Building Chicago's Benchmarking & Transparency Ordinance

Presented to Retrofit Conference 2017
Navy Pier

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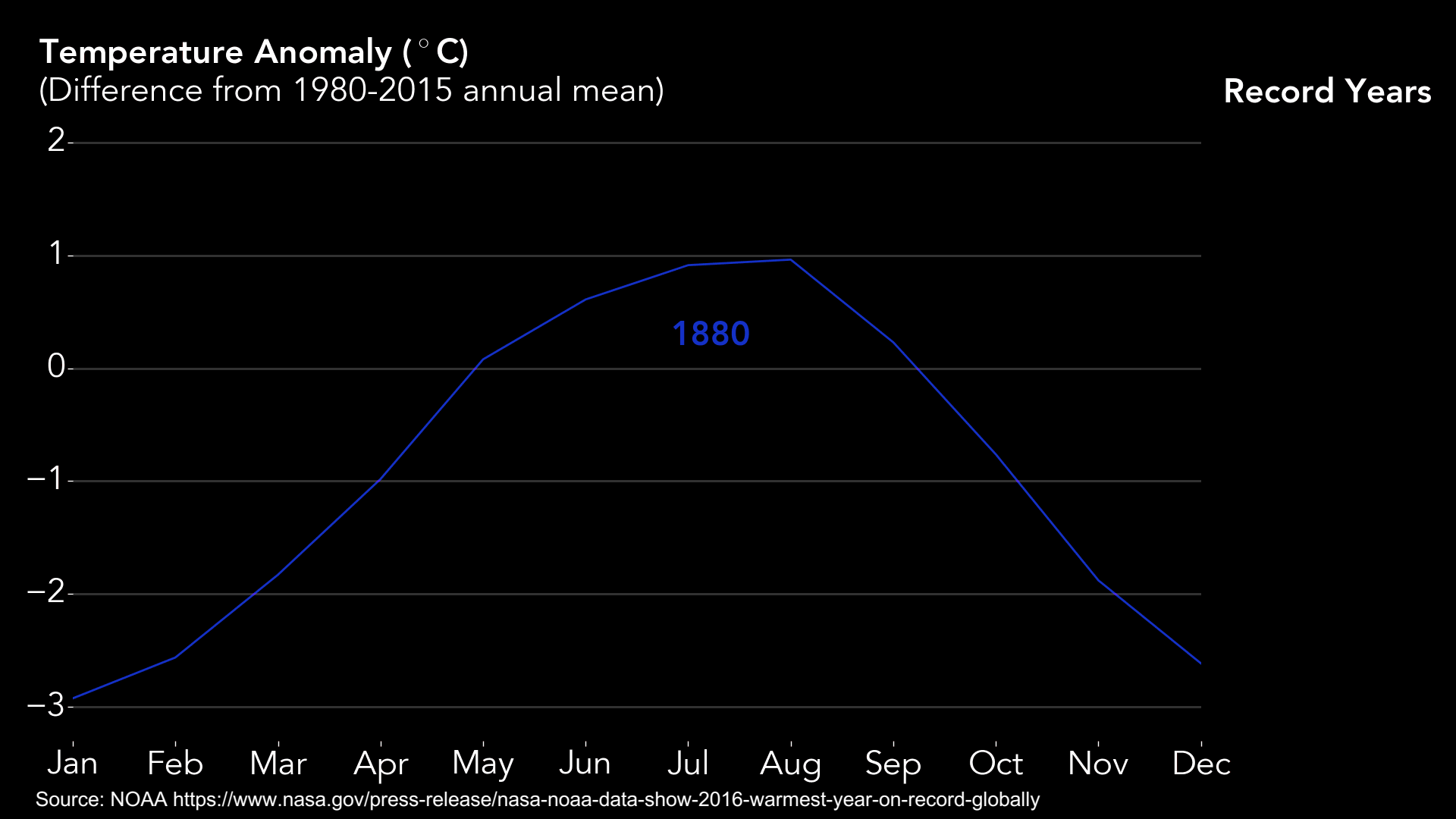
12 October 2017

Acknowledgements

- **Mary O'Donoghue Andujar** Cyclone Energy Group

Agenda

- Why Are Policies Emerging
- How Did Chicago's Policy Evolve
- What Challenges Were Faced


