

# GEOTHERMAL ENERGY AND WASTE HEAT TO POWER: UTILIZING OIL AND GAS PLAYS



Southern Methodist University

## March 12-14, 2013 SMU Geothermal Conference

**Roy M. Huffington**  
**Department of Earth Sciences**  
**Dallas, Texas**



**SMU** | GEOTHERMAL  
LABORATORY

<http://smu.edu/geothermal/>

**Director:** David Blackwell, 214.768.2745  
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# Conference Agenda

## Wednesday, March 13

7:00 AM **Registration & Networking**

8:30 AM **Dave Blackwell**

*Southern Methodist University*

Welcome and Why Come Together

8:50 AM **David Burnett**

*Texas A&M GPRI Dept of Petroleum Engineering*

Adapting Low Environmental Impact Technologies  
from Oil and Gas Development

9:10 AM **Halley Dickey**

*TAS Energy Inc.*

Energy Production with Mixed Hydrocarbons and Geopressured  
Hybrid Systems

9:30 AM **Kevin Kerlin**

*Helidyne, LLC*

New Rotary Expander for High Pressure Natural Gas

9:40 AM **Networking**

10:10 AM **Maciej Lukawski**

*Cornell Energy Institute Earth Energy Program*

The Impact of Well Drilling Costs on the Economics of  
Geothermal Energy Utilization

10:30 AM **Mike Ronzello**

*Pratt & Whitney Power Systems*

Technical and Economic Considerations for Gas Compressor  
Waste Heat to Power Projects

10:50 AM **Will Gosnold**

*Harold Hamm School of Geology and Geological Engineering  
Univ. of North Dakota*

Status of the North Dakota Oil Field Geothermal Projects

11:10 AM **Richard Langson**

*Langson Energy*

Water and Steam Applications of the Langson Helical Screw  
Energy Converter

# Conference Agenda

## Wednesday, March 13

- 11:30 AM **Lunch and Tour of Pressure Equipment Demo**  
Other tour times at 9:00 am and 2:10 pm
- 1:10 PM **John Fox**  
*ElectraTherm, Inc.*  
Generating Renewable Energy from Co-Produced Fluids/  
Geothermal
- 1:30 PM **Garry Carlson**  
*Gradient Geophysics Inc.*  
Geothermal Potential of Oil and Gas Wells  
on the Fort Peck Reservation in NE Montana
- 1:50 PM **Randy Normann**  
*PermaWorks, LLC*  
Hydro-Fracturing Monitoring Tool for Geothermal Reservoirs
- 2:10 PM **Networking**
- 2:50 PM **Kelsey Southerland**  
*Heat is Power Association*  
US Waste Heat and Renewable Power Policy Impacts
- 3:10 PM **Bernie Karl**  
*Chena Hot Springs*  
Geothermal Technology Powering Projects in Alaska and China
- 3:30 PM **Matt Uddenburg**  
*AltaRock Energy, Inc.*  
Newberry EGS Project
- 3:50 PM **Michael Pierce**  
*GeoTek Energy, LLC*  
GeoTek's Gravity Head Energy System – Using Geothermal to  
Drive Production Pumps
- 4:10 PM **Networking**
- 4:40 PM **Douglas Hollett (Reception Speaker)**  
*DOE Geothermal Technologies Program*  
US Geothermal Program Projects and Focus

# Conference Agenda

## Wednesday, March 13

### 5:30 PM **Poster Session and Reception**

**Andrea Aguirre**

*Cornell University Civil and Environmental Engineering*

Assessment of Low Grade Geothermal Resources: A case study for NY and PA

**Stefano Benato**

*Desert Research Institute*

Transmissivity Evolution During Selected Injection Phases at the Desert Peak EGS Project, NV

**Anna Crowell**

*Harold Hamm School of Geology and Geological Engineering*

*Univ. of North Dakota*

Recoverable Thermal Energy for Geothermal Power Production in the Denver Basin

**Denise Gatlin**

*West Chester University in Pennsylvania*

Geothermal Sustainability at WCU: Performance of a 350-well District Geoexchange System

**James Hootsmans**

*Colby College*

Geothermal Potential of Maine

**Randy Keller**

*Oklahoma Geological Survey*

Integrated Studies of Thermal Regimes and Geothermal Potential in Oklahoma

**Paul Morgan**

*Colorado Geological Survey*

Geothermal Gradients and Geothermal Opportunities in the Piceance Basin, Colorado

**Tim Reinhardt**

*DOE Geothermal Technologies Program*

Low Temp/Coproduction Success - Moving Power Systems

# Conference Agenda

## Thursday, March 14

7:00 AM **Onsite Registration, Coffee, and Networking**

8:00 AM **Dave Blackwell**

Welcome and recap

8:15 AM **John Holbrook**

*TCU*

New Focus on Sedimentary Basins with SEDHEAT

8:30 AM **Trevor Demayo and Pete Schrimpf**

*Chevron Energy Solutions*

Energy Management in Upstream Oil and Gas Operations

8:50 AM **Ali Soheilifar**

*Sazeh Consultants*

Use of Automation in Production of Heavy Oil, in EPC Projects

9:10 AM **Steve Erdahl**

*GreenTech Petroleum, LLC*

Expansion of Geothermal: Reusing Produced Oilfield Water

9:30 AM **Networking**

10:10 AM **Daniel East**

*The Carlyle Group*

Mezzanine Finance Solutions for Geothermal Power

10:30 AM **Tony Straquadine**

*NRGreen Power LLP*

Capturing of Waste Heat on Canadian Gas Pipelines

10:50 AM **Jamie Schue**

*ERCOT*

Texas Regulations

11:10 AM **Networking**

11:30 AM **Bruce Cutright**

*UT Austin Bureau of Economic Geology*

Finding Geothermal Resources for Project Development

11:50 AM **Paul Dunn**

*Enhanced Energy Group*

CO<sub>2</sub> Generation for EOR and EGS

# Conference Agenda

## Thursday, March 14

12:30 PM **Chairman Jon Wellinghoff**

*FERC - Federal Energy Regulatory Commission*  
Keynote Luncheon

2:30 PM **End of Conference**

You may continue to use the Collins Center for private meetings until 5 pm.

