



**SF Environment**

**Our home. Our city. Our planet.**

A Department of the City and County of San Francisco

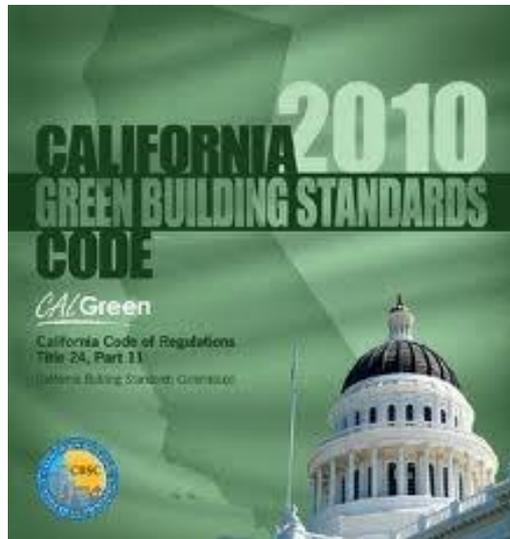
# San Francisco Green Building Code - Energy

February 24, 2014

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San Francisco Department of the Environment



# Policy for New Construction and Alterations



California Green Building Standards



California Energy Efficiency Standards



City Code Leverages Green Building Leadership Labels

# Incentive: Priority Permit Processing



Priority awarded to projects that commit to:

