sponsorship for the National Development Forum (NDF) held by Taiwan Hakka Forum Association in 2007
7. Sponsorship for the event held by Association of Spinal Cord Injury - HsinChu under the jurisdiction of Hsinchu County Government
8. Adoption of green fields and streets in the Hsinchu Science Parkscience park and regular cleaning service

3.7.3 Charity care

The Powerchip Environmental Protection Foundation aims at promoting environmental education and pushing forward the domestic and international application of environmental protection. We work on or sponsor the studies, discussions and relevant events regarding domestic and international environmental protection fields. We actively promote our outcomes to individuals, the society and corporations and implement environmental protection in daily life.

Year	Operational Project	Implementation Contents
Business operations in 2016	Old Trees Fostering Home	We implemented the plan for old tree protection, promoted the objects related to our committee and hired management consultants to help with tree care and relevant consultation.
	Assistance of government agencies, corporations and associations with promoting environmental activities	We sponsored the energy saving and carbon reduction dissemination activity "Save Everything to Ensure Adequate Energy Supply" held by Taiwan Concern Social Service Association. Time: April 26 and 27, 2016 Place: Each one performance at 4 elementary schools in Kaohsuing City and Tainan City Participants: About 1,035

Table 3-11 Business of the Powerchip Environmental Protection Foundation in 2016

Sustainable Development of the Environment

Resource shortage and climate change are issues that UN and the government of every nation around the world are most concerned about. Taiwan is a small area with a dense population, and the semi-conductor industry is a typical energy-intensive industry. In accordance with the recent modification of the national environment policy toward more aggressive carbon reduction and environment-friendly measures for carbon e, we not only keep improving the company's energy management and pollutant discharge performance, but also focus on the source management to reduce the emission by minimizing the consumption. We participate in relating discussions held by the government agencies and associations in order to understand the policies and convey our requirements.

By providing internal disseminations and courses on environment, employees understand more about relevant laws and regulation as well as development of the policies. They spontaneously participate in environmental protection activities to promote our environmental protection ideas, and communicate them to the suppliers, contractors, and other partners. This is helpful to encourage participation of the public and help them understand our responsibility for sustainable development, in addition to the quality of our products and services. We have not received any penalties under our good management.

4.1 Resource Management

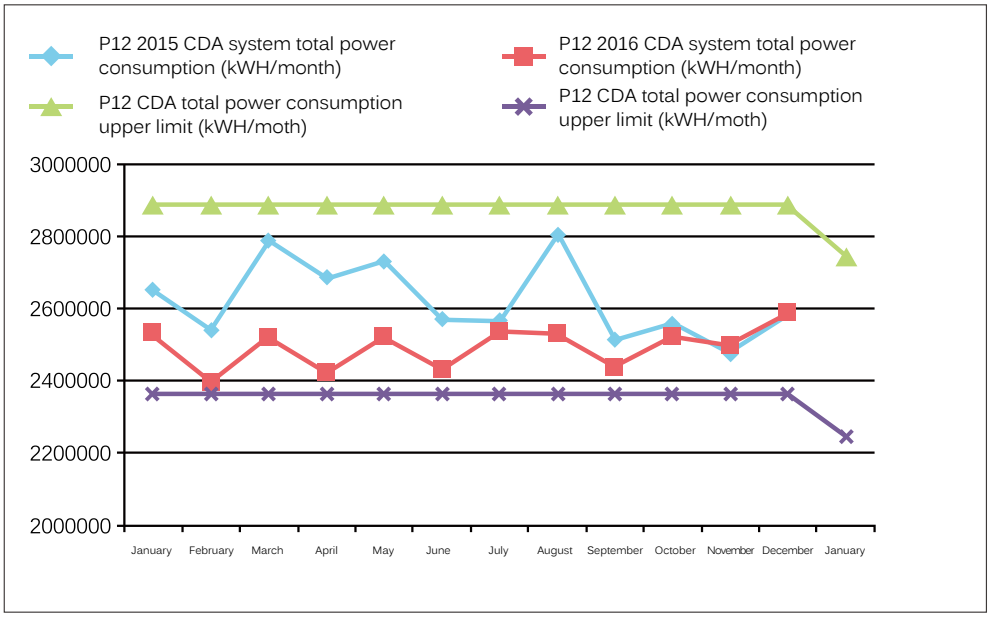
4.1.1 Energy management measures

The high-level managers of the company take product resources management seriously and the general manager set more advanced target every year to comply with project proposal reward system and encourage each department give energy conservation plan spontaneously for resource management. We introduced the energy management system (ISO-50001) in 2015 to strengthen internal energy management. The energy saving measures are more sophisticated every year after the system is validated. Thanks to the endeavor or the employees, we achieve the target of “annual electricity conservation by 1%”.

Energy saving measures in 2016

Item	Saving (KWH)
T8 was changed to LED	1,401,465
S-UPS was changed to off-line mode (60KVA)	25,229
FAB 5F floor openings were sealed to minimize air leakage from the clean room	691,200
The condenser of the water chiller unit was washed and maintained	299,520
Some exhaust fans in the server room were disabled	418,563
The zero air loss steam trap of the CDA air compressor system was improved	432,870
The power consumption in the standby state was reduced by adjusting the Stop/Standby switching time	3,109,205
Frequency converters were mounted	120,080
The Pre-heater of electric machine cooler was turned off during daylight saving time	1,428,624
Two aeration blowers were turned off	118,450
The desiccant of the dryer was changed (to minimize the power consumption for desorption)	36,971
The air handing unit was turned off in winter	36,706
Time switch was used for the air coolers in offices	57,869
Outlet pumps ran in combination	273,312
Actual energy saving (KWH)	8450064
Target energy saving (KWH)	8393178
< based on 1% energy consumption in 2015 >	

As for the “the power consumption in the standby state was reduced by adjusting the Stop/Standby switching time”, after the operation of the CDA dryer was changed from heatless to heated mode in 2015, the base load power consumption of the CDA dryer was assessment in terms of the time point of consumption and the operation time of the CDA dryer was adjusted internally to reduce the power consumption in the standby state. The range of the CDA base load power consumption is adjusted downward in 2017 accordingly.



4.1.2 Energy/resource operation status

We continue the review and improvement on energy/resource management, increase the energy using efficiency to reduce the cost and establish baselines for the control measures of electricity, water and natural gas through the energy management review meetings held every six months. Though the electricity, water and natural gas consumption has increased over the past 3 years, the unit wafer power consumption of 0.698 (MWH/WAFER) and the unit wafer gas consumption of 0.7544 (NM3/WAFER) in 2016 were reduced by about 0.3% and 4.5% in comparison with 2015. However, since the water exchange rate increased due to enhancement of the processing efficiency of the air pollution control equipment, the unit wafer water consumption of 3.424 (TON/WAFER) in 2016 indicated a slight rise of 2.3% (Figs. 4.1, 4.2, 4.3). These data showed that our energy and resource management capability was improved gradually.

