

Efficiency Starts at Home: Arkansas Home Energy Audits

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THE PROBLEM

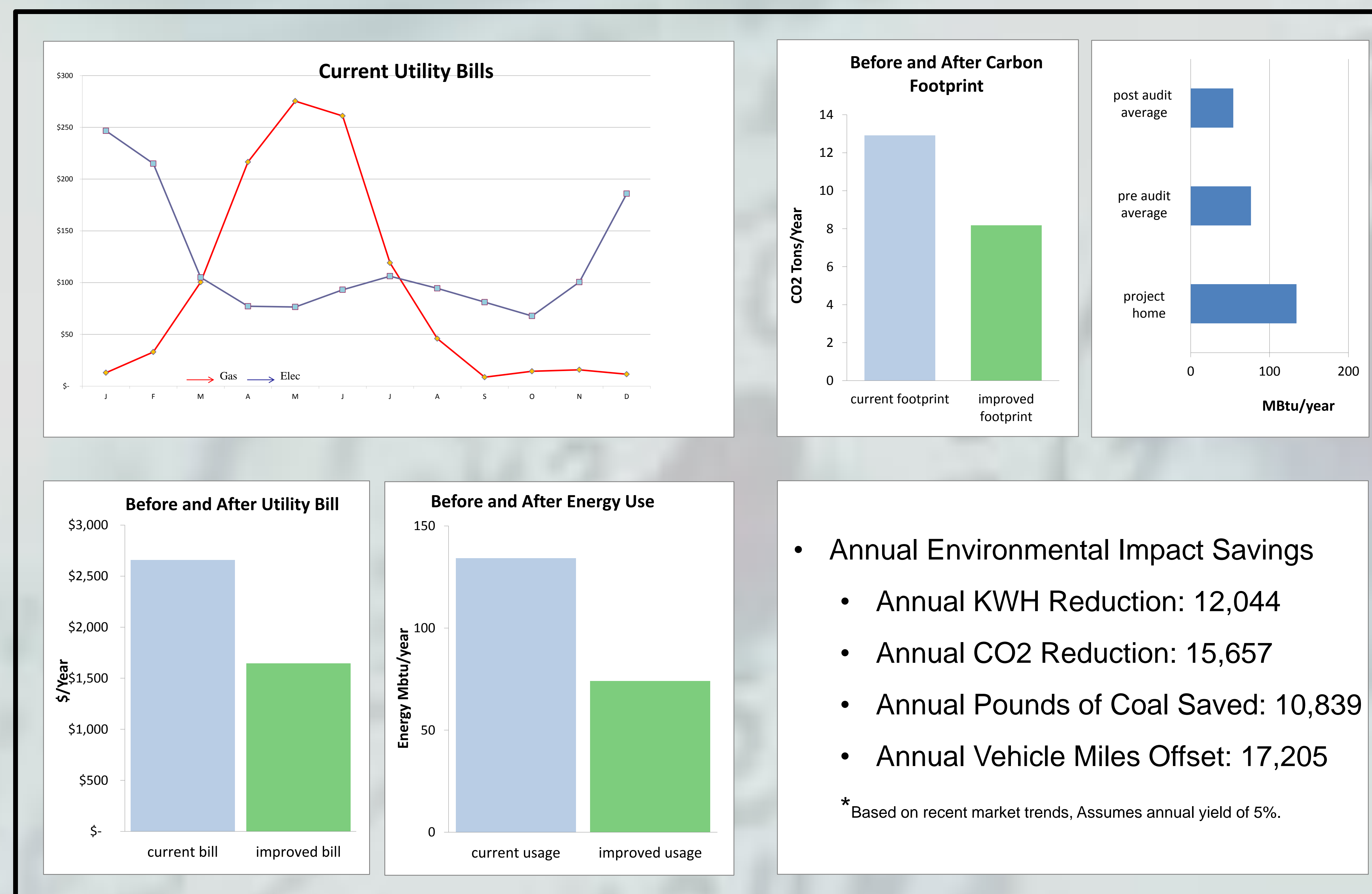
Many people, such as working families live in sub par energy efficient homes. For this reason home owners spend a large portion of their income on gas, electric, and other utility bills. This accounts for people to have less to budget on more important things such as: health care, education, and nutrition. Home energy audits and retrofits can assist these homeowners in lowering their utilities and freeing up income for other matters. Thus improving the home owners way of life and the community as a whole.



THE PROJECT

The purpose of this project is to show how a home energy audit and retrofit can end up saving money on an energy inefficient home. This project is created around a middle class home in Little Rock, Arkansas. The project home is a 2,699 sq. ft., single family home with 4 bedrooms and 3 baths. Therefore this home is a model of what an energy efficient home can do for you and the environment.

ENERGY SAVINGS



WORK PERFORMED

- Duct Sealing: both systems were Aero sealed.
- Air Seal: 5949 CFM to 4449 CFM
- Insulation: R=1.5 to R=38.0 (regional standard)
- Heating: Both Furnaces to 95.5 AFUE
- Cooling: 10.0 SEER to 15.0 SEER

THE BOTTOM LINE

- Cost/Savings Estimate
 - Total Costs: \$17,928
 - Rebates: \$6,971
 - Final Costs: \$10,957
 - Estimated Annual Savings: \$ 1,012
 - Estimated % Savings: 38.1%
 - Net Payback Years: 10.8

SUSTAINABILITY

The projects has relevancy to all four domains of sustainability.

Social System: Home efficiency affects the social system by creating a more efficient home for people, thus creating a better way of life for people. Because people are spending less money on there utility bills people have more disposable income to spend on more important issues.

Natural System: The natural system is affected because energy efficiency lowers gas and electric output in a home. This creates an improved carbon footprint, thus making our planet a better place.

Built System: Home energy audits and retrofits are relevant to this system because it is about how buildings are built and improved. This specific house had work done on Heating, Cooling, Insulation, Air Seal, and Duct Seal. All theses factors improve the built system.

Managed System: It is relevant to the managed system because Home Energy Efficiency is a business. Many business are involved in this process such as gas/electric companies, banks, insurance, and contractors. All these business come together to make a home more efficient and to eventually save people money.

CONCLUSION

This project enriches students experiences at the University of Arkansas. Hence creating the students appreciation of sustainability. This leads one to develop behaviors that will have a beneficial long term impact on the environment and economy.

REFERENCES

- "Energy Savers." *Energy.gov*. Web. 06 Mar. 2013. <http://energy.gov/sites/prod/files/energy_savers.pdf>.
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