ESG HIGHLIGHTS
ESG 焦點

In 2024/25, the Hong Kong Applied Science and Technology Research Institute (ASTRI) remained steadfast in its commitment to Environmental, Social, and Governance (ESG) responsibilities, advancing initiatives that reflect our dedication to sustainability, inclusivity, and transparency.

在2024/25年度，應科院致力承擔「環境、社會和管治」(ESG)責任，積極推動多項舉措，體現我們對可持續發展、共融及透明度的重視。

On the environmental front, we bolstered our sustainable energy practices, implemented upgrades to enhance energy-efficiency across our facilities. These efforts underscore our commitment to reducing our environmental footprint and embracing a greener future.

In the social domain, we continue to prioritise the well-being of our employees through the range of health and wellness programmes highlighted in the previous chapter. We also conducted regular diversity and inclusion training, fostering a workplace culture that values equality, respect, and collaboration.

In corporate governance, we reinforced our dedication to ethical practices and regulatory compliance. Training sessions were organised to strengthen awareness of high ethical standards, and maintain open and honest dialogue with stakeholders.

環保方面，我們加強可持續能源措施，進行多項設施升級項目以提升能源效益，以示我們減少環境足跡，擁抱綠色未來的決心。

社會範疇方面，我們依舊優先關注僱員福祉，故此提供一系列於上文摘錄的身心靈健康活動，並定期進行多元共融培訓，營造重視平等、尊重及協作的職場環境。

企業管治方面，我們強化了道德操守及合規性方面的工作，並舉辦培訓課程以提升員工對高道德標準的意識，並與持份者維持公開坦誠的對話。

ESG Pledge

This accreditation, by The Chinese Manufacturers' Association of HK, demonstrates ASTRI's commitment to implementing and promoting sustainable development over the years.

ESG 約章

這項由香港中華廠商聯合會頒發的認證，彰顯應科院多年來致力實施及推廣可持續發展的不懈努力。

Beyond our internal ESG efforts, ASTRI has undertaken relevant research projects, leveraging innovation to address global challenges and deliver sustainable solutions for society at large.

PV Battery Storage 光伏電池儲能

Environmentally-friendly photovoltaic (PV) systems convert sunlight into electricity and are a cornerstone of sustainable Smart City development. ASTRI has developed a super-efficient PV Battery Storage hybrid system designed specifically for DC grid applications, which is reliable, highly efficient and exceptionally resilient.

The system achieves an impressive 98.32% peak efficiency for battery charging from the PV panel, and an outstanding 99.32% peak efficiency power transfer between the battery and the DC grid. It also incorporates a low-power forced-air cooling feature, further enhancing its performance and reliability. Its advanced features and exceptional efficiency make this PV Battery Storage hybrid system a significant step forward in sustainable energy solutions.

環保型光伏系統可將陽光轉化為電力，是智慧城市可持續發展的重要基石。應科院研發的超高效能的光伏電池儲能混合系統專為直流電網應用系統而設，既可靠、高效並且高度靈活。

該系統的光伏板充電最高效率高達98.32%，電池與直流電網之間的電力傳輸最高效率則高達99.32%，同時加入低功能耗強製風冷功能，進一步提升其表現及可靠度。這光伏儲能混合系統的先進功能及卓越效率，毋疑讓可持續能源方案方面邁進一大步。

除內部ESG工作外，應科院同時進行相關研發項目，善用創新科技應對全球挑戰，為廣大社會提供可持續的解決方案。

Smart Air Filters 智能空氣過濾器

ASTRI is developing a novel monitoring system for the Air Handling Unit (AHU). This system will monitor the performance, filtration efficiency, and effectiveness of the filters installed inside the AHU, allowing operators to determine the remaining lifespan of the filters without needing to enter the unit. Also, the power consumption of the AHU can be monitored in real-time. This approach not only ensures the best performance of the system, reduces manpower costs and filter costs, but also enhances safety.

應科院正研發新型空氣處理裝置監測系統，用以監測空氣處理裝置內過濾器的運作表現、過濾效率及效能，讓操作人員毋需進入裝置便能掌握過濾器的剩餘使用壽命，亦可實時監測空氣處理裝置的耗電量。這方法不僅能確保系統運作達至最佳效能，降低人力及過濾器成本，亦能提升安全程度。

ESG Report Enhancements

ASTRI undertook two pioneering projects in 2024/25 aimed at simplifying the accessibility, analysis and understanding of the complex data in companies' ESG reports.

Universal Information Extraction (UIE) for Financial Document Analysis and ESG Intelligence — ASTRI has developed an AI analytics engine that efficiently processes unstructured data, even when working with limited labelled datasets. By combining Universal Information Extraction with Few-shot Learning technologies, the engine delivers multiple capabilities including document summarisation, compliance verification, ESG profiling with actionable recommendations, and industry benchmarking. This solution is designed to serve financial institutions, investors, and regulators, offering scalability and adaptability that extends beyond ESG to other unstructured data analysis applications.

Study Report on AI Model Research and Development for Chart Analysis — ASTRI investigated how large multimodal models (LMMs) can analyse charts within ESG reports. The study showed that vision-language models (VLMs) perform well in specific tasks like extracting chart titles, though they need further refinement to achieve human-level accuracy in chart summarisation and data extraction. As VLM technology continues to advance, these models will become increasingly capable of extracting meaningful insights from complex visual data, making them more valuable for ESG and financial analysis. Together, these initiatives demonstrate ASTRI's dedication to advancing ESG intelligence and enabling data-driven sustainability practices.

強化ESG報告

應科院於2024/25年度開展了兩項創新項目，以簡化各公司ESG報告中獲取、分析與理解複雜數據的流程。

「**金融文件分析與ESG智能通用資訊提取(UIE)**」－應科院開發了一套AI分析引擎，即使在標記數據集有限的情況下，也能高效處理非結構化數據。該引擎結合了通用資訊提取與少樣本學習技術，提供多項功能，包括文件摘要、合規性驗證、ESG檔案分析並提供可行建議，以及行業基準比較。此解決方案專為金融機構、投資者和監管機構而設計，具備可擴展性和適應性，應用範圍可延伸至ESG以外的其他非結構化數據分析領域。

「**ESG報告中圖表分析的人工智能模型研發研究報告**」－應科院探討了大型多模態模型如何分析ESG報告中的圖表。研究顯示，視覺語言模型在特定任務（如提取圖表標題）中表現良好，但在圖表摘要和數據提取方面，仍需進一步改進才能達到人類水平的準確度。隨着視覺語言模型技術持續進步，這些模型從複雜視覺數據中提取有意義見解的能力將不斷提升，使其在ESG和金融分析領域更具價值。這些工作共同展現了應科院致力於推動ESG智能發展，並支持數據驅動的可持續發展實踐。