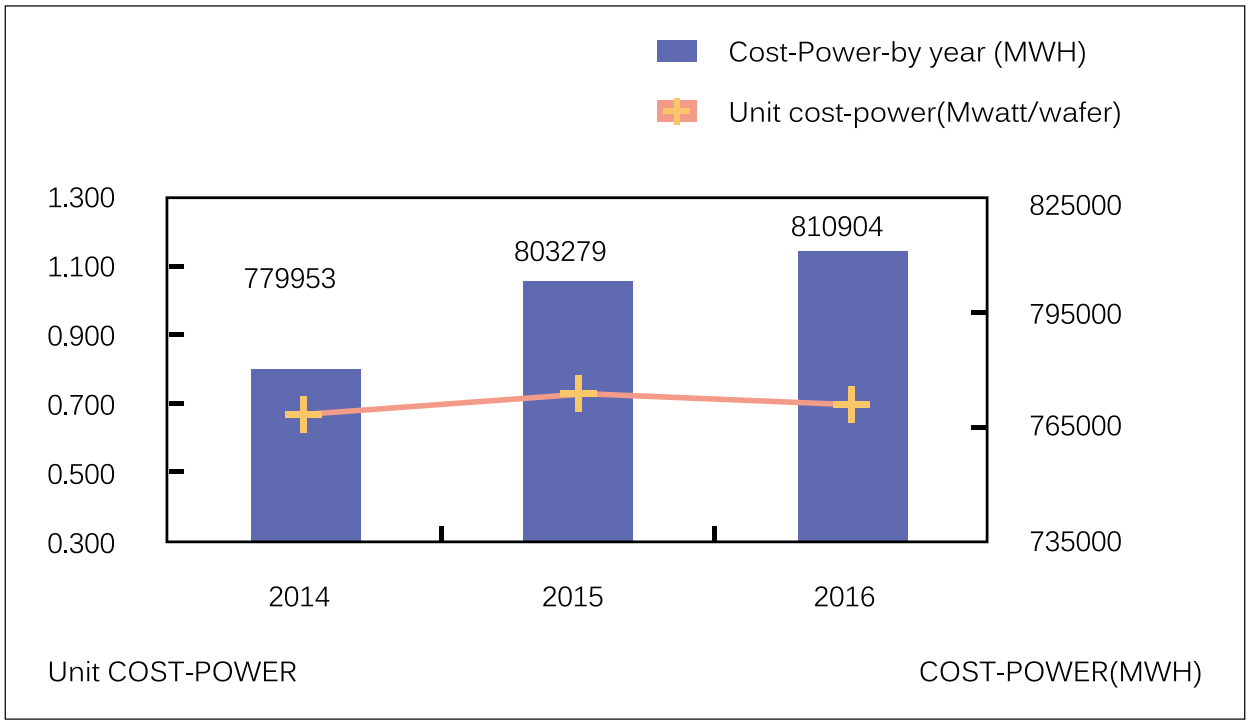


Fig. 4.1 Cost-power

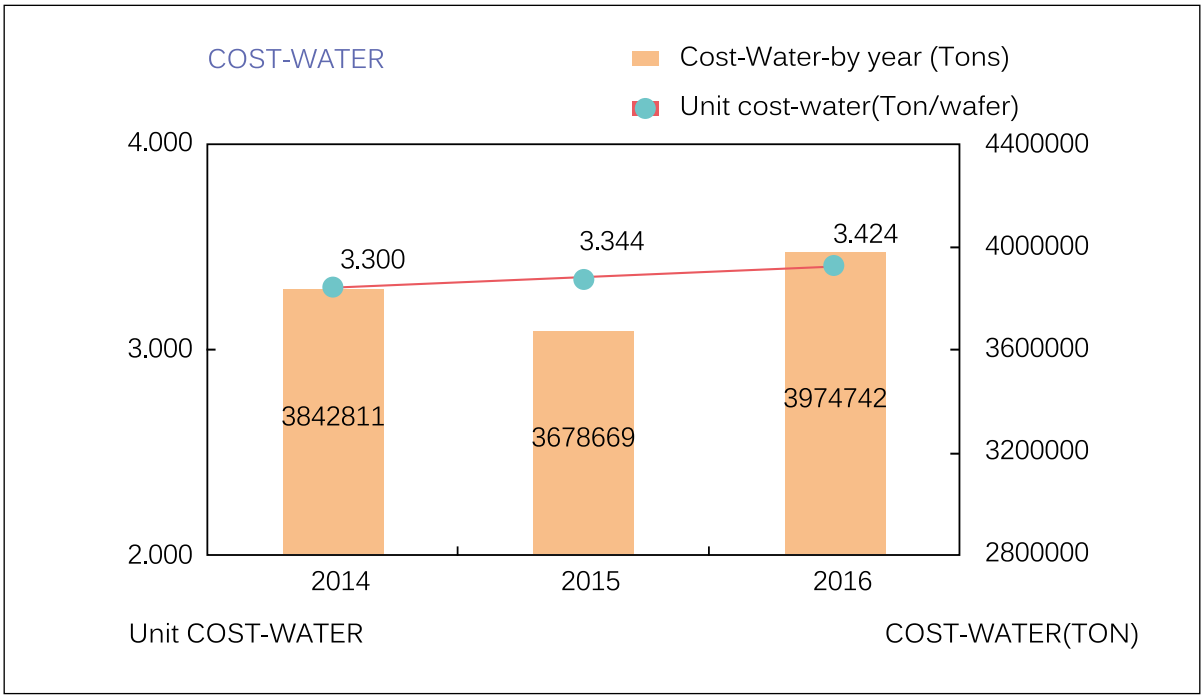


Fig. 4.2 Cost-water

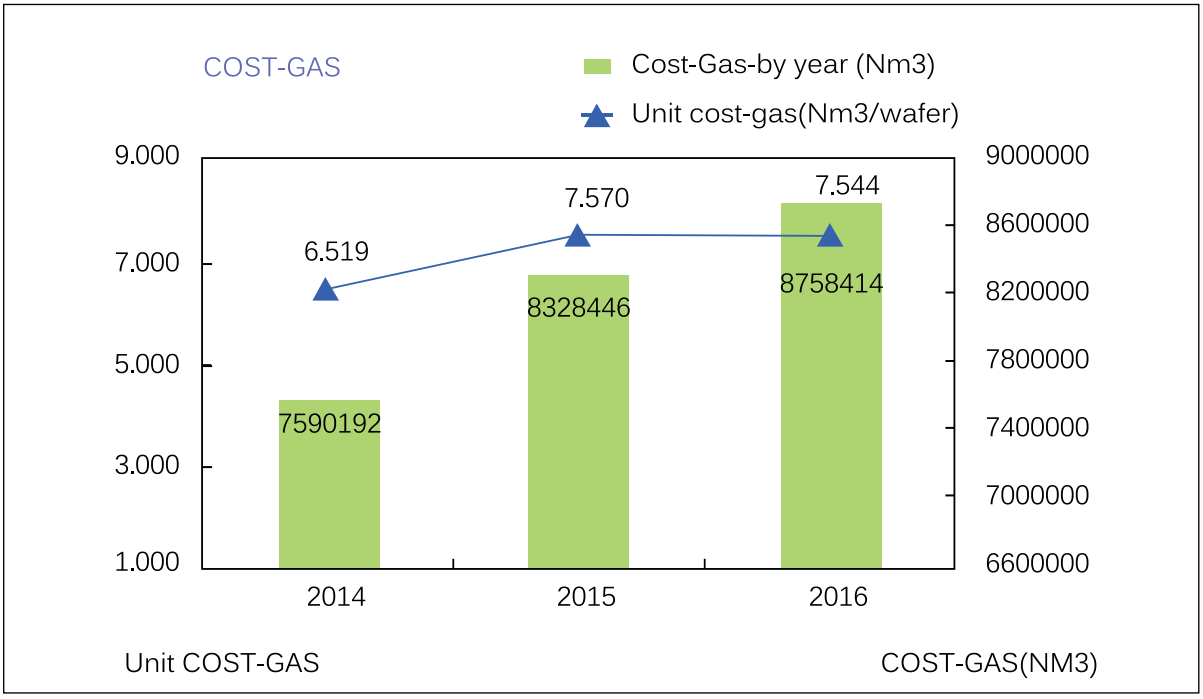


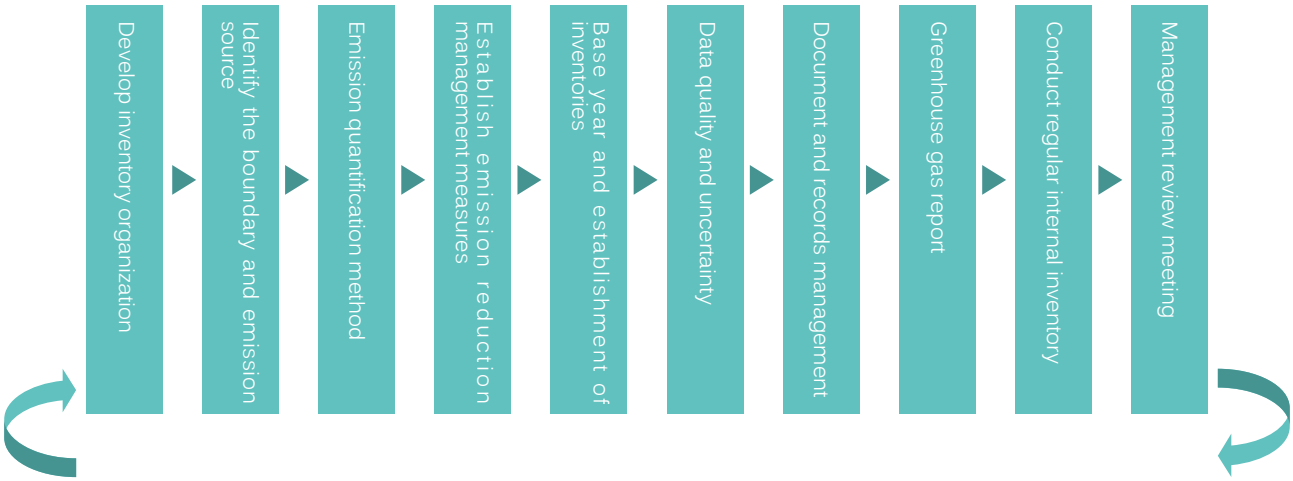
Fig. 4.3 Cost-gas

4.2 Greenhouse Gas

4.2.1 Greenhouse gas emission management

Global warming and climate change have become important issues for sustainability development. As the greenhouse gas increases and the global temperatures rise every year, and this leads to climate change with droughts and floods. The serious impact is predictable especially for Taiwan. The government enacted Greenhouse Emission Reduction and Management Act in July, 2015 and it defines the policy and reduction timetable more clearly. Taiwan Semi-conductor Industry Association cooperated with the government agencies and built the inventory structure and procedures in the early stage. It took the first emission source of greenhouse gas as a sample and reduced the emission spontaneously as well as got the 250,000 tons of early emission reduction allowance (Number: A-0000083) before the implement of greenhouse gas reduction regulation.

We have been supported by Industrial Technology Research Institute to develop the structure and procedure for greenhouse gas inventory management since 2000. With the assistance of Taiwan Semi-conductor Industry Association (TSIA) in 2006, the top management promised that the company will show its determination and willingness to reduce emission and develop inventory organization in the factory. Besides, the company will also collect data related to greenhouse gas and conduct inventory operation. The boundary of our greenhouse gas inventory organization includes the direct and indirect emission of the P1, P2, P3 semi-conductor factories (Fig. 4.4: Powerchip greenhouse gas inventory boundary). We conducted the inventory and verification operation according to the Greenhouse Gas Emission Reporting and Management Regulations. The operation verified the relevant emission in 2016, the direct emission (scope 1) was about 59,000 tons and the indirect emission (scope 2) was about 436,000 tons. It can be found in the emission analysis of the inventory data in each year that 90% of the greenhouse gas emission come mostly from indirect emission (electricity contribution), and then direct emission sources of PFC gas. Therefore, it is ascertained that energy-saving is the focus for carbon reduction.