Temperature Anomaly (°C)
(Difference from 1980-2015 annual mean)
Record Years
2
1
0
−1
−2
−3
1880
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Source: NOAA https://www.nasa.gov/press-release/nasa-noaa-data-show-2016-warmest-year-on-record-globally

Carbon Dioxide is by far the largest contributor to greenhouse gas pollution in the United States

U.S. GREENHOUSE GAS POLLUTION INCLUDES:

CARBON DIOXIDE (CO_2), 82%

Enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, trees and wood products, and also as a result of certain chemical reactions (e.g., manufacture of cement).

FLUORINATED GASES, 3%

Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes.

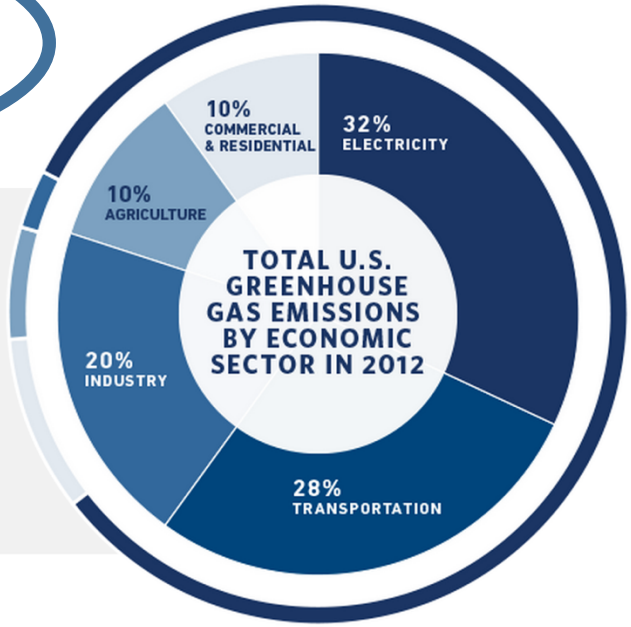
NITROUS OXIDE (N_2O), 6%

Emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

METHANE (CH_4), 9%

Emitted during the production and transport of coal, natural gas, and oil as well as from landfills.

SOURCE: EPA



Source: White House
https://www.whitehouse.gov/climate-change#section-impacts

https://www.whitehouse.gov/climate-change#section-impacts

the WHITE HOUSE PRESIDENT DONALD J. TRUMP

Get in Touch

BRIEFING ROOM | ISSUES | THE ADMINISTRATION | PARTICIPATE | 1600 PENN

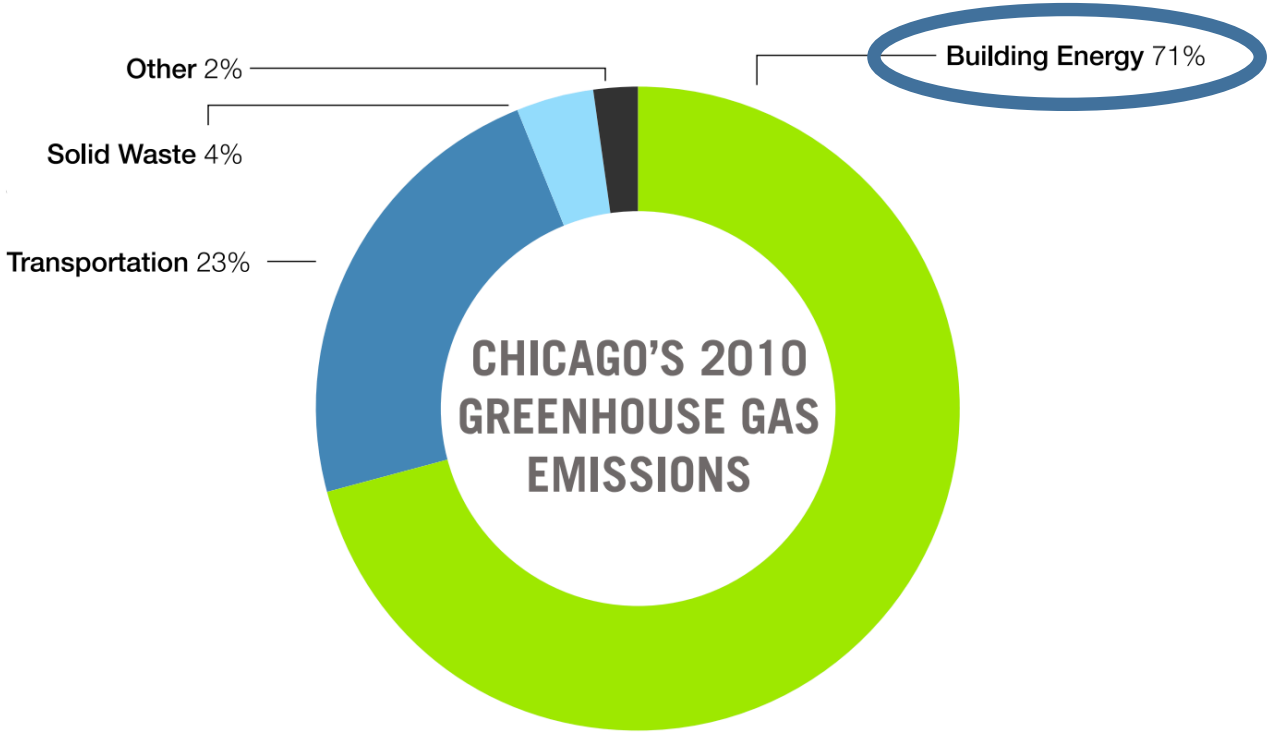
Thank you for your interest in this subject.

