

ANCHORAGE SCHOOL DISTRICT
ANCHORAGE, ALASKA

MEMORANDUM #137 (2006-2007)

December 11, 2006

TO: SCHOOL BOARD

FROM: OFFICE OF THE SUPERINTENDENT

RE: ACCEPTANCE OF GRANT AWARD: ALASKA ENERGY COST
REDUCTION PROJECTS

ASD Goal: Establish and maintain a supportive and effective learning environment by providing safe, caring, barrier-free schools. Ensure public accountability through effective consultation with community to ensure wise use of financial resources and responsible construction and maintenance of facilities, and effective communication with students, staff, parents, community and government at all levels.

RECOMMENDATION:

It is the Administration's recommendation that the School Board authorize the Superintendent to accept a grant from the Alaska Energy Authority (AEA) in the amount of \$363,789 for implementation of energy control measures at multiple District facilities.

PERTINENT FACTS:

On June 12, 2006, Board Memorandum #328 (2005-2006) authorized the Superintendent to submit grant applications to Alaska Energy Authority (AEA) for supplemental funding for Energy Conservation projects at 13 facilities and the development of an Energy Conservation training program.

On April 17, 2006 the Alaska Energy Authority (AEA), acting as agent for the Alaska Industrial Development and Export Authority and the Denali Commission, issued a Request for Proposals to fund projects that reduce energy costs within the State of Alaska. The category of project for which the District applied, enhances end-use conservation of electricity, space heat, or water heat through implementation of energy conservation measures (ECM's).

Using FY 1999-2000 operating funds, the District conducted energy audits of the 13 highest energy-using facilities to document potential energy saving opportunities and to establish preliminary construction budgets and simple payback timeframes. This information was used to support the 2004 Major Maintenance Bond funding request for

\$780,000 to fund those projects with an average payback of 3 years or less. Upon acceptance, these AEA grants will provide additional matching funds, allowing more ECM projects to be completed at each location.

AEA reviewed each site application and broke the ECM's into three categories based on payback timeframe. A benefit-to-cost ratio was established for each group of ECMs (Attachment A). AEA only awarded funding to each facility based on the cost to implement the group of ECMs having a B/C ratio greater than or equal to 1.0. The following table summarizes the results of the grant applications at 13 facilities and requested training program.

| AEA Grant # | Name | AEA Total Construction Estimate | AEA Approved Project Budget | AEA Grant 50% Funding |
|--------------------|------------------------|--|------------------------------------|------------------------------|
| 3 | Training Plan | \$ 116,800.00 | \$ - | \$ - |
| 4 | Stellar | \$ 120,255.00 | \$ 3,190.00 | \$ 1,595.00 |
| 5 | Kasuun | \$ 71,837.00 | \$ 59,131.00 | \$ 29,565.50 |
| 6 | Baxter | \$ 58,816.00 | \$ 58,816.00 | \$ 29,408.00 |
| 7 | Benson | \$ 107,458.00 | \$ 1,013.00 | \$ 506.50 |
| 8 | Lake Hood | \$ 64,132.00 | \$ 3,596.00 | \$ 1,798.00 |
| 9 | Huffman | \$ 276,357.00 | \$ 49,744.00 | \$ 24,872.00 |
| 10 | Bowman | \$ 352,607.00 | \$ 136,969.00 | \$ 68,484.50 |
| 11 | Inlet View | \$ 81,897.00 | \$ - | \$ - |
| 12 | Stud Nut | \$ 63,025.00 | \$ 63,785.00 | \$ 31,892.50 |
| 13 | Ptarmigan | \$ 76,248.00 | \$ 38,719.00 | \$ 19,359.50 |
| 14 | West | \$ 319,952.00 | \$ 222,525.00 | \$ 111,262.50 |
| 15 | Facilities/Maintenance | \$ 156,932.00 | \$ 86,620.00 | \$ 43,310.00 |
| 16 | Muldoon | \$ 66,786.00 | \$ 3,470.00 | \$ 1,735.00 |
| | Total | \$ 1,933,102.00 | \$ 727,578.00 | \$ 363,789.00 |

The building administrator at each of the District's facilities holds the key to effective energy use in their buildings. Empowered with the proper training and automated energy tracking tools, the daily control of energy consumption will be delegated to the facility administrator level. The AEA liked the concept of establishing an energy management training program; however funding restrictions necessitated denial of funding for this individual grant.