Powerchip GHG Inventory Operation Boundary and Scope Diagram

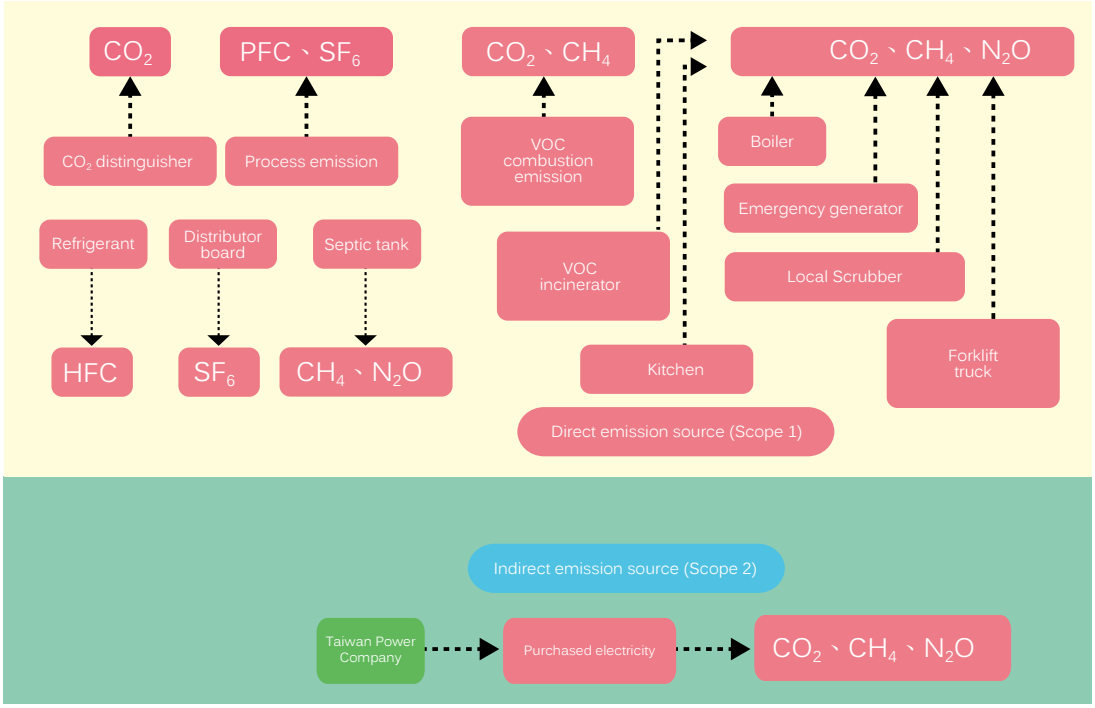


Fig. 4.4: Powerchip greenhouse gas inventory boundary

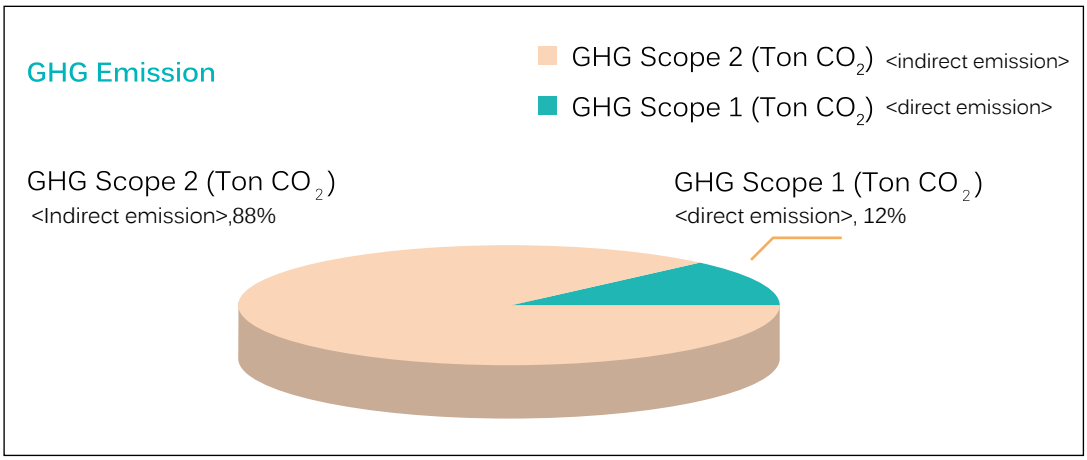


Fig. 4.5: Powerchip greenhouse gas emission proportion

4.2.2 Greenhouse gas reduction

According to the agreement between the TSIA and Semiconductor Industry Association (SIA), emission of the PFC in 2020 must be reduced by 10% of the emission in 2010. As a member of the TSIA, we observe this standard to reduce the PFC emission by 17.15% in 2016 (about 10,000 tons of CO2-e) in comparison 2010 though the capacity was increased. The total GHG emission in 2015 was less than the emission volume in 2015 by 12.94 (about 73,000 tons of CO2-e). See Fig. 4.6 for more information. In consideration of the capacity, the total emission of a wafer was reduced by 0.4% in 2016 in comparison with the emission volume in 2015 while the GHG reduction rate of a wafer rose to 31.8% (Fig. 4.7). These indicate that we are concerned about the global environment issues and continue to control the carbon emission of the company while seeking for economic development.

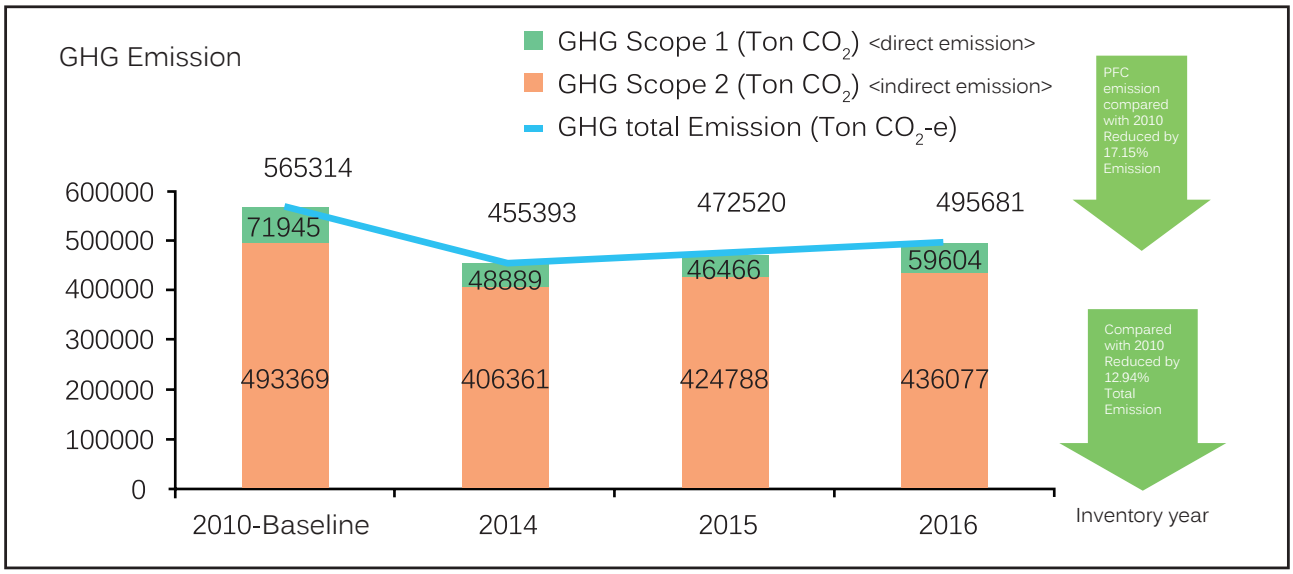


Fig. 4.6: Powerchip GHG reduction rate

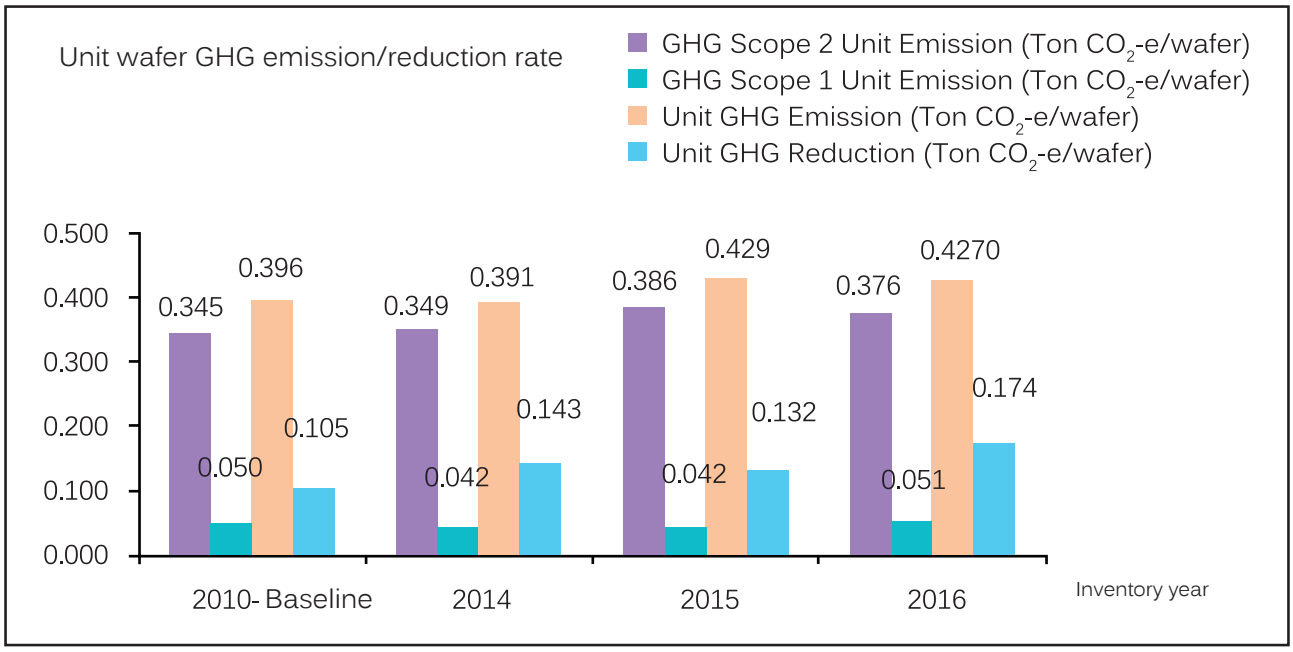
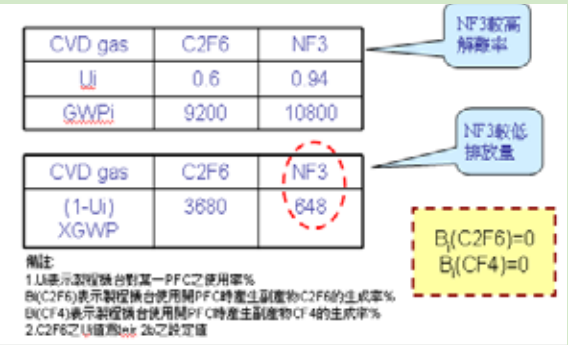


Fig. 4.7: Unit wafer GHG emission/reductino rate

Except for decreasing electricity consumption, the greenhouse gas reduction strategy of Powerchip is moving toward to the direction for reducing PFC gas emission during the process. PFC gas reduction is proceeded in these two aspects: 1.Substitute gas process assessment, and 2. additional PFC exhaust gas treatment equipment.

Substitute gas process assessment

The original gas for CVD machine is C2F6 and is replaced with substitute gas due to the consideration of the comprehensive effect for process efficiency (Ui) and GWPi value. The reduction measure is to replace NF3 with C2F6 (for reducing the GHG emission). It is shown in the figure below. The use of C2F6 is fully disabled.



PFC exhaust gas Treatment equipment

Combustion or local scrubber exhaust gas treatment system destroys the fluorine gas used in the process at high temperature and the left micro-molecules are removed by washing them off in the fluorine gas treatment equipment of the factory.

4.3 Air Pollution Emission Management

4.3.1 Air pollution control

The exhaust gas of the company can be divided into thermal exhaust, acid exhaust, ammonia exhaust and organic exhaust according to its compositions and characteristics. Thermal exhaust is produced by the operating production machines. It does not contain pollutant and can be discharged into the atmosphere directly without treatment. The organic exhaust generated in the process will be concentrated through the zeolite concentration revolver and be desorbed to the burner for incineration. Acid exhaust and ammonia exhaust is discharged after treatment in the wet scrubber.The auditing and sampling result showed a compliance with regulatory standards in 2016. The major air pollutant emissions were NOx-18027KG, SOx-937KG and VOCs-18027KG (Fig. 4.8).The NOx emission was reduced by 15% compared with the emission volume (20966KG) in the previous year thanks to the improvement of the heat recycling efficiency, lower requirement for hot water, and, thus, reduced boiler load. The VOC emission increased by 20% compared with the emission volume (14574KG) in the previous year due to increase of the capacity.

