

Considering Above Code Certification Policies Webinar



June 15, 2016



DC's Progressive Green Building Policies

Green Building & Energy

- ✓ Green Building Act (2006)
- ✓ Energy Benchmarking & DC SEU (2008)
- ✓ Energy Efficiency Financing Act (PACE - 2010)
- ✓ Distributed Generation Amendment Act (2011)
- ✓ Community Renewables Act (2013)
- ✓ Green Construction Codes (2014)



Green Infrastructure

- ✓ Stormwater Regulations (2013)
- ✓ Green Area Ratio (2013)
- ✓ Green Construction Codes (2014)

DC Green Construction Code

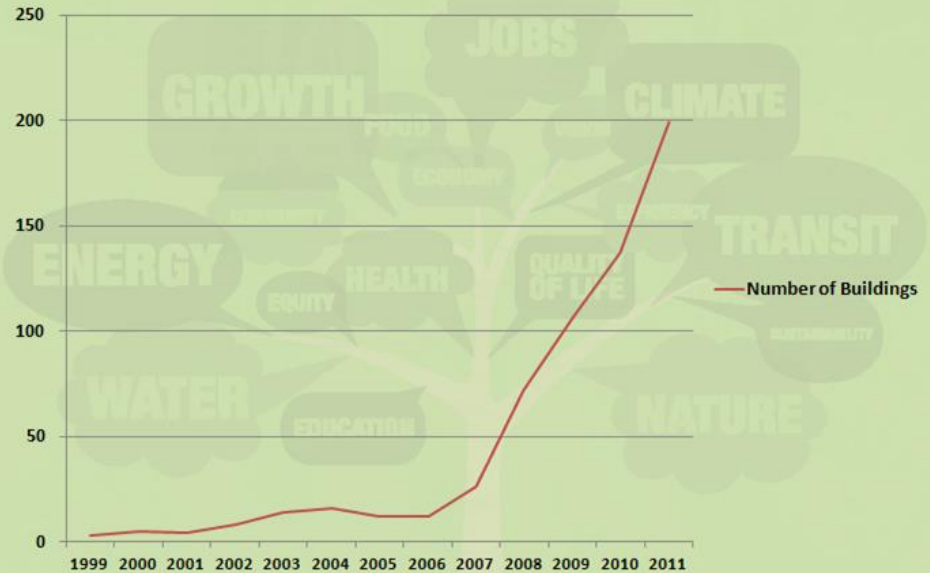
- ❖ Scope – Based on the International Green Construction Code, the code covers all commercial projects 10,000 SF and above, and all multifamily residential projects 10,000 SF and larger, and 4 stories and higher
- ❖ LEED-like Sections:
 - ❖ Site Development and Land Use
 - ❖ Material Resource Conservation and Efficiency
 - ❖ Energy Conservation and Efficiency
 - ❖ Water Resource Conservation and Efficiency
 - ❖ Indoor Environmental Quality and Comfort
 - ❖ Commissioning
 - ❖ Appendix A
- ❖ Alternative Compliance Paths: LEED, Enterprise Green Communities, ASHRAE 189.1, National Green Building Standard (ICC 700 – possible)



