



**The Green Development Shift:  
How Canada Green Building Council is  
Transforming the Building Industry in Canada**

**Vancouver Valuation Accord  
March 2 & 3, 2007  
Vancouver, BC**

# Welcome to the new climate

**Melting icecaps in Greenland**



**Monster wildfires in Australia**



**January golfers in PEI**



**Ruined fruit crops in California**



**Snowless ski runs in Switzerland**



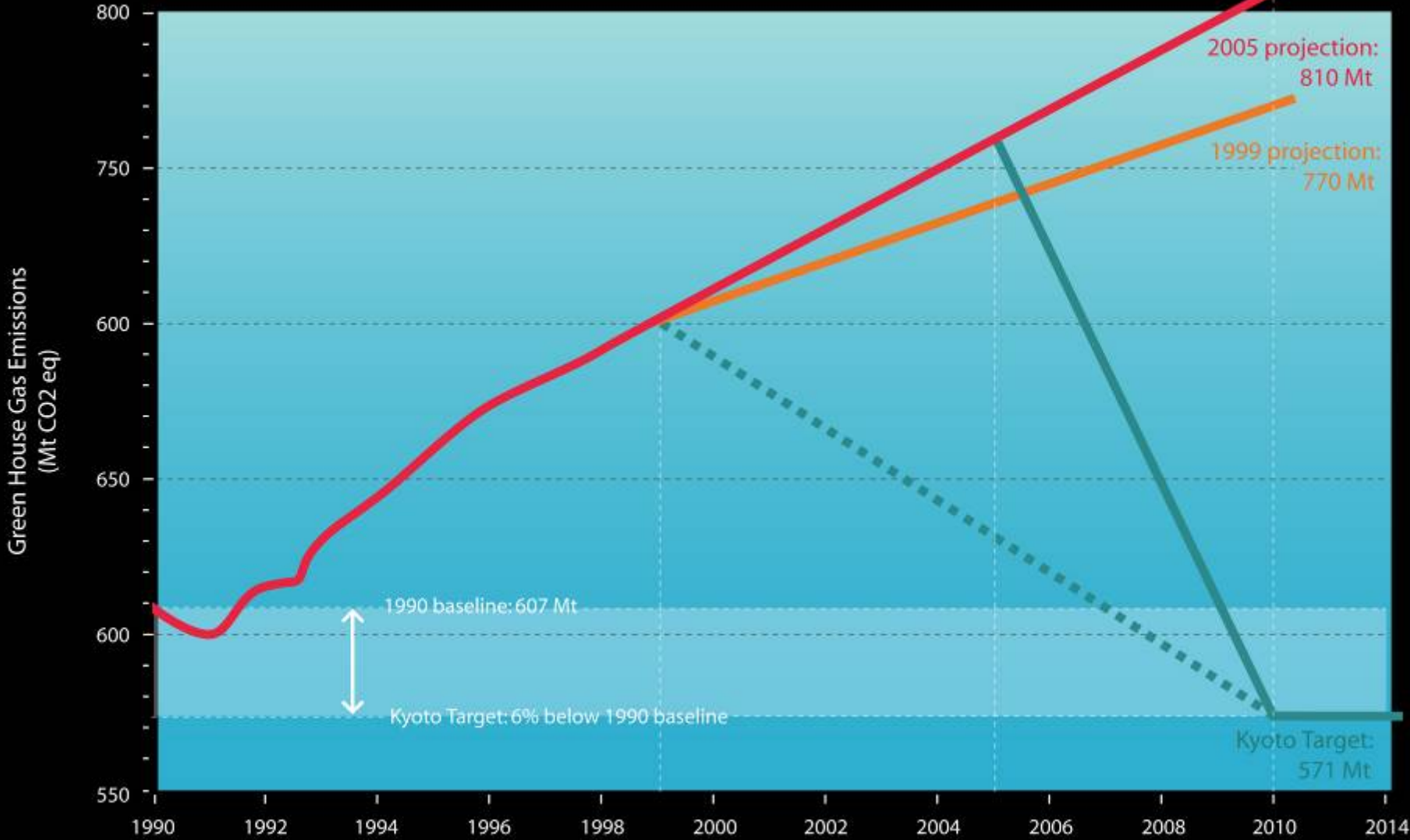
**Starving polar bears in the North**



**Devastated trees in Stanley Park**



# Canada's GHG emissions



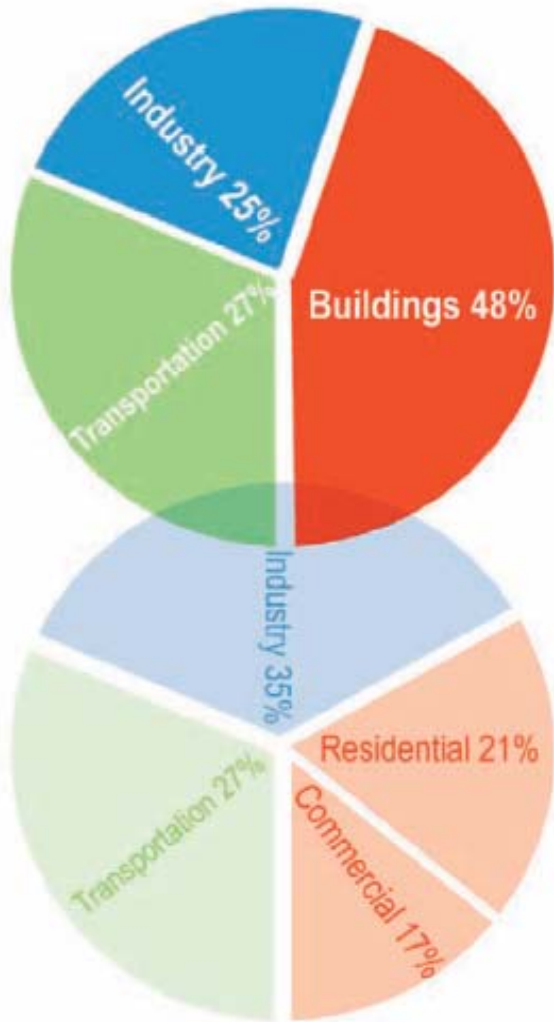
# Most Expensive Global Weather Catastrophes

Region/year	Event	Death Toll	Est. damages in Mio US \$
USA 2005	Hurricane Katrina	1,300	125,000
China 1998	Flooding	4,100	30,700
USA/Florida 1992	Hurricane Andrew	60	26,500
China 1996	Flooding	3,000	24,000
USA/Caribbean 2004	Hurricane Ivan	120	23,000
USA 1993	Flooding	50	21,000
Mexico/USA 2005	Hurricane Wilma	40	20,000
USA/Caribbean 2004	Hurricane Charlie	40	18,000
Europe 2002	Flooding	40	16,500
USA 2005	Hurricane Rita	10	16,000

