



Reducing CO₂ Capture Cost by 30% Using Advanced KM CDR Process

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Upon completion of the world's largest post-combustion CO₂ capture plant – the Petra Nova Project – Mitsubishi Heavy Industries engineering (MHIEng) has demonstrated that commercial-scale CO₂ capture for coal-fired power plant is technically feasible. Applying lessons learned from not only Petra Nova project but also other commercial plants, MHIEng has developed the Advanced KM CDR Process™, providing superior performance with significantly lower capital cost. The cost reduction is a result of smaller flue gas quencher and CO₂ absorber designs, reduced design redundancy, and modular design. These modifications can reduce the total EPC cost of the next CO₂ capture and compression plant by nearly 30% compared to MHIEng's conventional process. In addition, MHIEng is currently developing a new solvent (KS-21) which will further improve overall plant economics. KS-21 solvent is expected to be superior to MHIEng's existing KS-1™ solvent in stability and lower volatility. The pilot plant test shows that KS-21 has 50% lower amine emissions than KS-1™ with comparable energy performance. With better thermal stability, it is expected that the new solvent can be operated at elevated regenerator temperature and pressure and thus reduce downstream CO₂ compression work.