ENERGY STAR in DC



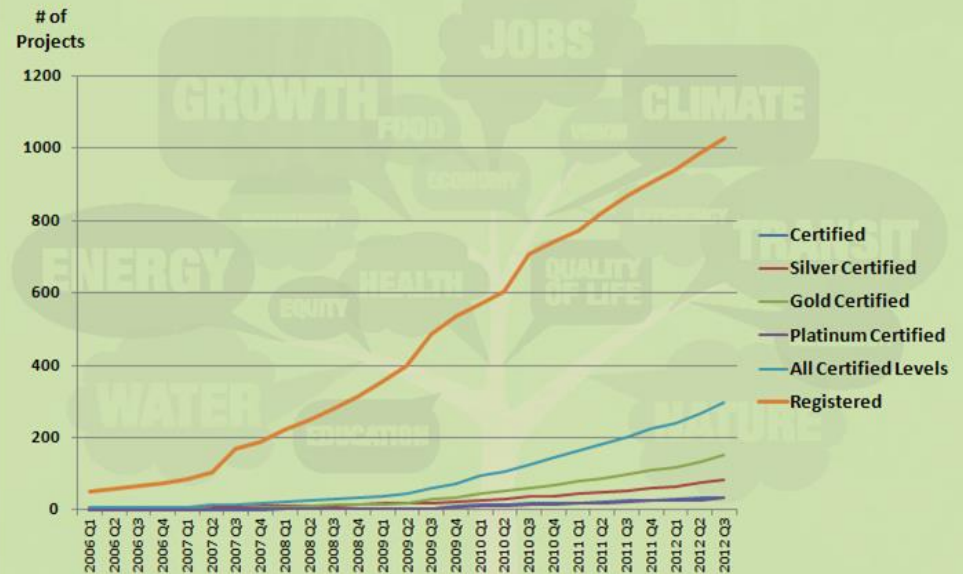
Energy Star Certified Buildings



LEED in DC



LEED Project Construction

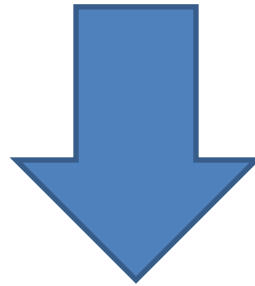


Policy Outcomes in DC

- ❖ **1st in LEED and ENERGY STAR® certified square footage per capita among large cities in U.S.**
- ❖ **1st in nation in total number of ENERGY STAR® buildings (DC Metro Area) and 2nd in total number of LEED projects**
- ❖ **#1 EPA Green Power Community for five years**
- ❖ **1st in nation in green roof square footage per capita (2nd in total square footage)**
- ❖ **2nd in alternative transportation (56% of trips by transit, walking, or bike)**



Green Building Codes and LEED Are
Great, But Not Enough to Get to This



And More Challenges...

**850 Certified
Buildings**



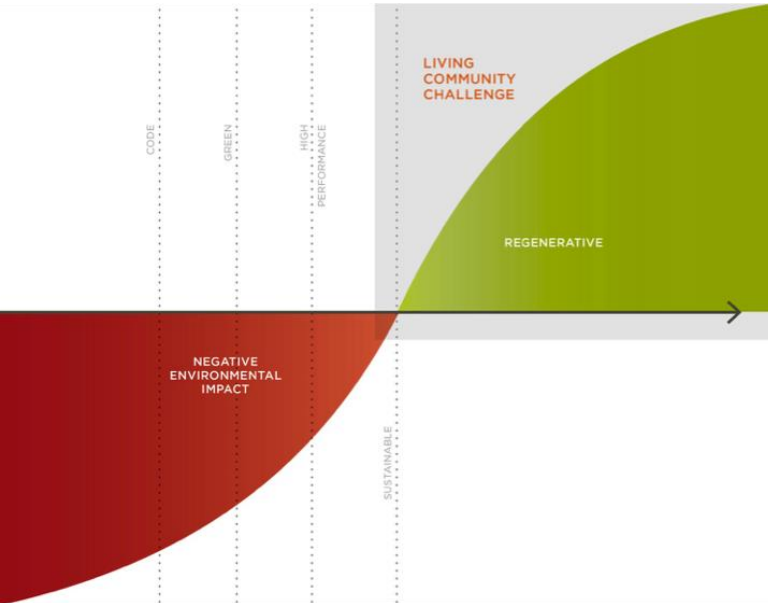
**128,000 Total
Buildings**

**125,000,000 SF
(10.7 million m²)**



**730,000,000
(67.8 million m²)**

Path to True Sustainability



Green Building Fund Grants

In 2013, DDOE created a Green Building Fund Grant Program:

➤ **2013 Funded Projects**

- Study on Mortality and Urban Heat Island Effect
- Development of Green Building Program Manual
- Net Zero Energy/Water and Living Building Challenge Financial Study for DC

