The Village of Oak Park
The Path to Data Driven Decisions

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Village of Oak Park

Learning Objectives

- Energy Benchmarking & ENERGY STAR Portfolio Manager
  - What is benchmarking?
  - Information needed & entering energy data.
  - Navigating ENERGY STAR
- Greenhouse Gas Inventory and ICLEI ClearPath
- What is an inventory for?
  - Information needed
  - Calculating emissions
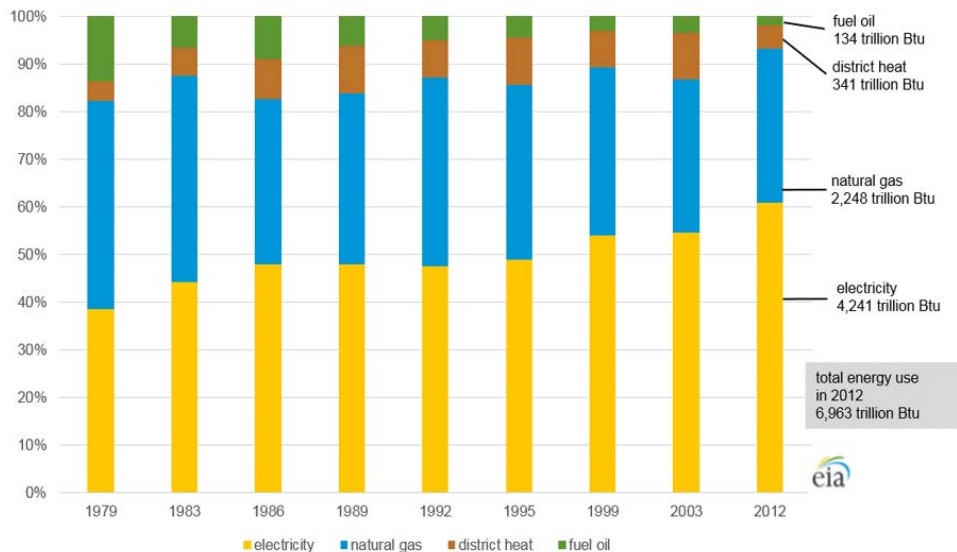- Benefits and Barriers of Entry

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What is Energy Benchmarking?

- The practice of comparing the energy usage of a building, home, or facility with itself, or with buildings of similar sizes, uses, areas.

- Tracks the energy used via electricity, gas, water, waste.
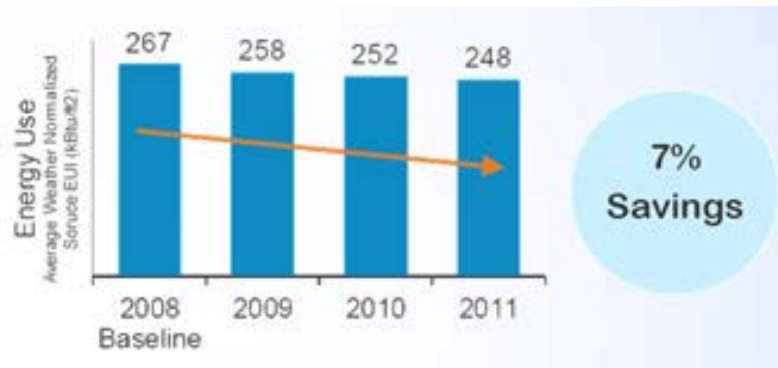
Benefits of Benchmarking

Figure 2. Electricity now accounts for 61% of all energy consumed in commercial buildings

fuel oil
134 trillion Btu

district heat
341 trillion Btu

natural gas
2,248 trillion Btu

electricity
4,241 trillion Btu

total energy use
in 2012
6,963 trillion Btu

electricity   natural gas   district heat   fuel oil

Source: U.S. Energy Information Administration, Commercial Buildings Energy Consumption Survey.

