



# Building Performance Ordinance

City of Boulder

Feb. 23, 2016

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# Overview



## Building Performance Ordinance (60 min)

- Overview
- Requirements and Deadlines
- Exemptions, Service Providers, and Resources
- Questions

## Manufacturing Specifics (30 min)

- Overview of manufacturing facility options
- Tool demo and presentation from SWEEP
- Questions

# What do we hope to accomplish?



## Objectives

- ✓ **Reduce** GHG Emissions
- ✓ **Improve** quality of the commercial building stock
- ✓ **Realize** cost effective efficiency
- ✓ **Increase** awareness of building energy performance metrics
- ✓ **Drive** market transformation
- ✓ **Inform** design of future programs and services

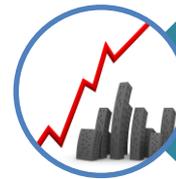
## Who Benefits



Community  
Members



Business  
Tenants



Building  
Owners

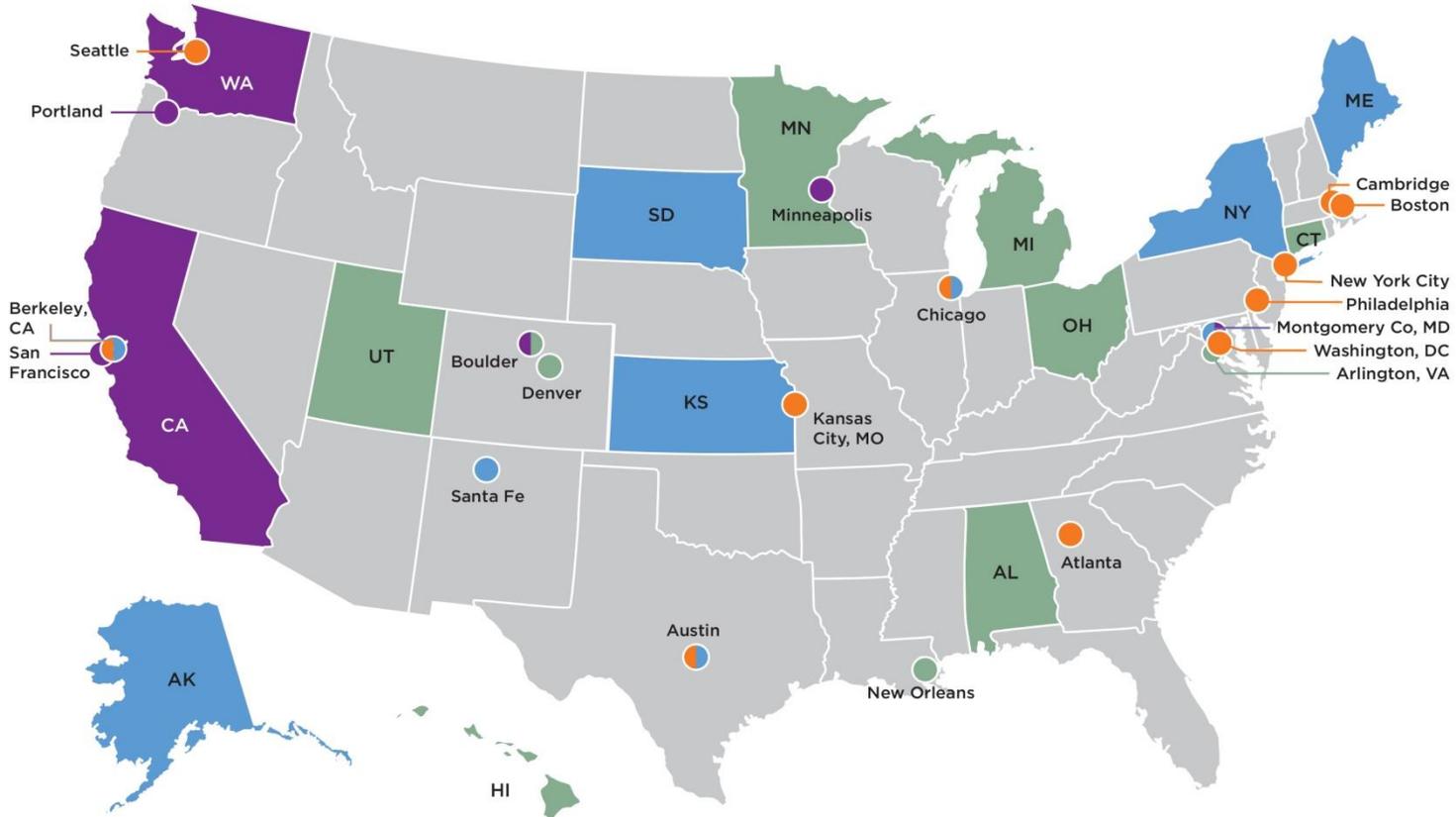


Policymakers

# National Context



## U.S. Building Benchmarking and Transparency Policies



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- Commercial policy adopted
- Commercial & multifamily policy adopted
- Public buildings benchmarked
- Single-family transparency adopted

