

**Special Issue of
the 2005 Atmosphere Protection Awards**

Host Organization :

Environmental Protection Administration, Executive Yuan

Co-Organization :

Industrial Technology Research Institute
Association of Atmosphere Protection in Taiwan

2005 Atmosphere Protection Awards

The Environmental Protection Administration, Executive Yuan has encouraged individuals and groups to participate in protecting the atmosphere, in particular, by phasing out Ozone Depleting Substances (ODS), preventing the 'greenhouse effect', and improving ambient air quality. To achieve this aim, the Atmosphere Protection Awards were established and have been presented on a regular basis.

All legitimate organizations (corporations, companies, community groups, academic organizations and governmental agencies) with superior performance in decreasing ODS use, reducing greenhouse gases (GHG) emissions or air pollutants were qualified to participate in this award competition.

The awards are divided into four categories:

- (1) Individual Contribution in Atmosphere Protection: For individuals who have made great efforts or contributions in atmospheric protection.
- (2) Outstanding Efforts in Atmosphere Protection: For corporations that have made significant contributions to the protection of the atmosphere.
- (3) Outstanding Technical Contribution in Atmosphere Protection: For corporations that have made significant efforts in atmospheric protection by developing ODS alternative technologies and reducing GHG emissions.
- (4) Best Promotion & Services in Atmosphere Protection: For corporations that have contributed significantly to atmospheric protection through active promotion and service.

A committee of experts, scholars and industry representatives reviewed the applications. In 2005, three people were nominated for the Individual Contribution in Atmosphere Protection award, and eleven companies out of eighteen were awarded. The awards were handed out to the following people/ corporations:

- (1) Individual Contribution in Atmosphere Protection:
 - ✪ Hung-ming Chiang, Chairman of the TTLA Industrial Safety and Environmental Protection Committee.
 - ✪ Shu-chiung Hsiao, Senior Specialist of the Hsinchu branch of the Bureau of Animal and Plant Health Inspection and Quarantine, Council of Agriculture, Executive Yuan.
 - ✪ Hui-chun Chen, the President of Sound Air Industrial Co.
- (2) Outstanding Efforts in Atmosphere Protection:
 - ✪ Powerchip Semiconductor Corp.
 - ✪ China Steel Corp.
 - ✪ Winbond Electronics Corp.
 - ✪ Chi Mei Optoelectronics Corp.
- (3) Outstanding Technical Contribution in Atmosphere Protection:
 - ✪ TECO Electrical and Machinery Co., Ltd.
 - ✪ Gatetech Technology Inc.
 - ✪ BASF Polyurethanes Co., Ltd.
- (4) Best Promotion & Services in Atmosphere Protection:
 - ✪ Flying King Recycling Engineering Co., Ltd.
 - ✪ Au Optronics Corp.
 - ✪ Mitsubishi Motor
 - ✪ Ford Lio Ho Motor Company Ltd.

Individual Contribution in Atmosphere Protection

Hong-Ming Chiang, Chairman of the TTLA Industrial Safety and Environmental Protection Committee (Taiwan TFT LCD Association).



Initiative & achievements in atmosphere protection :

The main producers of TFT-LCD are concentrated in Taiwan, Japan and Korea; these three countries established WLICC (World LCD Industry Cooperation Committee) in July 2001. During the January 2003, meeting of the WLICC, they agreed to form a working group (WG) to promote the reduction of PFCs emissions. As the Chairman of the TTLA Industry Safety and Environmental Protection Committee, Mr. Chiang achieved the following:

- (1) Representing the Taiwanese TFT-LCD industry in preparing for and organizing WLICC meetings in 2000, and actively promoting the reduction of PFCs emissions in similar industries around the world.
- (2) Establishing the TTLA Industrial Safety and Environmental Protection Committee and being the Chairman of the Committee, to set goals and tasks for reducing PFCs emissions in 2001.
- (3) Expediting the audit review of PFCs emissions in Taiwan, Japan and Korea, and realizing the reduction target of PFCs emission in 2003.
- (4) Assisting TTLA to sign a memorandum of understanding (MOU) with the Environmental Protection Administration, Executive Yuan to reduce PFCs emissions and establishing a foundation for industry to reduce GREENHOUSE GAS emissions in 2004.
- (5) Representing the Taiwanese TFT-LCD industry by participating in COP 10 of UNFCCC, and reporting the voluntary efforts and accomplishments of Taiwanese industry in reducing GHG emissions, while also presenting the achievements of Taiwan in atmospheric protection in 2004.

