

Unconventional Gas Shales: Development, Technology, and Policy Issues

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Unconventional Gas Shales Development Technology And Policy Issues

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Tieman, Robert Meltz, Cynthia
Brougher, Congressional Service**

Unconventional Gas Shales Development Technology And Policy Issues:

Unconventional Gas Shales Anthony Andrews, Peter Folger, Marc Humphries, Claudia Copeland, Mary Tiemann, Robert Meltz, Cynthia Brougher, 2009 This report discusses the Barnett and Marcellus Shale formations which serve to illustrate the technical and policy issues that are most likely common to developing all gas shales *Unconventional Gas Shales* Anthony Andrews, 2010-02 In the past the oil and gas industry considered gas locked in tight impermeable shale uneconomical to produce However advances in directional well drilling and reservoir stimulation have dramatically increased gas production from unconventional shales There may be as much as 200 trillion cubic feet of natural gas technically recoverable from these shales There is an expectation that the demand for natural gas will increase Developing these shales comes with some controversy Contents of this report 1 Background 2 Unconventional Gas Shale Resources in the U S 3 Drilling and Development Technology 4 Leasing Issues for Gas Development 5 Fed and State Laws and Regulations Affecting Gas Shale Development Illus **Unconventional Gas Shales** CONGRESSIONAL RESEARCH. SERVICE, 2013-06-15 In the past the oil and gas industry considered gas locked in tight impermeable shale uneconomical to produce However advances in directional well drilling and reservoir stimulation have dramatically increased gas production from unconventional shales The United States Geological Survey estimates that 200 trillion cubic feet of natural gas may be technically recoverable from these shales Recent high natural gas prices have also stimulated interest in developing gas shales Although natural gas prices fell dramatically in 2009 there is an expectation that the demand for natural gas will increase Developing these shales comes with some controversy though The hydraulic fracturing treatments used to stimulate gas production from shale have stirred environmental concerns over excessive water consumption drinking water well contamination and surface water contamination from both drilling activities and fracturing fluid disposal *Unconventional Gas Shales* Anthony Andrews, Peter Folger, Marc Humphries, Claudia Copeland, Mary Tieman, Robert Meltz, Cynthia Brougher, Congressional Service, 2012-04-29 In the past the oil and gas industry considered gas locked in tight impermeable shale uneconomical to produce However advances in directional well drilling and reservoir stimulation have dramatically increased gas production from unconventional shales The United States Geological Survey estimates that 200 trillion cubic feet of natural gas may be technically recoverable from these shales Recent high natural gas prices have also stimulated interest in developing gas shales Although natural gas prices fell dramatically in 2009 there is an expectation that the demand for natural gas will increase Developing these shales comes with some controversy though The hydraulic fracturing treatments used to stimulate gas production from shale have stirred environmental concerns over excessive water consumption drinking water well contamination and surface water contamination from both drilling activities and fracturing fluid disposal The saline flowback water pumped back to the surface after the fracturing process poses a significant environmental management challenge in the Marcellus region The flowback s high content of total dissolved solids TDS and other contaminants must be disposed of or

adequately treated before discharged to surface waters The federal Clean Water Act and state laws regulate the discharge of this flowback water and other drilling wastewater to surface waters while the Safe Drinking Water Act SDWA regulates deep well injection of such wastewater Hydraulically fractured wells are also subject to various state regulations Historically the EPA has not regulated hydraulic fracturing and the 2005 Energy Policy Act exempted hydraulic fracturing from SDWA regulation Recently introduced bills would make hydraulic fracturing subject to regulation under SDWA while another bill would affirm the current regulatory exemption Gas shale development takes place on both private and state owned lands Royalty rates paid to state and private landowners for shale gas leases range from 12 % to 20% The four states New York Pennsylvania Texas and West Virginia discussed in this report have shown significant increases in the amounts paid as signing bonuses and increases in royalty rates Although federal lands also overlie gas shale resources the leasing restrictions and the low resource potential may diminish development prospects on some federal lands The practice of severing mineral rights from surface ownership is not unique to the gas shale development Mineral owners retain the right to access surface property to develop their holdings Some landowners however may not have realized the intrusion that could result from mineral development on their property Although a gas transmission pipeline network is in place to supply the northeast United States gas producers would need to construct an extensive network of gathering pipelines and supporting infrastructure to move the gas from the well fields to the transmission pipelines as is the case for developing any new well field