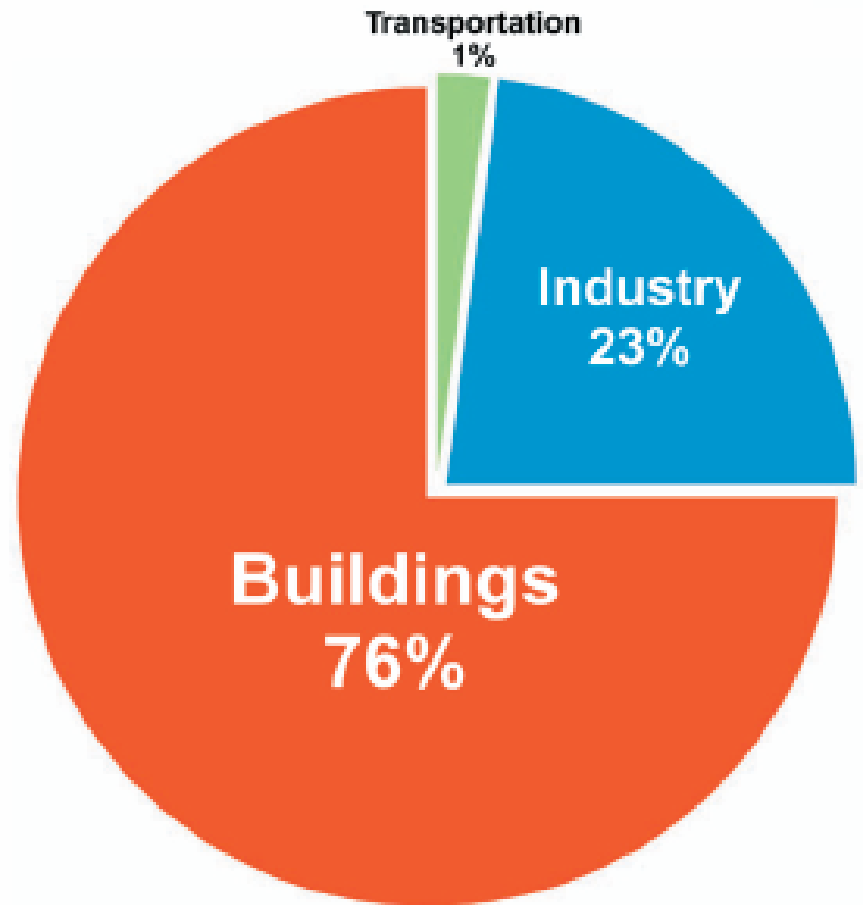


**AIA**

*Architects and Climate Change*



**GRAPHIC 1:** Combining the annual energy required to operate residential, commercial, and industrial buildings along with the embodied energy of industry-produced building materials like carpet, tile, glass, and concrete exposes buildings as the largest energy consuming and greenhouse gas emitting sector.



**GRAPHIC 4:** 76% of all power plant generated electricity is used just to operate buildings.

# Green House Gas Reduction Potential

- New & existing buildings

	2003 Actual	2005 reduction vs. BAU Growth	Target 2012 Reduction from 2003		Target Use in 2012	% progress towards Kyoto
	MT	MT	%	MT	MT	%
Residential	90	92.2	50%	45	45	26.8%
Personal Transport	120					
Commercial/ Institutional	84	38.0	50%	42	42	25.0%
Freight Transport	96					
Gen. Manufacturing	36					
Energy-Intensive Manufacturing	84					
Oil & Gas Export	90					
Non-Energy Emiss.	140					
Total	740					51.8%
Kyoto Target	572					

# Green House Gas Reduction Potential

- New & existing buildings

	1990 Actual	2004 actual	Target 2012 Reduction from 2004		Target Use in 2012	% progress towards Kyoto
	MT	MT	%	MT	MT	%
Residential	70.0	77.0	50%	38.5	38.5	22.9%
Commercial/ Institutional	48.0	68.0	50%	34.0	34.0	20.2%
Industrial	142	170.0	-	-	170.0	-
Transportation	135	176.0	-	-	176.0	-
Agriculture	14.0	15.0	-	-	15.0	-
Total	409	506			72.5	43.2%
Kyoto Target	572					