# Defining Key Terms



## **RATING & REPORTING (R&R)**

Measuring and comparing building energy performance metrics

Providing energy use and associated metrics to the city and tenants of the building

### **Disclosure**

disseminating the reported energy use information to the public

### **Payback**

the amount of time it takes for savings in operating costs (energy and maintenance) to pay back the initial capital investment (less any rebates)

### **Efficiency Requirements**

EA – Energy Assessment  
RCx – Retrocommissioning  
Lighting upgrades

# Building Performance Ordinance



## Scope

- Private sector C&I buildings > 20,000 sf
- City-owned buildings > 5,000 sf
- Newly built C&I buildings\* > 10,000 sf
- Large Industrial Campuses\*\*

*\*Any buildings permitted since the last energy code update (January 31, 2014).*

*\*\*Three or more buildings at least partially used for manufacturing served by a central plant or single utility meter.*

# Requirements: Typical Buildings



- **Annually**
  - **Rate and Report** building energy use
    - Publically **disclosed** after 2-year grace period
- **One time**
  - **Lighting Upgrades** to current IECC\*
- **Every 10 years**
  - ASHRAE\*\*-equivalent **Energy Assessments**
  - **Retrocommissioning**
    - Implement measures with payback < 2 years

\*International Energy Conservation Code

\*\*American Society of Heating, Refrigerating, and Air-Conditioning Engineers

# Rating and Reporting (R&R)



## What is Required of Me?

### Building Owners

- Collect whole-building energy data for previous calendar year
- Enter all energy data into required tool
- Report data to the city
- Share the energy performance report with tenants

### Building Tenants

- Share utility bills and information, and provide access to space, within 30 days of request from building owner
- Encouraged to review the energy information provided by the owner

# R&R Continued



- **Annually report building energy data**

- ENERGY STAR Portfolio Manager
- Alternate tools for manufacturing



- **Resources**

- Partners for A Clean Environment (PACE)
- SWEEP for manufacturing
- [www.BoulderBuildingPerformance.com](http://www.BoulderBuildingPerformance.com)



- **Reporting your data**

- Calendar year required
- Manual upload from bills
- Auto-upload service from Xcel Energy

## Tips and Tricks

It is a good idea to check energy data monthly even if auto-uploaded. It allows you to detect anomalies that could point to a leak or malfunction that is costing you money!

# Getting Your Energy Data from Xcel



- Xcel Energy Benchmarking
  - Automatic upload of whole-building energy data into your Portfolio Manager account
  - One-time set up and then monthly updates of energy use
  - Great for owners with multiple tenants who pay their own utility bills
    - Avoid requesting data from individual tenants and manually entering bills into ESPM
    - Xcel Energy will inform you if tenant consent is required

Start Date	End Date	Usage therms	Cost (\$)	Estimation	Last Updated
1/1/2015	1/31/2015	222.3		<input type="checkbox"/>	1/7/2016 <a href="#">Xcel Energy</a>
2/1/2015	2/28/2015	198.01		<input type="checkbox"/>	1/7/2016 <a href="#">Xcel Energy</a>



Energy Benchmarking

## USE US for energy benchmarking

Energy benchmarking is a key energy management best practice that enables you to identify the energy performance of your building(s), invest strategically in energy efficiency upgrades and monitor effectiveness of energy improvements. Benchmarking is the process of comparing measurements against a standard, average or best practice with the purpose of improving current practice and moving toward the use of best practices.

### What's included?

We are providing a direct feed of whole-building energy usage data from our metered data repository into ENERGY STAR Portfolio Manager®. After you complete the initial connection steps, we will update your data on a monthly basis so you can focus on the important part – saving energy.

### Get Started

[Download the User Guide](#)

1. Set up an account with ENERGY STAR Portfolio Manager® along with the properties that you'd like to benchmark.
2. Once you have that set up, log in to the Xcel Energy Benchmarking Portal to establish the energy data connection.

Download the Xcel User Guide or the City's Rating & Reporting How-to Guide for step-by-step instructions for using this service.

PACE Business Sustainability Advisors are also available to help connect your Portfolio Manager account to the Xcel Portal. Contact PACE at 303-786-7223 or [info@PACEpartners.com](mailto:info@PACEpartners.com)