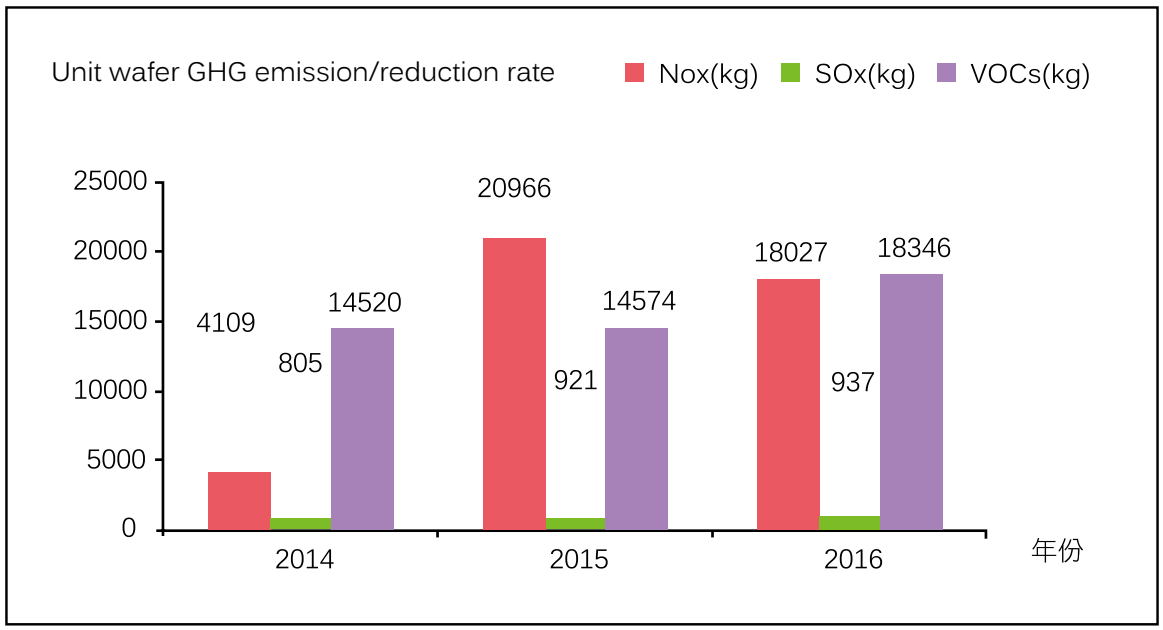


Fig. 4.8 Major air pollutant emission

4.3.2 Surrounding odor management

In 2016, the Management Bureau of Hsinchu Science Park reinforced the odor control and inspection in the area. Many complaints were filed for the odor at the surrounding area of our P1/2 fabs. All our emission criteria of discharge pipes comply with the laws and regulations. However, we also prepare the budget for contribution reduction in this year. For possible pollutants, we implement measures for reinforcement of the air pollution control equipment in the plant. Our primary improvements include increasing the vertical length of the chimney to improve the atmospheric diffusion effect (Fig. 4.10) and installing an additional middle scrubber to increase the removal rate of the fluoride and other acid substances at the front end to more than 97% (Fig. 4.11)

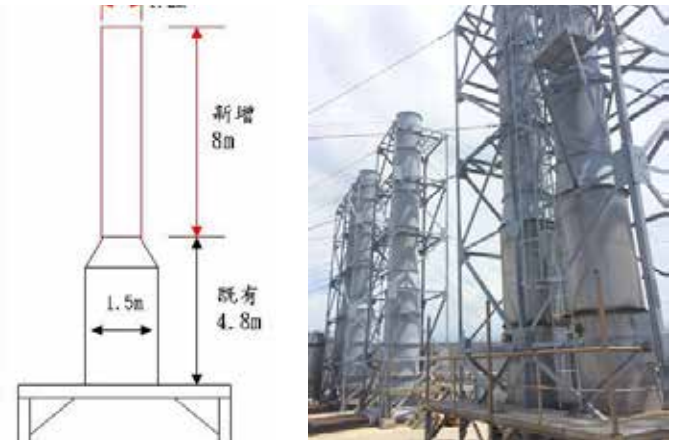


Fig. 4.9 Increase of the atmospheric diffusion effect

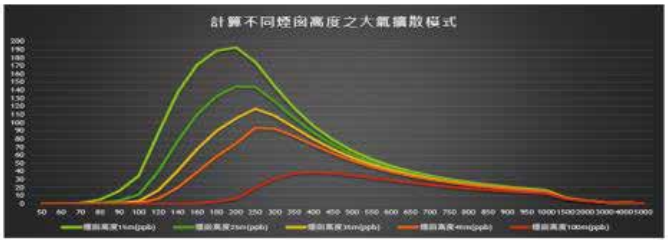


Fig. 4.10 Improvement of the front-end fluoride /acid substance removal rate

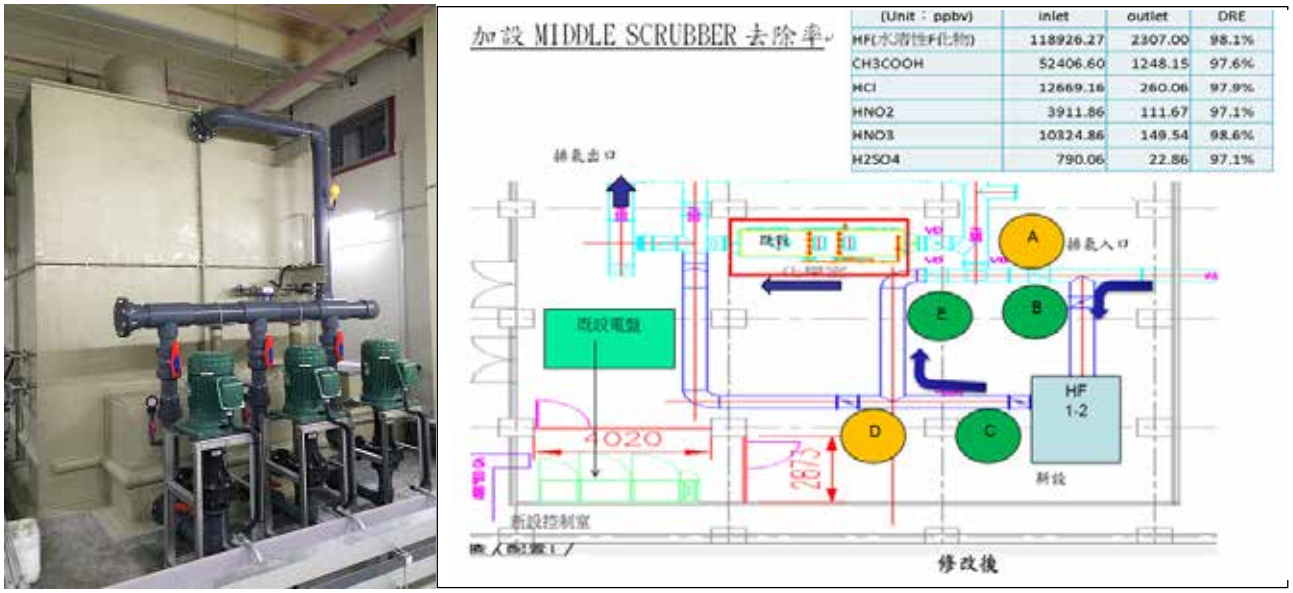
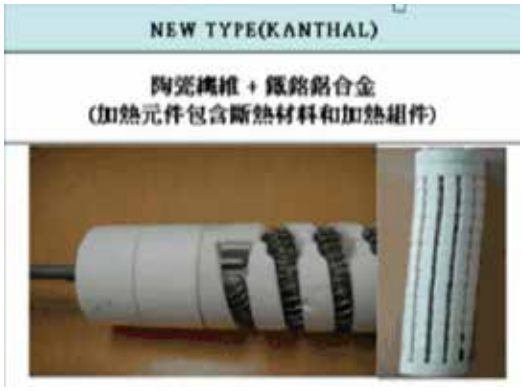


Fig. 4.11 Improvement of the front-end fluoride /acid substance removal rate

As for improvement of the PFC remove efficiency, the test result shows a better processing efficiency at more than 800°C. Hence, we have changed all the heating rods of the old thermal-wet local scrubbers, which only reach the temperature up to 600°C, to the type that is equipped with ceramic lining to improve the processing efficiency substantially. (Fig. 4.12) The budget is continuously arranged in 2017 to replace the old thermal-wet local scrubber with the burn-wet local scrubber, showing the proactive actions of Powerchip in the protection of the environment.



Ceramic heating lining

Local scrubber heater

Fig. 4.12 Elimination of old local scrubbers

	Test condition		Local scrubber condition		DRE									
	process	Chamber	Temp., °C	CW, M3/m	NF_3	CF_4	CHF_3	TEOS	F_2	SiF_4	HF	CO	HCOOH	COF_2
#1	process	3	800	6	96.1%	<10%	81.0%	99.5%	99.6%	99.9%	>99.9%	99.6%	>99.7%	>99.8%
#2	process	3	850	6	98.7%	17.7%	87.0%	99.9%	99.9%	99.9%	>99.9%	99.3%	>99.8%	>99.9%
#3	process	3	750	6	88.9%	<10%		99.6%	79.8%	98.1%	>99.9%			
#4	process	1	750	6	88.4%	<10%	65.7%	99.9%		99.9%	>99.9%	98.5%	>99.8%	>98.9%
#5	process	2	750	6	88.8%	<10%	66.9%	99.8%		99.8%	>99.9%	98.9%	>99.8%	>99.9%
#6	process	1	750	4	88.5%	<10%	64.2%	99.8%		99.8%	>99.9%	98.9%	>99.8%	>99.9%

4.4 Water Resource Management

We are the first semiconductor plant in the Hsinchu Science Park committed to reach the goal for [85% recovery rate of process water]. From 8A fab (currently Maxchip Electronics Corp.) to P1, P2 and P3 fabs, as well as R1 fab (currently Micron Technology, Inc.), we always follow the great tradition for water conservation. We uphold our mission for water conservation through continuous improvement and investment. To implement the new ammonia-N reduction facilities installed in 2015, we use the rarely applied catalyst method with high safety, no waste and high installation costs as the environmental protection facilities for the reduction of ammonia-N. This method is helpful to reduce the ammonia-N load for the water body. It does not produce sludge, the derivative of sewage treatment, and can minimize the further damage to the environment. We supported the Hsinchu Science Park Administration Bureau and assisted in arrangement of the environmental education courses in 2016.