NRcan, Energy Efficiency Trends in Canada Report, August 2006

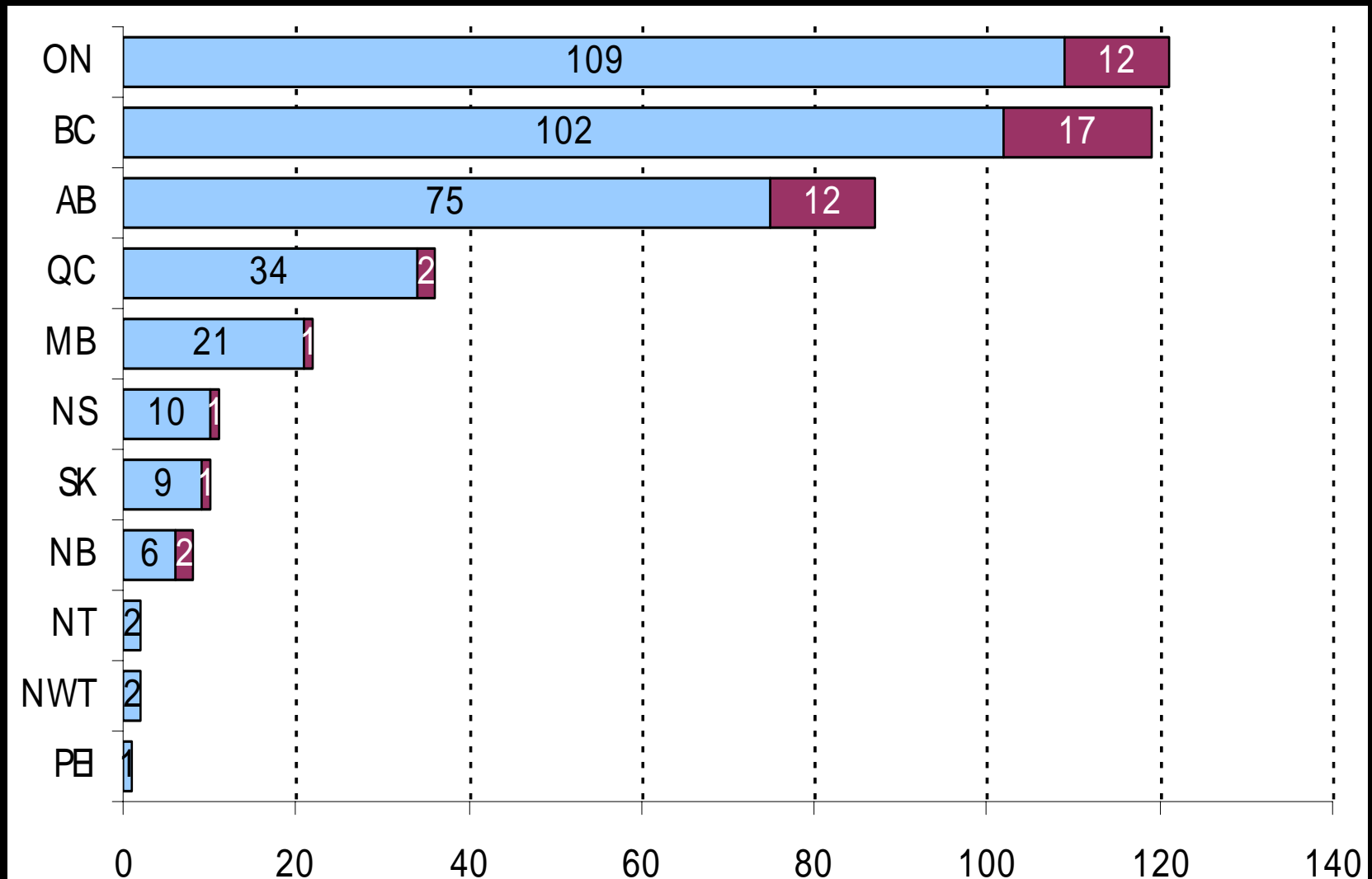
# LEED Canada Registrations & Certifications

