

Potential Paybacks from Retrofitting Alaska's Public Buildings

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In 2010, Alaska's Legislature passed HB 306 establishing a statewide energy policy including the goal of "decreasing public building energy consumption through...energy-efficient technologies." That year they also passed SB 220 establishing a \$250 million Energy Efficiency Revolving Loan Fund to help fund these retrofits. In 2011, Alaska Housing Finance Corporation used American Recovery and Reinvestment funds to conduct energy audits on 327 public facilities throughout Alaska. At the same time Alaska Native Tribal Health Consortium conducted audits of over 65 health clinics, washaterias, and water treatment facilities. As a result, almost 400 public building owner/operators have received investment grade energy audits on their facilities which include a list of recommended improvements and their estimated paybacks. In 2013, the Cold Climate Housing Research Center (CCHRC) evaluated the potential payback public facility owners could realize from implementing the cost effective energy efficiency measures¹ recommended in the audits. These findings follow.

By implementing only cost effective measures, public building owners could save an average of \$21,800/year in energy savings per building, with an average simple payback of 4.5 years. Loan terms and interest rates are dependent on projected project savings, market rates, and the business decisions of the owner. Should public organizations choose to finance the auditor-estimated average improvement costs of \$82,000 through a 15 year loan² (at 3.75% interest³) from AHFC's Energy Efficiency Revolving Loan program (AEERLP) they would pay \$7,200 in annual loan payments. Since annual energy savings are estimated at \$21,800, after deducting loan payments the average public organization will save \$14,700 per year. Once the loan is paid off, assuming no change in energy costs or usage patterns, they will continue to save an average of \$21,800 per year. Alternatively, building owners could opt for a shorter loan period; annual payments on a 5 year loan for the average capital cost of improvements would be approximately equal to the average annual savings, and after 5 years organizations would reap the full benefits of reduced energy costs.

While there is variation between cost savings available per building, in general these audits have shown significant potential for public entities to reduce their energy costs by implementing energy efficiency measures. Table 1 in Appendix A shows the variation in building energy savings potential by building usage

¹ Improvements had a savings-to-investment ratio greater than 1.

² This is a conservative estimate for many recommended retrofits. Many loans could be effectively completed in a shorter time period.

³ Interest rate will vary based on market conditions and projected payback. Contact AHFC for current rates.

type; Table 2 in Appendix A demonstrates the variation by ANCSA region. Additionally, Appendix A lists the estimated potential energy savings and costs identified by the auditors for each of the buildings with adequate data by ANCSA region, community and building name along with the annual net savings the building owners would see if the retrofits were financed through AHFC's loan program.

On a state level, for an investment of \$29 million, Alaskans would save an estimated \$79 million in energy costs over the life of the energy efficiency investment, resulting in more sustainable communities. This report only addresses the approximately 400 public facilities, out of an estimated 5,000, public facilities in Alaska. While each building is unique and will vary from this average, these findings are illustrative of the savings potential available to the University of Alaska, REAAs, and Alaska municipal, tribal and state agencies. Finally, this suggests that the \$250 million Revolving Loan Fund is sufficient to finance the retrofit of most public buildings in Alaska.

In conclusion, almost 400 building owners have detailed lists of energy efficiency measures and payback information to guide their investment decisions and loan programs are available to finance the improvements. Investing in these retrofits would save building owners an average of \$21,000/year in energy costs for a cumulative savings of \$8.7 million per year. Similar savings can likely be found in the remaining public buildings that have not yet been audited. Altogether, these identified and potential savings represent a significant opportunity for Alaskans to save.