STAY TUNED AS WE CONTINUE TO UPDATE WHITEHOUSE.GOV.

HOMEPAGE | LATEST NEWS | OBAMA ARCHIVE

Chicago's Greenhouse Gas Inventory

FIGURE 1: SOURCES OF CHICAGO GREENHOUSE GAS EMISSIONS (2010)



Source: City of Chicago
https://www.cityofchicago.org/city/en/progs/env/building-energy-benchmarking---transparency.html

How Did Chicago's Green House Gas Reduction Strategy Evolve?

2008 Chicago Climate Action Plan

- Goal - 80% reduction below its 1990 GHG emissions level by 2050
- Mid-term Goal – 25% reduction below 1990 levels by 2020

Sustainable Chicago 2015 Action Agenda

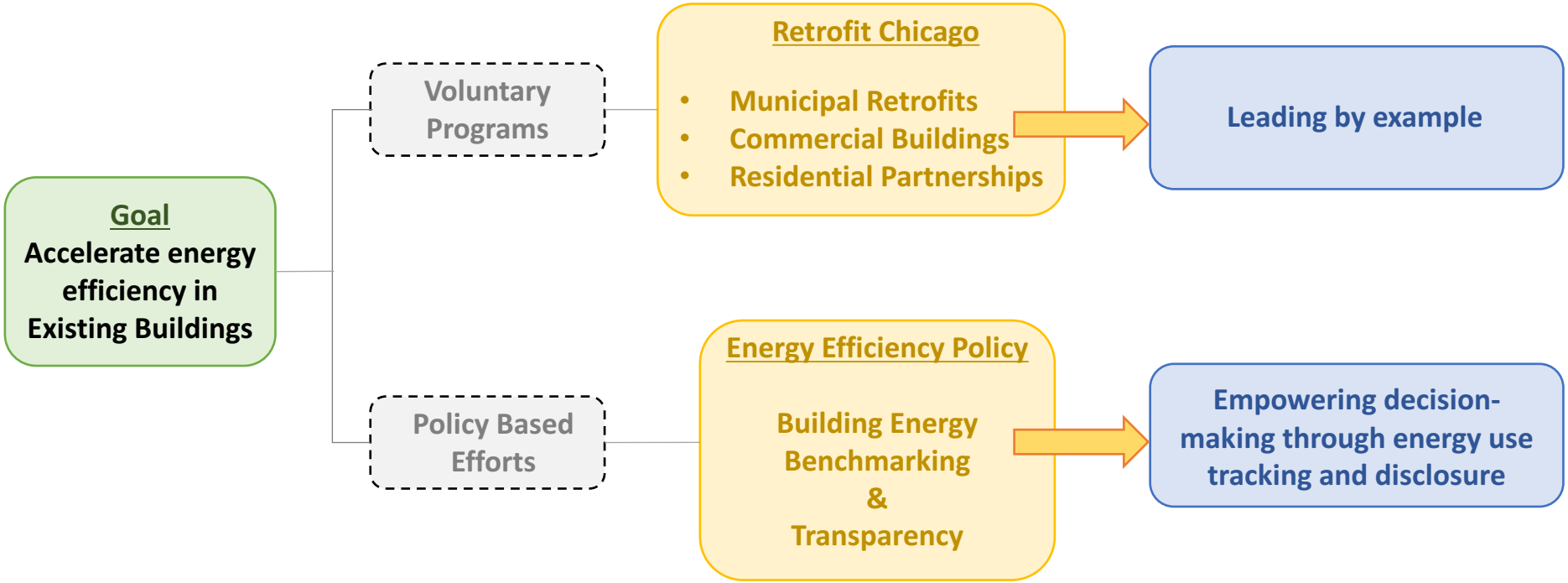
- Outline of specific activities to drive action on meeting objectives listed on Climate Action Plan in the short term (3-year goal set in 2012).
- **7 themes**:
  - Economic Development & Job Creation
  - Transportation Options
  - Water & Wastewater
  - Parks, Open Space, & Healthy Food
  - Waste & Recycling
  - Climate Change
  - **Energy Efficiency & Clean Energy**