Energy: Natural Gas Gene Whitney, Carl E. Behrens, 2009-12-31 This edition examines the production and use of natural gas natural gas imports and exports storage and other pertinent topics *Energy for Sustainable Society* Oguz A. Soysal, Hilkat S. Soysal, 2020-05-18 A handbook of sustainable energy covering entire energy aspects from present status to future alternatives under one umbrella This book takes an interdisciplinary system approach to evaluating energy systems so that readers can gain the necessary technical foundation to perform their own performance evaluations and understand their interactions with socioeconomic indicators Topics include the current and future availability of primary sources energy supply chain conversion between different forms of energy security of energy supply and efficient end use of energy sources Each chapter provides readers with comprehensive background information an outline of the current technologies and potential future developments The book also examines the global economic societal ethical and environmental issues associated with currently used energy technologies *Energy for Sustainable Society From Resources to Users* starts with a general overview of energy systems and describes the major elements of energy transformation and supply chain It then discusses interdisciplinary career opportunities in the energy engineering field The fundamental concepts of energy conversion transmission and load flow in electrical systems are covered as are conventional and unconventional fossil fuels and the basics of nuclear power generation and reactor types Other chapters look at the fundamental concepts of thermodynamics and basic operation of steam turbines gas turbines and combined cycle heat engines used in fossil fuel and

nuclear power plants current technologies in hydroelectric power generation renewable and alternative energy sources energy security issues and more Contains up to date information on renewable energy technologies such as grid tie net zero energy battery backup and utility independent micro grids Presents the status of the share of renewable sources in the current and future energy supply mix Provides solved examples case studies self assessment quizzes and problems to enhance the understanding of readers Includes an exclusive chapter on energy security issues Energy for Sustainable Society gives readers a solid foundation to study energy related subjects and is an ideal book for a first course on energy systems for upper division undergraduate and first year graduate students

Environmental Impacts of Hydraulic Fracturing

Frank R. Spellman, 2024-10-03 There is a strong need for further innovation and the development of viable renewable energy sources Recent technological advances now allow natural gas supplies previously believed inaccessible or nonexistent to be discovered mined and processed for both industrial and consumer use The technology a controversial process called hydraulic fracturing has greatly expanded natural gas production in the United States and elsewhere As these practices have become more commonplace concerns about the related environmental and public health impacts have also increased one of the most significant concerns regarding the fluids that are injected into rock formations to cause the fracturing which contain potentially hazardous chemical additives Environmental Impacts of Hydraulic Fracturing is a balanced and comprehensive guide to all aspects of hydraulic fracturing and covers all facets of the issue including ongoing controversies about possible water pollution drinking water contamination and the potential for harmful chemical exposure The author discusses both the pros and cons of hydraulic fracturing explaining the process in great detail Arguably the first book of its kind this is the go to text on the use and impacts of hydraulic fracturing Includes suggestions and recommendations on how to mitigate environmental damage caused by hydraulic fracturing Weighs the pros and cons of hydraulic fracturing Describes the benefits of hydraulic fracturing and its importance for potential energy independence Largely updated for this new second edition

Energy's Water Demand: Trends, Vulnerabilities, and Management Nicole T. Carter, 2010 The nation's energy choices embody many tradeoffs Water use is one of those tradeoffs The energy choices before Congress represent vastly different demands on domestic freshwater The energy sector's water consumption is projected to rise 50% from 2005 to 2030 This rising water demand derives from both an increase in the amount of energy demanded and shifts to more water intense energy sources and technologies This report discusses this issue as well as related issues that may arise for the 112th Congress

Technical questions and answers for job interview Offshore Drilling Platforms PETROGAV INTERNATIONAL, This book offers you a brief but very involved look into the operations in the drilling of an oil gas wells that will help you to be prepared for job interview at oil gas companies From start to finish you ll see a general prognosis of the drilling process If you are new to the oil gas industry you ll enjoy having a leg up with the knowledge of these processes If you are a seasoned oil gas person you ll enjoy reading what you may or may not know in these pages This course provides a

non technical overview of the phases operations and terminology used on offshore drilling platforms It is intended also for non drilling personnel who work in the offshore drilling exploration and production industry This includes marine and logistics personnel accounting administrative and support staff environmental professionals etc No prior experience or knowledge of drilling operations is required This course will provide participants a better understanding of the issues faced in all aspects of drilling operations with a particular focus on the unique aspects of offshore operations **Liberating**

