Society of Petroleum Engineers

SPE Hydrocarbon Economics and Evaluation Symposium

HEES 2007

"Unconventional Economics"

April 1-3, 2007 Dallas, Texas, USA

Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571 www.proceedings.com

ISBN: 978-1-60423-796-2

Some format issues inherent in the e-media version may also appear in this print version.

Copyright and Use Restrictions Copyright 2007, Society of Petroleum Engineers

Material included in this *Proceedings* is copyright protected. Electronic reproduction, distribution, or storage of any part of an SPE-copyrighted paper for commercial purposes without the written consent of the Society of Petroleum Engineers is prohibited. Permission to reproduce in print is restricted to an abstract of not more than 300 words; illustrations may not be copied. The abstract must contain conspicuous acknowledgment of where and by whom the paper was presented. For photocopying beyond the above permissions, libraries and other users dealing with the Copyright Clearance Center (CCC) Transactional Reporting Service must pay a base fee of \$3 per copyrighted article plus \$0.25 per page to CCC, 222 Rosewood Drive, Danvers, Massachusetts 01923 U.S.A. For other permissions, contact Librarian, SPE, 222 Palisades Creek Drive, Richardson, Texas 75080-2040 U.S.A.

Use of SPE member or author contact information included on this CD for commercial purposes or reproduction of that information in whole or in part, in any form or medium, is strictly prohibited and subject to legal action. Contact SPE to inquire about rental of mailing lists.

This CD of the 2007 SPE Hydrocarbon Economics and Evaluation Symposium was produced by SPE. This product contains Adobe® Reader® Software. Permission to print and distribute content from this product must be obtained from SPE. Duplication of replication products is absolutely prohibited without written permission from SPE and Adobe. Adobe, the Adobe logo, and Reader are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

Material on the CD was reproduced from original papers and/or electronic files provided by the authors. Some discrepancies are inevitable. Please advise SPE of errors so corrections can be made to the electronic versions of the article. Send corrections by e-mail to pdf@spe.org or mail to the SPE Americas Office, attention Technical Paper Administrator.



Society of Petroleum Engineers

SPE Hydrocarbon Economics and Evaluation Symposium 2007

TABLE OF CONTENTS

Evaluation of Unconventional Resource Plays	1
Aligning E&P Organizations To Manage Large Capital Projects	12
Worldwide Coalbed Methane Overview	17
Economic Viability of Gas-to-Liquid Technology	24
Evaluating Resource Plays With Statistical Models Russell K. Hall, Russell K. Hall and Assocs. Inc.	32
Managing Risk and Uncertainty in the Visualization of Production Scenarios	40
The Value of Oil and Gas Price Forecasts C. Jablonowski and R. MacAskie, U. of Texas at Austin	48
The Risks of an Offshore Business Interruption Claim: Is There Any Hedging Option? Armando C. Goncalves and Virgilio J.M. Ferreira Filho, UFRJ, and Guilherme M. Caloba, Petrobras	56
Economics of GTL Technology for Gas Utilization	65
Economic Decision Making and the Application of Nonparametric Prediction Models E.D. Attanasi, U.S. Geological Survey; T.C. Coburn, Abilene Christian U.; and P.A. Freeman, U.S. Geological Survey	73
A Worldwide Economic Analysis of the Nonconventional Supply Based on a Modelling Approach	83
Economic Evaluation of the Afghanistan Natural Gas Sector	92
The 2007 SPE/AAPG/WPC/SPEE Reserves and Resources Classification, Definitions, and Guidelines: Defining the Standard! John R. Etherington, PRA Intl. Ltd., and John E. Ritter, Occidental Petroleum	100
A Unique Workflow for Reserves Evaluation in Lower Vicksburg Sands	109
Decision and Risk Analysis Through the Life of the Field	123

Constructing Oil Exploration and Development Project Portfolios Using Several Risk Measures—A Realistic Example	134
L. Lasdon, U. of Texas at Austin; L.C. Faya, Constellation Energy Commodities Group; and L.W. Lake, J.S. Dyer and W. Chen, U. of Texas at Austin	
Beyond Portfolio Optimization	152
Inevitable Disappointment in Projects Selected Based on Forecasts	159
Optimization of Oil Production Based on A Capacitance Model of Production and Injection Rates	167
X. Liang, Central South U., Changsha, Hunan, China, and D.B. Weber, T.F. Edgar, L.W. Lake, M. Sayarpour, and A. Al-Yousef, U. of Texas at Austin	
Case History and Appraisal of the West Buffalo Red River Unit High-Pressure Air Injection Project	178
V.K. Kumar, El Paso Production Co., and D. Gutierrez, R.G. Moore, and S.A. Mehta, U. of Calgary	
Historic Agreement Establishes Training Program for Petroleum Reserves Evaluators	188
Michael Black, Greystone Oil and Gas LLP, and Dan Olds, and D. Ronald Harrell, Ryder Scott Co.	
Optimizer's Curse: Removing the Effect of this Bias in Portfolio Planning	192
Optimization of Cyclic Steam Stimulation Under Uncertainty K. Revana and H.M Erdogan, Halliburton	203
A Probabilistic Approach to Shale Gas Economics	214
Using Decision Analysis to Solve Real Option Valuation Problems: Building a Generalized Approach	223
W.J. Hahn, Pepperdine U.; J. Dyer, U. of Texas at Austin; and L.E. Brandao, Pontificia U. Catolica do Rio de Janeiro	
Stochastic Modelling of Shale Gas Resource Play Economics Charles Stabell, Rosella Gonzales, and Espen Langlie, GeoKnowledge A/S	232
Economic Capital Optimization for Oil Firms	238
Value-of-Information Applications in Unconventional Resource Plays	246
Improving Reserves Estimates From Decline Curve Analysis of Tight and Multilayer Gas Wells	251
Y. Cheng, W.J. Lee, and D.A. McVay, Texas A&M U.	

AUTHOR INDEX