



**Financial Assistance
Award**

DENALI COMMISSION
510 L Street, Suite 410
Anchorage, Alaska 99501
 (907) 271-1414 (phone)
 (907) 271-1415 (fax)
 www.denali.gov

Award Number 01282-00

Award Title Alaska Center for Energy and Power -
Ground Source Heat Pump Assessment

Performance Period July 1, 2010 through June 30, 2011

Recipient Organization & Address
 UNIVERSITY OF ALASKA FAIRBANKS
 Alaska Center for Energy and Power
 PO BOX 757880
 Fairbanks, AK 99775-7880

Authority
112 Stat 1854

CFDA Number
90.100

Denali Commission Finance Officer Certification

Ms. Jennifer Price
08/31/2010

Phone: (907) 474-6264
Recipient DUNS # 615245164 **TIN #** 926000147

Cost Share Distribution Table

Accounting Code	New Funding		Prior Period Funding		Total
	Denali Commission	Other Contributors	Denali Commission	Other Contributors	
95670000	\$90,000.00		\$0.00		\$90,000.00
	\$0.00		\$0.00		\$0.00
	\$0.00		\$0.00		\$0.00
	\$0.00		\$0.00		\$0.00
	\$0.00		\$0.00		\$0.00
		\$0.00		\$0.00	\$0.00
		\$0.00		\$0.00	\$0.00
		\$0.00		\$0.00	\$0.00
		\$0.00		\$0.00	\$0.00
Total	\$90,000.00	\$0.00	\$0.00	\$0.00	\$90,000.00

This Financial Assistance Award approved by the Federal Co-Chair of the Denali Commission constitutes an obligation of federal funding.

Award Conditions to the Financial Assistance Award between the Denali Commission and University of Alaska Fairbanks, Alaska Center for Energy and Power for Ground Source Heat Pump Assessment, Award No. 01282

Continued on the following pages.

Signature of Authorized Official - Denali Commission

 Electronically Signed

Typed Name and Title
 Mr. Joel Neimeyer
 Federal Co-Chair

Date
 08/30/2010

AWARD ATTACHMENTS

UNIVERSITY OF ALASKA FAIRBANKS

01282-00

1. Award Conditions - Center for Energy and Power for Ground Source Heat Pump Assessment

***Award Conditions to the Financial Assistance Award
Between the Denali Commission and University of Alaska Fairbanks, Alaska
Center for Energy and Power
For Ground Source Heat Pump Assessment
Award No. 01282
July 2010***

1. Scope of Work

Background

While the cost of electricity is a concern for many areas in Alaska, the cost of space heating is also significant, often eclipsing the cost of electricity in many regions of the state. One alternative for reducing the cost of heating is to tap the heat of the earth or a body of water for space heating, utilizing ground source heat pumps (GSHP). Despite growing interest in the application of GSHP, knowledge about their function in cold climates and in the range of geotechnical, environmental, and economic conditions found throughout Alaska is inadequate. Over 500,000 GSHP have been installed in the contiguous US, but installations are less common in Alaska. Those that are operating span a large geographic area from the Interior and Southcentral regions of the state to Kodiak and Southeast Alaska. Construction of two systems in Juneau was recently funded through the Alaska Renewable Energy Fund, and a sea-water heat pump system was funded under the Denali Commission Emerging Energy Technology Grant Fund.

Project Scope

The Alaska Center for Energy and Power (ACEP) and the Cold Climate Housing Research Center (CCHRC) shall work in cooperation with the Alaska Energy Authority (AEA) and National Renewable Energy Laboratory (NREL) to compile and synthesize existing information, identify gaps in knowledge that act as barriers to implementation, and examine the economics associated with applying GSHP in Alaska. This project will be organized under three interrelated but separate tasks.

