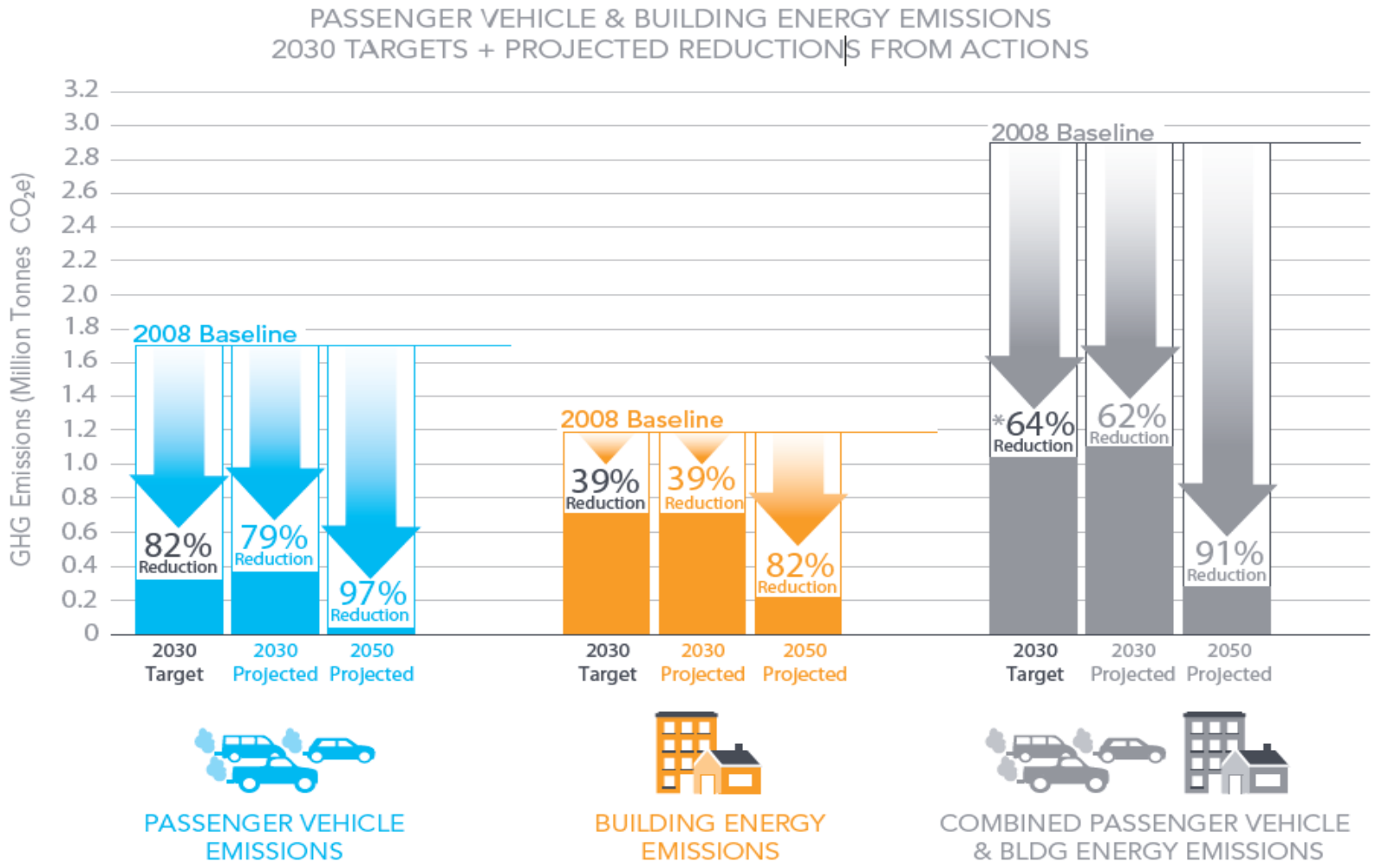
Building Energy – Next Generation Policy