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# **Biosketch of Presenters**

(Alphabetical order following Keynote)



**Chairman Jon Wellinghoff**  
*Federal Energy Regulatory Commission*

## **Keynote Address**

Jon Wellinghoff was named Chairman of the Federal Energy Regulatory Commission (FERC) by President Barack Obama on March 19, 2009.

First appointed as a Commissioner to FERC in 2006, Chairman Wellinghoff is an energy law attorney with 37 years of experience in regulatory, consumer and commercial law. Prior to joining FERC, he was in private practice focusing exclusively on client matters related to renewable energy, energy efficiency and distributed generation.

He served two terms as the State of Nevada's first Consumer Advocate for Customers of Public Utilities and authored the first comprehensive state utility integrated planning statute, now a model for utility integrated planning across the country. He was the primary author of the Nevada Renewable Portfolio Standard (RPS) Act.

Chairman Wellinghoff's priorities at FERC include opening wholesale electric markets to renewable resources and providing a platform for participation of demand response and other distributed resources in wholesale electric markets, including energy efficiency and local storage systems such as those in plug-in hybrid and all electric vehicles. In addition, he is focused on promoting greater efficiency in our nation's energy infrastructure through the institution of advanced technologies and system integration. He created FERC's Office of Energy Policy and Innovation, which is responsible for investigating and promoting new efficient technologies and practices in the energy sectors under FERC's jurisdiction.

Wellinghoff is a Principal in the Joint U.S./China Strategic and Economic Dialog since 2010. In 2011, he successfully negotiated a Memorandum of Understanding between FERC and China's National Energy Administration that benefits both organizations through the sharing of best practices, facilitating communication and providing a platform for cooperation by related enterprises from both sides.

He is co-chair of the Smart Response Collaborative launched jointly by FERC and the National Assoc. of Regulatory Utility Commissioners; on the Advisory Committee of the Institute for Electric Efficiency and an advisor to the Defense Science Board's Energy Policy Task Force; and the co-chair of the Executive Leadership Team of the Electric Power Research Institute's Green Transmission Efficiency Initiative.



**Andrea Aguirre**

*Cornell University Civil and Environmental Engineering*

Gloria “Andrea” Aguirre was born in Monterrey, Mexico, but moved to Houston, Texas with her family. She started her college career at Lone Star College where she obtained an Associate of Applied Science in Geographic Information Systems (GIS). Then, she moved to Dallas, Texas to attend Southern Methodist University (SMU), where she obtained a B.S. in Environmental Engineering. During her time at SMU, she worked in the geothermal lab under the guidance of Professor David Blackwell and Maria Richards. Soon after graduating, she started at Cornell University as a graduate student in the area of Environmental and Water Resources Systems Engineering. Since her start at Cornell, Andrea has been working with Professor Jefferson Tester at the Cornell Energy Institute. Her research has focused on improving the current assessment of geothermal resources in the eastern U.S. – specifically on the States of New York and Pennsylvania. She is interested on quantifying the uncertainties associated with data management in resource assessment, and increasing the spatial accuracy and resolution of geothermal maps. The ultimate goal of her research is to highlight areas having potential for the use of Enhanced Geothermal Systems (EGS) for low temperature regions. She is currently working towards a M.S. degree, and has plans to continue on to a PhD in the same area.



## **Stefano Benato**

*Desert Research Institute*

Stefano Benato received his MSc in Applied and Environmental Geology from the University of Turin, Italy, in 2005. From 2005 to 2008 he then worked for international companies and organizations such as Geodata S.p.A., UN/FAO and Coffey Geotechnics in the fields of Applied and Environmental Geology and Hydrogeology, Underground soil and rock Mechanics, Geological Exploration and Modeling, for major development projects in Europe, Algeria, India and Canada.

During the past 5 years Stefano's focus has shifted towards renewable energies - a natural transition based on his ever-increasing interest in current worldwide issues. He followed intensive training in Geothermal Exploration and TOUGH2 Reservoir Modeling (IESE University of Auckland Training Program), attended the ICS/UNIDO School on Geothermics (Trieste, Italy) and the National Geothermal Academy (Reno, USA).

In 2010 Stefano joined the Geo-Engineering PhD program at the University of Nevada, Reno and he has been working at the Desert Research Institute and at Ormat, NV as part of his PhD Research Project aimed at testing a coupled numerical solution which is expected to become crucial for the design, management and implementation of new-generation high-enthalpy Geothermal projects. The title of his Research Project is "Utilization of Coupled Thermal-Hydrologic-Mechanical-Chemical (THMC) modeling to investigate Fracture Network Permeability Evolution and Reservoir Responses to EGS Stimulation." Stefano is using a recently-developed THMC solution that couples the continuum mechanics stress and deformation analyses of FLAC3D with the multi phase, non-isothermal and reactive capabilities of TOUGHREACT. Stefano is currently testing the solution on a recent Enhanced Geothermal System project at Desert Peak, NV. The goal of his research is to provide tools and a better understanding of the complex processes and interactions that control reservoir fracture and permeability development during hydraulic stimulation operations. A recent publication of his PhD preliminary results shows some new insights into the conceptual framework at the Desert Peak EGS project, supported by simulation exercises.