EIA.GOV

Empowers user to

- Make more informed decisions
- Identify opportunities to save energy
- Save Money
- Reduce Environmental Impact

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ENERGY STAR Portfolio Manager

ENERGY STAR Portfolio Manager

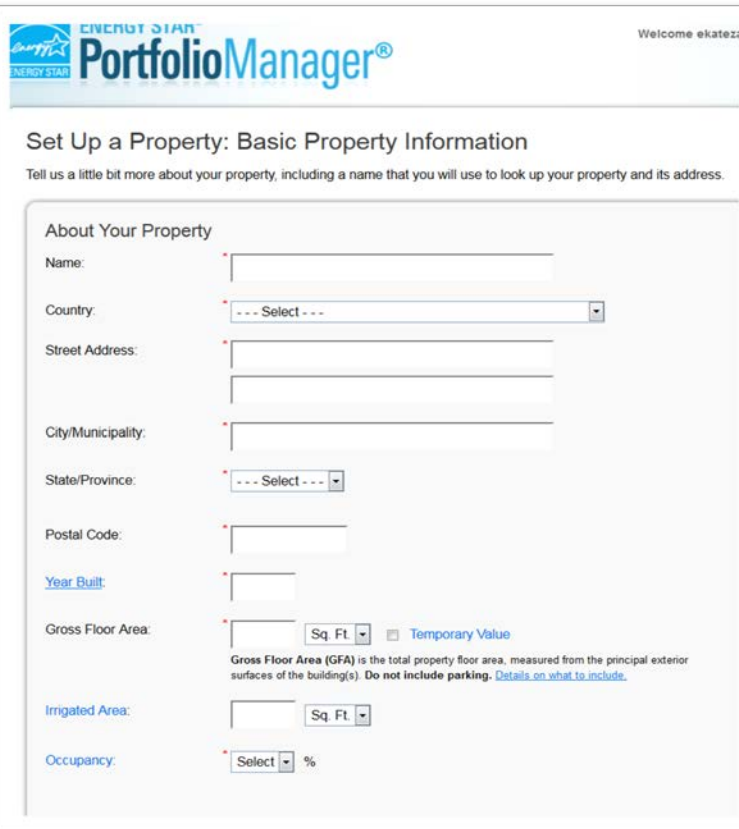| Use Portfolio Manager to:	Energy	Water	Waste & Materials
Establish a baseline:	✓	✓	✓
• Compare current use to baseline overtime.	✓	✓	✓
• Compare median of national sample of similar buildings to baseline.	✓		
• Compare normalized national sample of similar buildings to baseline.	✓ (ENERGY STAR 1-100 Score)	✓ (Multifamily 1-100 Score)	
Set target reduction goal.	✓		
Compare properties in portfolio to each other.	✓	✓	✓
Apply for recognition (eligible space types).	✓ (ENERGY STAR Certification)		

ENERGY STAR Stats

- The ENERGY STAR program helped save nearly $10 billion in energy costs in 2016 (commercial).

- In 2018 alone, more than 270,000 buildings, comprising 26 billion square feet of floorspace, used ENERGY STAR Portfolio Manager® tool to measure and track their energy use, water use, and waste and materials.

- On average, ENERGY STAR certified buildings use 35% less energy than typical buildings nationwide.

- Studies find that ENERGY STAR certified buildings command a premium of up to 16 percent for sales prices and rental rates.

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1. What You Need to Get Started

Basic Building Information

- Property Name
- Property Address
- Total Gross Floor Area
- Irrigated Area
- Year Built
- Occupancy %
- Number of buildings
- Weekly Operating Hours

- Number of Works on Main Shift
- Number of Computers
- Percent of Building that can be Cooled
- Percent of Building that can be Heated

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2. Collect Whole-Building Data

- **At least 12 months of consumption data for energy sources you would like to track.**
  - ◆ Property-specific utility bills for all purchased and on-site generated electric, gas, water.
  - ◆ Quantity of waste and materials: recycled, disposed, donated, etc.

3. Translating Data Into Performance Indicators

Energy Metrics (Site and Source)
- Total Energy Use (kBtu)
- Energy Use Intensity (EUI) (kBtu/Sq. Ft.)
- Weather Normalized EUI (kBtu/Sq. Ft.)
- National Median EUI (kBtu/Sq. Ft.)
- % Difference from National Median EUI (%)

Comparisons
- Total Energy Use (kBtu)
- Energy Use Intensity (kBtu/Sq. Ft.)
- Adjusted Energy Use (%)
- GHG Emissions (MtCO2e)
- Available against baseline or between any two periods.

Financial
- Annual Energy Cost
- Total Energy Cost per Sq. Ft.
- Cumulative Investment in Facility Upgrades
- Cumulative Investment per Sq. Ft.

