



Commercial & Industrial (C&I) Energy Efficiency Requirements Working Group

City of Boulder
Friday, January 9, 2015



Agenda

Investing in Better Buildings



- Review from Meeting #3
- Metering solution for multi-meter buildings
- Rating and Reporting
 - Disclosure
 - Enforcement
 - Phasing
- (if there's time): What types of new energy services would be most valuable to Boulder businesses and building owners?



Review from Meeting #3

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- **What bldgs should be required to rate & report?**
 - City Owned: >5,000 K sf and parking structures (pilot)
 - Private sector C&I: Start out with >50K
 - Multifamily: Re-evaluate with long term SmartRegs strategy
- **Disclosure**
 - Provide an option to recognize a business as a wind source participant, owner of PV system, etc
 - Have a 1 year exemption from disclosure energy use if a building if undergoing a significant retrofit that will reduce energy use
 - No objections to disclosing compliance status or aggregate energy use info
 - Concerns over disclosing energy use tied to a specific building address
 - Disclosure at point of transaction and upon request already occurs



Multiple Meter Challenge

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Challenge: Buildings with multiple master meters

Requires the owner to do one of the following:

1. Request whole building data from Xcel energy (can only be released if it doesn't violate data privacy rules), OR
2. Obtain release forms from tenants, OR
3. Install eGauges (you can put four 3-phase meters on one eGauge) to gather whole building data
 - a) Likely expensive in terms of labor costs. ~12K for a sample building on Pearl St with 18 meters
 - b) It could be significantly less expensive (maybe \$5-6K) for a building where all the meters were closer together, in an area with more space



What will the ordinance cover?

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- Council has directed staff to develop options for mandatory rating + reporting (R+R) and efficiency requirements for commercial and industrial buildings.

- Rating and Reporting Options:

TODAY

Which buildings
(size/type) will
be covered?

Exemptions

Disclosure of
Energy Use
Information

Enforcement

Phasing/Timing

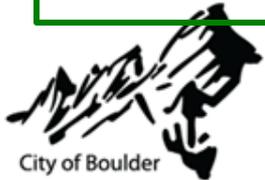
- Efficiency Requirement Options: **MTG #5**

Which buildings
(size/type) will be
covered?

Exemptions

Phasing/Timing

Incentives,
Training &
Support



Disclosure



Disclosed to:	Options
City	Building info, ENERGY STAR Portfolio Manager (ESPM) rating and Statement of Energy Performance (SEP), Energy use Intensity (EUI), GHG, overall energy use, etc.
Public	<ol style="list-style-type: none">1. Compliance status: YES2. Aggregate energy metrics: YES3. Individual energy metrics: (Phasing, Query? Other ideas?)
Potential buyers or leasers	<ol style="list-style-type: none">1. Requirement to disclose when advertising for lease or sale: NO?2. Disclose at point of transaction: ALREADY BEING DONE?3. Disclose upon request: ALREADY BEING DONE?

Discussion Questions:

- What metrics make sense to drive the commercial real estate market toward improving commercial buildings' performance?
- What information should not be publically disclosed?
- Industrial/ Manufacturing: Definition? Different metrics?



Sample Disclosure Info: Washington, DC

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Building Information

Portfolio Manager ID	Property Name	Address	Postal Code	Primary Property Type - EPA Calculated	Property Floor Area (ft ²)	Year Built	# of Bldgs	Philadelphia Building ID
3965468	Allegheny Business Center	2233 West Allegheny Avenue	19132	Adult Education	87,756	1915	1	884558100
3999203	Art Institute of Philadelphia	1618 - 1622 Chestnut Street	19103	Adult Education	79,480	1931	1	772509500
3875830	Center One	9880 Bustleton Ave	19115	Ambulatory Surgical Center	79,485	1980	1	778025205

Annual Building Performance

Electricity Use (kBtu) *includes on site renewables	Natural Gas Use (kBtu)	Fuel Oil #2 Use (kBtu)	District Steam Use (kBtu)	ENERGY STAR Score	Site EUI (kBtu/ft ²)	Source EUI (kBtu/ft ²)	Water Use (All Water Sources) (kgal)	Total GHG Emissions (MtCO ₂ e)
1,161,103.60	774,906.40	Not Available	Not Available	Not Available	22.1	50.8	5.6	188.1
7,329,927.90	Not Available	Not Available	1,073,596.00	Not Available	105.7	305.8	1,917.7	1,052.5
7,748,344.90	Not Available	Not Available	Not Available	Not Available	97.5	306.1	1,405.2	981.2