In his spare time Stefano enjoys mountaineering, skiing and playing the accordion.



**David Blackwell**

*SMU Geothermal Laboratory*

David Blackwell received his Ph.D. in Geophysics from Harvard University and joined the faculty at SMU after a year of postdoctoral study at the Seismological Laboratory at Cal Tech. He holds the W. B. Hamilton Chair of Geophysics. Dave's research specialties are the thermal field of the Earth, working primarily on regional heat flow, and on geothermal development. Dave has received grants and contracts most recently from the USDOE, Google.org, TXSECO and the CNMI. He was a member of the Board of Directors of the Geothermal Resources Council and was President in 1991-92. In 2009 he received the Joseph W. Aidlin Award from the GRC for outstanding contributions to the development of geothermal energy. Under his direction, the SMU Geothermal Lab produced the Geothermal Map of North America published by the AAPG (2004) and the resource chapter in the 2006 Future of Geothermal Energy Report. Recently, they have updated the temperature-at-depth maps available on [Google.org/EGS](http://Google.org/EGS) and are a lead for the new National Geothermal Data System, which will be available to the public in September 2013.



**David Burnett**

*Texas A&M GPRI Dept. of Petroleum Engineering*

David Burnett is the Director of Technology for the Global Petroleum Research Institute (GPRI) and is the Research Project Coordinator for the Department of Petroleum Engineering. He currently serves as the one of the Managing Partners of the U.S. RPSEA Environmentally Friendly Drilling System Technology Integration Program representing a \$5 million joint partnership among university/industry and government organizations dedicated to reducing the impact of O&G operations in environmentally sensitive areas. In addition through GPRI, he leads a research team developing advanced membrane filtration technology to reduce waste water volumes at rig sites, including flow back fracturing fluids. He received the 2006 Hearst Energy Award for Technology in the oil industry and his research team recently received Gulf Publishing's 2008 World Oil Awards (environmental, health and safety).

Prior to coming to Texas A&M, Burnett was a Program Manager for BP's Westport Technology Center (Houston) developing and managing research programs for oil and gas joint ventures. He has a B. S. and M.S. in Chemistry from Sam Houston State University and an MBA from Pepperdine University, Los Angeles California.



**Garry Carlson**

*Gradient Geophysics Inc.*

As President of Gradient, Mr. Carlson experienced working with rural communities and private landowners to take a geothermal project from conception, through exploration and resource development, to the completion of geothermal power generation or direct use geothermal projects. More recently he has been responsible for evaluating over 40 geothermal prospects in Nevada, Oregon, and Idaho for major companies including Terra-Gen Power and Ormat Technologies.

Mr. Carlson pioneered new advanced noninvasive field techniques and computer methods for delineating geothermal resources in both fracture and magma geothermal systems. He received two major grants from the Montana Department of Commerce to advance new geothermal exploration methodologies, and more recently a U.S. Department of Energy grant to evaluate the geothermal potential of Assiniboine and Sioux tribal lands in northeast Montana.

Garry Carlson earned a Master's Degree in Science, in geology with high honors from the University of Montana in 1986. Mr. Carlson's thesis involved mapping crustal structure in southwest Montana and northeastern Idaho using passive seismic. He emphasized geophysics and computer modeling while earning his degree.

Mr. Carlson started Gradient Geophysics, Inc in 1985, a geophysics consulting and contracting company. With Gradient, Mr. Carlson has over 27 years experience in geological and geophysical exploration in the natural resource industry in the United States, Central America, and South America. He has been in charge of operations, logistics, design, implementation, and interpretation of more than 750 geological and geophysical investigations throughout North and South America.



**Anna Crowell**

*Harold Hamm School of Geology and Geological Engineering Univ. of North Dakota*

Anna Crowell is a graduate student at The University of North Dakota, focusing on the use of GIS to enhance understanding and identification of geothermal resources. She earned her undergraduate degrees in Management and Computer Information Systems from Park University in 2002, and earned her Master of Science degree from the University of North Dakota in 2011. Current research interests include: continental heat flow, bottom-hole temperature corrections, estimating geothermal energy reserves in sedimentary basins, identifying sites for geothermal power plants in oil fields using co-produced fluids, and working on a characterization of the geothermal potential for the Rio Grande Rift.



**Bruce Cutright**

*UT Austin Bureau of Economic Geology*

Bruce Cutright is a Research Associate at the University of Texas at Austin, Bureau of Economic Geology. He is engaged in geothermal research in unconventional areas, alternative energy resources, and in particular, development of geopressured-geothermal resources using alternative heat extraction fluids. His experience prior to joining the Bureau of Economic Geology includes deep-well injection projects, in-situ mining, water resources development in arid, humid and island environments and environmental impact assessments for DOD and NASA facilities worldwide. He has developed master plans for environmental compliance for businesses in the pulp and paper sector, chemical plants, automotive and heavy manufacturing facilities. He served as Chairman of the Board of Supervisors and Director of Operations for the Midtown Miami Project which was the recipient of the 2009 EPA Phoenix Award for Environmental Excellence in Brownfields Redevelopment.