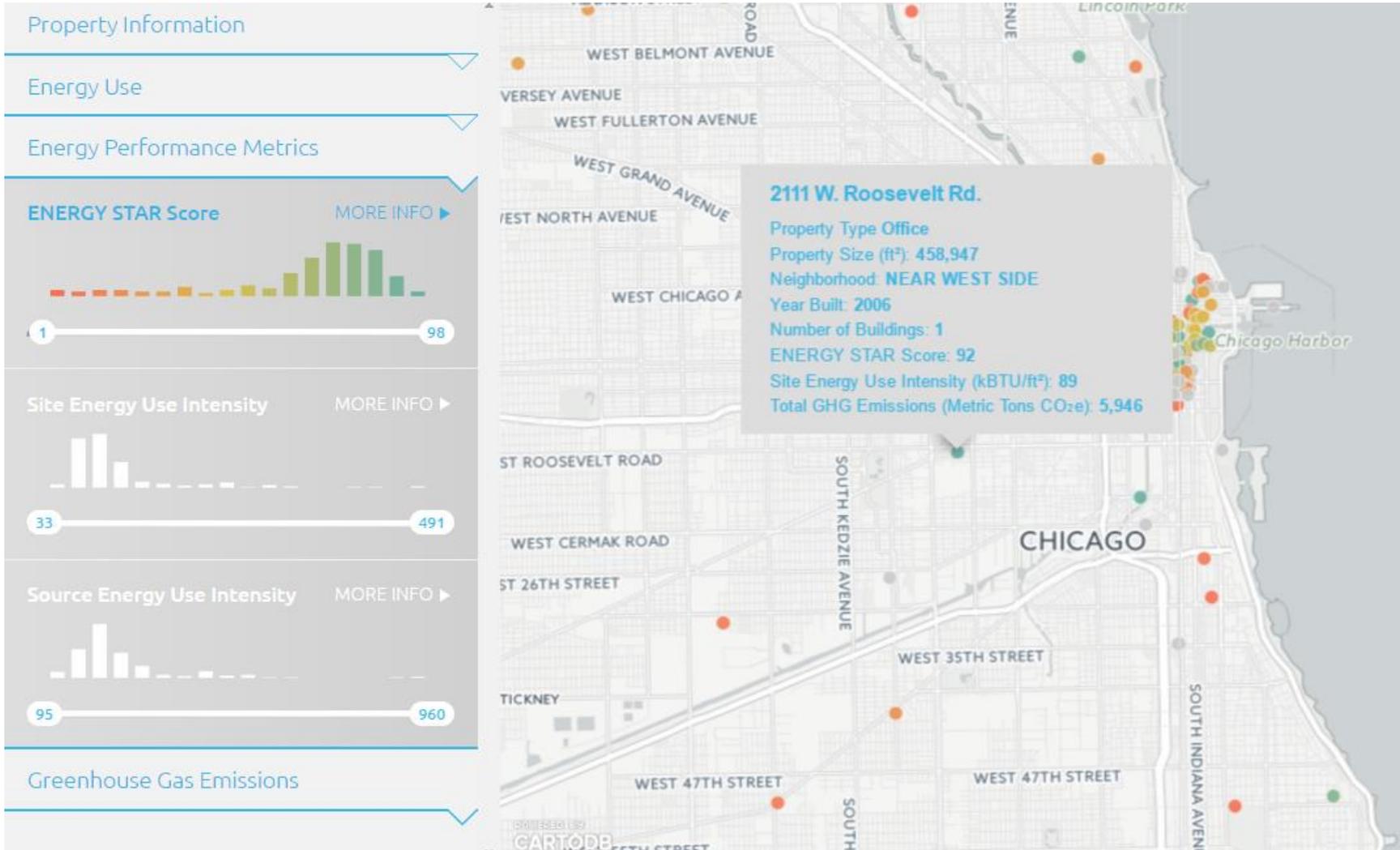
# Public Disclosure



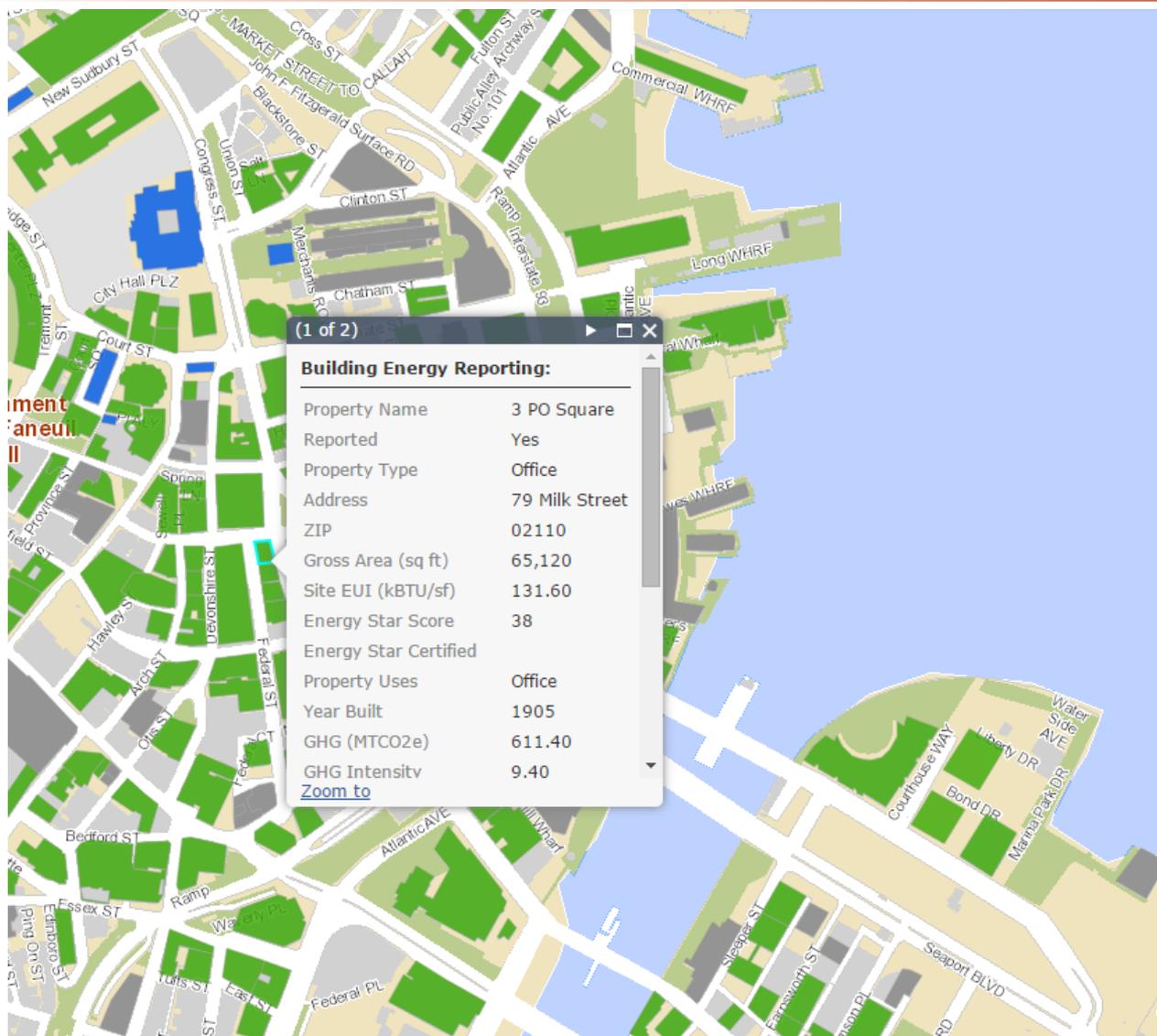
## Public Disclosure

- Following a **2-year grace period**, building specific total energy use and associated ratings will be displayed via a public website

# Disclosure Example - Chicago



# Disclosure Example - Boston



**Legend**

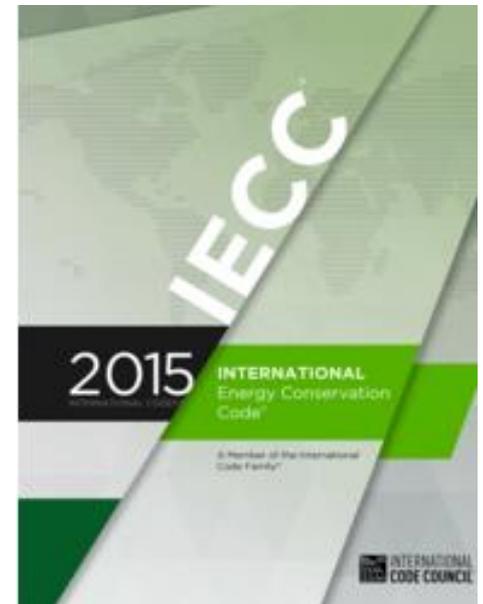
**Building Energy Reporting**

- Reported This Year
- Reported Municipal Building
- In Process of Reporting
- Not Yet Reported

# Lighting Upgrades



- One-time lighting upgrades within 5 years of your first R&R deadline
- Must meet current IECC\*
  - Codes are updated every 3 years
  - Current code is 2015
- Only specific sections are required:
  - Interior/exterior max allowable lighting power
  - Interior/exterior timer/on-off controls
  - Exit signs
  - Occupancy sensors



# Lighting Upgrades Continued



- A special lighting permit is coming soon to avoid triggering the City of Boulder commercial energy code
- Rebates
  - Lighting rebates are available from Xcel Energy\* and PACE EnergySmart

## Tips and Tricks

Current IECC language is accessible on the How to Comply page at [www.BoulderBuildingPerformance.com](http://www.BoulderBuildingPerformance.com) and in the Efficiency How-to Guide (coming soon)

# Energy Assessments (EA)



## Required Scope

- Must be conducted within 3 years of your first R&R deadline, and every 10 years after
- ASHRAE\*-equivalent assessments
  - Building < 50,000 sf: **ASHRAE Level I**
    - High level sweep for no-cost/low-cost energy saving opportunities
  - Building  $\geq$  50,000 sf: **ASHRAE Level II**
    - Also provides specific efficiency measure recommendations and potential capital-intensive energy savings opportunities.
    - Enough detail is provided to get a quote from contractors

# EAs Continued



- Owners must use an approved service provider for energy assessments (list posted on website)
- Who can I get my assessment from?
  - PACE is offering FREE Level I energy assessments
    - Will include reviewing RCx potential
  - Level II providers can be internal or external as long as on the approved list
    - City Manager Rules require a preliminary site visit to scope/price the assessment, and to review RCx potential

## Tips and Tricks

Combining your Level II energy assessment with the required retrocommissioning will yield cost savings compared to completing them separately.