Enforcement



	Options
Grace Period	<ol style="list-style-type: none">1. One year grace period for fines2. One year grace period for disclosing building specific energy use information - only compliance status will be shown on the disclosure site
Fines	<p>Governed by Boulder's Municipal Code</p> <ol style="list-style-type: none">1. Issued after one written and one verbal warning2. \$x/day of violation

Discussion Questions:

- What fine is sufficient to encourage compliance?
- Is one written and one verbal warning sufficient?



Phasing/Timing

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Phasing:

- FIRST: Gov't and largest buildings (>30-50K sf)
- LATER PHASES: smaller buildings and efficiency
- 1 yr grace period before enforcement/ fines

Discussion Questions:

- What should be the first year for reporting for the private sector?
- What should be the annual reporting date? April 1st?

REQUIRED ANNUAL REPORTING TO CITY

City owned bldgs and >50K sf

>30K sf

>20K sf

2016

2017

2018

2019

2020

START OF PUBLIC DISCLOSURE

City owned bldgs

>50K sf

>30K sf

>20K sf



Discussion

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Energy Services

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- What energy services do you currently take advantage of?
- What new services are needed to support the ordinance?
- What future energy services would you like to see developed?



Closing Logistics

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- Meeting #5: Jan 23, 2015, 1-3pm (same location)
- Meeting #5 Agenda
- Questions and comments





DETAILED TABLES FOR REFERENCE



Boulder's Private Sector Commercial Buildings

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Size Category (SQFT)	Total SQFT	Number of Buildings	Proportion of Buildings at Size Cutoffs (e.g. >5,000 sf is 97% of sqft)	
< 5,000	1,111,737	393	100%	
5,000-9,999	2,268,112	318	97% of sqft,	74% of bldgs
10,000-19,999	5,276,787	375	90% of sqft,	54% of bldgs
20,000-29,999	4,088,380	166	73% of sqft,	29% of bldgs
30,000-39,999	2,986,804	87	61% of sqft,	18% of bldgs
40,000-49,999	2,210,437	50	52% of sqft,	13% of bldgs
50,000 and above	14,529,366	147	45% of sqft,	10% of bldgs
TOTAL	32,471,623	1,536		

Building Type	Bldgs (#)	Bldgs (%)	Rentable Area (SQFT)	Rentable Area (%)	Avg Bldg SQFT
Flex*	161	10.5%	5,470,144	16.8%	33,976 sqft
Industrial	247	16.1%	6,053,035	18.6%	24,506 sqft
Commercial	1,128	73.4%	20,948,444	64.5%	18,571 sqft
Total	1,536		32,471,623		

Source: CoStar, 10/10/2014

Includes: Existing Properties Only

DOES NOT INCLUDE: Multi-Family

* Flex: Mix of office (≥50% sf) and light industrial/R&D



City of Boulder Buildings

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Size Category (SQFT)	Total SQFT	Number of Buildings	Proportion of Buildings at Size Cutoffs (e.g. >5,000 sf is 93%)	
<5,000	189,447	149		
5,000-9,999	164,456	26	93% of sqft,	33% of bldgs
10,000-19,999	303,993	23	88% of sqft,	21% of bldgs
20,000-29,999	119,999	5	77% of sqft,	10% of bldgs
30,000-39,999	195,310	6	73% of sqft,	8% of bldgs
40,000-49,999	0	0	66% of sqft,	5% of bldgs
50,000 and above	1,868,509	12	66% of sqft,	5% of bldgs
TOTAL	2,841,714	221		

Notes:

- Include parking structures as a pilot?
- There are many large storage buildings with low energy use.
- Consider a requirement to benchmark the subset of buildings that makes up 80% of the building stock's energy use or cost