**Trevor Demayo**

*Chevron Energy Solutions*

Originally from Canada, Trevor Demayo is the Energy Management Coordinator for Chevron's San Joaquin Valley Exploration & Production operations, based in Bakersfield, California. He obtained his B.Sc. in Engineering Physics at Simon Fraser University in Burnaby, B.C., and an M.S. and Ph.D. in Mechanical and Environmental Engineering at the University of California Irvine. In 2011, Trevor also completed a Trans-Global Executive MBA at St. Mary's College of California.

Before joining Chevron in 2003, Trevor worked in Canada, Japan, and California on advanced combustion research, air pollution control, automotive exhaust analysis, and real-time air pollutant monitoring, and has published and presented several peer-reviewed papers on these topics. In his current role, Trevor leads energy efficiency and optimization projects for Chevron's Upstream oil and gas operations in California, with a main focus on thermal enhanced oil recovery. He is also co-leading an effort to better understand renewable energy resource projections, sustainability issues, carbon mitigation costs, and life cycle footprints of energy systems. Previously, Trevor led Chevron's Low Carbon Energy Team whose role is to scan, evaluate, and project future trends for a wide range of new energy-related technologies and business opportunities, particularly those involving advanced technology vehicles, alternative fuels, and advanced and renewable power. Trevor has performed in-depth technical and economic analyses, co-authored several comprehensive technology whitepapers, and developed scenario models on renewables, emerging energy technologies, and energy efficiency for Chevron. He has also assisted Chevron in its global flare reduction programs, served on the Clean Development Mechanism team for the Chevron Darajat Geothermal project, and helped co-author the 2011 Intergovernmental Panel on Climate Change Special Report Renewable Energy Sources.





**Halley Dickey**

*TAS Energy Inc.*

Halley Dickey is the Director of Geothermal Business Development for TAS Energy Inc., a technology company providing clean economic power solutions by focusing on the energy efficiency and renewable energy markets. TAS designs and manufactures modular energy conversion and cooling systems for the power generation industry, for use in district, commercial and industrial process cooling, mission critical locations and the renewable energy sector. TAS specializes in high efficiency standard product designs optimized for high life cycle return performance. Product capabilities include geothermal and waste heat power generation solutions, and gas fired generation, augmentation, chilled water systems, modular data centers and clean heat and power on-site energy systems.



**Paul Dunn**

*Enhanced Energy Group*

Mr. Paul M. Dunn is the Chief Technical Officer (CTO) of Enhanced Energy Group, which deploys military semi-closed cycle technology in the commercial space. Previously he was the CTO of Gas Equipment Engineering Corporation (GEECO) and Avācence LLC. GEECO is focused on high performance air separation systems for military and commercial applications. Avācence produces high pressure, compressor free hydrogen generators based on alkaline electrolysis of water.

Mr. Dunn had a long career with the Naval Sea Systems Command (NAVSEA), Naval Undersea Warfare Center (NUWC) in Newport, RI. Mr. Dunn attended Tufts University College of Engineering and graduated in 1982 with a Bachelor of Science in Mechanical Engineering. He obtained his Master of Mechanical Engineering at the University of Rhode Island in 1994.

In 2004, Mr. Dunn was appointed to the Senior Executive Service position of Product Area Director, Undersea Warfare (USW) Weapons and Vehicle Systems, and in 2007 was assigned the additional duties of NAVSEA Undersea Executive. In this position, Mr. Dunn was responsible for the programs and infrastructure for submarine, surface ship, and air-launched torpedo systems, submarine naval architecture and marine engineering, submarine systems and sensors, unmanned undersea vehicle systems, platform defensive systems, USW launcher systems, and submarine tactical missile launcher integration across the Naval Sea Systems Command, Warfare Centers, and affiliated Program Executive Offices.



**Daniel East**

*The Carlyle Group*

Daniel East is a Vice President focused on mezzanine investment opportunities in the energy sector. He is based in Houston, Texas.

Prior to joining Carlyle, Mr. East worked as Senior Vice President and Treasurer at KGen Power Corporation where he focused on strategy and M&A opportunities. Prior to that, Mr. East was a Senior Director at Dynegy Inc., where he focused on managing the analysis of M&A transactions and originated structured transactions in the energy commodity markets.

Mr. East received his M.B.A. from Rice University and holds a B.B.A. in finance from the University of Houston.



**Steve Erdahl**

*GreenTech Petroleum, LLC*

Steven Erdahl is GreenTech's Founder and CEO and is responsible for implementing and giving direction and leadership toward achieving the Company's strategic goals and objectives. He is an attorney (Texas), CPA (Texas), CVA (National Association of Certified Valuation Analysts) and entrepreneur with over 25 years of experience in accounting, tax, law and finance. He is also Board Certified in Tax Law by the Texas Board of Legal Specialization. Mr. Erdahl's diverse professional experience includes public accounting and private law practice, as well as legal and corporate finance executive positions in Dallas with Oryx Energy Company (now Anadarko Petroleum) and Verizon Communications. He has a heavy international background, including mergers and acquisitions, and all types of domestic and cross-border transactions. After spending many years in the oil & gas industry, in recent years Mr. Erdahl has focused his efforts in the renewable energy sector. Further supporting his financial skill-sets, he has successfully testified as a finance expert witness in major commercial litigation (involving hundreds of millions of dollars) in venues including state courts, U.S. Federal District Court and U.S. Tax Court. Academically, Mr. Erdahl holds four degrees: M.B.A. (Finance) from the Cox Business School at Southern Methodist University (Beta Gamma Sigma); LL.M. (Taxation) from New York University School of Law; J.D. (Law) from the University of Tulsa School of Law; and B.S. (Accounting) from Montana State University. His multiple-credentialed professional and academic profile supports his executive management role.