Assistance in the environmental education courses: Students from National Tsinghua University visited the ammonia-N wastewater treatment facilities

4.4.1 Facilities for sewage pollution control

We are located in the Hsinchu Science Park. After the pretreatment in our plant is carried out for the process water, the sewage is discharged into the sewage treatment plant in Hsinchu Science Park. The treated sewage is discharged into Keya River. The volume of the wastewater under control in 2016 was about 2.82 million tons per unit wafer and increased by 7.4% compared with 2015 due to increase of the wash water exchange rate for new capacity and air pollutant treatment facilities. The pretreatment facilities are divided into the treatments of fluorine, ammonia and acid-alkali wastewater. The physicochemical treatment is carried four these three types of water based on the property of water quality. The chemical treatment is adopted for the wastewater containing fluoric acid. We use the dosing method to convert the fluoride in process water to harmless calcium fluoride sludge. The efficiency for pollutant removal is up to 99%. The catalyst method is adopted for the ammonia wastewater to oxidize ammonia-N in water to harmless nitrogen and water. The dosing process for acid-base neutralization is adopted for the treatment of acid-alkali wastewater. The discharged wastewater (sewage) is mixed to comply with the discharge criteria for the sewage system of the Hsinchu Science Park.

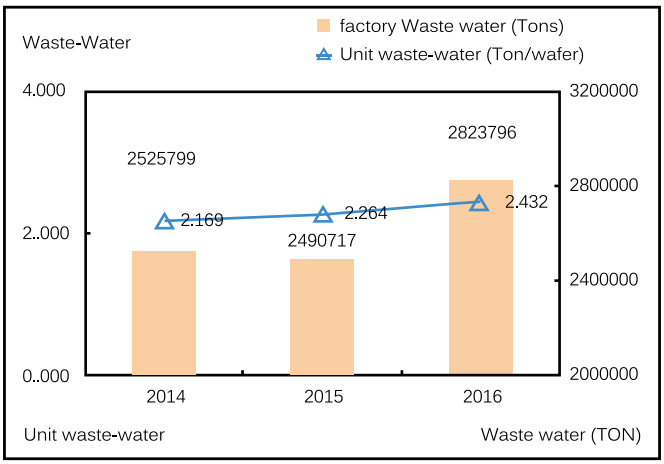


Fig. 4.13 Development trend of discharged water flow

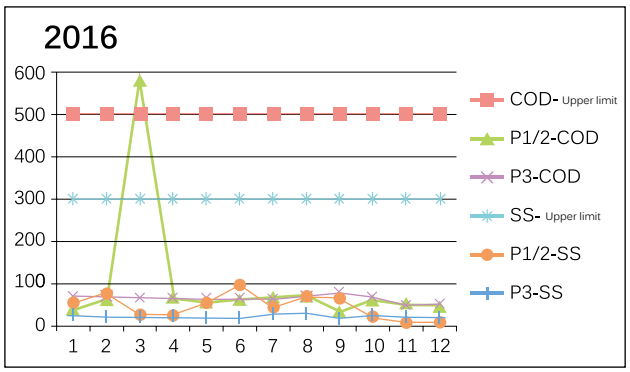


Fig. 4.14 Discharged water COD and SS emission trend

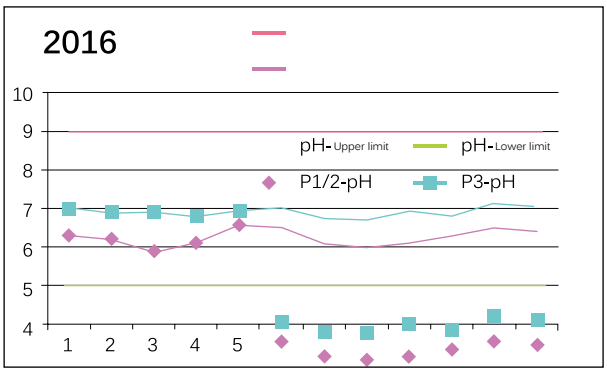


Fig. 4.15 Discharged water PH emission trend

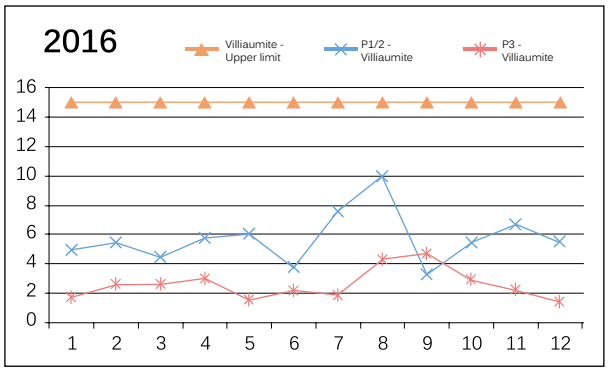


Fig. 4.16 Discharged water of villiaumite emission trend

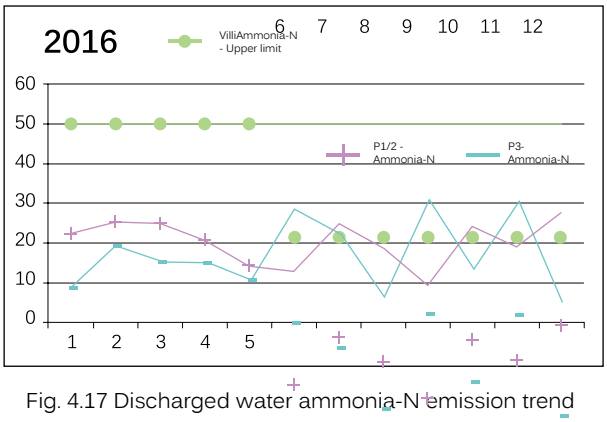


Fig. 4.17 Discharged water ammonia-N emission trend

The facilities are maintained on a regular basis and the discharged water is tested in the factory regularly to ensure normal water quality. Figs 4.16 and 4.17 show the tests conducted in each of our fabs in 2016. The result only shows one case beyond the controlled COD emission value in March. The reason for this error is that an operator of the production machine did not discharge the IPA wastewater from the test machine to the recycling system of the plant by mistake on the testing day. Though we are a regulated business and the error did not affect the water body, we reviewed the case actively and made improvement. No similar cases occur again after the improvement.

4.4.2 Recycled water system

We have been enhancing international competitiveness. Our process development may be fast, however, the first problems we encounter are the risk of water shortage and increasing cost of water treatment. Environmental deterioration leads to exhaustion of water resources. Therefore, we always focus on building a stable water supply system. We always observe the 4R water saving policies: Reduce, Renew, Recycle, and Reuse to optimize the water utilization efficiency. Our water conversation focuses on the water discharged from the process. The water sorting recovery unit is used to assist in identification. The water discharge is carried out for different purposes (such as pure water and coolant) based on the property of water quality for recycling of water resource. As a result, we can reduce the sewage per unit wafer, make efficient use of water resource and ensure that the reclamation for the process per month is above 85%. By emphasizing the water saving awareness, every drop of water was statistically reused by 2.8 times in the plant on average in 2016. Our raw water source is the Baoshan Second Reservoir. The effective water storage capacity of the reservoir currently in total is 32.18 million tons. The daily water supply in average is about 282 thousand tons. The Hsinchu Science Park uses about 130 thousand tons of water per day from the reservoir. (In 2016, our average tap water usage per day was around 9,800 tons, which was 7.53% of daily water usage of the Hsinchu Science Park.) The average water usage per day for the process is about 9,600 tons, which is 7.38% of daily water usage of the Hsinchu Science Park. The average water recycling rate for the process was about 86 % in 2016. (Fig. 4.13) The amount of reclamation water was approximately 7.19 million tons. About 22.3% water storage of the Baoshan Second Reservoir was saved in a year.