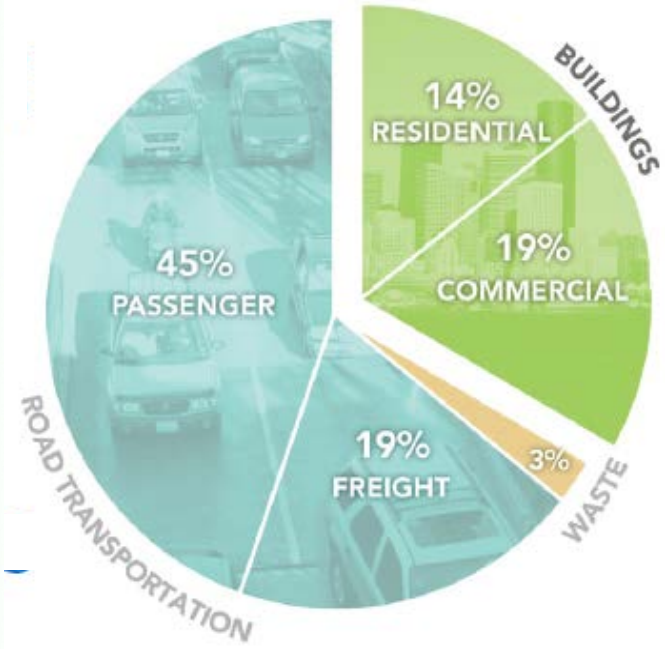
February 18, 2018

Seattle Office of Sustainability & Environment

CAP Emission Reduction Goals



CAP Building Energy Targets



2050 Energy and Carbon Goals

RESIDENTIAL ENERGY USE (TRILLION BTU) — 63% Reduction

COMMERCIAL ENERGY USE (TRILLION BTU) — 45% Reduction

GHG INTENSITY OF BUILDING ENERGY USE (EMISSIONS/BTU) — 63% Reduction

Progress to Date

Energy & GHG Reductions

Building Energy Use (2008-2050)

Target Reduction: 1.25% / year

Actual 2008-2012: 0.75% / year

GHG Intensity of Fuels (2008-2050)

Target Reduction: 1.5% / year

Actual 2008-2012: 1.75% / year

Overall Building Emissions (2008-2050)

Target Reduction: 2% / year

Actual 2008-2012: 2.50% / year

Source: 2012 Seattle Community GHG Inventory

Progress to Date

Energy Reductions

Commercial Building Energy Use (2008-2050)

