



The LED dynamo flashlight

LED手搖電筒

SHINING LIGHTS

跟隨全球能源 | 革命進程 |

Ao Lung's bright innovations empower consumers facing increasing energy shortages
面對能源短缺危機日益加劇，澳能創新的發明能為社會大眾開拓一條新出路

Ao Lung Electric Machinery Development has always focused on compressed-air energy storage systems and commercialised cutting-edge technology that could provide quality renewable energy products and large-scale energy storage solutions.

As energy shortages intensify to crisis levels worldwide, Ao Lung is pioneering an alternative field that will revolutionise renewable energy.

Collaboration with academia in new energy development

Just a few years after the invention of the spiral air engine, Ao Lung has gained a solid footing in the energy industry. The company is currently collaborating with Zhejiang University

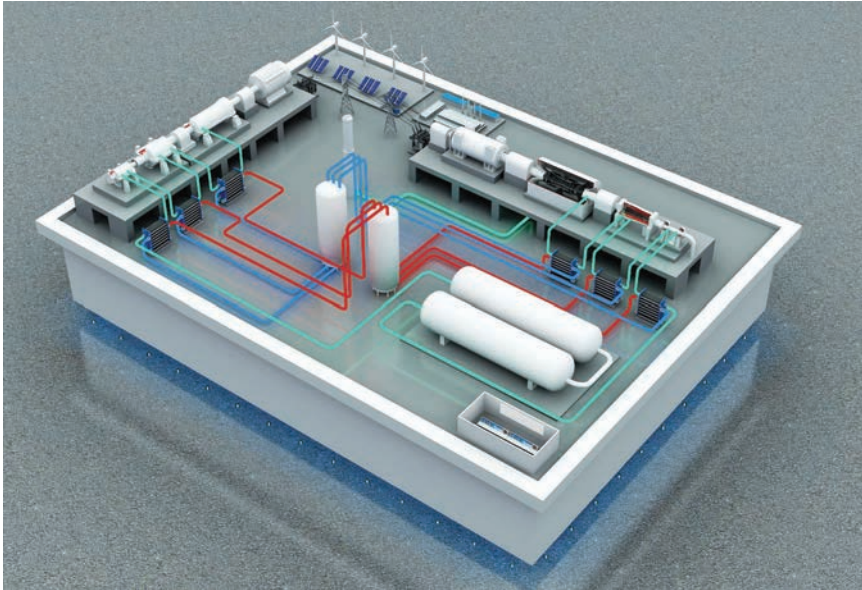
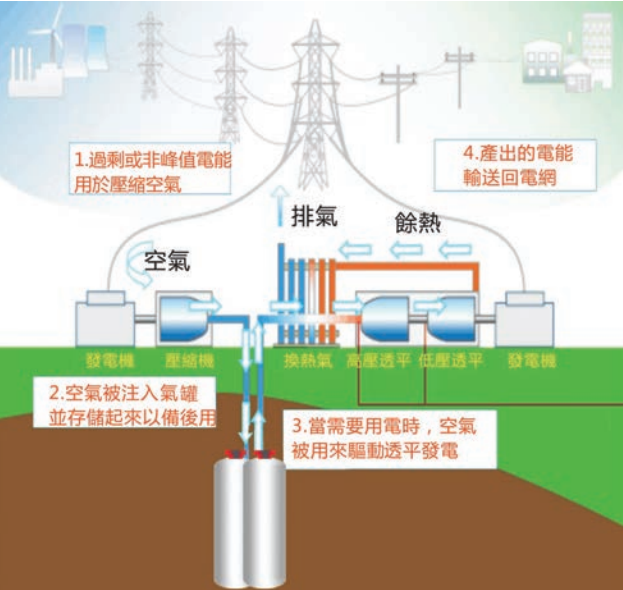
澳能電機發展有限公司從成立至今一直專注於研發壓縮空氣動力及儲能技術，以及商業化的高新技術，是實用清潔能源產品及大規模儲能解決方案等技術的供應商。現時世界能源短缺危機不斷加劇，澳能為社會大眾提供了另一條出路，銳意開創能源革命新世代。

學界支援 成功研發新動力

繼成功研製出螺旋式空氣動力發動機之後，澳能在短短數年間已於業界穩佔一席，現時與浙江大學及北京航空航天大學合作，並且正在測試一種空氣混合動力發動機。同時，貴州澳能（畢節）工業園作為國內與澳門合作的第一個壓縮空氣儲能示範工程，將會帶領澳能昂首邁步，將澳門自主研發的清潔能源產品發揚光大。

澳能專注研發和生產環保產品，在空氣源動力系統及壓縮空氣儲能技術上精益求精，現時在可再生能源汽車領域和新能源發電及





Above: Ao Lung's compressed air energy storage system is 11 per cent to 23 per cent more efficient than a conventional system.