Energy Efficiency & Clean Energy Goals

1. Improve overall energy efficiency in municipal buildings by 10%
2. Create an additional 20 MW of renewable energy, consistent with the Illinois renewable Portfolio Standard
3. **Improve citywide energy efficiency by 5%**

Source: City of Chicago
https://www.cityofchicago.org/city/en/progs/env/building-energy-benchmarking---transparency.html

Paths to Improving Energy Efficiency in Existing Buildings



Source: City of Chicago
https://www.cityofchicago.org/city/en/progs/env/building-energy-benchmarking---transparency.html

Voluntary Programs

RETROFIT CHICAGO

SAVING GREEN BY **GOING GREEN**

Program

- 20% energy reduction within 5 years
- Benchmark & share success

Participants

- 73+ buildings
- 49M ft^2+
- Goal of 80 Buildings

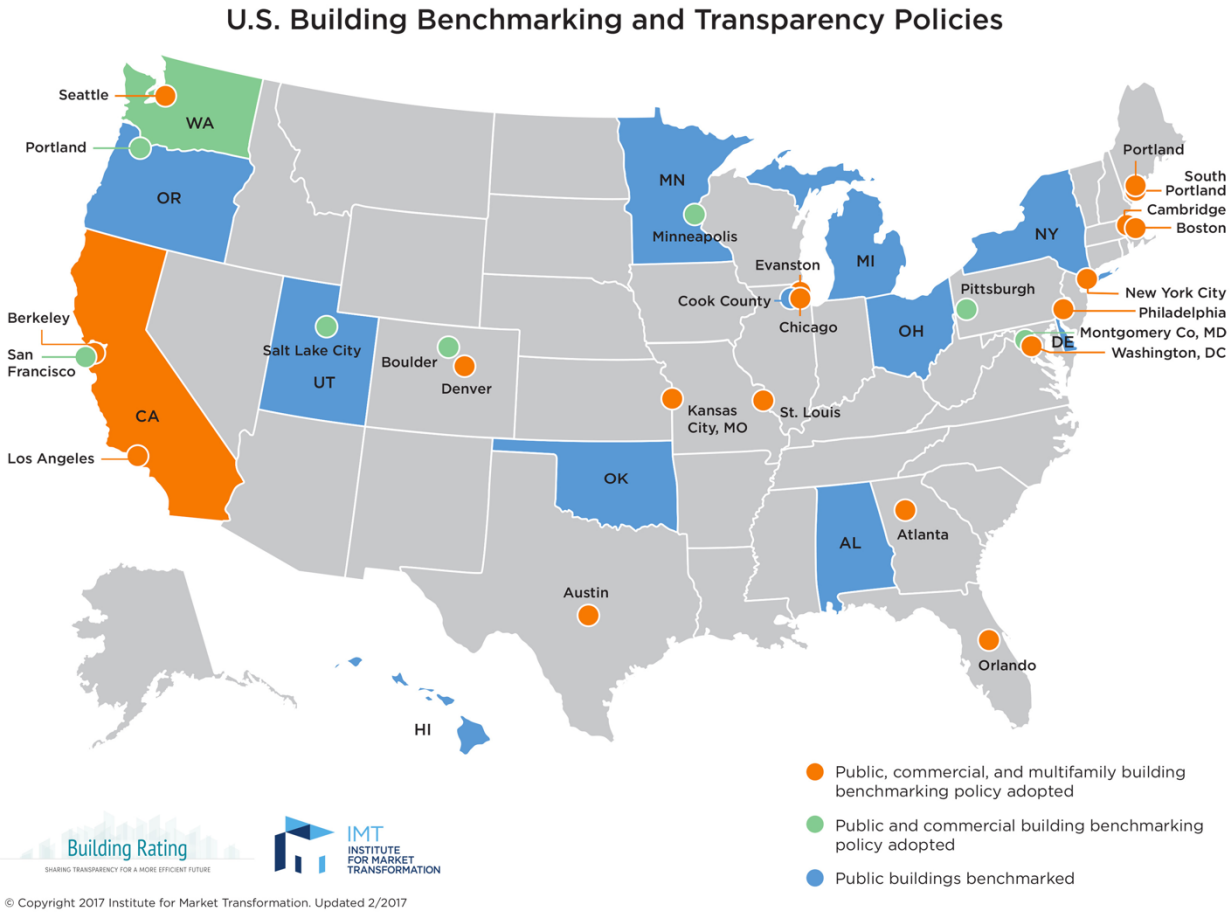
Results

- ~12% weather-normalized annual energy reduction
- ~$6.4M in utility cost savings

Source: Retrofit Chicago
http://www.retrofitchicago.net/

Policy Programs

Chicago was the 9th U.S. City to implement a Benchmarking & Transparency Policy

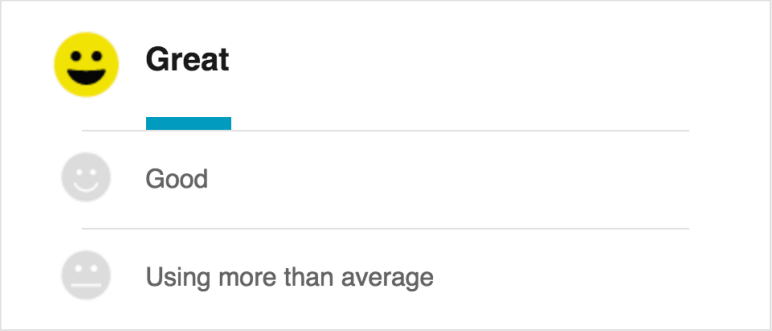


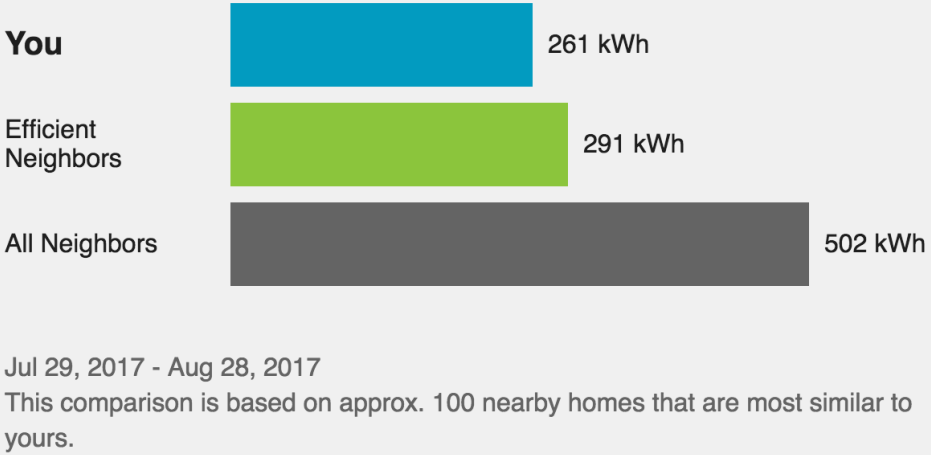
Source: Institute for Market Transformation
https://http://www.imt.org/resources/detail/map-u.s.-building-benchmarking-policies

Why Benchmarking?