# EA Rebates



- City is offering rebates to offset cost of Level II energy assessments
  - Rebate application will be up soon
    - Must submit the price quote from your contractor
  - Rebates will be first come, first served and subject to funding availability
  - A Cost Estimation Tool is coming soon to the website

Year	2016-2017	2018	2019 (until May 31)
<b>Rebate Amount*</b>	Up to 30% of cost	Up to 20% of cost	Up to 10% of cost

\*All rebates are capped at \$12,000 per building and cannot reduce the cost of the energy assessment to the building owner below \$0.08/sf.

# Retrocommissioning (RCx)



- A process that improves a building's operations and maintenance procedures to enhance overall building performance
- Must be conducted within 5 years of your first R&R deadline and every 10 years after
  - Must implement measures with a payback period of  $\leq 2$  years within two years of study
- The required activities are listed in the City Manager Rules
- Owners must use an approved service provider

## Tips and Tricks

Ensure savings from RCx persist by implementing a recommissioning plan, continuous commissioning, or monitoring-based commissioning during the 10 years between retrocommissioning studies.

# Xcel Energy Programs for RCx



Building owners can comply with the RCx requirement through participation in Xcel Energy's programs:

	<b>Buildings &lt; 50,000 sf</b>	<b>Buildings ≥ 50,000 sf</b>
<b>Xcel Program</b>	Building Tune-Up Program	RCx Study Program
<b>Incentive Amount</b>	Owner must pay \$250-\$500 for the tune-up audit**	Xcel Energy covers up to 75% of the study (capped at \$25,000, must be preapproved)**
<b>Service Provider</b>	Must use Xcel's contractor, Nexant*	Any provider as long as listed on Xcel's approved provider list*

\*Look at the City of Boulder's approved provider list to ensure the provider is also approved by the city.

\*\*Visit [XcelEnergy.com](http://XcelEnergy.com) to verify program status

# RCx Rebates



- Rebates for measure installation
  - Xcel Energy (Custom and Prescriptive)
    - Electric and natural gas rebates that cover up to 60% of implementation cost\*
  - PACE EnergySmart (Custom and Prescriptive)
    - The city is contributing an additional \$150,000 per year for custom rebates that cover measures like chiller upgrades and compressed air equipment
- Incentive details are listed on the program website
  - <https://bouldercolorado.gov/lead/boulder-building-performance-training-assistance-rebates>

# Compliance Schedule



## Start Year

**2016** Buildings > 50,000 sf  
New Buildings >10,000 sf  
City Buildings > 5,000 sf  
Large Industrial Campuses

-----  
**2018** Buildings > 30,000 sf  
-----

**2020** Buildings > 20,000 sf

Rating and Reporting

↓ 3 yrs

Energy Assessments

↓ 2 yrs

Lighting and RCx

↓ 2 yrs

Implement cost effective  
RCx Measures

# Compliance Timeline



Ordinance Requirement	City Buildings $\geq 5,000$ sf	Existing Buildings $\geq 50,000$ sf New Buildings $\geq 10,000$ sf,	Existing Buildings $\geq 30,000$ sf	Existing Buildings $\geq 20,000$ sf
Rating & Reporting	May 1, 2016	Aug. 1, 2016*	2018	2020
Public Disclosure	2019	2019	2021	2023
Energy Assessments	2019	2019	2021	2023
Lighting Upgrades	2021	2021	2023	2025
Retrocommissioning	2021	2021	2023	2025
Implement Cost Effective RCx Measures	2023	2023	2025	2027

\*June 1 each year thereafter

# Exemptions



## All Requirements

- Unconditioned and unlit buildings
- Financial hardship

## Rating and Reporting

- Less than one year of energy use data

## Public Disclosure

- Building information includes trade secrets, privileged or confidential commercial information

## Energy Assessment

- Building received equivalent energy assessment within 10 years of first requirement AND implemented cost-effective actions (payback  $\leq$  5 years)

# Exemptions Cont.



## Efficiency Requirements

- ENERGY STAR certified
- LEED Existing Buildings: Operation & Maintenance (EBOM) Certified
- Building has demonstrated pattern of significant and consistent improvements and can provide all of the following:
  - Records for past 5 years of energy use or emissions
  - Narrative covering how reductions have been achieved
  - Proof of high efficiency compared to other similar buildings or to your 2015 baseline EUI

### Tips and Tricks

You must maintain the ENERGY STAR or LEED EBOM certification to maintain the exemption

# Exemption Examples



## **My 60,000 sf building received an Xcel energy assessment in 2015. Can that replace my energy assessment requirement?**

- No. This building is required to conduct an ASHRAE Level II-equivalent energy assessment because of its size (50,000 sf and up). Xcel's assessment does not meet this equivalency.
- However, after you complete your 2016 rating and reporting, if you can show that implementing the measures Xcel found in its energy assessment can achieve a 15% reduction in your energy-use intensity by the 2019 energy assessment deadline, you could be exempt.