Individual Contribution in Atmosphere Protection

Shu-chiung Hsiao, Senior Specialist of the Hsinchu branch of the Bureau of Animal and Plant Health Inspection and Quarantine, Council of Agriculture, Executive Yuan



Initiative & achievements in atmosphere protection:

- (1) Following the establishment of the International Phytosanitary Standard for wood packaging (ISPM15), the usage of methyl bromide can be expected to increase rapidly around the world. Ms. Hsiao actively researched and reviewed the heat treatment methods and assisted industry to establish the first heat treatment facility in Taiwan, and also has provided consulting services to related organizations.
- (2) As of September 5, 2005, the heat treatment facilities of 154 companies in Taiwan had been recognized and approved by the Bureau of Animal and Plant Health Inspection and Quarantine, Council of Agriculture, Executive Yuan. Only 17 companies were still using the methyl bromide fumigation at this stage.
- (3) Actively promoting the installment of heat treatment facilities, significantly decreasing the use of methyl bromide in Quarantine purposes. For example, in Ms. Hsiao's service area, Hsinchu and Miaoli, the use of methyl bromide as a fumigating agent decreased by 64% from March to July of 2004. Moreover, since September 2004, export inspections have found no use of methyl bromide in wooden packaging materials. This represents an excellent performance.

Individual Contribution in Atmosphere Protection

Hui-chun Chen, the President of Sound Air Industrial Co.



Initiative & achievements in atmosphere protection:

- (1) Since 1993, Mr. Chen has been the Committee Chairman of the Association of Atmosphere Protection in Taiwan (AAPT), assisting the government in reviewing HCFCs allocation system. He has performed his work fairly and open-mindedly. Moreover, he has maintained the balance of supply and demand for HCFCs. Finally, he has actively promoted the reduction of the use of ODS.
- (2) As the Chairman of the Taiwan Refrigeration and Air-Conditioning Engineering Association of Taiwan from 1990-1996, Mr. Chen organized activities for phasing out CFCs, including training sessions to develop CFCs alternatives. He also campaigned for the elimination of 2,400 centrifugal chillers that used CFC-11 and the switching to the use of HFC-134a or HCFC-123 as refrigerants.
- (3) As the chairman of the Taiwan Association of Energy Servicing Company (TAESCO), Mr. Chen has cooperated with the industry to reduce GHG emissions and has promoted both the sharing of successful experiences and public education.

Outstanding Efforts in Atmosphere Protection

Powerchip Semiconductor Corporation (PSC)

Established in December 1994

Person in-charge: Frank Huang

Corporate Headquarters

Address: No. 12, Li-Hsin Rd. 1, Hsinchu Science-based Industrial Park, Hsinchu, Taiwan, R.O.C.

Main products: standard type memory DRAM , memory C-RAM, M-RAM, Flash and CMOS.

Management Philosophy:

The Corporation adheres to the management philosophy that values the overall needs of safety and hygiene for the employee, and values the sharing of achievements with employees and customers. The Corporation continuously provides and improves a safe and healthy working environment for employees, and regards environmental protection, cleaner production and pollution prevention the key links in Company management. The Corporation believes that sustainable development can be achieved through the implementation of the EHS (environment, health, and safety) system as well as through communication with employees, customers, contractors, suppliers, and subcontractors.

Initiative & achievements in atmosphere protection:

- (1) Proactively installing facilities to be in compliance with EPA's Air Pollution Control Act. This includes the classification measures and collection of the various exhaust gases, the treatment of waste gases to meet the emission standards and reduce atmospheric pollution.
- (2) Measure and effects of PFCs reduction
Replacing C₂F₆ with NF₃, which has a lower Global Warming Potential (GWP).
Utilizing the effective treatment of local scrubbers to increase the reduction of GHG emissions from 0.008 MMTCE in 2003 to 0.014 MMTCE in 2004. The reduction rate has been increased by 75%.
- (3) Promoting energy conservation and reduction of CO₂ emissions: the saving of electricity in 2004 nearly reached 22,160,000 KWh, and the financial saving reached 47,190,000 NT dollars. This is equivalent to 15,075 tons of CO₂ emissions reduction.