CC/GV/RA/MF/RR/jg
Attachment A

Prepared by: Randy Ribble, Project Manager – Building Systems Renewal
Mike Franks, Construction Manager – Building Systems Renewal
Ray Amsden, Director of Facilities

Approved by: George Vakalis, Assistant Superintendent of Support Services

Anchorage School District AEA Grant Application Benefits/Cost Ratio Summary

Anchorage School District Board Memo # 137 Attachment A

| School | ECM Type | B/C ratio | Project Budget | Grant Award | Applicable Energy Conservation Methods |
|---------------|----------|-----------|----------------|--------------|---|
| Benson | A | 13.9 | \$ 1,013.00 | \$ 506.50 | Top 2 ECMs: Vending Miser on vending machines; turn off one glycol pump during off hours. |
| St. Nutrition | A | 13.82 | \$ 9,337.00 | \$ 4,668.50 | Top 2 ECMs: Install fluorescent lighting and occupancy sensors; sequence the boilers. |
| Ptarmigan | A | 13.79 | \$ 2,842.00 | \$ 1,421.00 | Top 4 ECMs: Adjust air-fuel ratio on hot water boilers; Vending Miser on vending machines; install boiler combustion air fan interlock; control and setback temperatures in relocatable classrooms. |
| Huffman | A | 11.98 | \$ 1,855.00 | \$ 927.50 | Top 2 ECMs: Adjust air-fuel ratio on hot water boilers; Vending Miser on vending machines. |
| Lake Hood | A | 11.81 | \$ 3,596.00 | \$ 1,798.00 | Top 4 ECMs: Delamp lighting in corridor; adjust air-fuel ratio in hot water boiler; combustion fan interlock, and vending misers on vending machines |
| Stellar | A | 8.45 | \$ 3,190.00 | \$ 1,595.00 | Top 4 ECMs: Replace incandescent with fluorescent lighting; Light sensors in arctic entry; Light sensors in corridor; Vending Miser on vending machines. |
| West | A | 7.75 | \$ 119,721.00 | \$ 59,860.50 | Top 9 ECMs: setback temperatures during off hours; install higher efficiency motors; delamp and install separate light circuits; periodically turn off pool circulation pump; install VFD on hot water pumps; install VFD on pool glycol pumps; install VFD on air handlers; install VFD on mezzanine hot water pumps; vending misers on vending machines |
| Kasuun | A | 6.66 | \$ 5,514.00 | \$ 2,757.00 | 4 low payback ECMs: Delamping selected areas; separate corridor lighting circuits; temperature controls at relocatables; interlock boiler and fan. |
| Muldoon | A | 5.06 | \$ 3,470.00 | \$ 1,735.00 | Top 4 ECMs: delamp fixtures in various locations; separate corridor lighting circuits; install metal halide lighting; install combustion fan interlock. |
| Fac/Maint | A | 3.81 | \$ 86,620.00 | \$ 43,310.00 | Top 5 ECMs: Control operation of head bolt heaters; install temperature controls on relocatable buildings; install occupancy sensors; install air curtains; install high efficiency fluorescent lighting. |
| St. Nutrition | B | 2 | \$ 54,448.00 | \$ 27,224.00 | 4 ECMs: install air curtain for cooler; install VFD on glycol pumps; install air curtain on load dock; install stack economizer on boilers. |
| Baxter | A | 1.47 | \$ 58,816.00 | \$ 29,408.00 | The 7 ECMs include: separate corridor lighting circuits; replace HID lighting with fluorescent; replace hot laminators with cold laminators; install occupancy sensors; install stack economizer on hot water boiler; install light sensors in main entry, and install vending misers on vending machines. |
| Bowman | A | 1.39 | \$ 136,969.00 | \$ 68,484.50 | Turn off relief fans on off hours; install VFD on air handlers; replace HID with fluorescent lighting; install occupancy sensors; install light sensors in entries; replace hot laminators with cold laminators. |
| Huffman | B | 1.25 | \$ 47,889.00 | \$ 23,944.50 | Next 3 ECMs: Replace HID with fluorescent; install occupancy sensors; replace hot laminator with cold laminator. |