Target Reduction: 1.10% / year

Actual 2008-2012: 0.25% / year

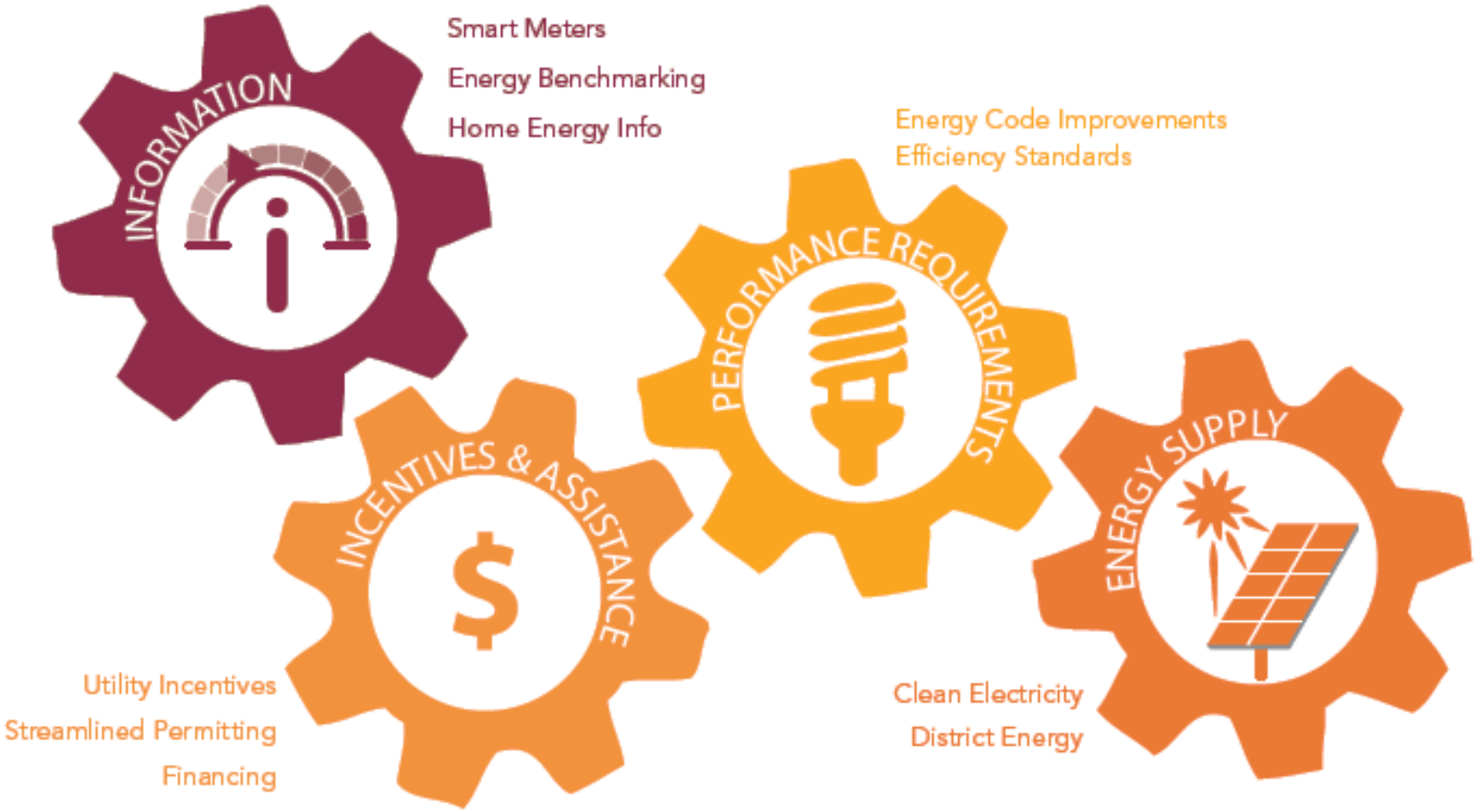
Residential Building Energy Use (2008-2050)

Target Reduction: 1.5% / year

Actual 2008-2012: 1.25% / year

Source: 2012 Seattle Community GHG Inventory

CAP Strategy for Buildings



Work to Date: CAP 2015 Actions

Commercial & Multifamily Buildings

LEADERSHIP (City Facilities)	✓ Develop Resource Conservation Management Plan ✓ Publish City energy benchmarking scores
INCENTIVES	➢ Pilot retro-commissioning incentives ➢ Pilot pay for performance incentives ➢ Update Living Building pilot
REGULATIONS	✓ Minimum energy requirements for substantial alterations ✓ Increase efficiency standards in each code cycle ✓ Outcome-based code option

PROCESS

- Research Policy Options
  - CAP 2015 & 2030 actions, plus additional alternatives from other jurisdictions
  - Interviews with key cities
- Stakeholder Engagement
  - Discussions with + organizations & individuals
    - Building owners, developers & facility managers
    - Energy efficiency & environmental organizations
    - Service providers and professional organizations
  - Open house September 14, 80 attendees

Next Steps – Policy Approach

- 2016 Legislation
  - Energy Benchmarking Transparency
  - Periodic Tune-Ups for Larger Commercial Buildings
  - Accelerated Tune-Ups for City-owned Buildings

- Additional Supporting Actions
  - Periodic Energy & GHG Goals by Building Type
  - Benchmarking Performance Scorecards
  - SCL Incentives
  - Seattle Energy Code
  - Continued Investigation & Policy Development

