CONF-8108141-DE82 905463

PROCEEDIA

Eighth Annual International Conference On Coal Gasification, Liquefaction, and Conversion to Electricity

Edited by Dr. Alan J. Brainard

August 4 - 6, 1981

Department of Chemical & Petroleum Engineering
University of Pittsburgh
Pittsburgh, Pennsylvania

#### NOTICE

PORTIONS OF THIS REPORT ARE ILLEGIBLE. It has been reproduced from the best available copy to permit the broadest possible availability.

Will !

#### PREFACE

As editor of these proceedings it is my personal pleasure to see them assume this finished form. The Eighth Annual International Conference on Coal Gasification, Liquefaction, and Conversion to Electricity was noteworthy in at least two respects. with, I share the opinion of my managing co-chairman for that conference, Dr. Charles A. Stokes, that the overall quality of the presentations made at the conference was extremely high. Clearly, this is a testimony not only to the authors of those papers but also to the session chairmen and members of our Advisory Board who helped formulate the program. The strike of the Air Traffic Controllers on August 3, 1981, provided the second aspect of this conference that will long be remembered. I would like to take this opportunity to personally thank the many authors and conference participants who used their own transportation to come to the conference. Without their efforts the conference would not have been the same.

The Department of Chemical and Petroleum Engineering is pleased to serve as the sponsor for these conferences. We continue to believe that they provide a unique forum for a rigorous exchange of information concerning the status of present trends and meaningful projections in coal utilization. We feel that the blend of the political, economic, and technical concerns relating to coal utilization that these conferences provide serves to enhance our collective knowledge in this important area.

plans are in progress for the Ninth Annual International Conference at which time we hope to continue this vital information exchange.

Alan J. Brainard
Pittsburgh, Pennsylvania
March, 1982

### TABLE OF CONTENTS

			Page
C	PREFACE		i
	SESSION I -	THE NEW CLIMATE FOR SYNFUELS COMMERCIALIZATION	<u></u>
-		SYNTHETIC FUELS CORFORATION PROGRESS TO DATE USE WITH INDICATIONS FOR THE FUTURE	1
		SYNFUELS AND ELECTRICITY FROM COAL: DOE'S REFOCUS ON R&D	6
		HOW INDUSTRY VIEWS THE CLIMATE FOR MAJOR SYNFUELS INVESTMENT IN THE '80'S	14
		THE COAL SUPPLY FACTOR - IS IT LARGELY ROMANCE OR A SOLID PLUS?	23
		THE BOTTOM LINE: CAN WE FINANCE MAJOR SYNFUELS CONSTRUCTION IN THE '80'S?	34
	SESSION II -	GASIFICATION: A LOOK AT PROGRESS IN NEWER AREAS	
		SHELL COAL GASIFICATION PROCESS	41
		M.J. van der Burgt and J. Walker Shell Internationale Petroleum Maatschappij B.V.	
		KBW: IMPROVEMENTS ON A WELL KNOWN PROCESS H.Z. Dokuzoguz KBW Gasification Systems, Inc.	65
<b>(</b>		H.J. Michaels Koppers Company, Inc.	
		P.B. Probert The Babcock & Wilcox Company	

### SESSION II - continued

	THE BRITISH GAS SLAGGING GASIFIER -		100
	A SPRINGBOARD INTO SYNFUELS	79	<del>- ;</del> -
	Raymond B. Sharman		1
	John A. Lacey		
	James E. Scott		į
	British Gas Corporation		
	•		
	COMMERCIALIZATION OF THE TEXACO COAL		:
	GASIFICATION PROCESS	107	
	W.G. Schlinger		1
	Texaco, Inc.		1
	toward, true		
	F.E. Guptill		
	Texaco Development Corporation		:
			:
•	RECENT DEVELOPMENTS IN HIGH PRESSURE,		-
	ENTRAINED FLOW, SLAGGING GASIFICATION		
	OF COAL: UPDATE OF BI-GAS PILOT PLANT		
	OPERATIONS	123	
	R.K. Young		
	Sterns-Roger Engineering Corporation		
	Storing Rogor Linguistances		
	FUEL OIL SUBSTITUTION BY ENRICHED MEDIUM		
	BTU GAS PRODUCED FROM COAL IN WINKLER		
	FLUIDIZED GASIFIERS	141	
	Dr. F. Böegner		
	T.K. Subramaniam		
	Davy McKee Corporation		
	bary McRee Corporation		
SESSION III -	COAL LIQUIDS: MILESTONES TOWARDS COMMERCIALIZATIO	NC	
	COAL LIQUIDS: MILESTONES TOWARDS		
	COMMERCIALIZATION	160	
	David T. Wade		
	Exxon Research & Engineering Company		
	DARON NODOWO W LONDON L		
	EXXON DONOR SOLVENT COAL LIQUEFACTION PROCESS		
	ECLP OPERATING EXPERIENCE II	171	
	S.J. Cohen		
	R.E. Payne		
	Exxon Company, USA		
	Directi Company, Company		
	COAL LIQUEFACTION ACTIVITIES IN WEST GERMANY	191	
_	Rudolf Specks	1	e.
	ne Beleved Melowski	(	Ç., +
-	RUHRKOHLE OEL UND GAS GmbH		

