Left: Hongkong Electric's solar cell array at Lamma Power Station. Right: Towngas' Jiangsu plant, which uses biofuels.

# LONG RIDE AHEAD TO CUT DOWN CARBONS


Continuing my theme of reaching zero carbon emissions by 2050, there are other solutions that will reduce the burning of fossil fuels and achieve this goal. Our public utility companies are doing more than their fair share to support this, both locally and overseas.

CLP Power has long had a policy of increasing the use of renewable energy in its overseas portfolio, with huge solar and wind farms and hydro plants in many parts of the mainland, India and other regions, together with a large proportion of nuclear plants.

Its plan to reduce carbon sets an exemplary example.

Power Assets, a Hongkong Electric shareholder, holds stakes in UK Power Networks and Northern Gas Networks.

The latter has converted part of its pipework system from natural gas to hydrogen, significantly reducing its use of fossil fuels in gas heating for industrial and domestic consumption in north England.

It was done seamlessly over the past decade. Existing pipes can still be used, and modifications were mainly to the burners for heating to cater to the different calorific values of hydrogen and natural gas.

Hydrogen, by steam methane reforming, can be manufactured in large quantities and economically, and will also be able to supply hydrogen to fuel-cell vehicles, fueling the new hydrogen economy and significantly reducing carbon emission.

Here, Towngas has long been using naphtha instead of coal as feedstock, and recently introduced natural and landfill gas in its fuel mix in a continuing process to reduce carbon emission.

To help reduce energy use, it promotes the use of desiccant wheels to dehumidify indoor air and with much higher efficiency.

Traditional dehumidification is by refrigeration. Excessive moisture is condensed in the cooling coils of the air-conditioning system.

But for large volumes of air in a convention hall, hospital or other industrial applications, such a method results in indoor temperatures too low for comfort and reheating is required to bring a space back to an acceptable temperature and moisture level.

This does not help with our aim of minimizing the use of precious energy to reduce emissions.

The use of desiccant wheels, with gas burning to evaporate moisture, is a much more efficient method for large enclosures and has contributed to energy saving, especially in cases where waste heat from other applications can be used for this drying process.

Towngas has substantial investments in the mainland, and the same ethos of carbon reduction is applied to more than 20 provinces, serving over 30 million customers.

Its distributed energy system supplies power, water, steam and chilled water using waste heat for best overall efficiency.

Our power and gas utilities have one common aim, to ensure safe, reliable and economical supply of energy, reducing emissions to meet our goal of a zero carbon economy by 2050.

Whether we can achieve this goal depends on continued technical development of energy production and use and reducing reliance on a carbon economy.

The road ahead is long and challenging, but given time, we should be able to achieve it.

**Veteran engineer Edmund Leung Kwong-ho casts an expert eye over Hong Kong's iconic infrastructure**