C&I Rating +Reporting Ordinances

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City	Date Enacted	Date Effective	Gov't/ Comm	Disclosure ¹	Energy Efficiency?
Austin	Nov 2008	June 2011	10K SF+	B, T, G	Audits
Boston	May 2013	May 2014	All/35K SF+	P, G	Audits
Cambridge	July 2014	Dec 2014	25K SF+	P, G	---
Chicago	Sept 2013	June 2014	50K SF+	P, G	---
District of Columbia	July 2008	April 2013	10K/ 50K SF+	P, G	---
Minneapolis	Jan 2013	May 2014	25K/ 50K SF+	P, G	---
NYC	Dec 2009	Aug 2011	10K/ 50K SF+	P, G	Audits, RCx, Lighting, Sub-metering
Philadelphia	June 2012	Oct 2013	50K SF+	P, G, B, L	---
San Francisco	Feb 2011	Oct 2011	10K SF+	P ² , G, T, B, L ³	Audits, RetroCx
Seattle	Jan 2010	Oct 2011	10K SF+	B, G, T, L	---

¹ P = public, G = government, B = buyers, T = tenants, L = lessees & lenders

² Discloses summary of compliance, but not building energy use

³ CA's statewide initiative, AB 1103, requires buildings to disclose energy performance at point of transaction

City	Building Size, Type
Austin	Commercial buildings >10 years old
Boston	All public, government, multifamily, and private non-residential buildings
Cambridge	Municipal buildings over 10,000 sf, Non-residential buildings over 25,000 sf
Chicago	Municipal and commercial buildings 50,000 – 250,000 sf Residential buildings 50,000 – 250,000 sf
District of Columbia	Public/Government Buildings \geq 10,000 sf Non-Residential and Multi-Family \geq 50,000 sf
Minneapolis	Public/gov't buildings \geq 25,000 sf Non-Residential Buildings \geq 50,000 sf
NYC	Public/Government Buildings \geq 10,000 sf Non-Residential and Multi-Family \geq 50,000 sf
Philadelphia	Public/Gov't, Non-Residential \geq 50,000 sf
San Francisco	All private sector nonresidential buildings \geq 10,000 sf
Seattle	Multifamily and non-residential buildings \geq 20,000 sf

City	Date Effective	Phasing/Timing based on Building Type & Size Thresholds
Austin	June 2011	Commercial buildings >10 years must report annually: June 2012: ≥75,000 sf (Tier 1) June 2013: ≥30,000 and <75,000 sf (Tier 2) June 2014: ≥10,000 and <30,000 sf (Tier 3)
Boston	May 2014	All public, government, multifamily, and private non-residential buildings: June 2013: ALL Public/Gov't Buildings Sept 2014: Non Residential ≥ 50,000 sf, May 2015: Multifamily ≥50 units or 50,000 sf May 2016: Non-Residential ≥ 35,000 sf, May 2017: Multifamily ≥35 units or 35,000 sf
Cambridge	Dec 2014	Oct 2014: Municipal buildings over 10,000 sf May 2015: Non-residential buildings over 50,000 sf and Multi-family residential buildings 50+units May 2016: Non-residential buildings over 25,000 sf
Chicago	June 2014	June 1, 2014: Municipal and commercial buildings ≥ 250,000 sf June 1, 2015: Municipal and commercial buildings 50,000 – 250,000 sf June 1, 2015: Residential buildings ≥ 250,000 sf June 1, 2016: Residential buildings 50,000 – 250,000 sf
District of Columbia	April 2013	Public/Government Buildings: April 2010: ≥10,000 sf Non-Residential and Multi-Family:: April 2013: ≥ 100,000 sf April 2014: ≥ 50,000 sf
Minneapolis	May 2014	Public/gov't buildings: May 2013: ≥ 25,000 sf Non-Residential Buildings: May 2014: ≥ 100,000 sf May 2015: ≥ 50,000 sf
NYC	August 2011	Public/Government Buildings: May 2010: ≥10,000 sf Non-Residential and Multi-Family:: May 2011: ≥ 50,000 sf
Philadelphia	Oct 2013	Public/Gov't, Non-Residential: June 2014: ≥ 50,000 sf
San Francisco	Oct 2011	All private sector nonresidential buildings: Oct 2011: ≥50,000 sf Apr 2012: ≥25,000 sf Apr 2013: ≥10,000 sf
Seattle	Oct 2011	Multifamily and non-residential buildings: April 2013: ≥20,000 sf