Outstanding Efforts in Atmosphere Protection

China Steel Corp.

Established on December 3rd, 1971

Person-in-charge: Wen-Yuan Lin

Address: No.1, Jhongang Rd., Siaogang District, Kaohsiung City, Taiwan, R.O.C.

Main products: plate products, steel bar and wire rod products, hot-rolled products, cold rolled products, electro-galvanized steel coils, electrical steel coils

Management Philosophy:

The Corporation realizes that there is only one earth, and thus places a great emphasis on corporate social responsibility, and has invested tremendously in the set-up of all types of pollution abatement equipment since its establishment in 1971. To improve environmental protection, the Corporation has completed the set-up of the ISO-14001 environmental management system, and has continuously promoted environmental management and energy conservation for sustainable development.

The main air pollutants associated with steel mills are particulate particles, , CO₂, SO_x, and NO_x. The Corporation thus focuses on reducing emissions of these four pollutants. The use of HCFCs refrigerant has been phased out yearly through recycling and the reduction of HCFCs use, to improve air quality and protect the atmosphere.

Initiative & achievements in atmosphere protection:

- (1) Reducing the use of HCFCs refrigerant: Recycling and reusing 1,052 kilograms of HCFC-22 from 2002 to 2004; phasing out HCFCs refrigerant equipment and introducing the use of free-refrigerant water-cool dryers, and reducing the use of HCFCs refrigerant by 2,350 kilograms.
- (2) Reducing CO₂ emissions:
 - ⊛ Promoting energy conservation measures: completing 114 cases of energy conservation, saving 65,000 KLOE in total, which corresponds with 220,000 metric tons' reduction of CO₂ emissions.
 - ⊛ Promoting regional resource integration: With reference to 654,184 metric tons of steam sold in 2004, this corresponds with an annual saving of 49,600 KLOE fuels of low sulfur, amounting to 146,000 tons of CO₂ emissions reduction annually.
- (3) Waste Recycling:
 - ⊛ The annual production of blast furnace slag is about 2.8 million tons, which can be used as a substitute for Portland cement and can lead to 2.45 million tons of CO₂ reduction annually.
 - ⊛ Enhancement of land greening: The greened area in China Steel has reached 51.2 hectares, which can absorb 640 tons of CO₂.
 - ⊛ Reduction of SO_x, NO_x and particulate matter: The results of the reduction for the last three years are 3,552 kg/day for particulate matter, 6,076 kg/day for SO_x and 3,371 kg/day for NO_x.

Outstanding Efforts in Atmosphere Protection

Winbond Electronics Corp.

Established in 1987

Person-in-charge: Yu-Cheng Chiao

Address: No.4, Creation Rd. III, Science-based Industrial Park, Hsinchu, Taiwan, R.O.C.

Main Products: Specialty DRAM, Pseudo SRAM, Flash, C-based consumer products, PC and Peripherals, Network Access Products

Management Philosophy:

Winbond Electronics Corp. is a member of TSIA (the Taiwan Semiconductor Industry Association). Winbond cooperates with the WSC (World Semiconductor Council), which is committed to reducing PFCs emissions to 1.1347 million metric tons carbon equivalent (MMTCE) annually by 2010.

The Corporation has established working groups for executing PFCs related projects since 1998. Reduction strategies include: investigating PFCs types and their uses, installing and calibrating PFCs destruction equipment, improving utilization efficiency of PFCs usage in processes, the evaluation of adopting alternative substances, and the evaluation of destruction equipment fulfill the most remarkable achievements.