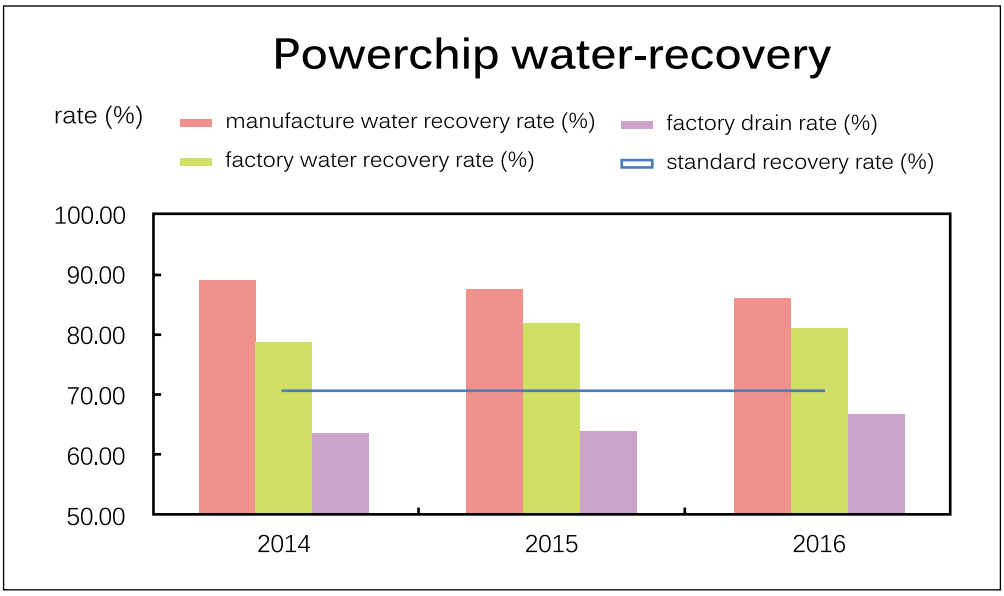


Fig. 4.18: Water reclamation rate for the process

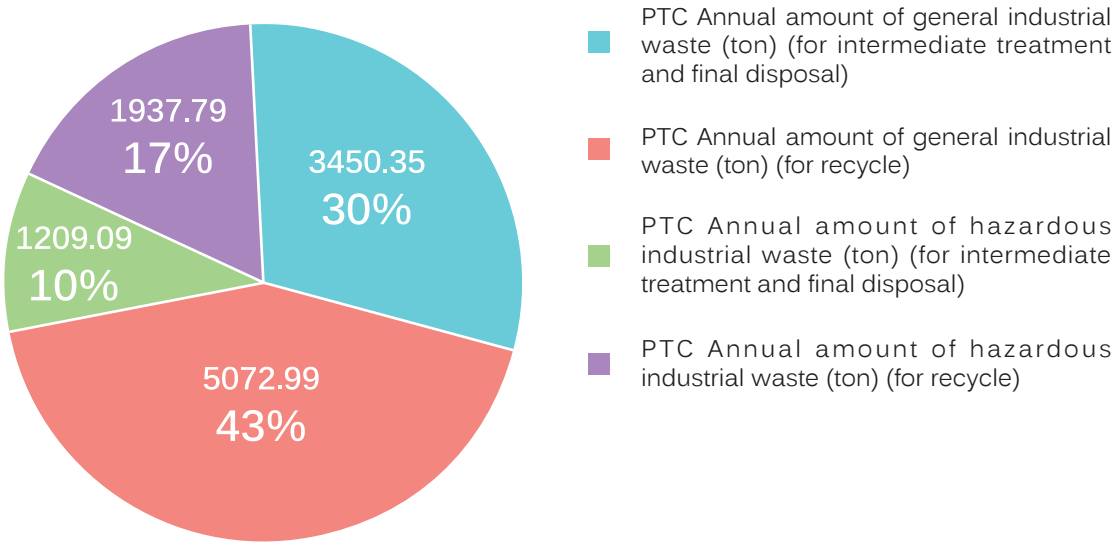
Water Conservation Project Name	Amount of water conservation cubic meter per day (CMD)
Outside air condensate (OAC)	682
Acid discharge and reclamation (AWR)	3728
LSR wastewater reclamation	5620
AWL/FWL/O-CMP/IPA-L water reclamation system	4161
Wastewater reclamation (WWR)	5270
RO/UF concentrated water reclamation (including ammonia-N)	252

Table 4.19: Quantity of reclaimed water from various equipment

4.5 Waste Reduction and Management

For introducing waste management into the control of life cycle, we keep controlling complete flow of waste management and promoting the management. The goals we keep promoting are (1) enhancing the outcome of source reduction during the process, (2) increasing the recycling value of waste and (3) carrying out proper treatment of the waste and tracking the flow of the waste. The total volume in 2016 was about 11,865 tons (less than 2015 by 15.9%). Recycled general industrial waste occupied 43% of the total volume (or 59% of the total general industrial waste), while recycled hazardous industrial waste in the plant occupied 17% of the total volume (or 61% of the total hazardous general industrial waste).

2016 generation amount of waste (tons)



4.5.1 Outcome of source reduction during the process

As for the semiconductor waste, use of the waste acids within the plant is always the concern of the public. For troublesome treatment at the back end, we and relevant departments discussed the reduction at the source with respect to the self-recycling of waste acids in 2014. As for the newly assessed self-recycling procedure of sulfuric acid, the demand for the acid was increased for the additional ammonia-N treatment facilities at the wastewater station in 2014, and we found it feasible to drain waste sulfuric acid to the wastewater station for recycle. There has been no need to outsource waste sulfuric acid treatment provider since October 2015.

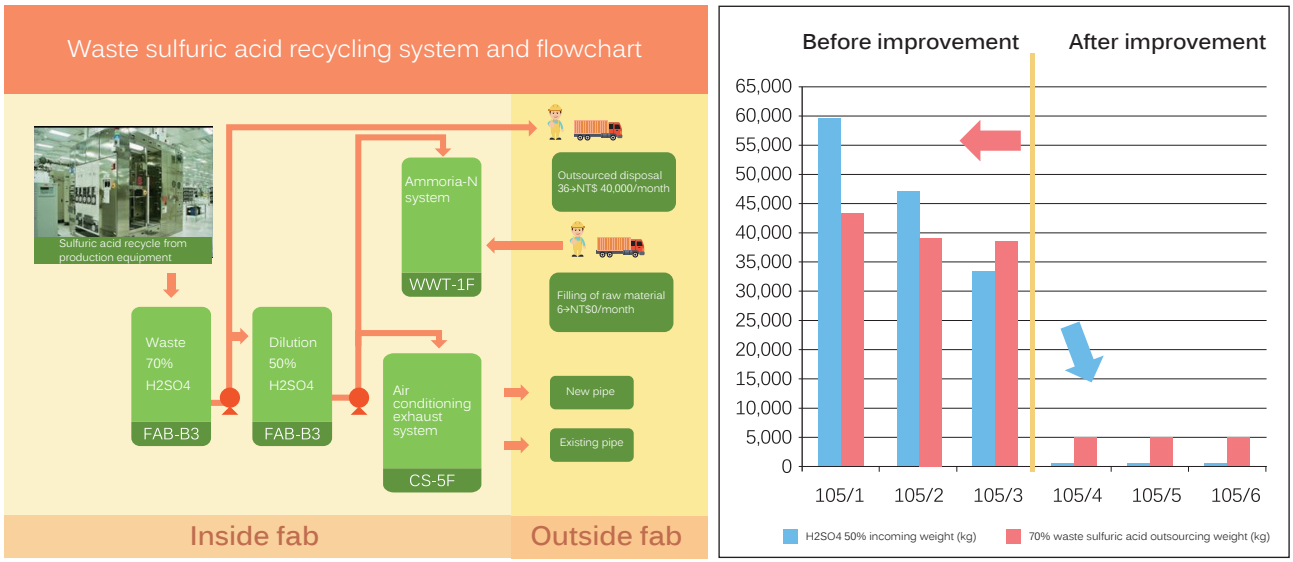


Fig. 4.19 Self-recycling of waste sulfuric acid in the plant

4.5.2 Increasing the recycling value of waste

We have business wastes, such as the general wastes, waste solvents, waste acid and sludge, generated from the semiconductor process. The solvent reduction per year is about 733 tons. Increasing the recycling value of waste has positive effects on the enterprise. We will keep reinforcing this win-win policy in 2017 for more recycling of waste solvent and sludge.

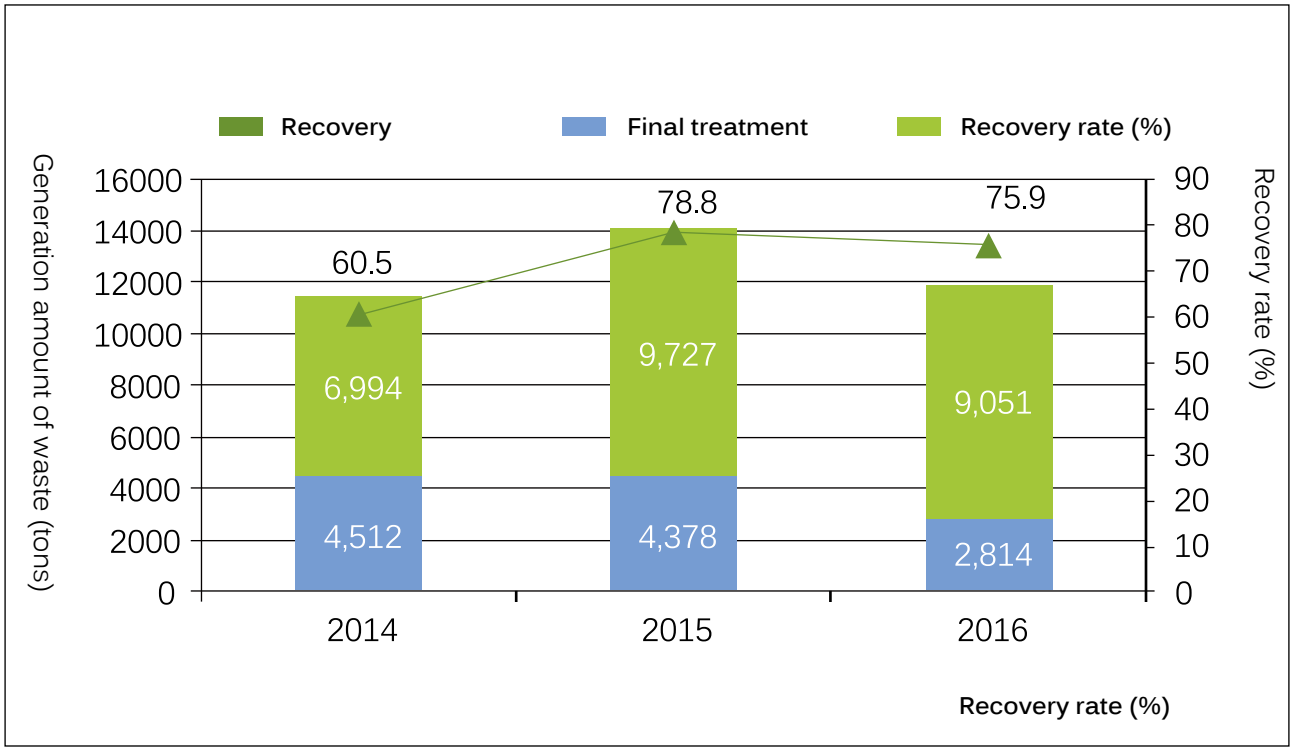


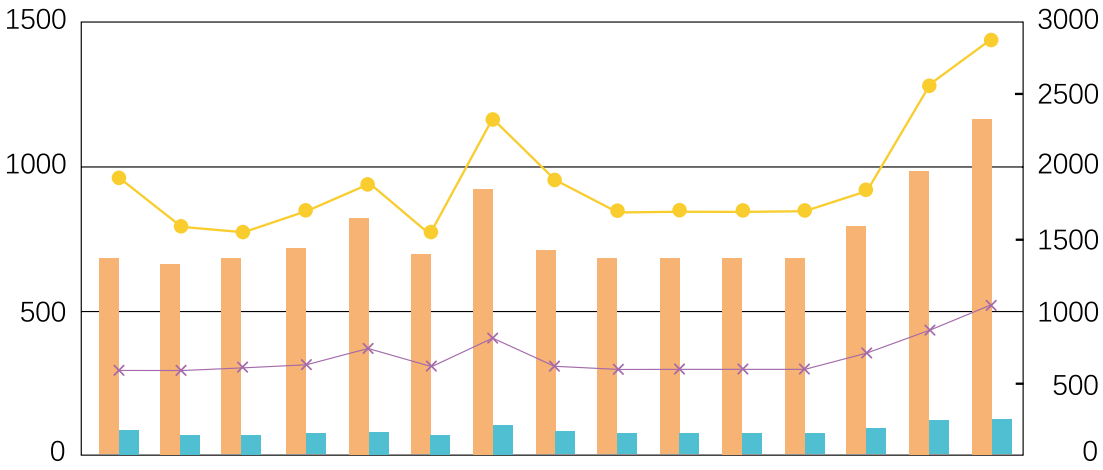
Fig. 4.20: Analytical chart for the recovery rate of business waste

4.5.3 Proper waste treatment and waste flow tracking

We believe that the earth is owned us by all. In addition to setup of designated function/person for environmental protection, we implement waste treatment suppliers and execute external audit programs for the environment. Recycling and reuse of resources are the core of waste management. The waste treatment market is assessed for its appropriateness from time to time and the waste is treated appropriately for recycling. We draw up waste treatment supplier audit programs and inspect the suppliers of industrial waste on a regular basis to make sure the appropriateness and legality in terms of removal and treatment of the waste as well its storage and marking. The compliance with relevant laws and regulations is the most important goal of the audit.