# Example 2



Weather-Normalized Source EUI (kBtu/ft <sup>2</sup> ) <small>Why not score?</small>	
Current EUI:	61.5 (27.7% lower than median.)
Baseline EUI:	53.5 (37.1% lower than median.)

## My building recently underwent a renovation/lighting upgrade – do I still need to comply?

- You are still required to rate and report.
- However, you may be exempt from the other requirements. After completing your 2016 rating and reporting:
  - Are you eligible for ENERGY STAR Certification? That would exempt you from all efficiency requirements
  - Is your EUI in the top 25% of similar buildings? That could exempt you from all efficiency requirements
  - Does the current lighting in the building comply with IECC 2015 requirements? If so, you can submit proof of this to satisfy the lighting requirement. However, you would still be subject to all other requirements.

# Example 3



## **I am eligible for ENERGY STAR certification from my 2016 rating and reporting submission. Now what?**

- You are required to continue rating and reporting. However, if you complete the certification process you can submit an exemption request from all efficiency requirements.
- You must maintain the certification to maintain the exemption. If your score falls below the certified range (below 75) at your next R&R submission, you must get a (free) Level I energy assessment from PACE and have that year to bring the score back up. If your score has not achieved the certified range at the next R&R submission, the exemption will no longer be valid and you must comply with all future efficiency requirements.

# Service Providers



- **Approved Service Providers**

- Owners must use an approved service provider for **energy assessments** and **retrocommissioning**
  - Lighting contractors do **not** have to be approved
- The city will post the list of approved providers on the website

▶ **Lighting Upgrade Requirement**

▼ **Find a Service Provider**

Find **city-approved service providers** qualified to complete your energy assessment and retrocommissioning. **COMING SOON!**

When choosing a provider from this list, here are questions to ask and things to consider:

- How many assessments/retrocommissioning studies have you completed on similar buildings?

<https://bouldercolorado.gov/lead/boulder-building-performance-how-to-comply>

# Service Providers Continued



- **To become approved, service providers must:**
  - Meet minimum qualifications
  - Complete an online training (coming soon)

▶ **Public Disclosure**

▶ **Enforcement**

▼ **For Service Providers**

**Interested in becoming an approved service provider?** The online training to become approved is coming soon!

## **Service Provider Required Qualifications**

### **Energy Assessors**

1. A registered design professional (either a Professional Engineer or Registered Architect), with at least three years professional experience performing Energy

[www.BoulderBuildingPerformance.com](http://www.BoulderBuildingPerformance.com)

# Enforcement



- **For owners**

- Fines of \$0.0025 per square foot per day (up to \$1,000 per day) of non-compliance.

- **For tenants**

- Required to respond to building owner request for information with 30 days of a request.
- Failure to do so will result in similar fines.

# Resources

[www.BoulderBuildingPerformance.com](http://www.BoulderBuildingPerformance.com)



- Home Page
  - Ordinance
  - City Manager Rules
  - Exemption Request
  - Newsletter sign-up
  - FAQs
- How-to Comply
  - How-to Guides
  - Tenant Information Request
  - Split incentive guidance
  - Cost Estimation Tool (coming soon)
  - Approved Service Provider Training and List (coming soon)
- Rebates and trainings

- PACE Business Sustainability Advisors
  - 303-786-7223
  - [info@PACEpartners.com](mailto:info@PACEpartners.com)

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Home > Lead > Boulder Building Performance

BOULDER BUILDING PERFORMANCE

New! The city will be hosting a free webinar on Feb. 23 from 12pm-1:30pm MST to provide detailed information on the ordinance requirements, timeline, and resources and to answer your questions. If you are unable to attend, a recording will be uploaded to the webpage after the webinar. [Register for the webinar](#) and add it to your calendar!

Energy Efficiency for Commercial and Industrial Buildings

In support of community energy and climate goals, the Boulder City Council adopted the Boulder Building Performance Ordinance (Ordinance No. 8071) on Oct. 20, 2015. These rating and reporting and energy



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[www.BoulderBuildingPerformance.com](http://www.BoulderBuildingPerformance.com)

NEXT: Manufacturing/Small Industrial Presentation

**PAUSE FOR QUESTIONS?**

# Manufacturing Facilities



- Primary use is assemblage, processing, and/or manufacturing products **OR** over 50% of building energy usage come from process loads
- Energy Assessment requirement
  - Xcel Energy’s Process Efficiency program studies can meet this requirement.  
[http://www.xcelenergy.com/Energy\\_Solutions/Rebate\\_Finder\\_Tool/Process\\_Efficiency](http://www.xcelenergy.com/Energy_Solutions/Rebate_Finder_Tool/Process_Efficiency)
- Tools for R&R
  - ENERGY STAR Portfolio Manager
  - EPA Energy Performance Indicator (EPI) Tool
  - ENERGY STAR Energy Tracking Tool