Legislation Timeline

Council Legislative Action

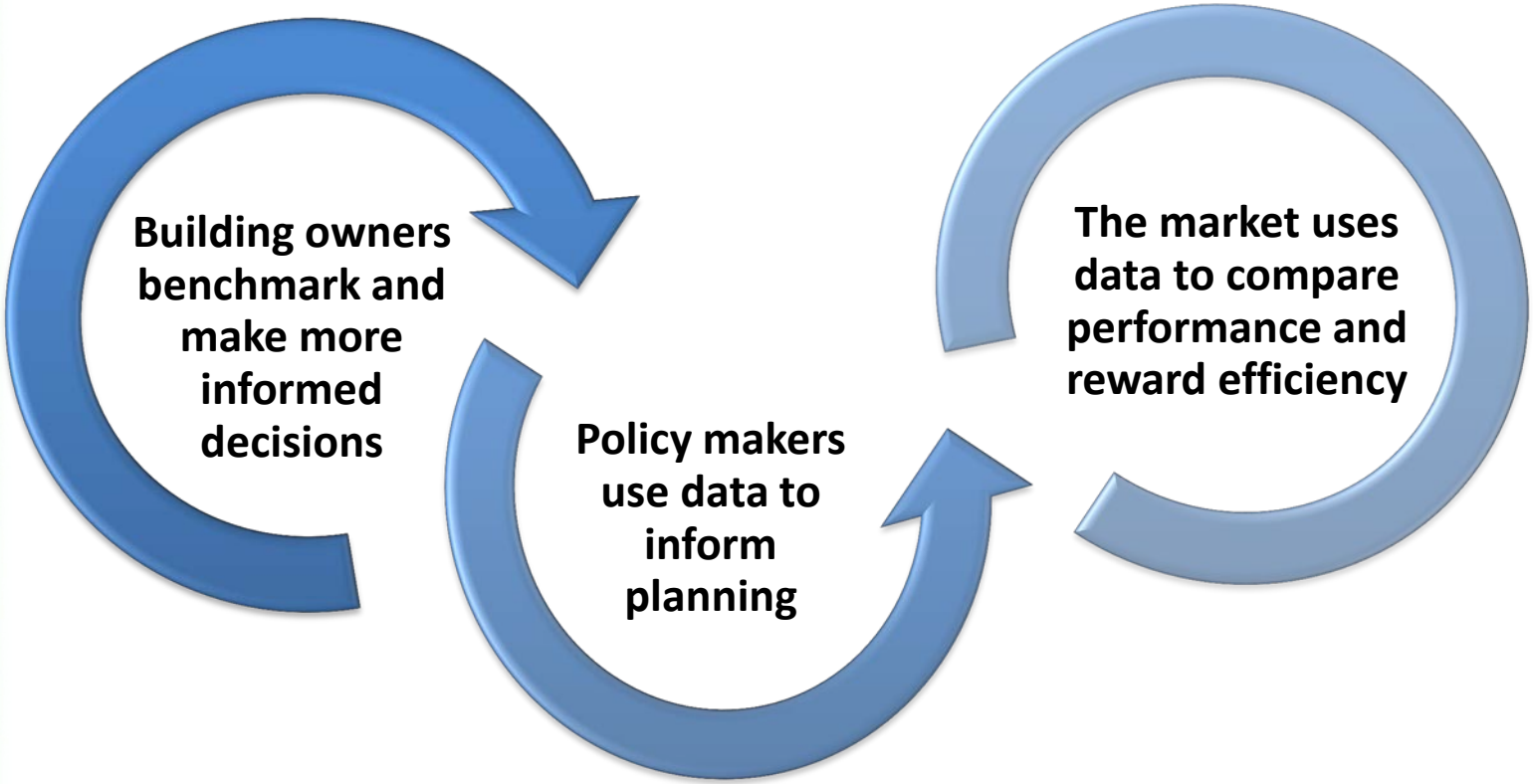
- Energy & Environment Committee — Thu. Feb 25, 9:30 am
- Full Council (anticipated) — Mon. Feb 29, 2:00 pm

Director's Rules

- Stakeholder Engagement (and public comment) — March – Sept.
- RSJ Engagement/Evaluation (tune-ups) — Jan. – Aug.

BENCHMARKING TRANSPARENCY

Why Transparency?



Why Transparency?

