



# INTERACTIVE EXERCISE: POWERING OUR PLACES



## Scenario:

You are part of the sustainability team for a mid-sized YMCA facility. Your goal is to reduce your building's Energy Use Intensity (EUI) while staying within budget.

## Your Facility Data

Use the following real-world baseline values:

- Annual Electricity Use: 1,200,000 kWh
- Annual Natural Gas Use: 85,000 therms
- Building Size: 75,000 square feet

## Step 1: Calculate Your Baseline EUI

Using the provided EUI calculator or the equation Annual Energy Used ÷ Building Square Footage:

1. Input electricity (kWh), natural gas (therms), and square footage or use the following conversions:

Electricity:  $1,200,000 \text{ kWh} \times 3.412 \text{ kBtu/kWh} = 4,094,400 \text{ kBtu}$

Natural Gas:  $85,000 \text{ therms} \times 100 \text{ kBtu/therm} = 8,500,000 \text{ kBtu}$

2. Calculate your baseline EUI

**Starting EUI:** \_\_\_\_\_

## Step 2: Choose Your Strategy

You have a capital budget of \$150,000 USD to reduce energy use and carbon emissions.

| Measure                                     | Cost      | Electricity Reduction | Natural Gas Reduction |
|---------------------------------------------|-----------|-----------------------|-----------------------|
| LED Lighting Retrofit                       | \$25,000  | -15%                  | —                     |
| Building Automation System (BAS) Upgrade    | \$40,000  | -10%                  | -10%                  |
| HVAC Equipment Upgrade                      | \$80,000  | -20%                  | -25%                  |
| Envelope Improvements (insulation, sealing) | \$50,000  | -5%                   | -20%                  |
| Solar PV Installation                       | \$100,000 | -30%                  | —                     |
| Water Heating Efficiency Upgrade            | \$30,000  | —                     | -15%                  |
| Behavioral + Operational Changes            | \$5,000   | -5%                   | -5%                   |

## INTERACTIVE EXERCISE: POWERING OUR PLACES

.....



### Step 3: Make Your Investment Decisions

- Select any combination of measures
- Stay within your \$150,000 USD budget

Track:

**Total spent:** \_\_\_\_\_

**Remaining budget:** \_\_\_\_\_

### Step 4: Recalculate Your EUI

Apply your selected reductions to:

- Electricity usage
- Natural gas usage

Then input your new values into the calculator.

**Your new EUI:** \_\_\_\_\_

**Percent reduction:** \_\_\_\_\_



### Step 5: Group Discussion

- What did you prioritize and why?
- Which measure gave you the biggest impact?
- Did you focus more on:
  - Electricity or natural gas?
  - Cost-effectiveness or maximum reduction?
- What tradeoffs did you face?