City	Enforcement - Fines (typically 30-45 days after written notice, if not addressed)	Compliance Rate (%)
Austin	Up to \$500 (Class C misdemeanor), \$2,000 (if criminal negligence)	76% for Tier 1
Boston	\$200 per day (>50,000 sf) \$75 per day (35,000-49,999 sf)	pending
Cambridge	\$300/day fine after 1st written warning	pending
Chicago	\$100 for the first violation \$25/day that the violation continues	pending
District of Columbia	\$100/day	83%
Minneapolis	Daily fine TBD, pursuant to Chapter 2 and the schedule of civil fines	pending
NYC	\$500 for 1 st violation \$500/quarter with a maximum of \$2,000 for continued violations.	75%
Philadelphia	\$300 fine for the 1st 30 days, and then \$100/day	90%
San Francisco	\$100 /day, up to a maximum of \$2,500 per violation (≥25,000 sf) \$50 /day, up to a maximum of \$1,500 per violation (<25,000 sf)	79%
Seattle	\$1,000/quarter, \$4,000 per year (≥50,000 SF or greater) \$500/quarter, \$2,000 per year (20,000 to 49,999 SF) +Disclosure Request violation: \$150 fine, \$500 fine for subsequent violations	93%

City	Disclosed to?	Building Info	EUI	GHG	Other Disclosed Info
Austin	B, T, G				Energy rating calculation disclosed to relevant parties in real estate transactions.
Boston	P, G	✓	✓	✓	Energy Star rating, and where available, water consumption per square foot
Cambridge	P, G	✓			Will disclose info online, specifics tbd
Chicago	P, G				Energy consumption and performance scores
District of Columbia	P, G	✓	✓	✓	Property id, address, owner, property type, year built, Energy Star Score, floor area, electricity use, natural gas use, district steam use, other fuel use (based on actual data available on WDC website)
Minneapolis	P, G	✓	✓	✓	water use and energy performance score, where applicable,
NYC	P, G	✓	✓	✓	Weather normalized source EUI, Indoor water intensity, Energy Star Score, floor area
Philadelphia	P, G,B,L	✓	✓		
San Francisco	P ² , G, T, B, L ³	✓	✓	✓	Aggregate data disclosed only - weather normalized source EUI, Indoor water intensity, Energy Star Score, floor area
Seattle	B, G, T, L		✓		No public disclosure required., must report EUI and EnergySTAR scores to tenants, leasees, and potential buyers.

¹ P = public, G = government, B = buyers, T = tenants, L = leasers & lenders

² Discloses summary of compliance, but not building energy use

³ CA's statewide initiative, AB 1103, requires buildings to disclose energy performance at point of transaction

City	Efficiency Requirements	Efficiency Details
Austin	Audits & mandatory upgrades for multifamily buildings, voluntary actions for commercial	The Austin City Council has set the following voluntary goals based on EnergySTAR ratings: 75 or higher - No action necessary 63-74 - Raise the score to at least 75 42-62- Raise the score by 20% Below 42- Raise the score to 50
Boston	energy audits	Buildings registering poor energy, emissions, and water performance--and not demonstrating improvement--will be required to undertake energy assessments or audits every five years.
Cambridge	Referring to net zero task force and other resources	The City is considering options to require energy performance improvement actions of buildings that do not meet a minimum level of performance
NYC	ASHRAE level II audits & RCx, public building audits & upgrades	
San Francisco	Yes, ASHRAE level I or II audits every 5 years (with retroCx as an alternative)	Building owners must file a Confirmation of Energy Audit online. Audits must be completed by a qualified Energy Professional. Large facilities and buildings with complex systems are encouraged to consider retrocommissioning as an alternative to meet the audit requirement. Audits completed since 2008 may be used.
Seattle	No	Not required, but they do provide links to rebates and assistance available for energy efficiency (http://www.seattle.gov/environment/buildings-and-energy/energy-benchmarking-and-reporting/save-energy---save-energy)