- total number of projects



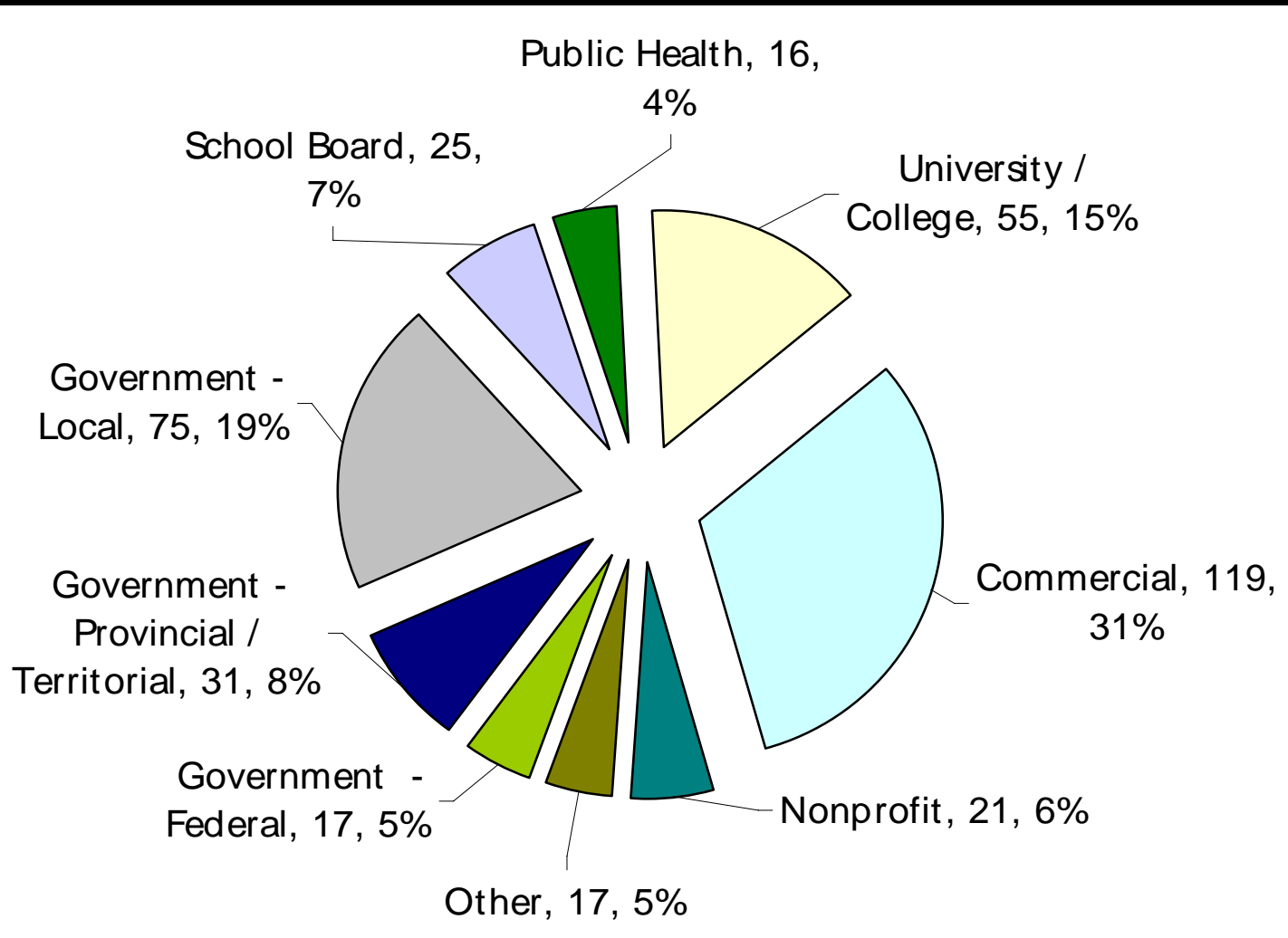
# LEED Canada Registrations & Certifications