4.6 Packaging Material Reduction and Management

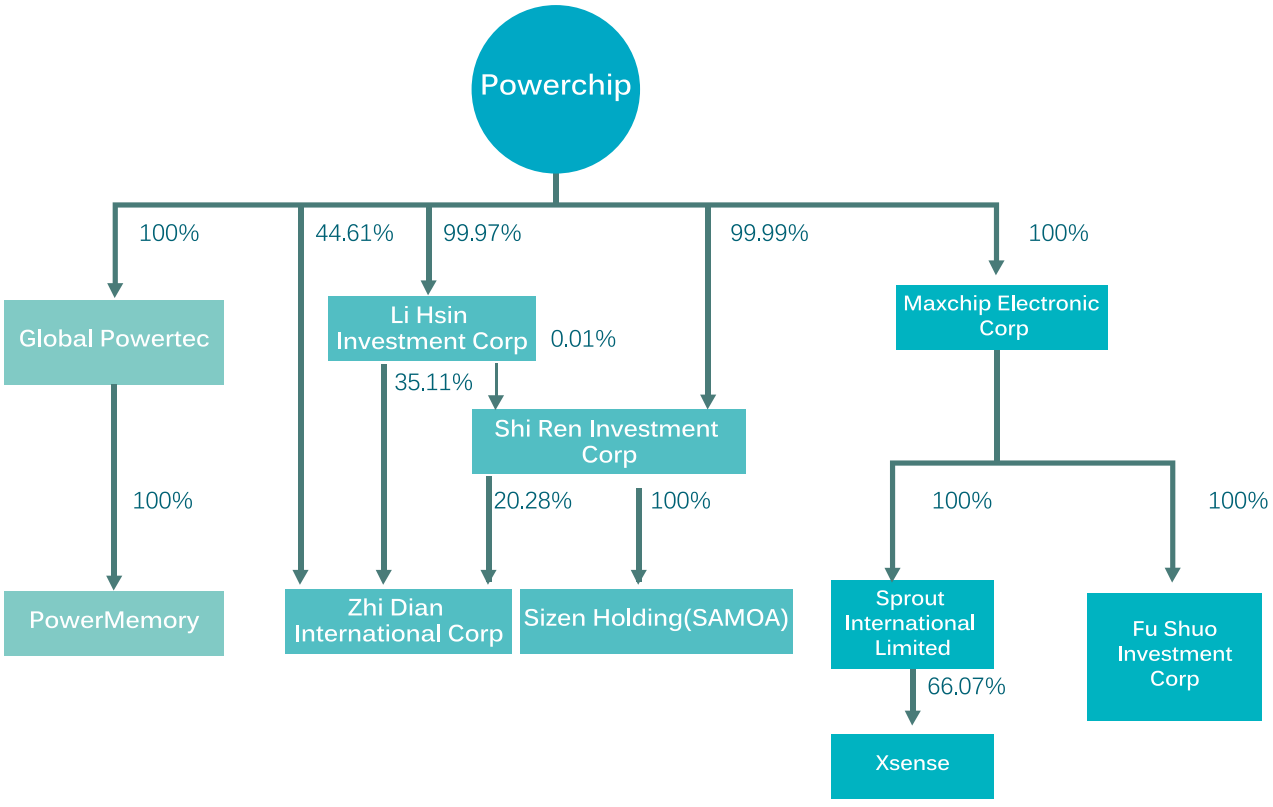
We are dedicated to reducing the waste produced in the manufacturing process. The department of finished products adopts the common shipment to deliver some products of small quantity to domestic customers. Thanks to the plan of packaging reduction measures, about NT$ 2.39 million were saved as shown in the follow figure.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Oct	Nov	Dec
Number of lots before combination	682	667	690	721	825	702	928	714	684	684	684	684	800	992	1169
Number of lots after combination	89	74	71	80	85	73	104	84	78	78	78	78	93	120	128
Number of saved lots	593	593	619	641	740	629	824	630	606	606	606	606	707	872	1041
Number of chips	1926	1595	1554	1699	1881	1551	2338	1919	1700	1701	1702	1703	1838	2569	2889
Saved packaging costs	136390	136390	142370	147430	170200	144670	189520	144900	139380	139380	139380	139380	162610	200520	239430

Appendix 1 Affiliate information

Name	Incorporation Date	Address	Business Item
Li Hsin Investment Corp.	1998.05.26	8F., No.70, Sec. 3, Nanjing E. Rd., Zhongshan Dist., Taipei City	General investment
Shi Ren Investment Corp.	2001.08.27	8F., No.70, Sec. 3, Nanjing E. Rd., Zhongshan Dist., Taipei City	General investment
Zhi Dian International Corp.	2005.08.25	15F., No.68, Sec. 3, Nanjing E. Rd., Zhongshan Dist., Taipei City	Artwork sales
Global Powertec Co., Ltd	2006.04.24	P.O. Box 957, Offshore incorporations Centre, Road Town, Tortola, British Virgin Islands	General investment
Maxchip Electronics Corp.	2008.04.17	18, Li-Hsin 1st Rd. Hsinchu Science Park, Hsinchu, Taiwan, R.O.C.	Electronics
Fu Shuo Investment Corp.	2008.11.26	15F., No.70, Sec. 3, Nanjing E. Rd., Zhongshan Dist., Taipei City	General investment
Sprout International Limited	2008.08.07	P.O. Box 957, Offshore incorporations Centre, Road Town, Tortola, British Virgin Islands	General investment
PowerMemoy Inc.	2010.03.31	6 Chome-21-3 Shinbashi, Minato-ku, Tokyo-to 105-0004	Electronics
Xsense technology corporation	2014.10.13	OMC Chambers, Wickhams Cay1 road town, Tortola ,British Virgin Islands	Electronic components manufacturing



Appendix 2 GRI G4 Indicator Comparison Table

Consideration	Index No.	Contents	Corresponding Chapter	Page No.	Remarks
General Criteria					
Strategy and analysis	G4-1	Provide a statement from the most senior decision-maker of the organization	Strategy and Vision	1~2	
	G4-2	Provide a description of key impacts, risks and opportunities	Strategy and Vision	1~3	
Organizational profile	G4-3	Report the name of the organization	2.1 Introduction	4~7	
	G4-4	Report the primary brands, products, and services	2.1.2 Our service	6	
	G4-5	Report the location of the organization's headquarters	2.1.2 Our service	6	
	G4-6	Report the number and names of countries where the organization operates	2.1.2 Our service	6	
	G4-7	Report the nature of ownership and legal form	2.2 Corporate governance	7	
	G4-8	Report the markets served	2.1.2 Our service	6	
	G4-9	Report the scale of the organization	2.1 Introduction	4	
	G4-10	Report the total number of employees by gender	2.1 Introduction	4	
	G4-11	Report the percentage of total employees covered by collective bargaining agreements	3.4.3 Promotion of labor relation	31	
	G4-12	Describe the organization's supply chain	3.1.1 Building a sustainable partnership with the supplier	19	
	G4-13	Report any significant changes during the reporting period regarding the organization's size, structure, ownership or its supply chain	2.1 Introduction	4~7	No significant change in 2016
	G4-14	Report whether and how the precautionary approach or principle is addressed by the organization	2.3 Business performance	10	
	G4-15	List externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses			Powerchip is a TSIA member and carries out relevant decision items accordingly without endorsing any other initiative
	G4-16	List memberships of associations (such as industry associations) and national or international advocacy organizations in which the organization participates	2.2.6 Associations/guilds and (or) national/global reporting initiatives we've joined	10	
Identified material aspects and boundaries	G4-17	List all entities included in the organization's consolidated financial statements or equivalent documents	Appendix 1	56	
	G4-18	Explain the process for defining the report content and the Aspect Boundaries	2.4 Stakeholders' identification and communication	12	
	G4-19	List all the material Aspects identified in the process for defining report content	2.5 Material issues	12	

Identified material aspects and boundaries	G4-20	Report the Aspect Boundary within the organization	2.4 Stakeholders' identification and communication	12	
	G4-21	Report the Aspect Boundary outside the organization	2.4 Stakeholders' identification and communication	12	
	G4-22	Report the effect of any restatements of information provided in previous reports, and the reasons for such restatements	Report Scope and Boundary:	I	There is no change of the previous report.
	G4-23	Report significant changes from previous reporting periods in the Scope and Aspect Boundaries	Report Scope and Boundary:	I	There is no change in the previous report.
Stakeholder engagement	G4-24	Provide a list of stakeholder groups engaged by the organization	2.4 Stakeholders' identification and communication	12	
	G4-25	Report the basis for identification and selection of stakeholders with whom to engage	2.4 Stakeholders' identification and communication	12	
	G4-26	Report the organization's approach to stakeholder engagement	2.4 Stakeholders' identification and communication	12	
	G4-27	Report key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting	2.5 Material issues	12	
Report profile	G4-28	Reporting period for information provided	Forewords	I	
	G4-29	Date of most recent previous report (if any)	Forewords	I	
	G4-30	Reporting cycle (such as annual or biennial cycles)	Forewords	I	
	G4-31	Provide the contact point for questions regarding the report or its contents	Forewords	I	
	G4-32	Report the 'in accordance' option the organization has chosen	Forewords	I	
	G4-33	Report the organization's policy and current practice with regard to seeking external assurance for the report	Forewords	I	
Governance	G4-34	Report the governance structure of the organization, including committees of the highest governance body. Identify any committees responsible for decision-making on economic, environmental and social impacts	2.2.1 BOD	7	There is no committee responsible for decision-making on economic, environmental or social impacts.
Ethics and integrity	G4-56	Describe the organization's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics	2.2.3 Internal audit	8	
	G4-57	Report the internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters	2.2.4 Diligence promotion	8	
	G4-57	related to organizational integrity, such as help lines or advice lines	2.2.4 Diligence promotion	8	
	G4-58	Report the internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity, such as escalation through line management, whistleblowing mechanisms or hotlines	2.2.3 Diligence promotion	8	