# Energy Tracking Tool



## Energy Tracking Tool

Version 1.2 (Release April 6, 2015)

- Spreadsheet-based tool
- Allows users to set metrics relevant to their business
- Generates energy report for submission to city
- Does not give an ENERGY STAR score

Demo

# Assistance for Small Manufacturers



## Southwest Energy Efficiency Project (SWEEP)

- The City of Boulder has provided funding to SWEEP to provide assistance with R&R requirements
- Assistance from SWEEP can include:
  - Choosing a tool for rating and reporting
  - Choosing a relevant metric
  - Setting goals (optional)
  - Participation in Colorado Industrial Energy Challenge (CIEC) meetings

<http://www.swenergy.org/industrial>



# COLORADO INDUSTRIAL ENERGY CHALLENGE

*Improving Efficiency, Reducing Costs and Emissions*



- Voluntary program to encourage goal-setting and energy efficiency improvements
- Quarterly networking meetings
- Annual recognition of leading companies
- To join CIEC, facilities set a 5-year energy goal



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**QUESTIONS?**

[www.BoulderBuildingPerformance.com](http://www.BoulderBuildingPerformance.com)





Boulder Performance Ordinance

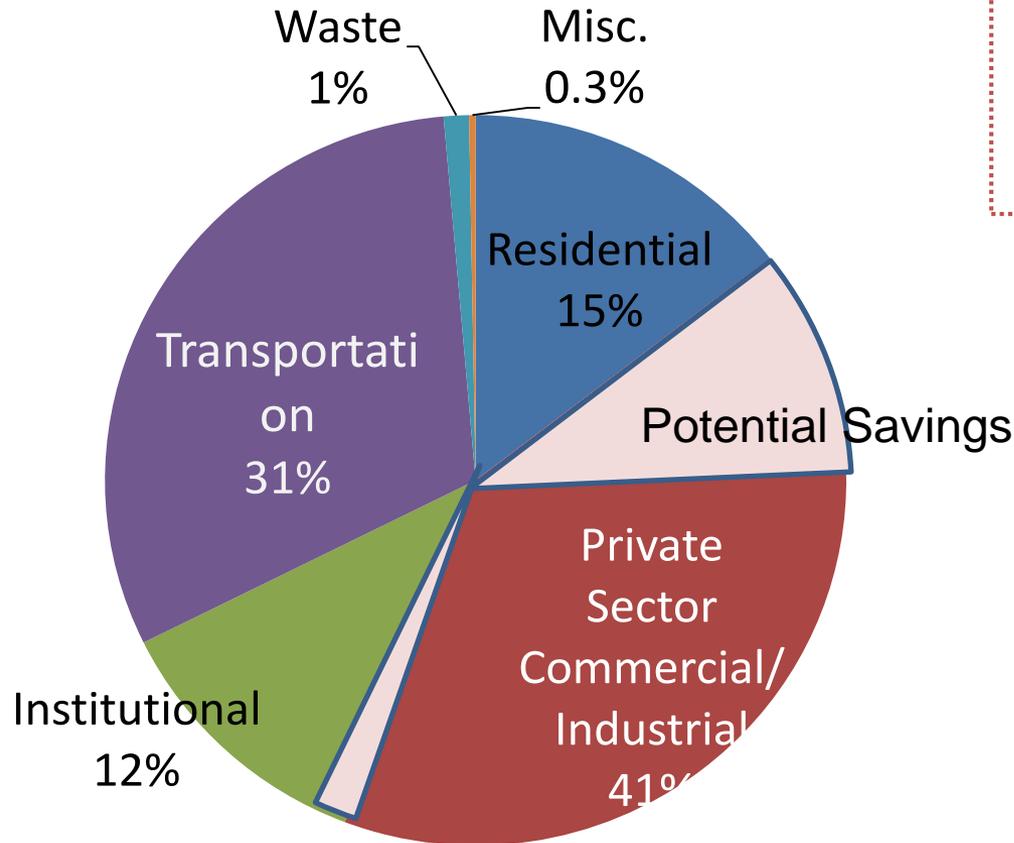