Initiative & achievements in atmosphere protection:

- (1) For alternative substances, the Corporation adopts C_3F_8 , which has a high use rate, is easily decomposed, and has a shorter life span in the atmosphere. C_3F_8 replaces CF_4 and C_2F_6 in the CVD manufacturing process, and replaces SF_6 in the dry etching process. Notably, the use of fluorinated gases has been reduced by 35~75%, and PFCs emissions have been reduced by 60~85%.
- (2) Regarding destruction equipment, in cooperation with the Industrial Technology Research Institute (ITRI), the Corporation recently has begun measuring the destruction efficiency of PFCs using different types of destruction equipment by using FTIR (Fourier Transform Infrared) spectrometers, and confirms that high-temperature burning equipment can reach 90% PFCs destruction efficiency. The Corporation has invested more than 150,000,000 NT dollars in high temperature incinerating facilities; the MMTCE/m² Si of each unit was reduced by 40% in comparison with 2004 figures..
- (3) The total PFCs emissions were reduced by 22% through processing optimization, alternative substances and installing destruction and reduction monitoring equipment. The resource consumption for per unit production thus was reduced by 13% while total production increased 20% during 2000-2004.
- (4) The Corporation is committed to making continuous improvements in the future, and through the activity of AAPT (Association of Atmosphere Protection in Taiwan) the Corporation expects to share and exchange experience and techniques and implement atmosphere protection ideals and measures domestically.

Outstanding Efforts in Atmosphere Protection

Chi Mei Optoelectronic Corp.

Established in August 1998

Person-in-charge: Frank Liao

Address: No.1, Chi-Yeh Road, Tainan Science-based Industrial Park, Tainan County, Taiwan, R.O.C.

Main Products: LCD panels for desktop monitors and notebooks PCs, LCD panels for televisions, LCD panels for special industries (avionics and medicine) , small-and-medium size LCD panels for AV equipment.

Management Philosophy:

CMO is involved in the research, development, and manufacture of TFT-LCD products. The products are sold to many regions of the world. CMO's production is performed to the standards common throughout the Chi-Mei group, with a consistent focus on technological development, and an emphasis on health and environmental protection. Appropriate manufacturing and pollution prevention techniques are used, for efficiently employing energy and natural resources, and for reducing the environmental impact of production and service activities.

Initiative & achievements in atmosphere protection:

- (1) Adjusting the coverage rate of FFUs (fan filter unit) in the clean room, and installing ceiling units and FFUs above the STOCKER in the TFT clean room. Through the reduction of the amount of operation equipment, electricity consumption can be reduced and energy conserved.
- (2) Controlling the lighting at night in the clean room to save energy without compromising staff safety.
- (3) Reducing the electricity consumption of the gas-operated hot-water heater by using recycled heat source from the cooling tower.
- (4) Improving lighting equipment and reducing electricity usage by adopting high-efficiency electronic sensors.
- (5) Using low-fuel consumption equipment to treat the emissions of organic solutions. The Corporation uses RTO as its organic solvent emissions processing system.
- (6) Taking the No. 3 facility of the Company as an example, it achieved operating cost savings of 48 million NT dollars per year and a reduction in CO₂ emissions of 19,500 metric tons per year.
- (7) PFCs equipment have been installed in its No. 4 facility and in other new facilities since 2004. PFCs equipment can reduce greenhouse gas emissions by 90%.

Outstanding Technical Contribution in Atmosphere Protection

TECO Electric & Machinery Co., Ltd.

Established in June 1956

Person-in-charge: Theodore M.H. Huang

Address: 5F, No.19-9, Sanchong Rd., Nangang District, Taipei, Taiwan

Main products:

motors, air-conditioners, refrigerators, TVs,
washing-machines, compressors

Management Philosophy:

TECO is an innovator, and makes continuous improvements and innovations not only in technical expertise, but also in new business areas and in seeking diversified investment opportunities.

As TECO enters its 46th year, the firm pledges to continue to work towards meeting future challenges.

Initiative & achievements in atmosphere protection:

- (1) Increasing the mechanical efficiency of pumps by adopting the latest precision processing and fabricating techniques.
- (2) Designing low-vibration and low noise products by adopting testing methods such as CAE/FEM and FFT.
- (3) Eliminating the use of hazardous substances under the RoHS directives to avoid harming human health and polluting the environment.
- (4) Adopting R-410A refrigerant since this blend has zero ODP.
- (5) Designing the best products with fewer raw materials and minimizing environmental burden.
- (6) Designing motors with a high efficiency to reduce energy consumption.
- (7) Researching and developing compressors suitable for use with natural working fluids to protect the atmosphere.

BLDC Hermetic Rotary Compressor using R-410A.

Outstanding Technical Contribution in Atmosphere Protection

Gatetech Technology Inc.