Economic performance	G4-EC1	Direct economic value generated and distributed by the organization	2.3 Business Performance	10	
	G4-EC3	Coverage of the organization's defined benefit plan obligations	3.5 Employee welfare system	33	
Market presence	G4-EC6	Proportion of senior management hired from the local community at significant locations of operation	3.4.2 Selection and retention of talents	29	
Indirect economic impact	G4-EC7	Development and impact of infrastructure investments and services supported	3.7 Social welfare	37	
Procurement practices	G4-EC9	Proportion of spending on local suppliers at significant locations of operation	3.1.1 Building a sustainable partnership with the supplier	19	

Energy	G4-EN3	Energy consumption within the organization	4.1.2 Energy/resource operation status	42	
	G4-EN5	Energy intensity	4.1.2 Energy/resource operation status	42	
	G4-EN6	Reduction of energy consumption	4.1.1 Energy management measures	41	
Water	G4-EN8	Total water withdrawal by source	4.4.2 Recycled water system	51	
	G4-EN9	Water sources significantly affected by withdrawal of water		-	Powerchip participated in the EIA of the Hsinchu Science Park. The result shows that no water source is significantly affected by withdrawal of water.
	G4-EN10	Percentage and total volume of water recycled and reused	4.4.2 Recycled water system	51	
Emissions	G4-EN15	Direct greenhouse gas (GHG) emissions (Scope 1)	4.2.1 Greenhouse gas emission management	44	
	G4-EN16	Energy indirect greenhouse gas (GHG) emissions (Scope 2)	4.2.1 Greenhouse gas emission management	44	
	G4-EN19	Reduction of greenhouse gas (GHG) emissions	4.2.1 Greenhouse gas reduction	44	
	G4-EN21	NOX, SOX and other significant air emissions	4.3.Air Pollution Control	47	
Effluents and waste	G4-EN22	Total water discharge by quality and destination	4.4 Water resource management	50	
	G4-EN23	Total weight of waste by type and disposal method	4.5 Waste reduction and management	52	
	G4-EN24	Total number and volume of significant spills			No significant spills
Products and services	G4-EN27	Extent of impact mitigation of environmental impacts of products and services	3.2.1 Building a green supply chain and Green Product (GP)	21	
			4.2.1 Greenhouse gas reduction	44	
			4.5 Waste reduction and management	52	
Compliance	G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	Ch.4 Sustainable Development of the Environment	40	There is no incident of non-compliance with laws and regulations.

Employment relationship	G4-LA1	Total number and rates of new employee hires and employee turnover by age group, gender and region	3.4.1 Numbers of employees and expertise	28	
	G4-LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation	3.5 Employee welfare system	33	
	G4-LA3	Return to work and retention rates after parental leave, by gender	3.4.2 Election and retention	29	
Occupational health and safety	G4-LA5	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs	3.3.1 Safety Health and Environment Committee	32	
Training and education	G4-LA9	Average hours of training per employee by gender, and by employee category	3.4.5 Training and development	32	
Diversity of employees and their fair opportunities	G4-LA12	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity	3.4.1 Numbers of employees and expertise	28	
Investment	G4-HR2	Total hours of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained	3.4.5 Training and development	32	
Non-discrimination	G4-HR3	Total numbers of incidents of discrimination and corrective actions taken			There is no incident of discrimination.
Freedom of association and collective bargaining	G4-HR4	Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and measures taken to support these rights	3.5 Employee welfare system	33	
Child labor	G4-HR5	Operations and suppliers identified as having significant risk for incidents of child labor and measures taken to contribute to the effective abolition of child labor	3.1.2 Sustainability regulations for the supply chain	19	
			3.4.2 Selection and retention of talents	32	
Forced or compulsory labor	G4-HR6	Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor	3.1.2 Sustainability regulations for the supply chain	19	
Supply chain management	G4-HR11	Supply chain vs. human right	3.1.2 Sustainability regulations for the supply chain	19	

Anti-corruption	G4-SO5	Confirmed incidents of corruption and actions taken			There is no corruption cases
Compliance	G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations			There is no incident of non-compliance with laws and regulations
Assessment of supplier's social impact	G4-SO10	The significant or negative impact on the society and measures that have been taken	3.1.2 Sustainability regulations for the supply chain	19	
Grievance mechanisms for impacts on society	G4-SO11	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms			No incident of grievances against impacts on society has occurred.
Customer health and safety	G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement	3.2 Product service	21	
	G4-PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle, by type of outcomes	3.2 Product service	21	There is no incident of non-compliance with regulations and voluntary codes
Product and service labeling	G4-PR5	Results of surveys measuring customer satisfaction	3.2.3 Customer/product service and satisfaction tracking	23	There is no incident of non-compliance with laws and regulations
Compliance	G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services			There is no incident of non-compliance with laws and regulations

INDEPENDENT ASSURANCE OPINION STATEMENT

Powerchip 2016 Corporate Social Responsibility Report

The British Standards Institution is independent to Powerchip Technology Corporation (hereafter referred to as Powerchip in this statement) and has no financial interest in the operation of Powerchip other than for the assessment and assurance of this report.

This independent assurance opinion statement has been prepared for Powerchip only for the purposes of assuring its statements relating to its corporate social responsibility (CSR), more particularly described in the Scope below. It was not prepared for any other purpose. The British Standards Institution will not, in providing this independent assurance opinion statement, accept or assume responsibility (legal or otherwise) or accept liability for or in connection with any other purpose for which it may be used, or to any person by whom the independent assurance opinion statement may be read.

This independent assurance opinion statement is prepared on the basis of review by the British Standards Institution of information presented to it by Powerchip. The review does not extend beyond such information and is solely based on it. In performing such review, the British Standards Institution has assumed that all such information is complete and accurate.

Any queries that may arise by virtue of this independent assurance opinion statement or matters relating to it should be addressed to Powerchip only.

Scope

The scope of engagement agreed upon with Powerchip includes the followings:

1. The assurance scope is consistent with the description of Powerchip Technology Corporation 2016 Corporate Social Responsibility Report.
2. The evaluation of the nature and extent of the Powerchip's adherence to all three AA1000 AccountAbility Principles in this report as conducted in accordance with type 1 of AA1000AS (2008) assurance engagement and therefore, the information/data disclosed in the report is not verified through the verification process.

This statement was prepared in English and translated into Chinese for reference only.

Opinion Statement

We conclude that the Powerchip 2016 Corporate Social Responsibility Report provides a fair view of the Powerchip CSR programmes and performances during 2016. The CSR report subject to assurance is free from material misstatement based upon testing within the limitations of the scope of the assurance, the information and data provided by the Powerchip and the sample taken. We believe that the 2016 economic, social and environmental performance indicators are fairly represented. The CSR performance indicators disclosed in the report demonstrate Powerchip's efforts recognized by its stakeholders.

Our work was carried out by a team of CSR report assurors in accordance with the AA1000 Assurance Standard (2008). We planned and performed this part of our work to obtain the necessary information and explanations we considered to provide sufficient evidence that Powerchip's description of their approach to AA1000 Assurance Standard and their self-declaration in accordance with the core option of GRI G4 guidelines were fairly stated.

Methodology

Our work was designed to gather evidence on which to base our conclusion. We undertook the following activities:

- — a top level review of issues raised by external parties that could be relevant to Powerchip's policies to provide a check on the appropriateness of statements made in the report.
- — discussion with managers on approach to stakeholder engagement. However, we had no direct contact with external stakeholders.
- — 17 interviews with staffs involved in sustainability management, report preparation and provision of report information were carried out.
- — review of key organizational developments.
- — review of the findings of internal audits.
- — review of supporting evidence for claims made in the reports.
- — an assessment of the company's reporting and management processes concerning this reporting against the principles of Inclusivity, Materiality and Responsiveness as described in the AA1000 AccountAbility Principles Standard (2008).

Conclusions

A detailed review against the AA1000 AccountAbility Principles of Inclusivity, Materiality and Responsiveness and the GRI G4 guidelines is set out below:

Inclusivity

This report has reflected a fact that Powerchip has continually made a commitment to its stakeholders, as the participation of stakeholders has been conducted in developing and achieving an accountable and strategic response to sustainability. The reporting systems are being developed to deliver the required information. There are fair reporting and disclosures for economic, social and environmental information in this report, so that appropriate planning and target-setting can be supported. In our professional opinion the report covers the Powerchip's inclusivity issues. However, the future report should be further enhanced by the following areas:

— Expecting to include more stakeholders from the company's operation and identify more diversified material issues and engages with their expectation.

Materiality

Powerchip publishes sustainability information that enables its stakeholders to make informed judgements about the company's management and performance. In our professional opinion the report covers the Powerchip's material issues.

Responsiveness

Powerchip has implemented the practice to respond to the expectations and perceptions of its stakeholders. An Ethical Policy for Powerchip is developed and provides the opportunity to further enhance Powerchip's responsiveness to stakeholder concerns. Issues that stakeholder concern about have been responded timely. In our professional opinion the report covers the Powerchip's responsiveness issues. However, the future report should be further enhanced by the following areas:

— Encouraging to work towards a type 2 of AA1000AS (2008) engagement with a view to providing the reliability of sustainability performance information that stakeholder concerns.

GRI-reporting

Powerchip provided us with their self declaration of 'in accordance' with the G4 sustainability reporting guidelines: the Core option (at least one Indicator related to each identified material Aspect). Based on our review, we confirm that social responsibility and sustainable development indicators with reference to the GRI Index are reported, partially reported or omitted. In our professional opinion the self-declaration covers the Powerchi's social responsibility and sustainability issues. However, the future report will be improved by the following areas:

— Continuously focus on the implementation of sustainability procedures and programs within the peer's practices along with the developed standards.

Assurance level

The moderate level assurance provided is in accordance with AA1000 Assurance Standard (2008) in our review, as defined by the scope and methodology described in this statement.

Responsibility

This CSR report is the responsibility of the Powerchip's chairman as declared in his responsibility letter. Our responsibility is to provide an independent assurance opinion statement to stakeholders giving our professional opinion based on the scope and methodology described.

Competency and Independence

The assurance team was composed of Lead Auditors and Carbon Footprint Verifiers experienced in industrial sector, and trained in a range of sustainability, environmental and social standards including AA1000 AS, ISO14001, OHSAS18001, ISO14064 and ISO 9001. BSI is a leading global standards and assessment body founded in 1901. The assurance is carried out in line with the BSI Fair Trading Code of Practice.

For and on behalf of BSI:

Peter Pu
Managing Director BSI Taiwan
2017-08-21

bsi.

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