City	Program Components	Energy Savings Benchmarked Buildings
San Francisco[1] 2010-2014	Benchmarking & Transparency Audits (2013)	**7.9%** (over 4 years) 16.9% carbon savings
New York City[2] 2010 - 2013	Benchmarking & Transparency Audits (2013) Lighting Upgrades (2025)	**5.7%** (over 3 years) 9.9% carbon savings
Washington, D.C.[3] 2012 - 2013	Benchmarking & Transparency	**3%** (over 1 year)
Seattle[4] 2011 - 2013	Benchmarking	**0.6%** (over 2 years)
Philadelphia[5] 2012 - 2013	Benchmarking & Transparency	**0.0%** (over 1 years)

1. San Francisco Department of the Environment and Urban Land Institute. *San Francisco Existing Commercial Buildings Performance Report 2010-2014.* (p.14-15)
2. US Department of Energy. *New York City Benchmarking and Transparency Policy Impact Evaluation Report*, May 2015. (p. ii)
3. District Department of the Environment. http://doee.dc.gov/node/970312 (accessed 2/17/16)
4. Seattle Office of Sustainability & Environment. *Building Energy Analysis Report 2013*. (Executive Summary)
5. *City of Philadelphia Energy Benchmarking Report 2014.* (p. 10)

BENCHMARKING TRANSPARENCY

Key Elements of Legislation

- Benchmarking energy and GHG information available on web
- Transparency would start with 2015 data, reported in 2016
- No change to owner submittal requirements



CITY OF LOS ANGELES

Address | Building ID | Council Districts | Neighborhoods | Building Types | 2013 2014 2015

MAP FILTERS

RESET ALL

Select indicators to compare

- Building Information
- Energy Use

Site Energy Intensity

19.6 — 763

CITYWIDE AVERAGE: 110.8 kBTU/FT²

Source Energy Intensity

61.5 — 605

CITYWIDE AVERAGE: 280 kBTU/FT²

Energy Star Score LESS INFO

1 — 100

CITYWIDE AVERAGE: 46

The 1-100 ENERGY STAR score was developed by the EPA and provides a metric for comparison with other similar buildings across the country. The score accounts for differences in climate, occupancy and operating hours.

