Energy Use on the Beloit College Campus
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From Energy Audits to Economic Analysis:

The Investment
- **Location:** 726 Church Street (Human Resources House)
- **Problem:** The walls of the Human Resources House (left) lack insulation and the attic contains minimal insulation
- **Solution:** Insulate the walls with blown cellulose and add fiberglass batts to the attic
- **Investment:** The estimated cost of insulating Human Resources House is $7300

The Benefits of Investing
- **Economic Benefits:**
  - The NPV of the Human Resources House project is over $20,000 and the IRR is 10%, assuming a discount rate of 6%. These positive values justify the investment
  - The project will have paid for itself after 5 years
- **Environmental Benefits:**
  - Retrofitting the house will result in a yearly carbon reduction of 54%  
  - A reduction of 54% reduces the house’s CO₂ emissions by 20,601 pounds in just one year and 824,047 after 40 years

Key Economic Terms
- **Net Present Value (NPV):** The amount of money (less the cost of the retrofit) that the college would need to invest today at the current discount rate to match the retrofit savings over the same time period. A positive NPV indicates a justifiable investment.
- **Discount Rate:** The average rate of return that the college expects to earn on all investments. The discount rate is used to calculate the present value of the future energy savings from the retrofit.
- **Internal Rate of Return (IRR):** The expected rate of return the college will earn on investing in the retrofit. An IRR that is larger than the discount rate indicates that the retrofit investment is better than other investment opportunities.