- Do you know what you pay every month?
- Do you know what it means?
- Do you know what your neighbor pays?

You used 10% less than your efficient neighbors.

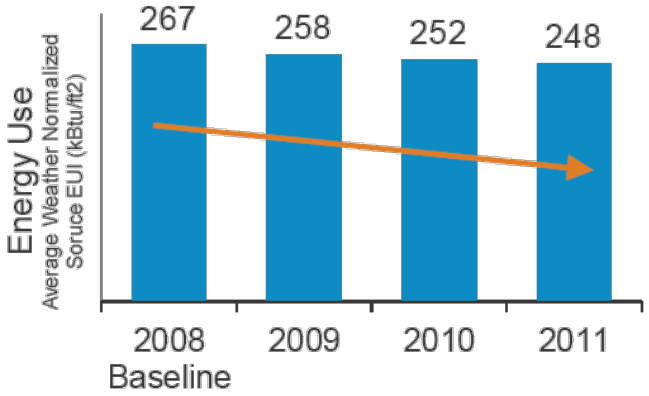




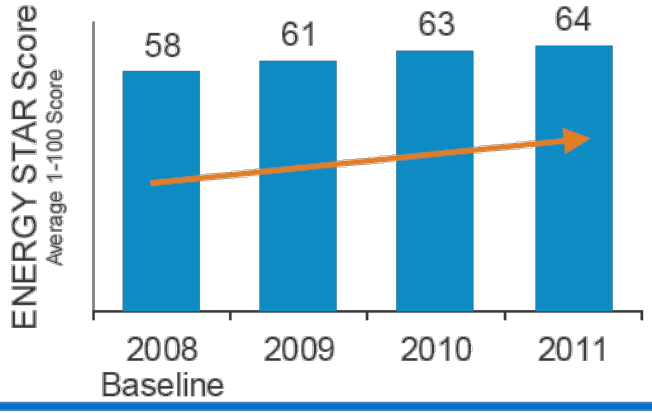
Source: My last electric bill
Image: https://media.giphy.com/media/3orieP77Lhw1S9pEgU/giphy-facebook_s.jpg