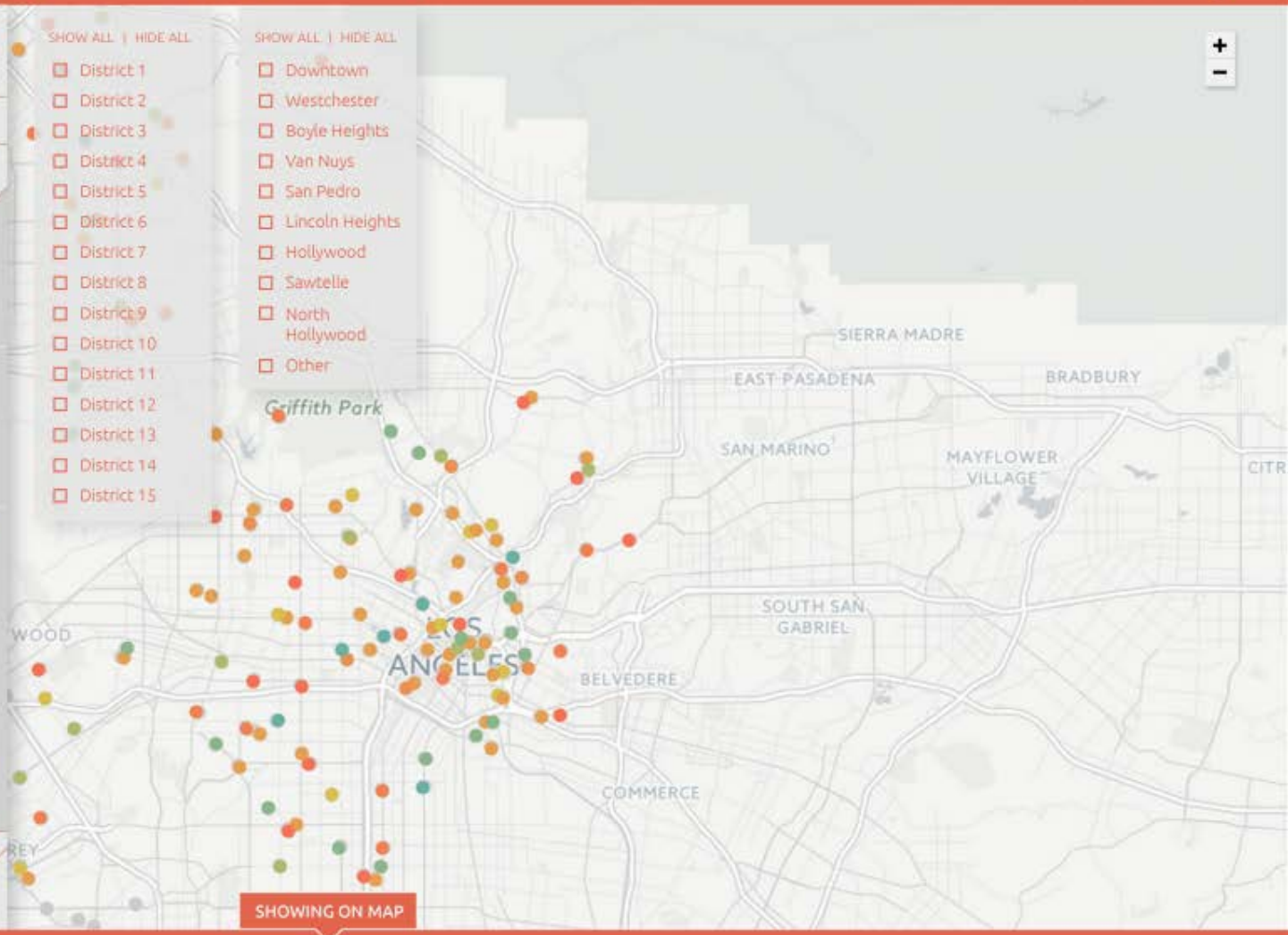
162,215
OUT OF 162,215 BUILDINGS

SHOW ALL | HIDE ALL

- District 1
- District 2
- District 3
- District 4
- District 5
- District 6
- District 7
- District 8
- District 9
- District 10
- District 11
- District 12
- District 13
- District 14
- District 15

SHOW ALL | HIDE ALL

- Downtown
- Westchester
- Boyle Heights
- Van Nuys
- San Pedro
- Lincoln Heights
- Hollywood
- Sawtelle
- North Hollywood
- Other



SHOWING ON MAP

BUILDING COMPARISON

BUILDING SIZE X | ENERGY STAR X

AVERAGES BASED ON RANGES SET IN FILTERS

AVERAGE 41,921 FT²

AVERAGE 46

CITY OF LOS ANGELES

Address | Building ID | Council Districts | Neighborhoods | Building Types | 2013 2014 2015

MAP FILTERS

RESET ALL

Select indicators to compare

- Building Information
- Year Built — MORE INFO
  - 1960 – 1980
  - CITYWIDE AVERAGE: 1990
- Energy Use
- Emissions
- Water Use

97,587
OUT OF 162,215 BUILDINGS

SHOWING ON MAP

BUILDING COMPARISON

YEAR BUILT X | BUILDING SIZE X | ENERGY STAR X | SITE ENERGY IN- X | GHG INTENSITY X

AVERAGES BASED ON RANGES SET IN FILTERS	YEAR BUILT	BUILDING SIZE	ENERGY STAR	SITE ENERGY IN-	GHG INTENSITY
	AVERAGE 1967	AVERAGE 44,465 FT²	AVERAGE 46	AVERAGE 110.8 KBTU/FT²	AVERAGE 8.7 KGCO2E/FT²
STATION #73 Fire Department	1978	31,815 FT²	N/A	146.3 KBTU/FT²	6.8 KKCO2/FT²
LANKERSHIM ARTS CENTER 19/38 Cultural Affair	1970	3,205,164 FT²	73	87.1 KBTU/FT²	9.7 KKCO2/FT²
LA CITY HALL 01/002 Office	1964	435,920 FT²	31	31.9 KBTU/FT²	8.3 KKCO2/FT²
SUNLAND TUJUNGA MUNICIPAL 01/004 Municipal	1961	9,445 FT²	46	204.5 KBTU/FT²	4.3 KKCO2/FT²

