

## **GPPC's 10-Year Investment of 280 million in Carbon Saving Reform Moving Toward Self-Supply of Green Electricity**

Driven by sustainable development values, Grand Pacific Petrochemical Corporation (GPPC) have long been committed to tackling environmental pollution topics such as wastewater, air, noise, solid waste, and groundwater. The Company takes pride in its water resource management and greenhouse gas (GHG) emissions reduction, with a water recovery rate of over 65% and GHG emissions reduction rate of over 5.57%. In the past five years, the Company has established energy-saving and environmental protection facilities and achieved an average electricity saving rate of 1.5%, carried out carbon dioxide inventory to protect Taiwan's air quality, and recovered 3,000 tons of water annually to achieve the goal of a low-carbon circular economy.

GPPC have invested in 72 carbon reduction projects since 2012, including regenerative thermal oxidizer (RTO) installation, volatile organic compounds (VOC) reduction, and oil to gas conversion, with a total investment of NT\$280 million. The Company has also collaborated with local manufacturers from industrial parks to reduce environmental impact through manufacturing process improvement and investments in emission reduction equipment.

Although the petrochemical industry has always been prone to negative stereotypes of pollution and carbon emissions, GPPC have been pioneers of environmental sustainability since its early investments 25 years ago. Its Kaohsiung plant obtained ISO 14001 Environmental Management System certification in 1997. Since GPPC integrated three ISO systems into its management in 2007, the Company has also been officially recognized as green partners to Sony and Asus. Three pillars represent the core of the Company's environmental management, "making good use of resources, pollution prevention, and striving for continuous improvements."

In 2001, GPPC set up and operated a co-generation plant and adopted best available control technology (BACT) and equipment to reduce the pollution caused by the production, transportation, and storage processes; and have been actively improving the experience and skills for equipment operation to achieve the goal of environmental protection.

In recent years, responding to the government's key policies and strategies of gradual reduction of coal dependency, GPPC has shifted from the traditional petrochemical industry to a low-carbon circular economy. With the government's plan for green

energy transformation, GPPC has launched 62 projects since 2017, saving a total of 13 million kWh of electricity within five years, with an average power saving rate of 1.5%, along with establishment of a smart grid to ensure the stability of power supply for manufacturing to improve energy management digitally. In the future, the Company will collaborate with domestic and international green energy developers to install rooftop PV to enhance self-generated green power capacity, increase the effectiveness of land use, and move toward self-supply of green power.

In order to accelerate the realization of the Company's sustainability vision, GPPC attaches great importance to the environmental management of air and water resources. In terms of air management from 2012 onwards, the Company has removed two fuel heater furnaces, replaced the oil of boilers with natural gas, and invested NT\$100 million in installing a regenerative thermal oxidizer (RTO), which have resulted in a removal efficiency of over 98%. At the same time, the Company has also implemented several measures to protect the wellbeing of workers and residents around the plant, including monitoring of "invisible" and "non-scented" components, investment of manpower in thorough detection and maintenance, and communication with environmental protection authorities for audits. Over the past decade, GPPC has carried out 29 emission reduction projects, with a total investment of nearly NT\$200 million.

As for water resources management, GPPC improves water recycling by using a two-stage anaerobic microorganism wastewater treatment strategy; the treated recycled water is used for cleaning the sludge belt filter in the plant, which is equivalent to reducing tap water consumption by 100 tons each time. The plant successfully recycled 1,620,600 tons of water in 2021 (65.3% recycling rate); and is expected to recycle 1,635,200 tons of water in 2022 (65.8% recycling rate).

In addition, GPPC has also been working with manufacturers in local industrial park to reduce its environmental impact through investment in emission reduction equipment and manufacturing process improvements. Furthermore, the Company is taking full advantage of the circular economy trend by converting waste into valuable resources. Through the utilization of by-products of manufacturing process such as hydrogen, activated sludge, and fly ash, the petrochemical industry can transform into a low-carbon economy that not only enhances resources circulation but also creates a sustainable business model. For example, hydrogen can be supplied directly to electronics plants through the purification process, making the petrochemical industry an important part of the semiconductor supply chain. Being a raw material for

hydrogen fuel cell, hydrogen has also become an important clean energy source worldwide. Moreover, GPPC has demonstrated a successful model of circular economy through supplying steam generated from its co-generation plant to other manufacturers in the industrial park. As a result of this steam circulation, the industrial park has achieved thermal integration and reduced various pollutants from multiple combustion sources.



【Photo Cutline】

Grand Pacific Petrochemical Corporation launches reform on carbon reduction and aims to achieve self-supply green power.

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#### 關於國喬石化

國喬石油化學股份有限公司本著不斷追求成長及改善經營環境的經營理念，成立以來一直從事 SM、ABS( 丙烯腈-丁二烯-苯乙烯共聚物) 石化產品之生產，並進行 SM 產品之垂直整合工作，以及多角化如汽電和尼龍事業等經營。本公司位於高雄市大社區的營運總部及生產工廠，已取得經濟部標檢局 ISO9001/2000 年版及 ISO14001 和 SGS OHSAS 18001 等認證。更秉持「上下一心，言行一致，你不滿意，我不成功」的管理政策，持續優化製造技術，嚴謹把關品質及製造安全，確保售後服務及時周到，實踐信賴、正直、急公益的公司精神。作為本土企業，國喬自創立以來一直自我期許，結合上游供應商及客戶共組優質的夥伴關係，使員工擁有良好的工作環境，並善盡減碳企業責任，在水資源管理、溫室氣體減排以及綠能節能發電上不遺餘力。自 2012 年起，累計已投入超過 72 項減碳專案，總投資額達 2 億 7,751 萬，充分展現永續轉型決心，積極實踐低碳循環經濟目標。

如欲了解更多資訊，請瀏覽 [www.gppc.com.tw](http://www.gppc.com.tw) (資料截至 2022 年 9 月 30 日)

#### About GPPC

Based on the company's business philosophy, GPPC has continuously pursued expansion and improved its operation environment. Since its founding in 1973, GPPC has been producing petrochemicals such as SM (Styrene Monomer) and ABS (Acrylonitrile Butadiene Styrene). The company has been undertaking vertical integration for SM products, as well as diversification such as cogeneration and nylon business. Our main office and production plant are located in Ta-She District, Kaohsiung city. GPPC was awarded ISO 9001/2000, ISO 14001 and SGS OHSAS 18001 certification. Inspired by the company's quality policy of "All are united as one. Match our words with deeds. Your satisfaction is the only measure of my success", our product emphasizes continuous development in production technology, rigorous quality control, as well as promptness and attentiveness in post-sales service, and enhance our company image by emphasizing integrity and public welfare. As a local company, GPPC hopes to establish high-quality partnerships with suppliers and clients, and thereby creating a better working environment for our employees. In order to fulfill the corporate social responsibility of carbon reduction, we spare no effort in water resources management, GHG emissions mitigation and green energy installation. Since 2012, we have invested in more than 72 carbon reduction projects, with a total investment of NT\$277.51 million, fully

demonstrating the determination of sustainable transformation and actively implementing the goal of low-carbon circular economy.

For more information, please visit [www.gppc.com.tw](http://www.gppc.com.tw) (data as of September 30, 2022)