- LEED Platinum
- Net Zero Energy
- Living Building Challenge
- Passive House

## Standard Timeframe

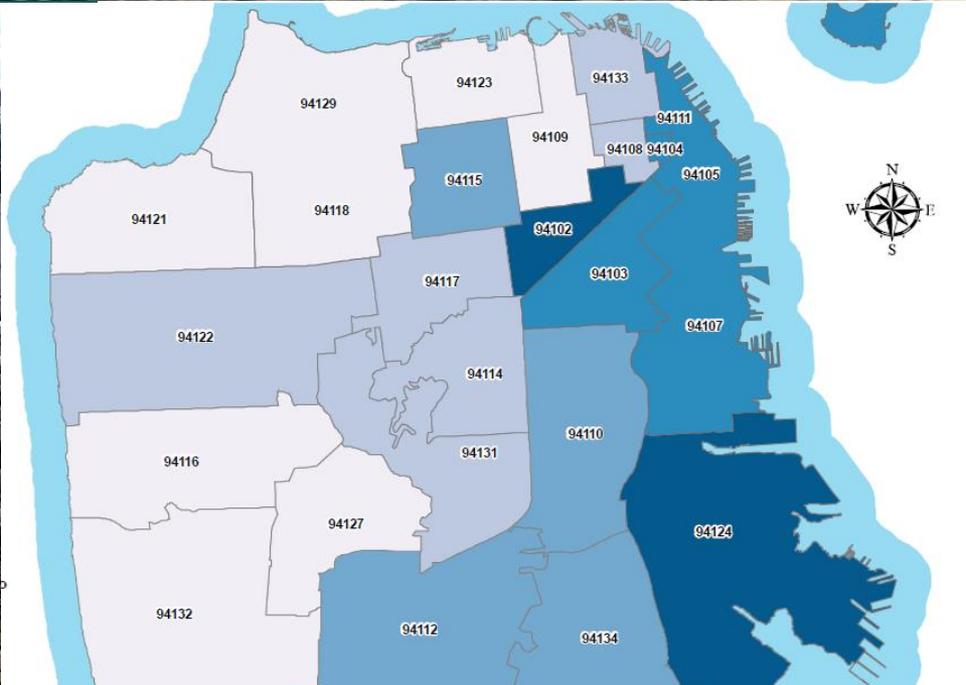


## Extremely Green Projects



City and County of San Francisco  
**Planning Department**





## **Zero Net Energy**

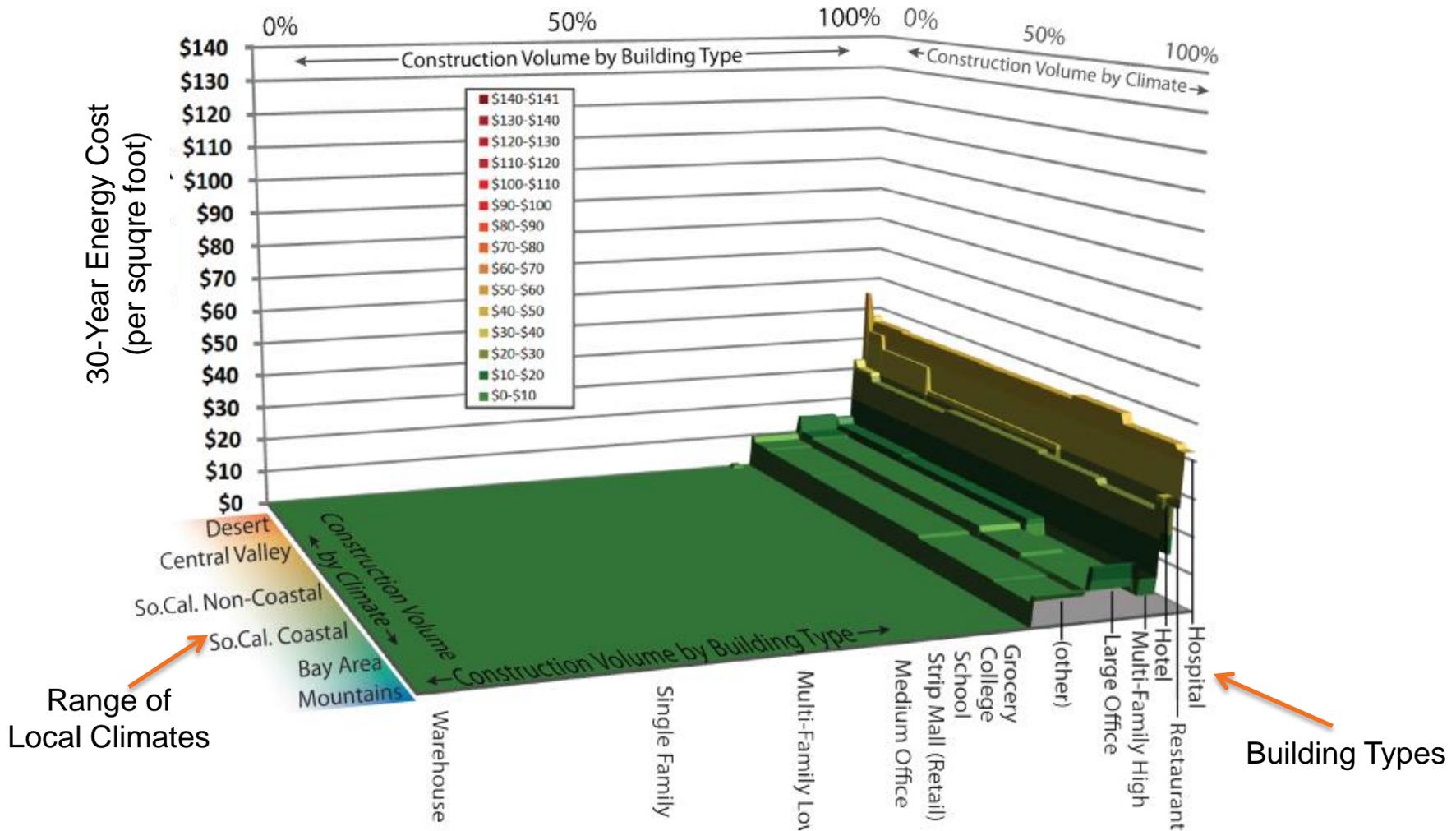
Action Plan: Commercial Building Sector  
2010-2012

Developed by ZNE Stakeholders

## CA Goals: Zero Net Energy for

- All new residential by 2020
- All new commercial by 2030
- 50% of existing commercial by 2030

# Zero Net Energy is Feasible in California



# Green Building Requirements



	2008	2009	2010	2011	Thru Dec 31, 2013	Jan 1, 2014
<b>New Commercial</b>						
<b>Large</b> ≥ 25k ft	LEED Certified	LEED Silver			LEED Gold	<b>LEED Gold (v2009)</b>
<b>Other</b>	LEED checklist + Local Priority Measures			CalGreen +15% Beyond Title 24 2008		<b>CalGreen T24 (2013) only</b>
<b>Renovations</b>						
<b>First Time Tenant</b> >25k sq ft	LEED Certified	<b>LEED Silver</b>			LEED Gold	<b>LEED Gold (v2009)</b>
<b>Major Alteration</b> >25k sq ft	LEED Certified	<b>LEED Silver</b>			LEED Gold	<b>LEED Gold (v2009)</b>
<b>New Residential</b>						
<b>High Rise</b> ≥ 4 occupied floors	LEED Certified		LEED Silver or GreenPoint Rated			<b>LEED Silver or GreenPoint Rated</b>
<b>All Other Residential</b> 1+ units	GreenPoints Checklist	25 GreenPoints	GreenPoint Rated	GreenPoint Rated or LEED Silver		<b>GreenPoint Rated or LEED Silver</b>