• by province



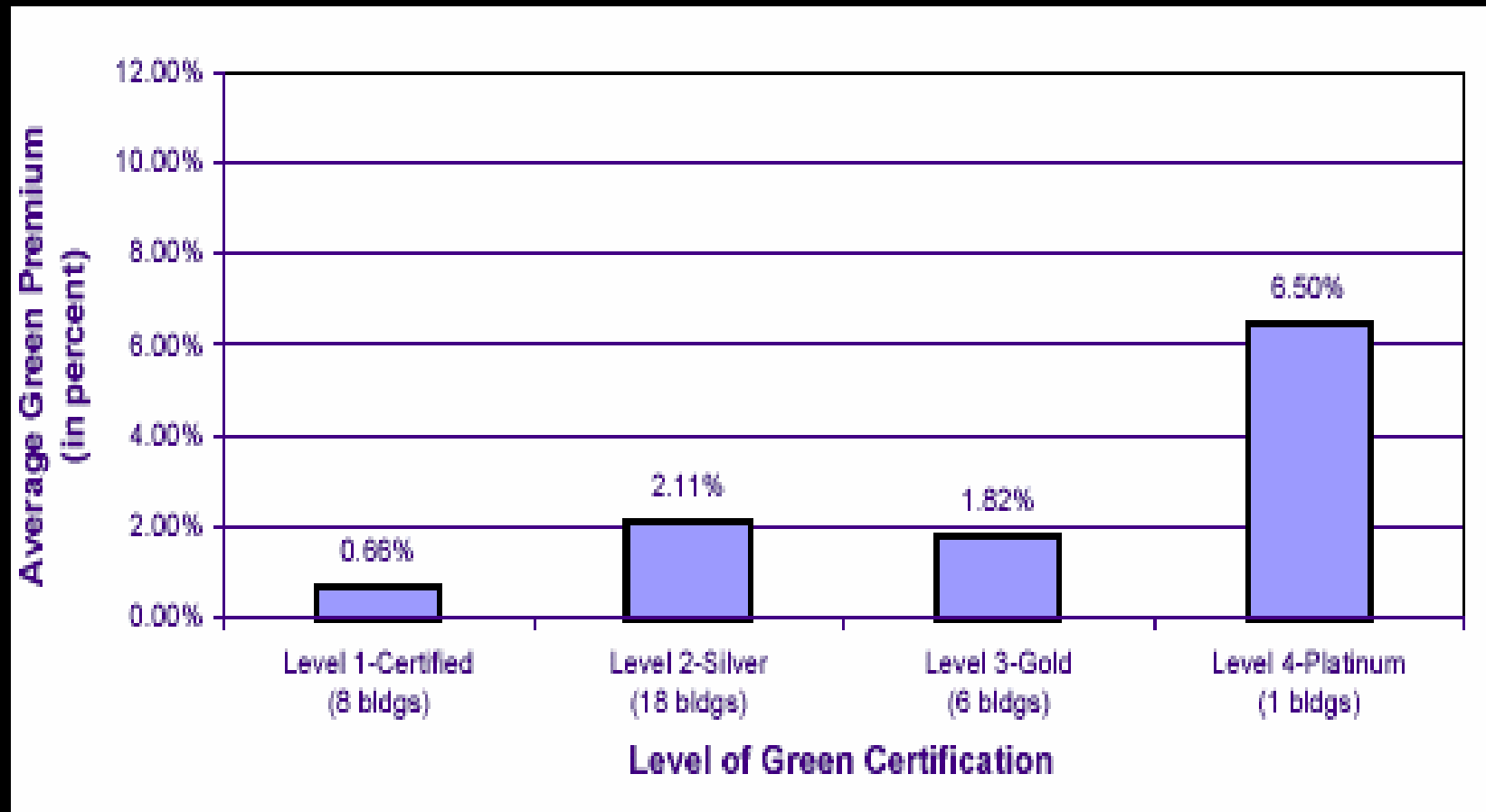
# LEED Canada Registrations & Certifications