CITY OF LOS ANGELES

Address | Building ID

2013 2014 20

BACK TO THE MAP

LA CITY HALL 01/002

Office

Council District 14
ID #3935256

200 North Spring St.
Los Angeles, CA 91325

In **2015** this building received a **better** Energy Star score than other buildings of the same type.

ENERGY STAR SCORE

31

CITY AVERAGE (1-100) 46

BUILDING TYPE AVERAGE (1-100) 28

SITE ENERGY INTENSITY

31.9 KBTU/FT²

CITY AVERAGE (KBTU/FT²) 110.8

BUILDING TYPE AVERAGE (KBTU/FT²) 1941

SOURCE ENERGY INTENSITY

56.4 KBTU/FT²

CITY AVERAGE (KBTU/FT²) 280.5

BUILDING TYPE AVERAGE (KBTU/FT²) 281.6

GHG INTENSITY

8.3 KGCO2E/FT²

CITY AVERAGE (KGCO2E/FT²) 8.7

BUILDING TYPE AVERAGE (KGCO2E/FT²) 6.5

Building Tune-Ups

Why Tune-Ups?

- Ensure energy and water are not needlessly wasted by optimizing building performance
- Promote active management of building systems
- Tune-ups yield 5-20% energy savings and pay back in 2-3 years, on average

Building Tune-Ups
Operational Improvements

For example

- Schedules: Check and tighten or add schedules for all equipment, lighting, and controls (weekday, weekend, and holiday schedules).
- Outside Air Control: Measure outdoor air supply. Complete outside air calculations per ASHRAE 62 standard. Outside air should generally be set to no more than 150% of ASHRAE.
- Setpoints: Check and adjust VAV box minimum damper positions. They should be reset to 5% in most occupancy types.
- Equipment Controls: Review/enable automatic economizer controls (adjust when necessary and ensure integrated economizer controls are functioning).
- Plumbing Leaks: Check water meter to verify that the meter is not recording water use at a time when all water use is off.

Building Tune-Ups

Key Elements of Legislation

- **Non-residential buildings ≥ 50,000 sq. ft.**
- **Tune-up every 5 years**
- **Phased in by building size**
  - 200,000 sf or larger — Oct. 1, 2018
    (Municipal Buildings: Oct. 1, 2017)
  - 100,000 – 199,000 sf — Oct. 1, 2019
    (Municipal Buildings: Oct. 1, 2018)
  - 70,000 – 99,000 sf — Oct. 1, 2020
  - 50,000 – 69,000 sf — Oct. 1, 2021
    (Municipal Buildings: Oct. 1, 2020)
- Evaluation of performance results — 2020 +

Building Tune-Ups
Potential Exemptions

Performing Well

- High certified ENERGY STAR score
- Green building certification, such LEED for Operations and Maintenance v4 Gold Rating or a LBC Net-Zero Energy Certification (w/in previous 3 years)
- Demonstrated energy savings of at least 15 percent (w/in previous 3 years)

Recent or Ongoing Operational Improvements

- Successful completion of an approved utility retro-commissioning incentive program (w/in previous 3 years)
- Completion of full retro- or re-commissioning (w/in previous 3 years)
- Completion of an ASHRAE Level II audit and implementation of all no-cost/low-cost energy efficiency measures (w/in previous 3 years)
- Participation in the Seattle City Light Energy Assistance Analysis program and implemented of all cost-effective measures (w/in previous 3 years)
- Active monitoring and continuous commissioning

Not Relevant or Unable

- New Building (Certificate of Occupancy w/in previous 3 years)
- Buildings scheduled to be demolished within one year
- Demonstrated financial distress

Other, as determined by Director

Questions & Discussion

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