Established in May 1988

Person-in-charge: Pai-chuan Cheng

Address: No.1, Datong 1st Rd., Kuan-Yin Industrial Park, Taoyuan County, Taiwan, R.O.C.

Main products: aluminum alloy and magnesium products for bicycles, pneumatic tools, valves and automotive components

Management Philosophy:

Presently, SF₆ is widely used as the cover gas in magnesium production, but it does cause potent greenhouse gas emissions and could be regulated in the future. Many alternatives are harmful or dangerous in nature. Thus, research on SF₆ alternative gases is crucial. HFC-134a is a safe alternative that has a lower GWP than SF₆, and it is proven to be cost-effective.

Initiative & achievements in atmosphere protection:

- (1) Successfully applying HFC-134a to be the cover gas in magnesium production instead of SF₆.
- (2) Installing proper equipment, preventing gas diffusion and reducing by 50% the amount used as cover gas.
- (3) HFC-134a is classified as non-toxic, while SF₆ may form toxic substances like S₂F₅ and S₄F₁₀ at elevated temperatures, which could be dangerous to the worker.
- (4) Using patents to establish a more precise control system for reducing cover gas consumption and providing a stable mixture concentration.

Outstanding Technical Contribution in Atmosphere Protection

BASF Polyurethanes (Taiwan) Co., Ltd

Established in 1988

Person-in-charge: Eng Soo Chew

Address: No.11 Jen Cheng Road, Hsinchu Industrial Park, Hsinchu County, Taiwan

Main products: Polyurethane

Management Philosophy:

Based on the tradition of BASF, the Company promotes Responsible Care and Green Products that incorporate environmental protection considerations. Additionally, the Company strives to develop techniques that can protect the ozone layer and improve air quality.

Initiative & achievements in atmosphere protection:

- (1) The Company started designing non- HCFC-141b techniques for PU rigid foam in 2002, and started to use and apply this into PU insulation boards in 2003. The Company has sold 880 tons of foaming agent.
- (2) The Company participated in the project for developing alternative foaming agents to replace HCFC-141b, which was sponsored by IDB (the Industrial Development Bureau, Ministry of Economic Affairs) and assisted by ITRI (Industrial Technology Research Institute), and then introduced these new techniques to other users.
- (3) The Company participated in the “Seminar on Non-HCFC-141b techniques” sponsored by IDB to reveal our non-HCFC-141b techniques to the public.
- (4) The Company uses equipment to gather hydrocarbon from around its factory and uses active carbon to clean it.
- (5) In 2003, the Company started using lower sulfur content heavy oil (0.5% sulfur) as boiler-fuel, thus reducing waste gas.

Best promotion & Service in Atmosphere Protection

Flying King Recycling Engineering Co., Ltd.

Established on July 18th, 1989

Person-in-charge: Yard-Lin Chen

Address: No.31, Lane38, Kuang Hwa Rd., Ta Fa Industrial District, Kaohsiung County, Taiwan, R.O.C.

Main products: CFC-11/HCFC-141b recovery and liquefying equipment, solvent recovery equipment, CFCs recovery and recycling equipment, special chemical gas recovery equipment, industrial freezing machines.

Management Philosophy:

- (1) To endeavor to develop recycling equipment for SF₆ and Halon, and thus reduce greenhouse gas emissions.
- (2) To promote the recycling of SF₆ and Halon.

Initiative & achievements in atmosphere protection:

- (1) Developing techniques for the recycling, reuse and purification of SF₆ and Halon.
- (2) Recent achievements in refrigerant recycling: 90 ODP tons of CFC-11, 20 ODP tons of CFC-12, 100 ODP tons of HCFC-22.
- (3) Promoting SF₆, Halon and various refrigerants' recycling policies.

Refrigerant Recycling and Liquefying Equipment

Best promotion & Service in Atmosphere Protection

AU Optronics Corporation

Established on September 1st, 2001

Person-in-charge: Kuen-Yao Lee

Address: No. 1, Li-Hsin Road 2, Hsinchu Science-based Industrial Park, Hsinchu, Taiwan, R.O.C.