# REFERENCE SLIDES



# Climate Commitment



**Reduce GHG emissions 80% by 2050**



**~10% annual reduction in total GHG emissions from these requirements**

**2012 Greenhouse Gas (GHG) Inventory**

# Public Process/Community Engagement



2010-2012

Peer networking, consultant studies

2012-2013

Rating & Reporting Pilot Program

Oct 2014 - Jan 2015

Working Group

Feb – Apr 2015

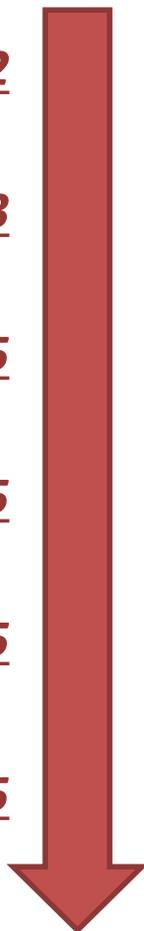
Business Group Outreach

March 2015

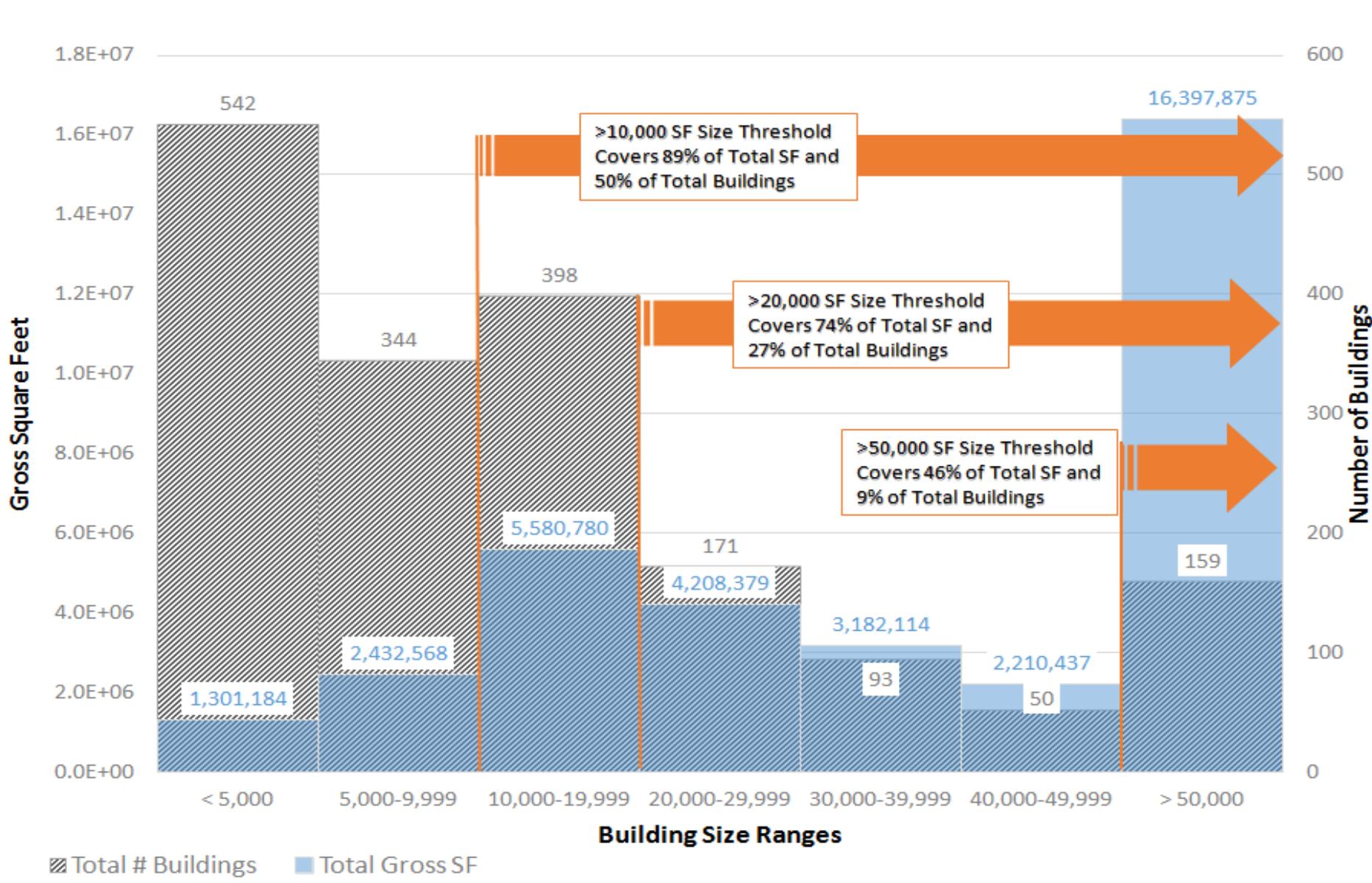
Webinar and mailing for all affected building owners

June - Aug 2015

Large Industrial Outreach and Split Incentive Workshop



# What percentage of private sector and city-owned C&I building floor area would be covered by this ordinance?



# Requirements: Large Industrial Campuses



- **Annually**
  - **Report** *aggregate* energy data
    - Publicly disclosed after 2 years
- **One Time**
  - **Lighting Upgrades**
- **Every 10 years**
  - **Level II Energy Assessments**
    - Implement measures with payback < 1 year

# Financial Impact to Building Owners



Requirements	Up Front Costs	Simple Payback
Annual Rating & Reporting	\$500-\$2,400 per building OR 4-8 hours staff time OR FREE with PACE	< 1 year
Energy Assessments (every 10 years)	FREE PACE Level I audit (buildings smaller than 50,000 sf) Level II: \$0.16-0.42 per sf	Varies
Retrocommissioning (every 10 years)	\$0.11-0.35 per sf	0.5 – 2.5 years
Lighting Upgrades (one time)	\$0.10-0.20 per sf	3-4 years