Task One: Information Review, Synthesis, and Identification of Knowledge Gaps

CCHRC will serve as Task One lead, and will work with participants at ACEP, AEA, and NREL to prepare a three part informational report including:

- *Information Review.* This will include a compilation of available literature, case studies and interviews with experts on GSHP applications in cold climates. Preferred material will relate to GSHP applications relevant to the Alaska context, be peer reviewed or industry-based, and contain quantitative information.
- *Information Synthesis.* The information compiled will be reviewed and summarized to highlight key findings critical to successful deployment of GSHPs in the Alaska context.
- *Identification of Knowledge Gaps.* Knowledge gaps will be identified, listed, and discussed.

Task Two: Inventory of Existing Ground Source Heat Pump Installations in Alaska

ACEP will serve as Task Two lead working with CCHRC, AEA, and NREL to prepare an inventory of existing installations of GSHPs in Alaska. The inventory will be included as an appendix to the Task One report, and will be used to identify potential sites for

future research or investigation based on the knowledge gaps identified in Task One. Inventory information will include project location, system description, and other technical metrics and data, as available.

Task Three: Preliminary Economic Assessment

ACEP will serve as Task Three lead working with CCHRC, AEA, and NREL to prepare a preliminary economic assessment that will identify key economic considerations associated with installing GSHPs in Alaska and establish basic guidelines for calculating economic performance in various areas of the state. If possible, specific projects or locations may be used as case studies to explore the economic considerations identified.

Deliverables

The final deliverable will be a comprehensive report of the current status of GSHP technology in the state of Alaska, as outlined in the tasks above.

Budget – Total Budget is \$90,000

The proposed budget of \$90,000 from the Commission which includes funding for ACEP, as well as a sub award to CCHRC in the amount of \$30,124. This budget includes both direct and indirect costs to complete the research, collect samples, write report and disseminate report findings.

NREL and AEA will contribute resources, project advice and feedback, and general professional assistance, as this topic is fundamental to their programs and missions. No specific match amount has been quantified.

ACEP Direct Costs - \$33,495

Senior Personnel - \$1,892

Funding to support 40 hours for the Principal Investigator.

Other Personnel - \$9,737

Funding to support 280 hours of salary over the life of the project is requested for two Research Associates, who will contribute to data collection prepare preliminary economic assessment.

Graduate Student Research Assistant - \$13,236

One student to work 580 hours (40 hours per week) during the summer of 2010.

Fringe Benefits - \$6,187

Staff benefits are applied according to UAF's benefit rates for FY10, which are negotiated with the Office of Naval Research (ONR) annually.

Travel - \$937

Travel funds are requested to visit ground source heat pump installations in Juneau, Alaska. Per diem is estimated based on current US Government figures for each location and on UA Board of Regents policy.

Publication & Dissemination - \$1,506

Publication and other costs associated with research results dissemination.

Sub-awards - \$30,124

A subcontract will be issued to the Cold Climate Housing Research Center of Fairbanks, Alaska. CCHRC will participate in all project tasks including 740 hours by Senior, Project and Intern staff (personnel total \$22,393), supplies in the amount of \$1,050, and 11% overhead/2.5% professional services (\$6,681).

Indirect Costs - \$26,381

See section 4 below

Budget Summary

Direct Costs (ACEP)	\$ 33,495
Sub-award to CCHRC	\$ 30,124 (of which \$25,000 is eligible to be calculated in ACEP's indirect rate per 2 CFR Part 215)*
<u>Indirect Costs (ACEP)</u>	<u>\$ 26,381 (45.1% of \$58,495*)</u>
Total Budget	\$ 90,000

*UAF/ACEP shall assure that indirect policies of sub-award(s) are followed using applicable OMB circulars.

Timeline

The anticipated timeline for project completion is 6 months from project start date. All Commission funding is intended for use for the scope of work identified in the Award document only. Any balance of funds remaining after the full scope of work has been completed will be returned to the Denali Commission.

2. Milestones

The following milestones are identified as the major steps to be completed as part of the project. "Planned" dates for the first milestone are included here. As part of each progress report, recipients shall update the progress toward meeting these milestones (see section 7, Reporting).

Milestone	Planned		Actual		Units	Total Cost At Completion
	Start Date	End Date	Start Date	End Date		
In-Progress	07/01/2010	06/30/2011			0	\$0.00
Project Close-out	07/01/2011	09/30/2011			0	\$0.00

3. Award Performance Period

The Award performance period is July 1, 2010 through June 30, 2011. This is the period during which Award recipients can incur obligations or costs against this Award.