**John Fox**

*ElectraTherm, Inc.*

John Fox is ElectraTherm's Chief Executive Officer. He joins the team from United Technologies Corporation's Pratt & Whitney Power Systems Division, where he was Director and General Manager of the Organic Rankine Cycle (ORC) Business. John's management of the PureCycle program drove the ORC technology from the development phase through to successful commercialization. John spent 19 years at United Technologies, focused on engineering and product development.

In this presentation, John Fox will discuss ElectraTherm's project with the Department of Energy (DOE) to customize its waste heat to power generator for geothermal applications. He'll review the challenges and lessons learned, and provide a sneak peak at the product development resulting from the findings. ElectraTherm, a leader in small-scale, distributed power generation from waste heat, was recently awarded Phases II and III of its DOE grant to demonstrate its technology at a geothermal demonstration site in Imlay, Nevada.



**Denise Gatlin**

*West Chester University in Pennsylvania*

Denise Gatlin is a graduate student at West Chester University in Pennsylvania where her area of research focuses on ground-source geothermal systems as a model for sustainable energy sources. She holds a B.S. in geology from Temple University. Prior to attending West Chester University, Denise spent several years working as an environmental consultant in Pennsylvania. Much of her consulting work focused on water quality in the Pennsylvania Marcellus Shale Play. She currently serves as social media coordinator for the National Association of Black Geoscientists (NABG).



**Will Gosnold**

*Harold Hamm School of Geology and Geological Engineering Univ. of North Dakota*

Dr. William D. Gosnold is Professor of Geophysics in the Harold Hamm School of Geology and Geological Engineering at University of North Dakota. He earned a baccalaureate degree in Physics from the State University of West Georgia in 1971 and the Doctor of Philosophy degree in Geophysics from Southern Methodist University in 1977. Dr. Gosnold is Custodian of the Global Heat Flow Data Base of the International Heat Flow Commission (IHFC). He is currently Director of the Petroleum Research Education and Entrepreneurship Center (PREEC) at the University of North Dakota. He has conducted research on heat flow and geothermal resources since 1979. He is a member of Sigma Xi, the American Geophysical Union, the European Geosciences Union, the Geological Society of America, and The American Association of Petroleum Geologists. In 2006 he received the highest award of the University of North Dakota, Chester Fritz Distinguished Professor.



**John Holbrook**

*TCU*

John Holbrook is a Professor in the Department of Geology and the Energy Institute at Texas Christian University. He previously served as a Professor at University of Texas at Arlington and Southeast Missouri State University. His research interests are field oriented, focusing mostly on both modern and ancient fluvial systems and physical stratigraphy. Current interests include basin permeability architecture and connectivity of flow paths, mechanics of discontinuity surfaces, and tectonic and climatic impact on river processes. He applies his research widely across petroleum, geothermal, and environmental issues. He gained his B.S. at the University of Kentucky, his M.S. at the University of New Mexico, and his Ph.D. at Indiana University, all in Geology. He chairs the NSF Research Coordination Network for research in geothermal energy from sedimentary basins. He has served on several committees at SEPM, GSA, and AAPG. He is a member of GSA Council, past Chair of the GSA Sedimentary Geology Section, and is a GSA Fellow. He has served SEPM on SEPM Council and as President of Gulf Coast and Mid-Continent section, and he teaches short courses and serves/chairs committees for AAPG. He recently served as vice chair on the Board of Geologist Registration in Missouri.



**Douglas Hollett**

*DOE Geothermal Technologies Program*

Mr. Hollett is the Director for the Office of Geothermal Technologies at the Department of Energy, Energy Efficiency and Renewable Energy. In this role he is responsible for both technical and project oversight and new technologies designed to advance geothermal's role in the U.S. energy portfolio.

Mr. Hollett has over 30 years of experience in the oil and gas industry, most recently with Marathon Oil. While at Marathon, he served as the Manager for Unconventional New Ventures, where he was responsible for capturing and initiating new global opportunities in shale gas and tight oil reservoirs. He was also responsible for starting a number of new exploration projects in North America, as well as executing the company's large-scale business entry into Poland, where significant potential for new natural gas resources exist. He additionally served as Manager, International New Ventures, which included growing new global energy projects, and as General Manager of Atlantic Canada, where he led the first modern deep-water drilling campaign in Canada.

Mr. Hollett holds a Bachelor of Arts in Geology from Williams College, an Master of Science in Geology from the University of Utah, and a master's certificate in project management from York University.



**James Hootsmans**

*Colby College*

James Hootsmans is an environmental studies major at Colby College, with a concentration in geology and a minor in music. He plans to attend graduate school next year. Son of a Dutch father and South African mother, James' diverse background has allowed him to focus on environmental problems in the world. His interest in renewable energy started when he went to high school in China. Now at Colby, as students look into solar or biomass, James has been researching Maine's geothermal energy potential, as the state heavily relies on imported oil.