Renewable Energy
- Total On-Site Electric Generation (kWh)
- Percent of Electricity from On-Site Renewable (%)
- Total Renewable Energy Certificates Purchased and Sold
- Total Avoided Greenhouse Gas Emissions from RECs (MtCO2e)

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Tools and Resources

https://www.energystar.gov/buildings/training/slide_library

Portfolio Manager Training

- Weekly live webinars available on the Trainings page

- 3-7 minute training videos on YouTube

- Step-by-step training guides, FAQs, and technical reference documents

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Greenhouse Gas Inventory

- **Community-wide**

- **Typically an annual report that quantifies emissions into the 6 major GHG**

    - ◆ **ICLEI and GCOM require 3 (CO2, N20, CH4)**

- **Basic emissions activities: electric, stationary fuel, on-road vehicles, potable water, wastewater treatment, solid waste**

GREENHOUSE GAS PROTOCOL

Global Protocol for Community-Scale Greenhouse Gas Emission Inventories

An Accounting and Reporting Standard for Cities

WORLD RESOURCES INSTITUTE   C40 CITIES   ICLEI

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Benefits of an Inventory

Oak Park CO2e- 2019
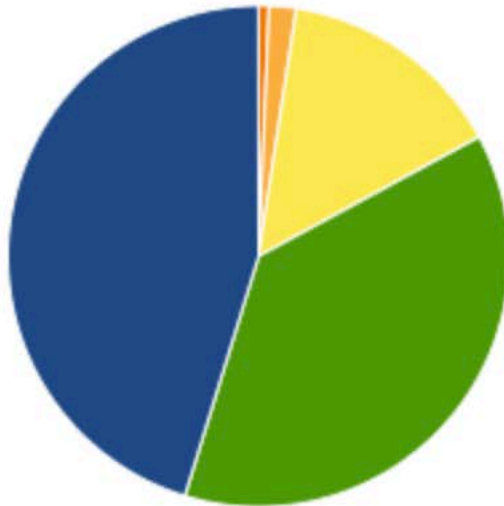
Water & Wastewater   Solid Waste

Transportation & Mobile Sources

Commercial Energy   Residential Energy

- reduce/limit greenhouse gas emissions,
- prepare for the impacts of climate change,
- increase access to secure, affordable and sustainable energy and
- track progress toward these objectives.

ICLEI ClearPath

ICLEI ClearPath Application

- Develop protocol-compliant emissions inventories
- Forecast multiple scenarios for future emissions
- Analyze the costs and benefits of emissions reduction measures
- Visualize alternative planning scenarios
- Track your progress over time
- Guidance and training at your fingertips

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1. What You Need to Get Started

- **Determine the Global Warming Potential for each Greenhouse Gas.**

- **Obtain emissions factors.**

  - ◆ **An emission factor is a coefficient which allows to convert activity data into GHG emissions. (ICLEI USA)**

Basic GHG Calculation:
Activity Data X Emissions Factor = Emissions Estimate

2. Collect Activity Data

- **Electricity and Stationary Fuel** (natural gas, propane, etc.)
  - ◆ **Collect for residential, commercial, and industrial**
- **On-road vehicles**
- **Potable water**
- **Wastewater treatment**
- **Generation of solid waste**

3. Translating Data Into Performance Indicators

- Develop protocol-compliant emissions inventories

- Forecast multiple scenarios for future emissions

- Analyze the costs and benefits of emissions reduction measures

Tools and Resources

- Library of webinars via Vimeo

- 18 week technical assistance program

- Online community to connect with other communities

https://icleiusa.org/webinars/

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Benefits

Barriers to Entry

- Make more informed decisions
- Identify opportunities to save energy
- Save Money
- Reduce Environmental Impact

- Working with utilities
- Cost (ICLEI membership-Clearpath)
- Staffing/Time

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Recommendations for Overcoming Entry Barriers

- **Working with utilities**
  - Send FOIA data requests early
  - Follow up, follow up, follow up!

- **Cost (ICLEI membership- Clearpath)**
  - Free tools and programs available
    - EPA GHG Inventory Tool

- **Staffing/Time**
  - Host a GRC Corps Fellow!!

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Questions or Comments

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All respective images from EPA ENERGY STAR and ICLEI web pages.