



# ACEP

Alaska Center for Energy and Power

## A POWERHOUSE



RESEARCHER SHOWCASE  
**Gwen Holdmann**



### BACKGROUND

Gwen Holdmann is the Director of the Alaska Center for Energy and Power (ACEP). Gwen previously served as the Vice President of New Development at Chena Hot Springs Resort near Fairbanks. While at Chena, Gwen oversaw the construction of the first geothermal power plant in the state, a 400 kW Organic Rankine Cycle system, the lowest operating geothermal power plant in the world. Gwen also developed additional energy projects to make the site as self sufficient as possible, including a number of year-round production greenhouses, a water ram pump, hydrogen production, and an absorption refrigeration system using 75°C geothermal fluid to cool a 10,000 square foot ice museum year-round.

Gwen moved to Alaska in 1994, after graduating from Bradley University. Gwen is the mother of three children – Leif, Marais, and Lael. Gwen runs sled dogs and has competed in the Iditarod and Yukon Quest. She is married to fellow musher Ken Anderson, and the couple maintains a kennel of about 50 dogs outside of Fairbanks, Alaska. They live off-grid in a house they built themselves, and generate their own power through a combination of solar PV, wind, and diesel generator.

### RECENT ENERGY PROJECTS

- Pilgrim Hot Springs Geothermal Resource Exploration
- Opportunities for Woody Biomass Fuel Crops in Interior Alaska
- Sustainable Village Energy: Integration of Renewable and Diesel Systems to Improve Energy Self-Reliance
- Energy Storage for Alaskan Communities Technology Summary
- Small Scale Nuclear Power

### RELEVANT PUBLICATIONS

Holdmann, G., Fay, G., Witmer, D., Williams, F., Schwörer, T., Pride, D., and Stevens, R. Small-Scale Modular Nuclear Power: An Option for Alaska. Prepared for the Alaska Energy Authority, March 2011.

Holdmann, G. The Chena Hot Springs 400kW Geothermal Power Plant: Experience Gained During the First Year of Operation. Geothermal Resource Council Annual Meeting, Sep 30 - Oct 3, Sparks, Nevada. Published in proceedings. 2007.

Holdmann, G, Erickson, D. Absorption Chiller for the Chena Hot Springs Aurora Ice Museum. OIT Geoheat Center Bulletin 27-3: p. 5-9. September, 2006.

### RESEARCH

As the Director of ACEP, Gwen has been instrumental in identifying, developing and overseeing each of ACEP’s priority research programs, including the Power Systems Integration Program, the Data Collection and Management Program, Energy Analysis Group, and Alaska Hydrokinetic Energy Research Center. Projects that Gwen has served as the principle investigator on include: Pilgrim Hot Springs Geothermal Resource Exploration, Small Scale Nuclear Power, Energy Storage for Alaskan Communities Technology Summary, Opportunities for Woody Biomass Fuel Crops in Interior Alaska, and the Fairbanks North Star Borough Baseline Greenhouse Gas Emissions Inventory Base Year 2007.

### AWARDS

- R&D 100 Award
- Project of the Year from Power Engineering Magazine
- Alaska Top 40 Under 40 Award

### EDUCATION

- Graduate studies at the University of Alaska Fairbanks, Geophysical Institute. 1994-1997
- B.S. in Mechanical Engineering and Physics. Bradley University. 1994

### LEADERSHIP ROLES

- Renewable Energy Alaska Committee Board of Directors
- Fairbanks North Star Borough Pollution Control Commission



## Fostering development of innovative solutions to Alaska's energy challenges through applied energy research at the University of Alaska.

The Alaska Center for Energy and Power (ACEP) is an applied energy research program based at the University of Alaska Fairbanks. ACEP provides leadership in developing energy systems for islanded, non-integrated electric grids and their associated oil-based heating systems. Integration is a central feature of our program. Because many of the issues related to implementing innovative energy solutions are complex, our program must not only address the technical integration of renewables with these small isolated diesel-based energy systems, but must also look at integration from a broader perspective: integration of solutions into the social realities of a community, integration of the cultural fabric into sustainable energy solutions, integration of university researchers across disciplines and with community partners; and integration of our facilities and resources with those of our national partners.

**Our Mission:** Develop and disseminate practical, cost-effective, and innovative energy solutions for Alaska and beyond.

**Our Vision:** Alaska leading the way in innovative production, distribution, and management of energy.

ACEP is a gateway for energy related activity at the University of Alaska. Working across campuses and pulling from the University's extensive resources and expertise, ACEP is interdisciplinary, needs-driven, and agile.

ACEP has also developed a wide range of partnerships outside the University at the local, state, national and international level to ensure research conducted through ACEP will be relevant, current and world class.

Contact: Gwen Holdmann | [gwen.holdmann@alaska.edu](mailto:gwen.holdmann@alaska.edu) | 907-590-4577



**ACEP**  
Alaska Center for Energy and Power

Fairbanks Office  
(907) 474-5402

Physical Address: 814 Alumni Drive  
Mailing Address: PO Box 755910  
Fairbanks, AK 99775-5910

Anchorage Office  
(907) 272-1520

500 L Street, Suite 201  
Anchorage, AK 99501



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