**Randy Keller**

*Oklahoma Geological Survey*

G. Randy Keller is a Professor in the School of Geology and Geophysics at the University of Oklahoma and holder of the Edward Lamb McCollough Chair in Geophysics. He also serves as the Director of the Oklahoma Geological Survey and State Geologist. His research interests stress the geological applications of geophysics and span a variety of techniques at a variety of scales. He, his students, and colleagues have conducted many studies of the structure and evolution of the crust using gravity, magnetic, remote sensing, and seismic measurements integrated with geological data, often as part of large international cooperative efforts. He, his students, and colleagues have also regularly used geophysical methods to study issues such as ground water resources, earthquake hazards, the geometry of specific geologic structures, and site characterization. He has also been very involved in the Geoinformatics initiative and is interested in the development of databases, techniques that foster data integration, software tools, and web services that have proven useful to both academic and industry groups. His international research has focused on East Africa, North Africa, Central Europe, and China. He has been active in the AAPG and SEG and was awarded the Grover E. Murray Memorial Distinguished Educator Award by the AAPG.



**Kevin Kerlin**

*Helidyne, LLC*

Kevin Kerlin began his career in 1999 as an automotive mechanic while completing his undergraduate studies from the University of Utah. After receiving a BSME in 2003, he worked as a mechanical engineer at Raser Technologies for 5 years in the R&D department designing electric motor prototypes. Once he completed his MBA from Southern Utah University in 2008, he cofounded Helidyne LLC where he helped develop an innovative rotary expander. In 2012 he completed an initial round of equity financing for the company, providing funds necessary to build and test a working prototype. He remains with the company today serving as both president and senior mechanical engineer.



## **Richard Langson**

*Langson Energy*

Langson Energy, Inc. - Inventor, Founder, President and Chairman of the Board – Mr. Langson has proven his talent as a world class entrepreneur and innovator over four decades in business. The list of awards he earned in conjunction with his previous company, include:

2012 Edison Award Winner – Green Implementation

2009 Wall Street Journal Technology Innovation Award – Energy Category

2009 Entrepreneur of the Year

2008 Popular Science Magazine – Best of What’s New Award, Green Tech

2007 Geothermal Energy Association – Best of Show

2007 Geothermal Resources Council Annual Meeting – Best Scientific Paper

Published Papers co-authored with City University London, IK Smith, N Stosic and A Kovacevic including, Cost Effective Small Scale ORC Systems for Power Recovery from Low Enthalpy Geothermal Resources.

Always an innovator and performance orientated person, Mr. Langson became interested in cogeneration in 2000 and formed Vector CoGen, LLC to target the residential and light commercial (1-65kW) marketplace. Some of his technical innovations included annual oil change systems, a series of “clean burn” natural gas engines, high tech control systems and state of the art heat exchangers. Langson went on to form a company in 2005 to produce his modular Waste Heat Generators, which are now leading the world in these small-scale, ORC binary power products.

Mr. Langson is also a World Champion race car builder and driver beating “Big Daddy” Don Garlits for the 1993 IHRA World Championship. He set many world records and some still stand today.



**Maciej Lukawski**

*Cornell Energy Institute Earth Energy Program*

Maciej Lukawski is a Ph.D. Candidate in Chemical Engineering at Cornell University. He works in Prof. Jefferson Tester's group. His research deals primarily with design and optimization of geothermal energy utilization systems. Maciej has Master's degrees in Renewable Energy Science (Geothermal Energy Program) from University of Iceland and in Energy Engineering from AGH University of Science and Technology (Cracow, Poland). Prior to joining Tester's group at Cornell, Maciej was a visiting researcher in the Department of Energy Sciences at Lund University (Sweden). Maciej was awarded a Fulbright Scholarship to pursue his research in geothermal energy at Cornell.



**Paul Morgan**

*Colorado Geological Survey*

Paul Morgan started his geothermal career in the United States as a post-doc learning from David Blackwell at SMU and is currently continuing this work in Colorado with the Colorado Geological Survey. He is collaborating with the Colorado Geothermal Heat Pump Association to increase the penetration of ground source heat pumps into the Colorado market and working with private industry and small companies to bring the first geothermal power production to Colorado. He has carried out geothermal work on five of the seven continents and three of the eight (or nine) planets and the Moon. He is a member of the science team for the next NASA mission to Mars, Insight, which will be measuring heat flow and seismicity on Mars. This will be the first robotic mission to place a scientific instrument on another planet.



**Randy Normann**

*PermaWorks, LLC*

Randy Normann received his undergraduate degree from Oregon Institute of Technology, OIT. OIT is this nation's only geothermal heated campus. He received his MS EEC from University of New Mexico. Randy founded Perma Works LLC to manufacture the world's only electronic geothermal well monitoring system rated for 280C+. Before Perma Works, Randy was in Sandia National Laboratory's Geothermal Research Department as the lead investigator for High-Temperature Electronics and Fiber Optics development. Randy has been the General Co-Chair for the High-Temperature Electronics Conference for over 12 years and a long term member of the European High-Temperature Network, HITEN. Randy currently serves as the Working Group Convener for High-Temperature Tools under the International Partnership for Geothermal Technology lead by the DOE's Geothermal Technologies Program. In the area of high-temperature battery research, he received an R & D 100 award in 2006 for the first ever 250°C battery. Randy was the DOE technical lead on the Honeywell, Deep Trek Project developing new HT SOI electronics. He is a contributing author to the book, "Extreme Environmental Electronics."