➤ **2014 Funded Projects**

- Greening the Multiple Listing Service (MLS) System (continued in 2015)
- Green Appraisal (continued in 2015)
- Smart Buildings Plan (City-Wide Energy/Water/Waste/Etc. Models)
- Quality Assurance for Benchmarking Scores (continued in 2015)
- DC Smarter Business Challenge (continued in 2015 and 2016)

➤ **2015 Funded Projects**

- Microgrid/District Energy Potential Study (continued in 2016)
- Green Bank/Incentives/Revenue Neutral Carbon Pricing Study (continued in 2016)

➤ **2016 Funded Projects**

- POWER DOWN DC (behavior change competition for multifamily residential)
- Living Community Challenge Planning (for large scale development sites in DC)

Grant Program Website:

<http://doee.dc.gov/publication/green-light-grant-program>



Green Building Fund Grants



First Costs

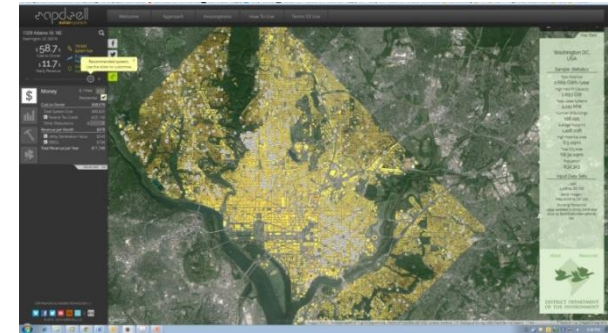
| Building Type | Net Zero Energy | Net Zero Water | Living Building Challenge |
|---------------------------------------|-----------------|----------------|---------------------------|
| Commercial - New (328,095 SF) | 5-10% | 0-4% | 11-16% |
| Commercial - Retrofit (235,172 SF) | 7-12% | 1-6% | 13-18% |
| Residential - New (329,164 SF) | 14-19% | 2-7% | 22-27% |

Energy Financials

| Building Type | Deep ECM Only | | | Net Zero With ECM | | | Net Zero Without ECM | | |
|------------------------------|---------------|----------|--------|-------------------|---------|--------|----------------------|---------|--------|
| | NPV | SPB | ROI | NPV | SPB | ROI | NPV | SPB | ROI |
| Office New Construction | (\$396,476) | 11 yrs | 9.10% | \$2,672,413 | 3.0 yrs | 33.80% | \$2,508,026 | 3.3 yrs | 30.30% |
| Multifamily New Construction | (\$1,772,741) | 17.7 yrs | 5.70% | \$3,192,398 | 3.0 yrs | 33.10% | \$2,943,543 | 3.4 yrs | 29.30% |
| Office Renovation | (\$137,039) | 8.1 yrs | 12.30% | \$1,260,704 | 2.7 yrs | 36.80% | \$3,008,046 | 3.4 yrs | 29.20% |

Other Initiatives in DC...

- ❖ Smart City Efforts
 - Solar Mapping - www.mapdwell.com/en/dc
 - Virtual Energy Audits
- ❖ Update of Green Building Act (higher performance req.)
- ❖ Update of Renewable Portfolio Standard (50% by 2032)
- ❖ Potential Creation of Green Bank
- ❖ Development of Single Family Green Building Program
- ❖ New Green Construction Code + Energy Code (with stretch codes and net zero code in Appendix)
- ❖ Net Zero/Living Building Challenges Language in RFPs
- ❖ EcoDistricts
 - ✓ 3 Target Cities Projects in DC
 - ✓ Focus on district energy and microgrid solutions
- ❖ Living Building Challenge/Living Community Challenge
 - ✓ LBC Design Competition/Project for Affordable Housing
 - ✓ Living Community Challenge Planning for large sites



| Calendar Year | Total # Interconnected PV Systems in DC |
|---------------|---|
| 2011 | 524 |
| 2012 | 791 |
| 2013 | 1,140 |
| 2014* | 1,307 |

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