Energy from Carbon: Introduction to Decarbonization Nazim Muradov,2014-04-07 Liberating Energy from Carbon analyzes energy options in a carbon constrained world Major strategies and pathways to decarbonizing the carbon intensive economy are laid out with a special emphasis on the prospects of achieving low risk atmospheric CO2 levels The opportunities and challenges in developing and bringing to market novel low and zero carbon technologies are highlighted from technical economic and environmental viewpoints This book takes a unique approach by treating carbon in a holistic manner tracking its complete transformation chain from fossil fuel sources to the unique properties of the CO2 molecule to carbon capture and storage and finally to CO2 industrial utilization and its conversion to value added products and fuels This concise but comprehensive sourcebook guides readers through recent scientific and technological developments as well as commercial projects that aim for the decarbonization of the fossil fuel based economy and CO2 utilization that will play an increasingly important role in the near and mid term future This book is intended for researchers engineers and students working and studying in practically all areas of energy technology and alternative energy sources and fuels Global Natural Gas Michael Ratner,2011-05 The role of natural gas in the U S economy is expected to be a major part of the debate over energy policy in the 112th Congress This report briefly explains key aspects of global natural gas markets including supply and demand as well as major U S developments Contents 1 Introduction 2 Natural Gas Consumption Key Global Consumers 3 Natural Gas Supply and Trade Natural Gas Reserves Growing Global Natural Gas Market Becoming More Integrated Natural Gas Exporting Countries Forum Still Ineffective Production Widespread Natural Gas Prices Remain Low 4 Major Statutes 5 Looking Forward Charts and tables This is a print on demand edition of an important hard to find report

A Field Philosopher's Guide to Fracking Adam Briggie,2015-10-01 Winner of the Writers League of Texas Book Awards Finalist for the J Anthony Lukas Book Prize From the front lines of the fracking debate a field philosopher explores one of our most divisive technologies When philosophy professor Adam Briggie moved to Denton Texas he had never heard of fracking Only five years later he would successfully lead a citizens initiative to ban hydraulic fracturing in Denton the first Texas town to challenge the oil and gas industry On his journey to learn about fracking and its effects he leaped from the ivory tower into the fray In beautifully narrated chapters Briggie brings us to town hall debates and neighborhood meetings where citizens wrestle with issues few fully understand Is fracking safe How does it affect the local economy Why are bakeries prohibited in neighborhoods while gas wells are permitted next to playgrounds In his quest for answers Briggie meets people like Cathy

McMullen Her neighbors cows asphyxiated after drinking fracking fluids and her orchard was razed to make way for a pipeline Cathy did not consent to drilling but those who profited lived far out of harm s way Briggles first instinct was to think about fracking deeply Drawing on philosophers from Socrates to Kant but also on conversations with engineers legislators and industry representatives he develops a simple theory to evaluate fracking we should give those at risk to harm a stake in the decisions we make and we should monitor for and correct any problems that arise Finding this regulatory process short circuited with government and industry alike turning a blind eye to symptoms like earthquakes and nosebleeds Briggles decides to take action Though our field philosopher is initially out of his element joining fierce activists like Texas Sharon once called the worst enemy of the oil and gas industry his story culminates in an underdog victory for Denton now nationally recognized as a beacon for citizens rights at the epicenter of the fracking revolution

Environmental Aspects of Oil and Gas Production J. O. Robertson,G. V. Chilingar,2017-07-13 Oil and gas still power the bulk of our world from automobiles and the power plants that supply electricity to our homes and businesses to jet fuel plastics and many other products that enrich our lives With the relatively recent development of hydraulic fracturing fracking multilateral directional and underbalanced drilling and enhanced oil recovery oil and gas production is more important and efficient than ever before Along with these advancements as with any new engineering process or technology come challenges many of them environmental More than just a text that outlines the environmental challenges of oil and gas production that have always been there such as gas migration and corrosion this groundbreaking new volume takes on the most up to date processes and technologies involved in this field Filled with dozens of case studies and examples the authors two of the most well known and respected petroleum engineers in the world have outlined all of the major environmental aspects of oil and gas production and how to navigate them achieving a more efficient effective and profitable operation This groundbreaking volume is a must have for any petroleum engineer working in the field and for students and faculty in petroleum engineering departments worldwide

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personnel who work in the offshore drilling exploration and production industry This includes marine and logistics personnel accounting administrative and support staff environmental professionals etc No prior experience or knowledge of drilling operations is required This course will provide participants a better understanding of the issues faced in all aspects of drilling operations with a particular focus on the unique aspects of offshore operations

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