**Michael Pierce**  
*GeoTek Energy, LLC*

Michael Pierce is a Senior Consulting Engineer with Ortloff Engineers, Ltd. His experience with Ortloff includes cryogenic gas processing plant design, consulting, and start-up. Since 2006 he has been working with GeoTek Energy LLC to implement their Gravity Head Energy System, including conceptual design, process simulations, and construction and installation details. Prior to 1994 he worked as a Facilities and Production Engineer with ARCO Oil & Gas.

Mr. Pierce has co-authored several patents related to both cryogenic gas processing and GeoTek's novel geothermal power system. He has also presented papers related to both fields, and provided training sessions in natural gas liquids recovery technology.

Mr. Pierce holds bachelor's degrees in both Chemical Engineering and Computer Science from the Colorado School of Mines.



**Tim Reinhardt**  
*DOE Geothermal Technologies Program*

Tim Reinhardt is currently at the Department of Energy (DOE), working in the Geothermal Technologies Program (GTP) as a physical scientist and program lead/technology manager for the Low Temperature and Coproduced Subprogram. Tim provides oversight for existing demonstration projects, and guidance and direction for future low temperature geothermal projects and activities. He received his bachelor's degree from Northwestern University. He also holds Master's Degrees from the University of Oklahoma and from the University of Texas at Austin.



## **Mike Ronzello**

*Pratt & Whitney Power Systems*

Mike Ronzello is the Business Development Director for Pratt & Whitney Power Systems Organic Rankine Cycle product line. Mike has a diverse background in engineering, operations, new product development and sales in the power and aerospace industries. In his current role, Mike is responsible for global sales activities and business development strategies for Pratt & Whitney's Organic Rankine Cycle equipment business. His efforts include working with power plant developers in geothermal, waste heat recovery, solar thermal and biomass applications, to advance deployment of sustainable power generation solutions within the U.S. and abroad. Prior to joining Pratt & Whitney Power Systems, Mike held the role of Operations Quality Authority for UTC's Aerospace division, Hamilton Sundstrand, where he developed and led quality initiatives for aircraft platforms including Boeing's 787 Dreamliner, the Airbus A380 Superjumbo jet, and several U.S. military fighter jet programs. Prior to joining UTC, Mike worked for the General Electric Company where he held leadership roles in engineering and new product development, including the development of next generation products for low voltage power equipment and circuit protection. He holds a Bachelors of Science degree in Mechanical Engineering from the University of Maine and a Masters of Science degree in International Business from Rensselaer Polytechnic Institute.

## **Peter Schrimpf**

*Chevron Energy Solutions*

As director of operations for the CVX Support Business Unit within Chevron Energy Solutions, Mr. Schrimpf currently leads a team of engineers and managers in identifying and implementing energy efficiency, renewable energy, and power systems reliability opportunities for CVX's various operating companies. Prior to his current position, Mr. Schrimpf served a similar role as director of operations for Chevron Energy Solutions' commercial and industrial group, developing and implementing various cogeneration and power reliability projects for commercial, industrial, and institutional customers nationwide. Mr. Schrimpf has 41 years of experience in development, design, project management, and execution of utility and industrial power projects of all sizes and configurations.

B.S. Mechanical Engineering, University of Arkansas, Fayetteville

## **James (Jamie) Schue**

*Electric Reliability Council of Texas, Inc.*

Jamie's interest in clean energy really began when he was selling electric scooters and bikes while working through his undergraduate degrees in Print Journalism and Spanish. After completing his undergraduate work, Jamie worked for Hudson & O'Leary LLP, a boutique law firm specializing in local government law. Jamie worked for Invenergy Wind Development, LLC as a paralegal and business development associate before attending St. Mary's University School of Law, where he earned his J.D. In his third year of law school, he was a visiting student at the University of Texas School of Law, where he focused on energy and natural resources law and policy. During law school, Jamie interned with Arnold Public Affairs, a small lobby shop in Austin, and the Railroad Commission of Texas, where he began researching geothermal regulation. After graduation, Jamie interned at the Electric Reliability Council of Texas, Inc., where he is currently Associate Corporate Counsel working on transactional matters and corporate governance.



## **Bert Shipley**

*Exelon Corporation*

Bert Shipley has more than 17 years of diversified experience in the energy industry. He holds a Bachelors of Science in Technical Management and has also completed a 5-year electrical apprenticeship through the North Texas Electrical Joint Apprenticeship Training Center.

Currently, he holds an Operations position at Exelon Corporation and has worked for Mountain Creek Steam Electric Station (SES) power generation facility for the past 10 years. He has held several roles during his 10 year history including Production Technician 1, Production Technician 2, Production Technician 3 & Operations Outage Coordinator. Bert's background includes 7 years as a Maintenance Electrician while working with power distribution systems and control systems, switch gear, transformers, motor controls, variable frequency drives and programmable logic controllers. He holds a Journeyman Inside Wireman electrician's license with the State of Texas. Bert is passionate about improving the efficiency and operation of our power supply and fuel supplies in order to ensure long lasting energy solutions for generations to come.

When Bert is not working he enjoys spending his time volunteering for various charities and non-profit organizations. In addition, Bert is currently assisting the State of Texas Department of Licensing and Regulation to develop testing for electricians across the state. Bert lives in the Dallas area with his wife and children.



**Ali Soheilifar**  
*Sazeh Consultants*

Profession: Civil/Structural Engineer.

Award: Conference of Civil & Architecture Award, Tehran/Iran

Publications: Ali Soheilifar. Finite element analysis of cooling tower foundation under wind load. Master Thesis, Civil Engineering Department University Putra Malaysia, 2005.