4. *Direct and Indirect Costs*

The cost principles of OMB A-21 are applicable to this Award. Direct costs for this award total \$26,381 and can be justified as follows.

F&A (overhead) Explanation for Ground Source Heat Pump Assessment

University F&A is used to cover support staff as well as maintenance and upkeep of existing equipment, facilities, and labs that will be used for this project. Facilities and Administrative (F&A) Costs are negotiated with the Office of Naval Research and for research are calculated at 45.1% of the Modified Total Direct Costs (MTDC). MTDC includes Total Direct Costs minus tuition and other student support, sub-award amounts over \$25,000, participant support costs, and equipment.

The CCHRC allocates indirect costs (overhead) in compliance with OMB A-122, Cost Principles for Non-Profit Organizations. Indirect costs are those costs that benefit more than one project, including: support staff and overall organizational management; facility and equipment maintenance and upkeep; and annual audit, insurance, and legal fees required to operate the organization. Indirect costs are calculated on an annual basis following federal guidelines for preparing a two-rate proposal for both Fringe Benefits and Indirect rates. Indirect rates for 2010 are calculated at 28.5% of the Modified Total Direct Costs (MTDC). MTDC include all direct costs excluding capital expenditures, rental costs, and subcontract costs over \$25,000 per subcontract.

Specific indirect activities that are relevant to this project both under the ACEP indirect and the sub-awarded CCHRC indirect are listed below. These represent resources currently owned by the University and/or its sub-awardees that will be used to support this project. They are not explicitly included in the project budget as individual line items, but are supported under F&A. For this project, these include:

1. Existing computer equipment, phone, fax, and office supplies that will be used to support this research project, but not charged directly to the project.
2. Support for business office staff as well contracts and proposals offices at UAF that assist the research and perform critical functions related to this project.
3. Educational development for student interns working on the project.
4. Database hardware and software licensing costs for storage and analysis of project data that are not charged directly.
5. Office space for the research team, including all staff and contracted participants.
6. Utilities for office space.

Refer to the OMB A-122 Cost Principles for specific details on all allowable direct and indirect charges under this award.

5. Budget and Program Revisions

The Administrative Circular, 2 CFR Part 215, applies to this Award. Please refer to the Administrative Circular for specific details on revisions to this Award. The Administrative Circular requires that ACEP will inform the Commission in writing (e-mail, letter, or report) at the earliest possible date of any unanticipated project cost overrun, project schedule delays, or changes in the project scope or changed site conditions.

6. Payments

Payments under this Award will be made by electronic transfer in response to a "Request for Advance or Reimbursement", Standard Form 270 (SF-270) submitted by ACEP. Requests for reimbursements may be made as needed. The SF-270 must be submitted to the Denali Commission via fax, e-mail (finance@denali.gov) or mail in order for payment to be processed. The form is available on the OMB website: http://www.whitehouse.gov/OMB/grants/grants_forms.html. Payments shall be made in accordance with 2 CFR Part 215. Please contact the Denali Commission's Finance Specialist at (907) 271-1414 for further information about submitting this form. **No interest will be accrued on these funds.**

7. Reporting

Two forms of project reporting are required under this Award, listed below. ACEP shall submit reports using the Denali Commission's on-line Project Database System, available at www.denali.gov. If there are technical limitations which may prevent the recipient from meeting this requirement, please contact the Program Manager listed in this agreement.

- a. **Progress Reports** shall be submitted on a quarterly basis. The first reporting period July 1, 2010 to September 30, 2010 and quarterly thereafter. Reports are due within 30 days of the end of the reporting period. Progress reports shall include the following:
 - i. Total project funding, including both Denali Commission funding and other project funding sources.
 - ii. The total project expenditures for the project as of the end of the reporting period, including both Denali Commission and Other funding sources.
 - iii. Updated schedule and milestone information as identified in the Scope of Work
 - iv. Narrative summary of the project status and accomplishments to date, and address the following questions: is the project on schedule, is the project on budget, and what actions are planned to address any project problems.
 - v. For minor repair and renovation projects or other non-construction projects, pictures should be provided of before and after, or photos that are representative of the funded activity, to the extent possible. Photos shall be

provided in a digital format as part of the on-line report. A short description of the activity and names of those in the photos shall also be provided.