Main products: TFT-LCDs (Thin-film transistor liquid-crystal displays), OLEDs (Organic Light Emitting Displays), LTPS (low temperature polysilicons)

Management Philosophy:

- (1) Abiding by environmental, safety and health policies, making efforts to protect the environment.
- (2) Taking the initiative in GHG inventory, establishing baseline data and implementing measures to reduce GHG emissions.
- (3) Conforming to international trends and voluntarily reducing PFCs.
- (4) Implementing process optimization to reduce the use of PFCs.
- (5) Being active in energy saving and improving energy efficiency.

Initiative & achievements in atmosphere protection:

- (1) Compiling PFCs emissions inventory and actively participating in voluntary reduction of PFCs in the WLICC (World LCD Industry Cooperation Committee) every year.
- (2) Being on the cutting edge of equipping PFCs destruction equipment for Dry Etching in its 5th generation factory. Removing rates have exceeded 90%.
- (3) Helping materialize the TTLA and signing the memorandum of understanding (MOU) on PFCs emissions reduction with the Taiwan Environmental Protection Administration, Executive Yuan, thus setting a precedent for collaboration between industry and government.
- (4) Being the first Company to compile a PFCs emission inventory in the Taiwanese TFT-LCD industry.
- (5) Sharing the system and experience of compiling PFCs inventory with all member companies of the TTLA (the Taiwan TFT LCD Association) .
- (6) Assisting the Taiwan Environmental Protection Administration, Executive Yuan to localize the protocol of compiling GHG inventory for industry.
- (7) Actively adjusting the process parameters to eliminate pollutants from both the sources and the ends of pipes.
- (8) Integrating PFCs reduction and ISO14001, and continuing to save energy and minimize waste.

Best promotion & Service in Atmosphere Protection

Mitsubishi Motors Taiwan Corp.

Established in December 1975

Person-in-charge: Ching-yang Su

Address: 6F, No.27, Lane 16, Sec. 3, Nangang Rd., Nangang District, Taipei City 115, Taiwan, R.O.C.

Main products: Mitsubishi vehicles, accessories, components, equipment, and repair and maintenance services.

Management Philosophy:

- (1) Although the recovery of R-134a is not legally required in Taiwan, the Corporation recovers, recycles and reuses R-134a.
- (2) The Corporation possesses the latest U.S. Robinair CFC recovery and recycling machines, and is proud of complying with SAE-J2210 and being environmentally friendly.
- (3) The Corporation implements a 3R policy and uses CFCs sensibly, avoiding careless release of waste gas into the atmosphere.

Initiative & achievements in atmosphere protection:

- (1) Improving working efficiency, reducing working hours and prime cost.
- (2) Strengthening technician understanding of system maintenance and communicating adequately with car owners to help them prevent air conditioning systems being corrupted by acid.
- (3) Rationalizing refrigerant use. Executing a complete 3R (Recover, Recycle, Reuse) policy. Striving to do the best in environmental protection and assuming the responsibility of being an entrepreneur.
- (4) Providing education: Requesting refrigerant recycling machines' suppliers to provide two training courses before purchasing. The training includes practical operations, air-conditioning concepts, testing review, case sharing, and Q&A. Furthermore, suppliers are also asked to regularly return to each garage in the event of a problem, and solve it immediately.
- (5) Refrigerant recycling results were as follows:
 - 5,292kg in 2003
 - 7,224kg in 2004

Best promotion & Service in Atmosphere Protection

Ford Lio Ho Motor Company Ltd.

Established on December 1st, 1972

Person-in-charge: Jeffrey Shen

Address:

705 Chung Hwa Rd. Sec.1, Chung Li, Taoyuan, Taiwan, R.O.C.

Main Products:

Passenger vehicles, truck-tractors and commercial vehicles: models include Focus, Tierra, Activa, Metrostar, Mondeo RS, Escape, MAV, Econovan, Pronto, Mazda-Isamu, Mazda 3, Premacy, Tribute, Bongo and so on.

Management Philosophy:

To take into account the use of environmentally friendly materials and cleaner production technologies throughout the various stages of product development, design and manufacture, from utilization to disposal. To proactively work with dealers to provide environmental information to customers and promote "Environmentally Designed" products. To build upon the Company's achievements as a corporate citizen and share its environmental experience with stockholders.

