**Carbon Capture and Storage (CCS) for electricity generation**

Electricity is part of our lives more than ever before, and a key driver for human development and economic prosperity. According to the International Energy Outlet 2013 Report, 62% of the world electricity consumption of 20 trillion kWh was generated by fossil fuels. The Report estimates that electricity consumption will increase to 40 trillion kWh in 2040 but the share of fossil fuels will drop slightly to 60% (36% coal and 24% gas) despite rapid development of wind power and advances in solar PV.

According to the International Risk Governance Council, electricity generation is responsible for one third of global CO2 emissions. There is an overwhelming scientific consensus across the world that greenhouse gas (mainly CO2) emission by human activities is responsible for climate change, causing extreme events and disasters. Never before has such issue become so important worldwide, and it is in fact on the top agenda of every region/country.

CCS technology which can capture around 90% of CO2 emissions produced from the use of fossil fuel in electricity generation, preventing the release of CO2 into the atmosphere. The CCS chain consists of three parts: capturing, transporting and securely storing the CO2 emissions underground in depleted oil and gas fields or deep saline aquifer formations. The IPCC estimates that the economic potential of CCS could be between 10% and 55% of the total carbon mitigation effort until year 2100. As 20% of power plant output will be consumed by the carbon capturing process alone, the viability of CCS technology is still a major concern. However, there is active investigation and operation of pilot plants around the world including a programme in Guangdong Province.

Locally, electricity generation is responsible for 67% of Hong Kong’s CO2 emissions. The options put forward in the 2014 Future Fuel Mix for Electricity Generation Consultation Document still need 50% to 80% fossil fuel burning in 2023. Given Hong Kong’s proximity to large offshore saline aquifers, the Environment Bureau should consider including CCS technology in the long term planning for implementation once CCS technology becomes viable.

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