## SESSION III - continued

_			·	
<u> </u>			POTENTIAL SYNERGISMS RESULTING FROM THE	
) 1			USE OF METHANOL IN GASOLINE	198
<u> </u>		<u>}</u>	G. McGurdy, Dr. L. Schieler	
		-y''	Dr. W.L. Hitl, W.J. Utrera	The second of
			Carson Associates	۱ پُر نے رواب میں م
	<u>a -==</u>	ָר ר		
		المهمر وتحسدها	THE NEPA PROCESS AND DIRECT COAL LIQUEFACTION CONSTRAINT OR OPPORTUNITY?	219
			SRC-II PRODUCT APPLICATIONS - RECENT DEVELOPMENTS  J. Freel D.M. Jackson Solvent Refined Coal International	228
	SESSION IV	- N	EW TECHNOLOGIES RELATED TO COAL USE AND CONVERSION	,
			MARKETPLACE ECONOMICS AND COAL CONVERSIONS Robert L. Davies U.S. Department of Energy	249
			ELECTRIC UTILITY CRITERIA AND DECISIONS: COAL-OIL MIXTURES, COAL-OIL-WATER MIXTURES AND SELECTED ADVANCED COAL SYSTEMS Robert E. Uhrig Florida Power & Light Company	257
			EXPERIENCES AND DATA OF A GERMAN 7-MILLION LBS/HOUR 500 MW CO-GENERATION SYSTEM Dipl. Ing. Karl Walter Bayer AG	269
			APPLICATION OF THE TOSCOAL PROCESS TO THE ELECTRIC UTILITY INDUSTRY	294
	¢.		THE TENNESSEE VALLEY AUTHORITY'S ATMOSPHERIC FLUIDIZED BED COMBUSTION PROGRAM	318

#### SESSION V - PROGRESS FOR COMMERCIALIZATION -CASE HISTORIES ON ON GOING VENTURES

	THE POTENTIAL FOR COMMERCIAL SYNTHETIC	
	FUELS IN THE U.S. ENERGY FUTURE.	337
•	/ E.R. Corino, Manager	
, , , , , , , , , , , , , , , , , , ,	East Texas Synthetics Project	
3 - 2 m - 1	Exxon Company, U.S.A.	
	A TURN IN THE ROAD: EASTMAN CHEMICALS	
	FROM COAL	347
	H.W. Coover	J4,
/	R.C. Hart	
	Tennessee Eastman Company	
$\mathcal{A} = \mathcal{A}$	FINANCING A SYNTHETIC FUELS PLANT	354
/	James A. Harris	334
/ ·	Walter R. Vogler	
. / '	Koppers Company, Inc.	
	COMMERCIALIZATION STATUS - DOE PROGRAMS	7.64
	Richard A. Passman	204
/	Marvin I. Singer	
/	U.S. Department of Energy	
SESSION VI - S	SUMMING IT UP - WHAT HAVE WE ACTUALLY ACCOMPLISHED:	?
	SYNTHETIC FUELS FROM COAL - OUR MORAL	
	EQUIVALENT OF WAR	37 <b>4</b>
	Neal P. Cochran	•,1
	Coal Synfuels .	
	SYNTHETIC FUEL COSTS VS. OIL PRICE	3 <b>78</b>
	Robert V. Jelinek	3,0
	SUNY College of Environmental Science	
	David E. Gushee	
	Congressional Research Service	
	WHEN SHOULD YOU BUILD A SYNTHETIC FUEL	
	ዕና ልክምን	395
	Earl D. Oliver	J 9 3
	A. James Moll	i
	Synthetic Fuels Associates, Inc.	* 1 !

# SESSION VI - continued

		SYNTHETIC FUELS: PAST PERFORMANCE AND	
		FUTURE PLANS	-407
	•	Jerry McCleskey ,	٠.
ب در موت در سیستند. اگر سایی		Conoco Coal Development Company	4
	i Portos como la		
		THE SYNTHETIC FUELS INDUSTRY IN	
		GERMANY 1927-1945	416
		Ernest E. Donath	
		Consultant	
		THE SHAPE AND PACE OF THE UNITED STATES	
		SYNTHETIC FUELS INDUSTRY	429
		Michael S. Koleda	727
		National Council on Synthetic Fuels Production	
		national connect on bynchetic ruets Flodderion	
BANQUET	ששפחתג	•	
Pundori	ADDRESS		
		OUTLOOK FOR COAL SYNTHETICS: TIME FOR	
			400
		REAPPRAISAL AND RESOLVE	437
		Dr. E.E. David, Jr.	
		Exxon Research and Engineering Company	
	3 mm	-	
LIST OF	ATTENDEE:	5	449