上：澳能壓縮空氣儲能系統比傳統壓縮空氣儲能系統的效率高11-23%。

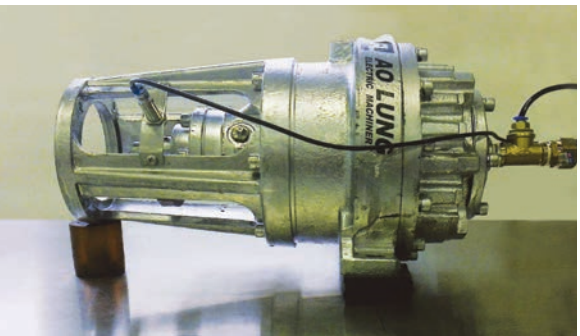
and Beihang University in the testing of a new type of combined air engine. Meanwhile, Guizhou Ao Lung (Bijie) Industrial Park is the first mainland-Macao collaboration project using compressed air energy storage technology. This company also leads the sector, as it enters a new era with clean energy products "Developed in Macao".

As Ao Lung develops and produces renewable energy products, the company constantly updates itself and enhances air-engine and compressed air energy storage technology. Ao Lung has also made significant breakthroughs in clean-energy cars, renewable power, and the application of a dispersed microgrid. The company's first spiral air engine development is now ready to be fitted to golf carts.

The company has also developed an LED dynamo flashlight with a high-luminosity top light and LED in the middle for floodlighting. The variable speed gearing of the flashlight's internal engine also generates an alternating current that

分散式微網應用上均取得重大突破。澳能所研發的第一台螺旋式空氣動力發動機已可應用於高爾夫球車，LED手搖電筒更是澳能得意之作。LED手搖電筒的前部具有高亮度照明效果，中間的馬燈更可作大面積照明。透過傳動機構變速帶動內置電機發出交流電，再經整流穩壓後轉換為直流電，只須搖動三分鐘即可照明20分鐘之久。內置五支發光管，中央部份則有12盞草帽燈，內部電池可接電源充電，亦可作USB充電，而且壽命特長，充分滿足中遠程照明。整支手搖電筒手感輕、噪音低，底部用上彈性設計，方便放置或外攜。

重要突破電網及儲能領域之應用開闢了廣闊空間
澳能去年成功研發的1.5MW超臨界壓縮空氣儲能系統比傳統壓縮空氣儲能系統的效率高11-23%，可應用於風力發電廠、光伏發電廠、分散式微網系統和島嶼微網系統。壓縮空氣儲能系統的建設和運行成本低，儲能週期不受限制，壽命更長達40至50年之久，有助於解決可再生能源發電的間歇性及波動性等問題，提高供電品質和可靠性，可滿足市場對分散式電源的需求。相信隨著環保及綠化等議題漸受重視，澳能將會在業界進一步發光發熱。 




can be converted into a direct current. Cranking the flashlight for three-minutes will sustain light for 20 minutes. The flashlight is also equipped with five luminescent tubes as well as 12 straw hat lamps in the centre, while the internal battery is rechargeable via connections to a power supply source or a USB port. The battery's long life can support long- and medium-range illumination. This lightweight flashlight has a lower noise level, while the resilient material in its base improves the product's portability and ease of storage.

“Compressed air storage system has low installtion and operating costs, and an indefinite energy storage cycle for 40 to 50 years.

壓縮空氣儲能系統的建設和運行成本低，儲能週期不受限制，壽命更長達40至50年之久。”

Major breakthrough in grid energy storage

Last year, Ao Lung developed a 1.5MW supercritical compressed air energy storage system that is 11 per cent to 23 per cent more efficient than a conventional product. The new system is compatible with wind farm, solar photovoltaic farm, dispersed micro-grid, and island micro-grid systems. With low installation and operating costs, and an indefinite energy storage cycle for 40 to 50 years, the compressed air storage system is tipped to eliminate the periodicity and fluctuation of the power generation ability of renewable energy, thereby improving the quality and reliability of electric power to meet market needs for dispersed energy. As the world becomes increasingly aware of green issues, Ao Lung will surely have a bright future in the industry. 

Left, from top: Compressed air cans, the spiral air engines and golf carts fitted with the spiral air engines

左，由上起：壓縮空氣氣罐裝置、螺旋式空氣動力發動機及裝上相關發動機的高爾夫球車

176

AO LUNG ELECTRIC MACHINERY DEVELOPMENT CO., LTD.
澳能電機發展有限公司
Tel: (853) 2827 0676

