# Session Keynote: CLP's First Off-Grid Commercial Renewable Energy Supply Project for Dawn Island
# 中電在晨曦島上首個獨立的商用可再生能源供電系統

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## Abstract

The first off-grid commercial renewable energy (RE) supply system of CLP Power Hong Kong Limited (CLP) is being installed at Dawn Island which is a remote island in Sai Kung where a non-profit making drug rehabilitation centre is located and run by Operation Dawn. The RE supply system has been planned to cope with the ultimate electricity demand of the centre after her proposed development is completed in 2012. After considering various supply options such as submarine cable installation and overhead line connection, etc, RE was eventually selected to meet the electricity demand of the island. A hybrid system with a total installed capacity of 200kW, integrating solar panels, wind turbines and battery storage system, has been planned for implementation in two phases. The first phase with a capacity of 20kW has been successfully commissioned in January 2010 while the second phase is being implemented and will be completed in Q1 of 2012. The RE system will replace three existing diesel generators and reduce 70,000kg of $CO_2$ emission annually.

The establishment of the RE system for Dawn Island not only demonstrates CLP's commitment to provide a reliable, cost effective electricity supply to a drug rehabilitation centre on a remote island, it also realizes her core values of "Cares for the Community" and "Cares for the Environment". CLP also supports university research projects by providing the operation and performance data collected from this RE system to study the prospect of economic development of similar systems in Hong Kong.

This paper shares CLP's experiences in the design, construction and commissioning of the Phase 1 of this standalone RE system as well as in working with the residents on the island to enhance their knowledge in electrical safety and demand side management. A summary of the Phase 2 installation and various project challenges is also presented in the paper.

## 摘要

中華電力有限公司(簡稱中電)在晨曦島上興建了全港首個獨立的商用可再生能源供電系統。晨曦島是一西貢偏遠島嶼。香港晨曦會在島上營運一個非牟利戒毒中心。按計劃，這個供電系統可配合該戒毒中心於2012年完成發展計劃後的最終電力需求。經考慮如鋪設海底電纜和架空線等多個供電方案後，中電最後選擇以可再生能源來滿足島上的電力需求。這個集太陽能板、風車及電池儲電系統於一身的綜合系統，總裝機容量為200千瓦，分兩期落成。首期容量為20千瓦，已於2010年1月成功投產，而第二期工程正在進行，預計於2012年首季完成。可再生能源系統將取代現有的三部柴油發電機，預計每年可減少7萬公斤的二氧化碳排放。

中電於晨曦島上建立可再生能源系統，反映公司樂意為偏遠島嶼的戒毒中心提供可靠而具成本效益的電力，體現其「關心社群」及「愛護環境」的核心價值。中電亦將所收集到的可再生能源系統營運及表現數據提供予本地大學，用以研究類似系統在香港的發展前景及經濟價值。

以下全文將分享中電在設計、興建及測試此獨立可再生能源系統首階段的經驗，以及如何提高島上居民對用電安全及需求管理的認識。本文亦將摘要概述第二期安裝工程及項目所遇到的各項挑戰。

## Biography

Mr Poon manages the generation, transmission, distribution and retail businesses. He started his career with CLP Power Hong Kong in 1974 as a graduate trainee. After gaining experience with various companies and the Water Supplies Department of the Hong Kong Special Administrative Region Government, he rejoined CLP Power Hong Kong in 1981. Since then, he had held various management positions in Transmission Projects, Technical Services, Change Management, CLP International, Regional Operations and Asset Management. He was the Director – Power Systems before assuming his current position in February, 2010.