A = Low payback timeframe
 B = Intermediate payback timeframe
 C = High payback timeframe

Anchorage School District AEA Grant Application Benefits/Cost Ratio Summary

Anchorage School District Board Memo # 137 Attachment A

| School | ECM Type | B/C ratio | Project Budget | Grant Award | Applicable Energy Conservation Methods |
|----------------------|----------|-----------|----------------------|----------------------|---|
| Kasuun | B | 1.19 | \$ 53,617.00 | \$ 26,808.50 | Next 5 ECMs: install high efficiency fluorescents; light sensors in arctic entries; replace hot laminators with cold laminators, install VFD on glycol pumps, install stack economizer on hot water boiler. |
| West | B | 1.18 | \$ 102,804.00 | \$ 51,402.00 | Next 2 ECMs: install occupancy sensors; install VFD on mezzanine glycol pumps |
| Ptarmigan | B | 1.05 | \$ 35,877.00 | \$ 17,938.50 | Next 5 ECMs: install bi-level control on HID lights; install occupancy sensors; replace hot laminator with cold laminator; install metal halide lights; install VFD on hot water pumps. |
| Muldoon | B | 0.91 | \$ 40,846.00 | | Next 4 ECMs: replace hot laminators with cold laminators; install VFD on glycol pumps; install light sensors in entries; install stack economizers on hot water boilers. |
| Stellar | B | 0.88 | \$ 116,967.00 | | Next 5 ECMs: install VFD on hydronic pumps; install VFD on glycol pumps; install lighting efficiency measures in multipurpose room; install lighting efficiency measures in gym; install higher efficiency fluorescents in various areas. |
| Benson | B | 0.8 | \$ 106,221.00 | | Next 5 ECMs: install occupancy sensors; replace hot laminator with cold laminator; install VFD on air handler units; install fluorescent lighting; install stack economizer on boiler. |
| Lake Hood | B | 0.79 | \$ 60,313.00 | | Next 6 ECMs: separate corridor lighting circuits; install fluorescent lighting; install light sensors in entries; replace hot laminator with cold laminator; install VFD on glycol pumps; install VFD on air handlers. |
| Inlet View | A | 0.61 | \$ 81,673.00 | | The 5 ECMs include: replace HID lighting with fluorescent; install occupancy sensors; replace hot laminators with cold laminators; install fluorescent lighting in various areas; and install stack economizer on hot water boiler |
| West | C | 0.52 | \$ 97,429.00 | | Highest payback ECM: install high efficiency fluorescent lighting with electronic ballasts |
| Muldoon | C | 0.44 | \$ 22,185.00 | | Highest payback ECM: install VFD on air handlers |
| Fac/Maint | B | 0.38 | \$ 69,851.00 | | 1 ECM: replace mercury vapor with metal halide lights |
| Huffman | C | 0.27 | \$ 226,380.00 | | Highest 2 ECMs: Install VFD on hot water supply pump; install high efficiency fluorescent lighting, reflective fixtures etc. in numerous areas |
| Ptarmigan | C | 0.22 | \$ 37,423.00 | | Highest payback ECM: install high efficiency fluorescent lighting with electronic ballasts |
| Bowman | B | 0.2 | \$ 215,180.00 | | 1 ECM: install fluorescent lighting in various areas. Fixtures may have long life, tubes and ballasts shorter life |
| Training Plan | | | \$ 116,800.00 | | Per AEA direction, preparation of an energy conservation plan does not qualify under this solicitation as an energy cost reduction project. |
| Approved Cost | | | \$ 727,578.00 | \$ 363,789.00 | |

A = Low payback timeframe
B = Intermediate payback timeframe
C = High payback timeframe