Initiative & achievements in atmosphere protection:

- (1) Applying "Design for Environment", the Company has reduced the environmental impacts of automobile manufacturing.
- (2) To achieve "Green Production", Ford Lio Ho has recently spent nearly 400 million NT dollars to renew its paint shop pre-treatment line and robotized the top coat line. Through the combined efforts of Ford Lio Ho and paint materials and facility suppliers, newly developed cleaner production technology and materials have improved painting procedures and reduced Volatile Organic Compound (VOCs) emissions. FORD Lio Ho reduced the use of cleaning solvents by 5,150 liters annually. Moreover, to save on electricity, the Company installed solar energy heaters and eight wind power generators, which provide 3,200 kWh every year. The Company also invested 38 million NT dollars to convert baking ovens from diesel to a natural gas system. These measures have not only increased energy efficiency, but have also reduced GHG emissions by 3,000 tons of CO₂ per year.
- (3) In 2003, sponsored the Ford No Boundary Experience (NBX) and Forest Remediation Experience Camp to promote atmospheric protection. This campaign involved the planting of 100 trees to help improve soil and water conservation and simultaneously stimulate the corporate spirit "Love the Land and have a Zestful Life". FORD Lio Ho announced the introduction of the Escape hybrid in February 2006. The first Taiwanese automobile manufacturer to import SUV hybrid vehicles, Ford Lio Ho also plans to introduce a diesel passenger car. The Escape hybrid utilizes a motor and engine and achieves fuel efficiency of 15.56 km/L in the city and 13.41km/L on the highway. Moreover, the hydrocarbon and NO_x emissions of this vehicle are 97% lower than the US EPA emission standards. The Escape also meets the strict US EPA Advanced Technology- Partial Zero Emission Vehicle (AT-PZEV) Standard, and the even more stringent California Super Ultra-Low Emission Vehicles Standard.

Attachment I.

Directory of Previous Atmosphere Protection Award (1993-1999)

Titles of Previous Award	Award Title	Prizewinning Unit/Individual
1993 Ozone Protection Award	Outstanding Efforts in ODS Substitution	ACER Inc.
	Efforts in ODS Substitution	TECO Electric & Machinery Co., Ltd.
		The Chinese Automobile Company
		McQuay Unitech Co., Ltd
	Outstanding Technical Contribution	Sanyo Taiwan Co., Ltd.
	Technical Contribution	Chung-Shing Electric and Machinery MFG. Corp.
Crosline Chemical Industries Ltd.		
Sui Sheng Refrigeration Engineering Co., Ltd		
1995 Ozone Protection Award	Outstanding Effort in ODS Substitution	Matsushita Electric (Taiwan))) Co.,Ltd.
	Effort in ODS Substitution	Taipei Engineering Development Company
		Dupont Neotek Taiwan Limited
	Outstanding Technical Contribution	SAMPO Corporation
Chief HVAC Engineering Co., Ltd.		
Technical Contribution	TECO Electric & Machinery Co., Ltd.	
1997 Atmosphere Protection Award	Outstanding Efforts in Atmosphere Protection	TECO Electric & Machinery Co., Ltd.
		King Machinery CO., Ltd.
		Hsinlon A/C System Ltd.
	Efforts in Atmosphere Protection	Chief HVAC Engineering Co., Ltd.
		Formosa Plastics Corporation
		Kaohsiung Customs Bureau, Ministry of Finance
Outstanding Technical Contribution in Atmosphere Protection	Long-Term Enterprise, Ltd.	
	Energy Research Center, National Sun Yat-San University (ERC)	
1999 Atmosphere Protection Award	Outstanding Contribution Service Award	Mr. Hsiung-Wen Chen、 Mr. Pin-Ho Yen、 Dr. Johnsee Lee
	Outstanding Efforts in Atmosphere Protection	Taichung Power Station, Taiwan Power Corporation
		China Steel Corporation
McQuay Unitech Co., Ltd		

	Outstanding Efforts in Atmosphere Protection	Hsin-Ta Power Station, Taiwan Power Corporation
		Taoyuan County Environmental Protection Bureau
		Formosa Plastics Corporation
	Outstanding Technical Contribution in Atmosphere Protection	Lioho Machine Works, Ltd.
		Hochtech Biosystem Co., Ltd.
		Yuan Ze University Energy Technology Research Center