Photo Credit: Cyclone Energy Group

Energy Savings in Portfolio Manager



7% Savings



6 point increase

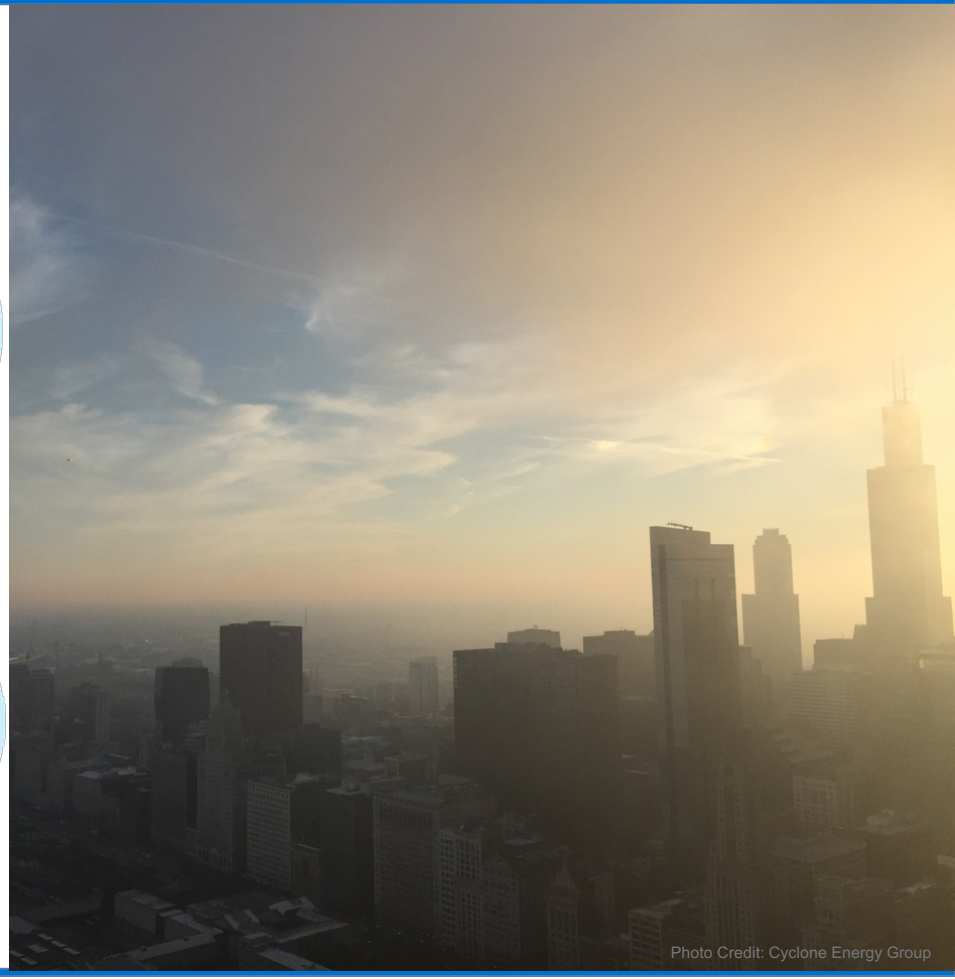


Photo Credit: Cyclone Energy Group

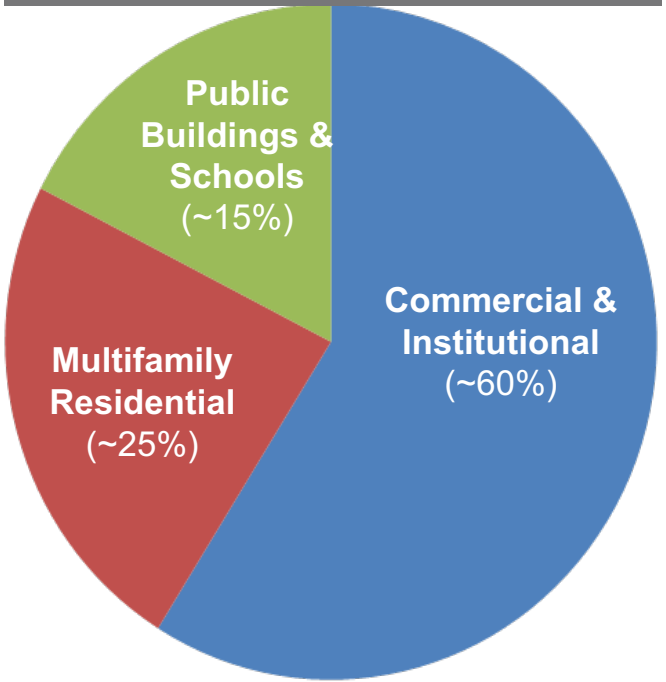
Source: ENERGY STAR
http://www.energystar.gov/ia/business/downloads/datatrends/DataTrends_Savings_20121002.pdf?8d81-8322

Do All Buildings Have To Comply?

Chicago Building Energy Use

	All Chicago buildings	Large Buildings (>50,000 ft²)	
		Amt.	%
Total Buildings	450,000+ buildings	~3,500 buildings	<1%
Total Energy Use (million kBtu)	220,000+ MkBtu	~43,000 MkBtu	~20%
Total Electricity (million kWh)	20,000+ MkWh	~6,000 MkWh	~30%

Sector Breakdown (>50,000 ft²)



Source: City of Chicago
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Ordinance Roll-out

Building sector	Building size (ft^2)	Benchmarking Timeline:			
		2014	2015	2016	2017
Non-Residential	≥ 250,000	Benchmark, Verify, Report	Benchmark, Report	Benchmark, Report	Benchmark, Verify, Report
	≥ 50,000		Benchmark, Verify, Report	Benchmark, Report	Benchmark, Report
Residential	≥ 250,000		Benchmark, Verify, Report	Benchmark, Report	Benchmark, Report
	≥ 50,000			Benchmark, Verify, Report	Benchmark, Report

