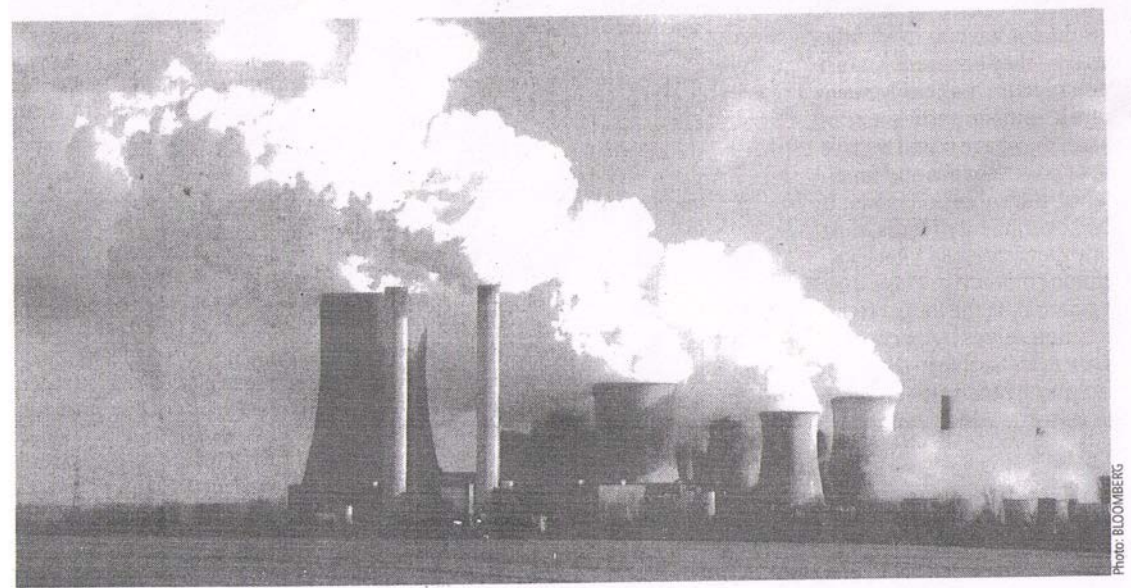


New tech solution imperative for decarbonisation



Scenarios of global warming have projected a rise in global temperature up to 2-4 degree celsius by 2050 due to increasing CO₂ concentrations in the atmosphere, if no action is taken to mitigate the greenhouse gas (GHG) emissions and stabilise GHG concentration at 450 ppm CO₂ equivalent. Among the various fossil fuel sources of energy, a scientific and technology challenge from coal-based power generation is to capture carbon dioxide from the flue gas of power plants and fixing it away from the atmosphere. Early deployment of carbon capture and storage (CCS) technology is being considered as a possible way out for mitigating CO₂ emissions.

By 2050. Its potential to reduce CO₂ emissions is second to the contribution of efficiency improvement in energy technology and first carbon capture ready plant is expected to become operational in next 4-5 years, instead of 2020 as anticipated earlier.

It is inspiring to note that research in CCS has grown by almost 100% in the past five years as compared to first five years of the current decade. Major economies of the world have

introduced new policy decisions to accelerate developments towards reducing coal-based CO₂ emissions from thermal power generation.

The FutureGen was conceived at the initiative of Department of Energy, USA. It is a coal gasification power plant of 275 mw capacity expected to be ready by 2012. As an international research initiative, FutureGen is an industry alliance partnership to build a first-of-its-kind coal-fuelled power plant in

which almost 90% CO₂ for the gasification product will be captured and sequestered. The effectiveness, safety and permanence of CO₂ sequestration will be tested in the long run. Countries like India, China and Korea have evinced interest in this research project.

The Australian Zero Gen Mark II is another demo plant of 80 mw capacities to be ready by 2012. It is planned to capture up to 70 % of CO₂ and sequester it in deep underground reservoir in the Northern Denison Trough. The success of the demonstration plant would establish the construction of a full-scale power plant.

The Canadian federal government has said that after 2011 all coal-fired power plants in Canada should be CCS ready and are preparing in this direction. The UK has already outlined the CCS based carbon abatement strategy. Zero Emission Platform (ZEP) of European Union has targeted 12 CCS demonstration projects to be launched over next seven years by 2015 and is hoping to get industrial Several new CCS demonstration projects are in the pipeline. These include Kingsworth and Hatfield (900 mw IGCC) in the UK, Vattenfall in Germany and large scale demonstration in post-combustion capture from the flue gas of existing power plants in Rotterdam and Beijing.

Considering the rapid progress made in development of technology towards reducing the amount of CO₂ emitted per unit of energy produced, it is desirable that carbon markets facilitate transfer of clean coal technologies to those economies that have large dependence on coal for meeting their basic energy needs. Global energy industry is expected to take lead in this direction.

Similarly, a lot of events are taking place. A landmark event of in this direction was the CO₂ Energy Summit held in the UK by CWC Associates. The participants included eminent economists and technologists from different countries. The goal of the summit was to chalk out a path towards low carbon economy. The summit was preceded by one-day training capsule on carbon marketing, benefits, policies and approach to identification of Clean Development Mechanism (CDM) projects.

Carbon markets are expected to continue to grow and likely to become the largest commodity, even after Kyoto Protocol comes to an end in 2012. It emerged that the growing economics like India and China can take a lead among developing countries in creating a new world order. It is easier for them to leapfrog towards low carbon economy as

compared to industrialised economics, which have already stabilised their economic growth.

But the question is how to leapfrog? Carbon markets are growing but the primary goal of transfer of technology as envisaged under the UNFCCC mechanism is not happening. There have been issues raised about medium-term and long-term gains from such transactions. Secondary Markets and Emission Trading Schemes are expected to take over. Primarily, market opportunities in the energy sector are the main attraction to buyers and sellers.

More recently, a global industry has come forward with on-line global auction platform for CERs to hasten the process of transactions. It is apprehended that a great deal of chaos may result through such offers. It may heighten the confusion in industry about the carbon business. It is therefore necessary that the nitty-gritty of market mechanisms is fully disseminated among the beneficiaries. Some composite thinking among the affected countries should also take place through a common platform, which can make an impact on global energy scene. India and China can take a lead in this.

Coming back to the issue of technology, while the markets take their own course to establish and may change the global equation, the

stabilisation goal would require major technology solutions on global scale for a radical decarbonisation effort. The success of low carbon economy demands that

collaborative efforts are made in cost-effective technology development and its operation.

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