



## The RACE to Energy Savings

**W**hen the Rebuild America partnership, Rural Alaskans Conserve Energy (RACE) was established in late 1996, it set an ambitious agenda: to save energy in 210 remote villages that typically have 500 or fewer residents.

RACE targeted villages that are only accessible by small plane or boat, because the high costs of transporting oil make energy very expensive (up to \$1 per kWh) and, when combined with Alaska's extreme cold temperatures, make energy conservation a top priority.

RACE has demonstrated that in Alaskan communities, big savings can be achieved with lighting and systems upgrades. A typical school building - often the largest community building- can save \$15,000 a year in energy with proper energy upgrades.

### READY-SET-GO

RACE developed a multi-pronged strategy to provide each of the villages with energy audits in large buildings (typically schools), training on energy conservation, and technical support for retrofits and procurement. The implementation strategy was a key component to the plan, as the 210 targeted villages were spread out over an area of 586,000 square miles.

Given the complexity of the plan, RACE quickly realized it would need strong partners to help meet its goals. Therefore, RACE teamed with the state Housing and Finance Corporation; the state Department of Education; Honeywell, Inc.; Johnson Controls, Inc.; and the Alaska Rural Electric Co-op Association (ARECA).

Each of the partners brought particular skills to the table. For example, RACE's state partners publicized the partnership's successes to the state legislature. This publicity helped ensure that the state would continue providing matching grants for RACE projects.



This is Geoff Fieler, one of our energy auditors. He is teaching a group of students in Haines about energy efficiency and some things they can do to help save energy in the school and at home.

### STRIKING GOLD

From March to May 1997, RACE audited a total of 21 buildings in seven villages and recommended low cost/no cost energy conservation measures, such as lighting upgrades and operations training, for each. Three of the seven villages implemented those recommendations and, as a result, saw energy savings of 20-30% and cost recovery in less than 2 years.

### SCHOOLS SHOW THE WAY

Among these, the Tanana City School building was selected as a demonstration project for lighting upgrades, because of the village's high

## Partnership Facts:

### TOTAL COMMERCIAL BUILDING AREA COMMITTED:

5,000,000 square feet

### TOTAL ENERGY COMMERCIAL SAVINGS:

1.3 to 13 GWH per year

### TOTAL ENERGY SAVINGS:

.03 to .3 trillion Btu per year

### TOTAL NUMBER OF JOBS:

Varies by village (many are temporary)

### BENEFITS:

Savings of 1.2 million gallons of fuel oil per year, reducing carbon monoxide by 70 tons and nitrous oxide by 319 tons

### TO LEARN MORE ABOUT THE RACE PARTNERSHIP:

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electricity costs (approximately 42 cents per kWh), short winter days, and temperature extremes (from -71F to 94F).

For a mere \$22,000 in state and school district funds, Alaska Commercial Lighting of Anchorage installed high efficiency lighting and motion sensors cutting energy costs by 25-30%. Cost savings were not the only benefit, though. The Tanana City School Superintendent said that the school's lighting is so much better that people ask if the building has been repainted.

The Division of Energy's State Energy Program awarded the grant to Tanana in part to teach other Districts about the savings that high-efficiency lighting and equipment can yield. Lighting is especially critical where long nights and short winter days increase lighting demands.

T-12 fluorescent bulbs were replaced by more efficient T-8's; magnetic ballasts were replaced by electronic ballasts (which control the energy input into the bulb); and exit signs were installed which use light-emitting diodes (LED's), achieving a 90% reduction in energy usage. Other improvements included motion detectors to turn on lights only when people are present in bathrooms and halide lights in the gymnasium - replacing mercury vapor lamps.

At the Aniak School, RACE also completed a retrofit project in 1998. The total project cost was \$12,892. The school district provided a \$1500 match. Savings are projected to be \$5000 per year and the school district is certain that the goal will be met. The school district is very

excited about these results and what the Rebuild America Program can do.



This is a picture of the high school in Kalskag that was recently visited by Rebuild America (March, 1999). While the elementary school in town is in very poor shape and has very high electrical costs, this school is fairly new and makes good use of daylighting, T8 lighting, and lower light levels in computer and gym areas. This is the same school district as the Aniak school.

### MORE OF THE MIDAS TOUCH

In 1999, RACE completed audits in 36 additional communities. For example, the school in Chevak, Alaska was audited to determine where lighting was unnecessary, where to install motion sensors, replace incandescent lights with compact fluorescents and which fixtures should be removed entirely. The school district will see a projected 20% savings on energy costs.

These examples demonstrate tangible financial results, but that's only half the story. According to Rebecca Garrett, Rebuild America Program Manager, "The payback for the Division's retrofit projects are measured in months but an enhanced learning environment is measured in lifetimes."



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