# SF Energy Requirements



	Thru Dec 31, 2013	Jan 1, 2014 – June 30, 2014	July 1, 2014
<b>New Commercial</b>			
<b>Large</b> ≥ 25k ft	+15% Beyond Title 24 2008	~Meet T24 (2008)	<b>Meet T24 2013</b>
<b>Other</b>	+15% Beyond Title 24 2008	~Meet T24 (2008)	<b>Meet T24 2013</b>
<b>Renovations</b>			
<b>First Time Tenant</b> >25k sq ft	+15% Beyond Title 24 2008	~Meet T24 2008	<b>Meet T24 2013</b>
<b>Major Alteration</b> >25k sq ft	~Meet T24 2008	~Meet T24 2008	<b>Meet T24 2013</b>

# SF Energy Requirements



	Thru Dec 31, 2013	Jan 1, 2014 – June 30, 2014	July 1, 2014
<b>New Residential</b>			
<b>High Rise</b> ≥ 4 occupied floors	+15% Beyond Title 24 (2008)	<p><b>Based on choice of rating system:</b></p> <ul style="list-style-type: none"> <li>• LEED BD+C 2009 – Meet T24(2008)</li> <li>• GreenPoint Rated – 15% Beyond Title 24 (2008)</li> <li>• LEED for Homes (including MidRise) – 15% Beyond Title 24 (2008)</li> </ul>	<p><b>Based on choice of rating system:</b></p> <ul style="list-style-type: none"> <li>• LEED BD+C 2009 – Meet T24(2013)</li> <li>• GreenPoint Rated – 10% Beyond Title 24 (2013)</li> <li>• LEED for Homes (including MidRise) – 10% Beyond Title 24 (2013)</li> </ul>
<b>All Other Residential</b> 1+ units	+15% Beyond Title 24 (2008)	<p><b>Based on choice of rating system:</b></p> <ul style="list-style-type: none"> <li>• GreenPoint Rated – 15% Beyond Title 24 (2008)</li> <li>• LEED for Homes (including MidRise) – 15% Beyond Title 24 (2008)</li> </ul>	<p><b>Based on choice of rating system:</b></p> <ul style="list-style-type: none"> <li>• GreenPoint Rated – 10% Beyond Title 24 (2013)</li> <li>• LEED for Homes (including MidRise) – 10% Beyond Title 24 (2013)</li> </ul>

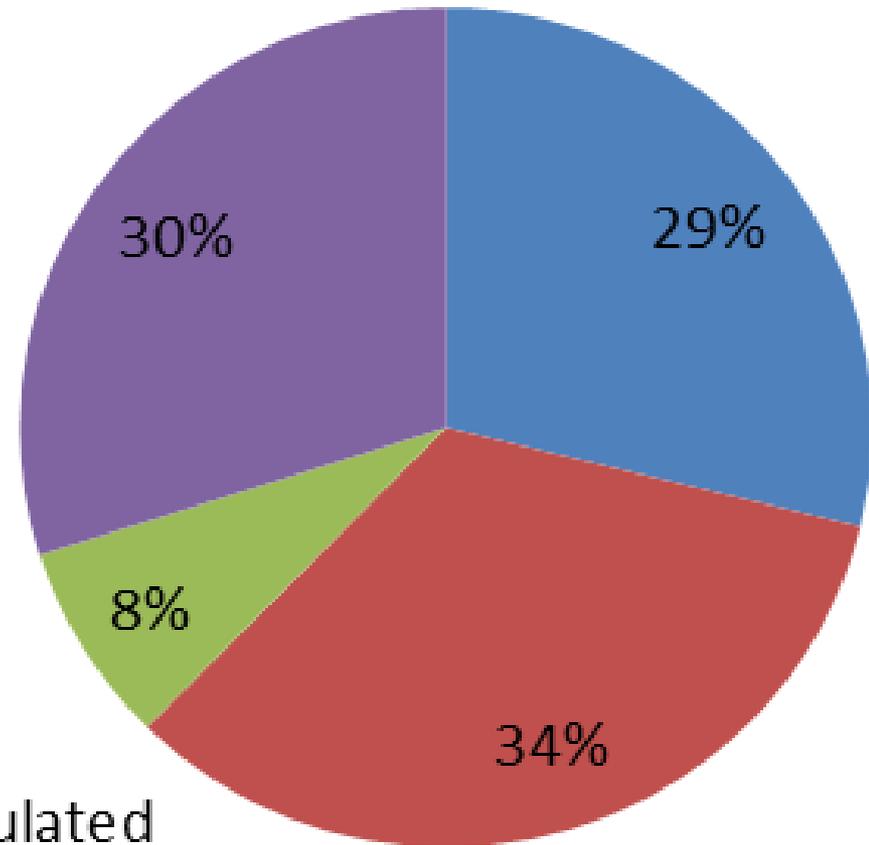
# Multifamily Energy End Use, T24 2013: The End of the Line for Climate Zone 3?



