

CO-WRITTEN FEATURE

“Bamboo plantation has been initiated by NDPL”

● NDPL, Co-Written Feature, page 16

Alstom delivers

By Madhurima Duttagupta

Alstom is currently researching and developing programmes to meet the technological and economic challenges of capturing the CO₂ created in fossil-fuel-based electricity production. Alstom in the midst of the current climate change panic developed several technologies to offer CO₂ capture solutions, providing excellent energy efficiency at a suitable cost.

The company has placed its focus on pre-combustion, post combustion and oxy-combustion technologies, due to the capability of its capture technologies to implement power stations to meet the growing demands of developing countries.

Post Combustion

Post-combustion technology is compliant with the large installed base of coal-fired power stations. The process consists of separating CO₂ from the exhaust gases using solvents like amine or chilled ammonia. The chilled ammonia method for example, is capable of removing up to 90% of CO₂ from combustion gases. Pilot projects started in 2007 are set to confirm the processes economic advantages over other technologies.

Oxy-Combustion

The key to the oxy-combustion process is to reduce the cost of large-scale oxygen production. Oxy-combustion is the burning of solid fuels in oxygen. Alstom is thus developing promising technological breakthroughs, such as chemical looping, a form of oxy-combustion currently undergoing bench tests at Alstom.

Pre-Combustion

Pre-combustion is the conversion by gasification of fuel rich in carbon, such as coal into a synthetic gas made up of carbon monoxide and hydrogen. Several stages of transformation and purifica-

tion are thus needed to convert the gas, to remove the CO₂ and obtain a stream of pure hydrogen that is subsequently burned in a combined cycle power station.

Leader in CO₂ Capture

Alstom intends to take a global leadership position in CO₂ capture. The solutions offered by Alstom will significantly reduce traditional pollutants and greenhouse gas emissions without sacrificing the profitability of power plants.

Alstom, is the current global leader in terms of air quality control systems offering world-class solutions to eliminate dust and reduce traditional pollutants including mercury, nitrogen oxides and sulphur oxides by more than 90%.

Future Projects

Alstom is pursuing two potential strategies, one is the improvement of plant efficiency and the second, is the constantly increasing steam cycle temperatures. The improvement of plant efficiency translates into more electricity for the same quantity of fuel as well as life-span longevity.

The use of constantly increasing steam cycle temperatures will alternatively provide a conduit for the distribution of technology between Alstom's power plants to its clients. Due to the rising consumption of global electricity, the protection of the environment, such as the control of CO₂ emissions is creating new demand and exciting opportunities.

Alstom, a global leader in clean energy, provides complete clean energy solutions. While Alstom considers CO₂ capture solutions its priority, it still remains focused on the foundation of its business combined with the enhancement of energy efficiency and development.

Power panic in the PRD

By Joel Laykin, Secretary General, IPPF

PROFILE

The Good News

The PRD is bursting at the seams with new prosperity. It's becoming conventional wisdom that income is more disposable in the East bank of the Pearl River than in the entire city of Shanghai. The exponential growth of manufacturing in the south is producing a booming middle class where in the astonishing short period of time of half a generation, the PRD's prosperity has seen the first generation send kids to college, buy cars, own homes and take vacations.

The Bad News

This economic expansion does however have a dark side. Guangzhou's skies are now a dirty yellow, Fo Shan is referred to as the land of purple smoke where the only thing green is the air. Continual power shortages plague the 250,000 factories across the Pan-PRD.

Over 80,000 of these plants are owned, operated or managed by Hong Kong based companies with the resulting irony that the same Hong Kong CEO's in leading manufacturing get to choke on the same smog as dirty air rolls down from the PRD. Most manufacturers in Huizhou, Dong Guan, Fo Shan and Guangzhou have to accept scheduled power cuts and accept unscheduled block-outs and brown-outs.

In the 90's China's economy was growing in the double digits and there were severe shortages of electricity.

The government at the national, provincial and local levels attacked the problem by approving new power generation and attracting foreign investment in the sector with promises of higher tariffs and minimum take quantities.

By the late 90's when this new generation started coming on line, the economy had slowed down dramatically



Experiencing China's polluted 'yellow skies'

with up to 2% growths in certain years. IPP's all heard the story about how circumstances had changed and they can't expect to get paid what was promised.

Premier Zhu put a hold on all new power generation development. From 1991-2000 electricity demand grew at an average of 8.8%. In 2002 and 2003 demand grew by 10.5% and 15.4% respectively.

In 2004 many PRD firms weren't making Christmas delivery, yet more and more industrial parks were launched with both provincial and municipal support.

Demand continued to outstrip supply, like California under Peter Wilson. Guangdong imported power from the West, North and East, then droughts in 2005 and 2006 caused hydro projects to be closed to allow precious waters to be diverted for agriculture and human use.

Throughout these continuing crises, the official government line was that there was a possible 3,000 – 5,000 MW shortfall.

The factory owners and industry researches however believed this to be nonsense. The true figure was closer to 10,000 – 12,000 MW.

What did most factories and industrial parks do?

The factories deployed dirty diesels with cheap high sulfur fuel and incompetent maintenance, to keep production lines moving. Guangdong accounts for over 30% of

China's total manufactured goods and 20% of the GDP while struggling with 18% of total installed capacity which is also 57% of electricity consumption in the south combined with it's 'hands-off' approach to Fujian, Schizuan and Guangxi power, where it is required.

Solutions

Now comes the 7th cavalry in the form of massive investment in LNG and Nuclear. 60% of new LNG and 40% of nuclear power is going into the Pan-PRD.

By 2010, Shenzhen LNG, Guangdong Dapeng LNG and another LNG terminal in Zhuhai are leading the assault to help the West bank of the Pearl catch up to the East.

AmCham South China surveys have recently identified no less than US\$150 billion in power energy and related infrastructure projects either in progress or Greenfield stage.

Think tanks predict zero shortfalls by 2012 in the PRD.

However, the province continues to lead the PRC in annual growth rate with double digits until this year when it supposedly drops to 9%, in compliance with Beijing instructions to limit growth.

Capacity is set to catch up with growth by 2012. In the meantime, one can continue to experience Guangzhou's dirty yellow sunsets.