

FACTORS AFFECTING THE TAKE-UP OF CLEAN COAL TECHNOLOGIES

TABLE OF CONTENTS

SUMMARY	7
1. INTRODUCTION	9
2. PLANT SELECTION	10
2.1 Power Purchase Agreement	10
2.2 Fuel Selection.....	10
2.3 Financing.....	11
2.4 Environmental Consents	12
2.5 Other Issues	13
3. FACTORS AFFECTING THE CHOICE OF CLEAN COAL TECHNOLOGIES	13
3.1 Maturity of Technology	14
3.2 Plant Size	14
3.3 Fuel Flexibility.....	14
3.4 Thermal Efficiency	15
3.5 Operational Performance.....	15
3.6 Environmental Performance.....	16
3.7 Availability, Reliability and Maintainability	16
3.8 Construction Issues.....	17

3.9	Capital Cost	17
3.10	Comparison of Clean Coal Technologies	17
4.	DISCUSSION	18
4.1	Subcritical PF	18
4.2	Supercritical PF	18
4.3	Atmospheric Fluidised Bed Combustion (AFBC)	19
4.4	Pressurised Fluidised Bed Combustion (PFBC)	20
4.5	Integrated Gasification Combined Cycle (IGCC)	20
4.6	Technology Development	21
4.7	Technology Demonstration	21
5.	HOW TO IMPROVE THE TAKE-UP OF CLEAN COAL TECHNOLOGIES	23
5.1	Competition from Gas	23
5.2	Utility Conservatism	23
5.3	Non-proven Nature	24
5.4	Capital Cost (in emerging countries)	24
5.5	Technical Issues	24
6.	CONCLUSIONS	25
7.	REFERENCES	25
	APPENDIX 1 - SIMPLIFIED FINANCIAL MODEL	31
	APPENDIX 2 - ENVIRONMENTAL PROTECTION MEASURES FOR PF-FIRED UNITS ..	39
	APPENDIX 3 - PULVERISED FUEL FIRED BOILER PLANT	45
	APPENDIX 4 - ATMOSPHERIC FLUIDISED BED COMBUSTION (AFBC) PLANT	55
	APPENDIX 5 - PRESSURISED FLUIDISED BED COMBUSTION (PFBC) PLANT	61
	APPENDIX 6 - INTEGRATED GASIFICATION COMBINED CYCLE (IGCC)	67