- A 15% cut in whole building energy use requires cutting modeled 'Performance' loads *in half*

OR:

- 15% cut in modeled 'Performance' loads cuts expected energy use *only 4.5%*



■ Unregulated

■ Preempted

■ Mandatory

■ Performance

Source: ARUP (2014)

# zEPI Scale

Energy Dogs



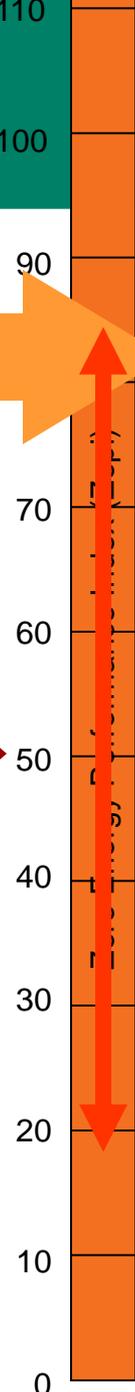
Energy Use

Average Energy Consumption  
(adjusted for building type, climate, schedules, etc.)  
**CBECS 2003**

LEED 2.1 Percent Savings

Regulated Energy (Office)    Regulated Energy (Laboratory)

Moving Baseline



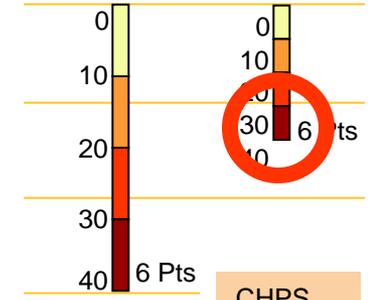
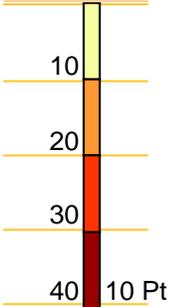
Candidate Building



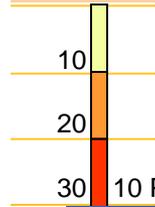
Energy Scale (kBtu/ft<sup>2</sup>-y)

- ASHRAE 90.1-1999
- Title 24 2001
- ASHRAE 90.1-2004
- Title 24 2005 ASHRAE
- Title 24 2008
- ASHRAE 90.1-2010
- ASHRAE 90.1-2013
- Title 24 2013
- NREL Maximum Technical Potential (with no renewables)
- NREL Maximum Technical Potential (with renewables)

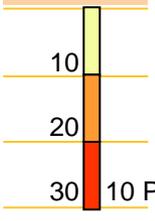
LEED 2.2 Percent Savings



current LEED



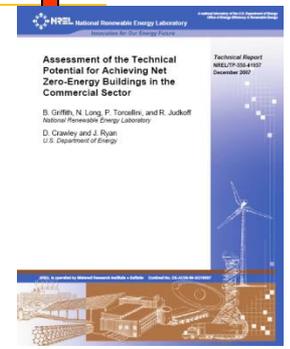
CHPS 2009



Net Producers



Zero Net Energy



Source: Charles Eley, 2014

# Learn more



San Francisco:  
Green Building Code  
Priority Permitting  
Existing Commercial Buildings Policy  
This Slideshow

[www.sfdbi.org](http://www.sfdbi.org)  
<http://tinyurl.com/prioritypermit>  
[www.sfenvironment.org/ecb](http://www.sfenvironment.org/ecb)  
<http://tinyurl.com/sanfran-t24-2013>

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California:  
CA Zero Net Energy Strategic Plan  
ARUP Zero Net Energy Study  
California Executive Order B-18-12  
CA Green Building Action Plan

[tinyurl.com/CAZNEPlan](http://tinyurl.com/CAZNEPlan)  
[tinyurl.com/ARUPZNEFeasibility](http://tinyurl.com/ARUPZNEFeasibility)  
[tinyurl.com/GovGreenOrder](http://tinyurl.com/GovGreenOrder)  
[tinyurl.com/CaGBAction](http://tinyurl.com/CaGBAction)