Source: City of Chicago
https://www.cityofchicago.org/city/en/progs/env/building-energy-benchmarking---transparency.html

Requirements

- Benchmark via ENERGY STAR Portfolio Manager tool annually (free online)
- Every three years have data "verified" by a professional
- Report to the City
  - Buildings not reporting may be subject to a fine of $100 and $25 for each day after (max $9,200/year)

MyPortfolio | Sharing | Reporting | Recognition

North LaSalle

LaSalle Street, Chicago, IL 60601 | Map It

Portfolio Manager Property ID:

Year Built: 1985

Edit

Apply for ENERGY STAR Certification

ENERGY STAR Score (1-100)

Current Score: 89

Baseline Score: 77

Summary | Details | Energy | ! Water | Waste & Materials | Goals | Design

Basic Information

Construction Status: Existing property that is one single building

Property GFA - Self-Reported: 760,086 Sq. Ft.

Occupancy: 90%

Edit

Unique Identifiers (IDs)

Portfolio Manager ID: 2309221

Custom IDs: None

Standard IDs: 1 view

You can select from Portfolio Manager's **Standard IDs** to provide information to others in data requests. Or you can create

Property Uses and Use Details

View as Diagram | Add Another Type of Use | Add

Name	Property Use Type	Gross Floor Area	Action
Parking Use	Parking	531,234 ft²	I want to...
Office - Occupied	Office	481,579 ft²	I want to...
Office - Extended (DLA)	Office	232,402 ft²	I want to...
Office - Extended (UOPX)	Office	43,987 ft²	I want to...
Server Rooms	Office	2,118 ft²	I want to...
Other Use	Other	0 ft²	I want to...
Restaurant Use	Restaurant	0 ft²	I want to...
	Property GFA (Buildings):	**760,086** (used to calculate EUI)	
	Property GFA (Parking):	531,234	

Source: City of Chicago
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How Did The City Get Buy-In For This Ordinance?

- Made submission “free”
- No “carrots” or “sticks”
- Met with stake-holder groups
  - Alderman
  - Associations (BOMA, ABOMA, etc.)
  - Unions
  - Professional Societies (AIA, ASHRAE, etc.)
  - Neighborhood Groups
- Provided compliance support
  - Workshops (Data Jams)
  - Call Center (Elevate Energy)
  - Pro-Bono support

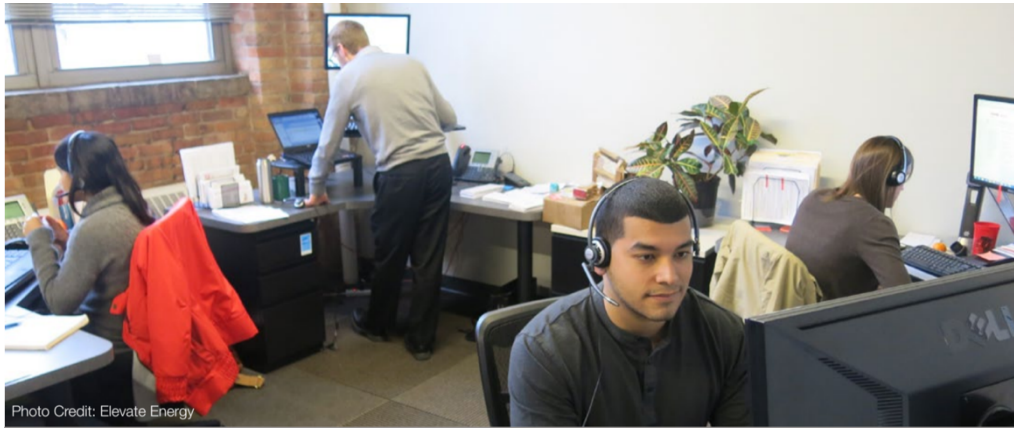
Photo Credit: Elevate Energy


Photo Credit: Cyclone Energy Group

What Are The Challenges Policy Makers Have Faced?

- False or misleading information from opposition campaigns
- Notifying the “correct” building owners
- Finding buildings!
- Data quality
  - Chicago the first to implement a professional verification into the policy

Photo Credit: Cyclone Energy Group

Questions?

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