

Geothermal Energy Panel
Friday, Oct. 24, 3:30-5pm
Room 3 (2ND floor)

IV. Geothermal Energy

You don't have to be a miner to know that the earth gets hotter the deeper you dig. According to an MIT report the heat contained in rock under the North American continent is equivalent of 2,000 years-worth of the country's current energy consumption. However, like other earth resources (such as mineral deposits) special conditions must be met in order for the extraction of this heat to be affordable. With fossil fuel becoming more expensive, might there be a way to increase our use of this invisible source of energy to warm our homes, our water, and even create electricity? The Chena Hot Springs project in the interior has proven that yes, actually, it is possible. Join us for a conversation about how and where in Alaska geothermal projects are being developed, and get answers to the following questions: Where are geothermal resources available? How sustainable are these resources? How affordable are these projects compared to other sources of energy the earth, solar, water, wind provide?

1. *Chair:* Gwen Holdmann, Director, Alaska Center for Energy and Power, University of Alaska in Fairbanks
2. Lorie Dilley, Principal and Geotechnical Engineer, Hattenburg, Dilley & Linnell, LLC
3. Nicholas Goodman, CEO, TDX Power
4. Suzanne Lamson, Project Manager, Naknek Electric Association
5. David Lockard, Geothermal Energy Manager, Alaska Energy Authority (AEA), Department of Commerce, Community, and Economic Development
6. Chris Nye, Alaska Department of Natural Resources, Division of Geological & Geophysical Surveys, Volcanology Section Chief

Questions & Answers: If you have a question for any of the panelists, please write it down on a piece of paper and submit it to a volunteer who will be collecting questions and handing them to the Chair. Index cards will also be provided. With this process we hope to answer many more questions from the audience. Emails are also provided for panelists in their bios below.

Panelists' Biographies

***Chair:* Gwen Holdmann, Alaska Center for Energy and Power, University of Alaska in Fairbanks**

Gwen moved to Alaska in 1994, shortly after graduating from Bradley University with a degree in engineering physics. At Bradley, Gwen was the recipient of the Ising Physics Scholarship and was MVP of Bradley's Division I tennis team. Gwen began working on renewable energy projects for ABS Alaskan, where she wrote a guide to micro-hydro power for Alaska. She subsequently was hired as vice president of new development by Chena Hot Springs Resort, where she directed the renewable and sustainable energy program. Gwen is currently director of the Alaska Center for Energy and Power at the University of Alaska, and chair of the Renewable Energy Alaska Project (REAP). Ms. Holdmann is also a dog musher, and has finished numerous races, including the Iditarod, the Yukon Quest, and the Open North American Championship. (gwen.holdmann@uaf.edu)

Lorie Dilley, Hattenburg, Dilley & Linnell, LLC

Lorie is a 35-year Anchorage resident with over 20 years of geological and engineering experience. She is general manager and principal and geotechnical engineer at Hattenburg, Dilley & Linnell, LLC (HDL). She oversees the firm's business activities and manages 10 to 20 active contracts, several with single construction budgets exceeding \$14 million. She is a doctoral candidate researching using geochemical signatures as a geothermal reservoir assessment tool. Lorie holds a master's degree in geology from New Mexico Institute for

Mining and Technology; a bachelor's degree in civil engineering from University of Alaska, Anchorage; and a bachelor's degree in geology from Northern Arizona University. Ms. Dilley has been involved in the geothermal industry for the past five years, including analyzing cores, fluid flow, and developing reservoir models. She also has conducted civil cost estimating on geothermal projects for the AEA. These projects include developing concept design reports and assessing the needs of multiple stakeholders, including the electric generation agency, the school district, tribal councils, the city, the native corporation, and private entities. Wind energy has been an essential component of these projects. (ldilley@hdlalaska.com)

Nicholas Goodman, TDX Power

As CEO of TDX Power, Nicholas is responsible for project development and acquisitions, customer relations with the company's regulated utilities, state and federal regulatory compliance, banking relationships, operations, and maintenance. He also leads the firm's development arm, which includes expanding scope as a contractor to the military on the design and construction of power generation facilities, several remote wind power projects, and development of a 300 MW hydroelectric project in Alaska. Under his leadership, TDX leaped from \$3 million to over \$50 million in sales. Nicholas has ten years of experience in the management, development and financing of small and start-up power generation companies and independent power projects. He has had principal roles as a technology provider, a financial advisor and as a project developer. From 1997 to 1999, Nicholas was the General Manager for Tidal Electric of Alaska, where he managed project development for a 5MW tidal power project in Cordova, Alaska. In 1999, he founded Northern Renewables, an Alaska-based consultancy dedicated to assisting renewable energy technology companies in Alaska and other states. Mr. Goodman has been a speaker at industry conferences and has published articles on wind power in a number of trade journals. He holds a bachelor's degree from Middlebury College, and a master's in natural resource development and business administration from the University of Vermont. (ngoodman@tdxpower.com)

Suzanne Lamson, Naknek Electric Association

Suzanne works on economic development projects at Naknek Electric Association, Inc. She is currently working on the Southwest Alaska Regional Geothermal Energy Project. Born and raised in Los Angeles, California, she has been a resident of Naknek, Alaska for 27 years. She enjoys rural life, politics, subsistence activities, gardening and her family. Ms. Lamson holds a bachelor's degree in political science from UCLA. She also completed two years of graduate work in behavioral science and health education at UCLA's School of Public Health. (Suzanne.lamson@gmail.com)

David Lockard, Alaska Energy Authority, Dept. of Commerce, Community, & Economic Development

David has worked for AEA since 1995 managing the design and construction of bulk fuel tank farms, diesel powerhouses, and hydroelectric projects in Alaska's rural villages. He also manages Alaska's Geothermal and Ocean and River Energy Programs. David has organized workshops and conferences on topics as diverse as Tidal Energy for SE Alaska, the Mt. Spurr Geothermal Prospect, and Diesel Efficiency Opportunities using Stack Heat Recovery and Organic Rankine Cycle Devices. He has actively promoted the incorporation of climate change considerations in engineering design for Alaska. David is the Lead Engineer for AEA's Rural Energy Program, and holds a Master's Degree in Mechanical Engineering from the University of Wisconsin Solar Energy Lab. (dlockard@aidea.org)

Chris Nye, Alaska Department of Natural Resources, Division of Geological & Geophysical Surveys

Chris has studied active Alaska volcanoes for the past thirty years, focusing on volcanic hazards, volcano-hosted geothermal systems, and fundamental research into volcanic processes. He now serves as volcanology section chief at the Alaska Department of Natural Resources, where he focuses on the geochemistry, petrology, and geology of convergent margin volcanoes, with special emphasis on detailed trace-element geochemical studies of individual volcanoes in an attempt to constrain their magmatic plumbing systems. Dr. Nye currently manages the division's participation in the Alaska Volcano Observatory, a cooperative program from the USGS and University of Alaska, Fairbanks. Duties include operational, managerial, and programmatic tasks, as well as studies of active volcanism and volcanic deposits. He holds a doctorate from University of California Santa Cruz (1983), a master's degree from University of Alaska, Fairbanks (1978), and a bachelor's degree from University of Alaska, Fairbanks (1976). (cnye@giseis.alaska.edu)