- b. **Federal Single Audits** shall be submitted annually, when required. In accordance with OMB Circular A-133, which requires [subpart 200] “Non-Federal entities that expend \$500,000 or more in a year in Federal awards shall have a single or program-specific audit conducted for that year in accordance with the provisions of this part [subpart 205]. The determination of when an award is expended should be based on when the activity related to the award occurs.”

Recipients shall also submit single audits to the Federal Clearinghouse as designated by OMB. Information can be found on the following web-site:

<http://harvester.census.gov/sac/>

8. Project/Award Close-Out

The project close-out report shall be completed within 90 days of the end of the Award performance period or within 90 days of the completion of the project, whichever is earlier. Recipients must also draw down any remaining funds for expenditures incurred under this award during this 90-day period.

The project close-out report shall be submitted on-line through the Denali Commission’s on-line Project Database System, available at www.denali.gov. The project close out will require the recipient to submit the following information:

- a. Final data for each item listed in paragraph 7(a) “Progress Reports”
- b. Final project expenditures itemized by the following categories: planning & design; materials & equipment; freight; labor; project administration/overhead and other expenses.
- c. Acknowledgement of support: For all non-construction projects, the Award recipient shall include an acknowledgement of the Government’s support for the project(s) developed under this Award. The format for acknowledgement of the Government’s support for non-construction awards will vary with each award and must be agreed upon between the Award recipient and the Denali Commission Project Manager. Denali Commission logo shall be printed on the final report cover. Costs associated with this requirement shall be paid out of the project funding received by the Award recipient from the Denali Commission.

9. Public Policy Laws and Assurances

Award Recipients are required to comply with the public policy laws and assurances on SF 424b. This form must also be signed by a certifying official of the organization. Some of the laws are highlighted below for your reference.

To the maximum extent practicable, considering applicable laws, Funding Recipients shall accomplish the project contemplated by the Award using local Alaska firms and labor.

No portion of this award may be used for lobbying or propaganda purposes as prohibited by 18 U.S.C. Section 1913 or Section 607(a) of Public Law 96-74.

Project level environmental reviews in accordance with the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA) are required for each project undertaken with Denali Commission funds.

10. Non-Compliance with Award Conditions

Recipients not in compliance with the terms and conditions of this Financial Assistance Award will be notified by the Denali Commission. The Denali Commission will work with the recipient to identify the steps necessary to bring them back into compliance, and will establish an appropriate time frame for the corrections to be made. If the corrections have not been made by the deadline, the Denali Commission reserves the right to either suspend or unilaterally terminate the Financial Assistance Award for non-performance.

11. Program Manager, Financial Manager & Other Contact Information

Denali Commission	Alaska Center for Energy and Power
Denali Daniels Program Manager 510 L Street, Suite 410 Anchorage, AK 99501 Phone: 907-271-1189 Fax: 907-271-1415 E-mail: ddaniels@denali.gov	Jason Meyer Project Manager PO Box 755910 Fairbanks, Alaska 99775-5880 Phone: 907-306-9900 Fax: 907-474-5475 Email: jason.meyer@alaska.edu
Betty Sorensen Grants Administrator 510 L Street, Suite 410 Anchorage, AK 99501 Phone: 907-271-3415 Fax: 907-271-1415 E-mail: bsorensen@denali.gov	Maggie Griscavage Financial Contact 3295 College Road, 109 ASC Fairbanks, AK 99775-7880 Phone: 907-474-6446 Fax: 907-474-5506 Email: gmgriscavage@alaska.edu

12. Other project specific paragraphs may be added here

In addition to reporting quarterly, ACEP shall meet twice annually with the Commission to report lessons learned and project status.