“Linkage of the 3D models in PDMS and engineering software sap2000 and shopdrawings in EPC project” 2008

“Determine the amount of energy waste in steam traps compared to the total energy produced in refinery” 2012

Education:

Azad University (Tehran) 09/1998 – 05/2003 BSc. Civil Engineering

BAHAR High School (Tehran) 09/1993 – 09/1997 Diploma (Mathematics-Physics)

Work Experience:

SAZEH CONSULTANTS 09/2005 - Present Civil / Structural Design Engineer

Projects: (Iran/Tehran).

South Pars Gas Field Development Phases 15&16.

ABS Expansion Project in Tabriz Petrochemical complex.

Shazand Refinery in Arak ISOM/CDU2.

Hormuz oil refinery project Hydro Cracking Unit (HCU-U-06) & Mild Hydro Cracking Unit (MHC-U-56)

Responsibilities:

- Performing engineering/design activities based on department team requirements.
- Ensure that all assigned design tasks are completed within prescribed time schedules.
- Participate as necessary in discussions with client and visit job sites when necessary.
- Design of Concrete & Steel structures and Foundation.
- Design of Stationary equipments (Vessel, Exchanger...).
- Design of Pipe Racks.





## **Kelsey Southerland**

*Heat is Power Association*

Kelsey Southerland serves as the Director of Government Relations for TAS Energy. Based in Washington D.C., Kelsey works closely with Congress and Administration officials on policy and legislative issues addressing clean energy and manufacturing. Prior to joining TAS, Kelsey served on Governor Perry's Washington D.C. staff working with Congress and the Administration on energy, agriculture, international trade and environment policy. Kelsey was a political appointee in President George W. Bush's Administration serving as a Special Assistant to the Chief of Staff for the U.S. Department of Commerce and as a Legislative Specialist for Secretary Gutierrez with a portfolio including energy, the Department's National Institute for Standards and Technology and economic development initiatives for reducing trade barriers. Kelsey worked for a political consulting and public relations firm as the account coordinator of a major national grassroots organization for clean coal where she was responsible for coordinating outreach initiatives, grassroots campaigns and events. After learning that waste heat as an emission free resource is largely unknown by policy makers- reflected in energy policies and legislation and adversely affecting the market, Kelsey established waste heat as one of the top priorities for TAS government relations. She has worked with members of the waste heat community to launch the only trade association focused solely on waste heat to power, The Heat is Power Association. The goal of the Association is to work within and among the larger industrial efficiency community to see waste heat to power recognized as an emission free power resource and developed into a robust market. Kelsey holds a bachelor's degree in political science from Texas A&M University.



## **Tony Straquadine**

*NRGreen Power LLP*

Tony Straquadine is the Manager of Government Affairs for NRGreen Power and Alliance Pipeline. Tony is responsible for developing and implementing NRGreen & Alliance's government relations strategies in both Canada and the U.S. He is a frequent speaker at industry and regulatory conferences including the Midwest & Canadian LDC Forums, the 2009 & 2010 Northeast BC Natural Gas Conference, and the Federal Energy Regulatory Commission's 2010 Conference on Energy Efficiency.

NRGreen Power Limited Partnership is an independent power producer and a company related to Alliance Pipeline that is pursuing commercial development of electrical power generation along the Alliance system and at other industrial facilities. The Alliance Pipeline is a 2,800 mile-long high pressure natural gas transportation system that carries rich gas from northeastern British Columbia and northwestern Alberta to the Chicago market hub. The Alliance system delivers on average about 1.6 billion standard cubic feet of natural gas per day.

Since 2006 Tony has been a member of the Advisory Board for the Institute for Regulatory Policy Studies, which is housed in the Department of Economics at Illinois State University. In 2011 Tony was asked to serve as a member of the Enterprise Saskatchewan, Energy Sector team (a division of the Saskatchewan Ministry of the Economy). This team engages the private sector to identify, develop and monitor competitive advantages to the Saskatchewan provincial government and prescribe action to keep key economic sectors moving forward. In 2012 Tony was elected Chairman of the Heat is Power Association, a trade association of the Waste Heat to Power (WHP) industry. He was also recently elected to the Board of Directors of the North Dakota Petroleum Council.

Tony has over 30 years of experience in the oil and gas industry, including significant international industry involvement. Prior to joining Alliance in 1999, He was employed by Haliburton Company where he held a variety of operational and senior human resource management positions.

Tony received a Bachelor of Science degree in Geology and Geophysics from the University of Hawaii.




**Matt Uddenburg**  
*AltaRock Energy, Inc.*

Matt currently works for AltaRock Energy in the Seattle Washington office, where he works on varying problems concerning the stimulation process. Matt got his start in geothermal energy as a Well Logging Geologist at the Coso Geothermal Field. Finding the work interesting, he decided to pursue the field further by applying to an interdisciplinary program at the University of Texas. In Texas, he worked on a variety of problems: characterizing potential geothermal fields, compiling public data related to geothermal energy and completing large scale data analysis. In his thesis he researched ways to quantify the value of potential geothermal fields by creating an estimator which gives stochastic solutions for power output in poorly characterized fields. This allows developers to better understand the risk and value associated with exploring a poorly understood field. While in Texas, Matt worked with SMU to better characterize potential geothermal fields in Texas; he is excited to see the work that has been completed since he has been away.

B.S. Earth and Planetary Science, University of California-Santa Cruz

M.A. Energy and Earth Resources, University of Texas-Austin



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