- by building type



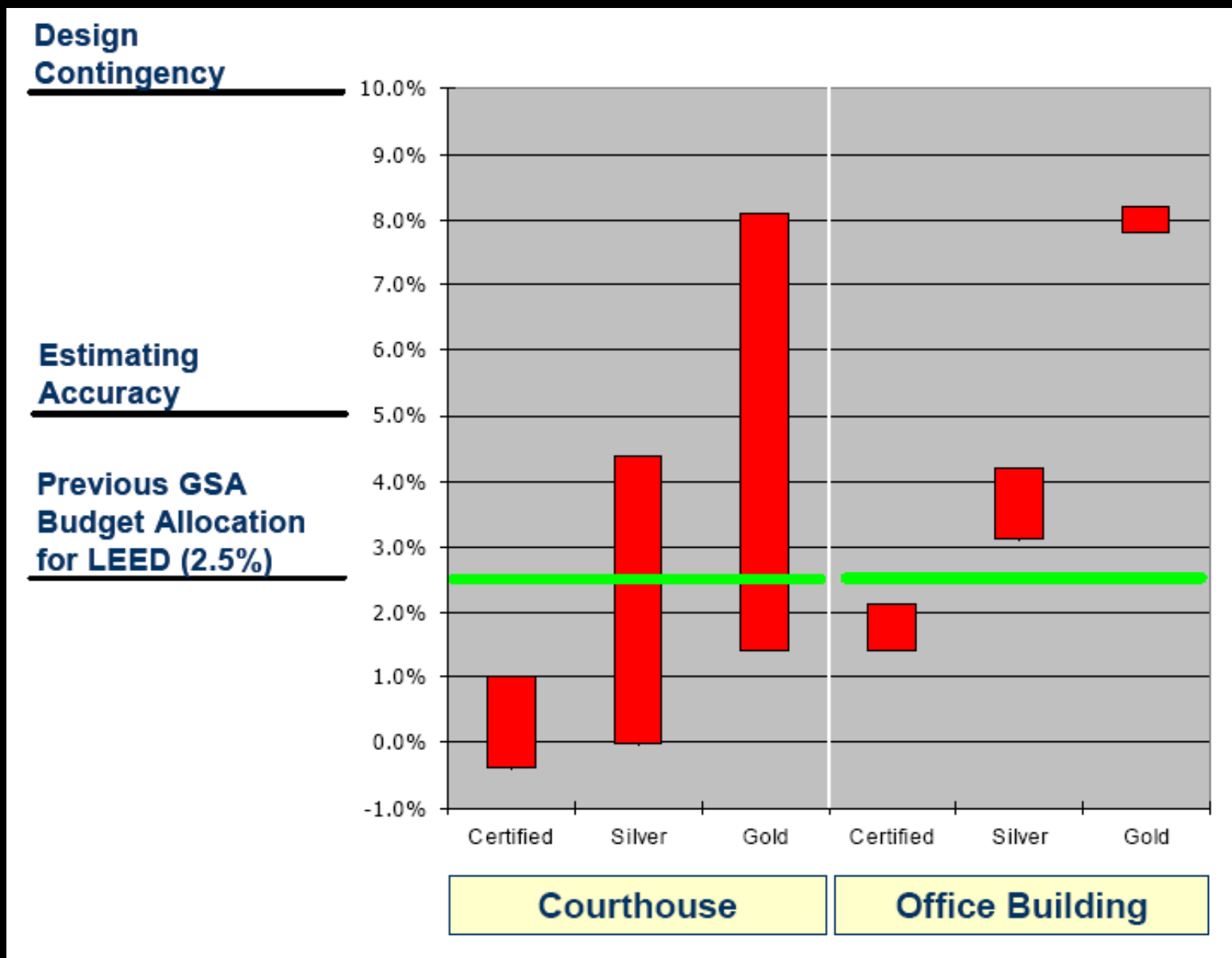
# Green Building Costs

- Average Cost Premium vs. Level of LEED Certification



Source: The Costs and Financial Benefits of Green Buildings, California Sustainable Building Task Force, 2003

# LEED Costs



# LEED Costs

**TABLE ES-1A**

NEW COURTHOUSE (262,000 GSF, Base Construction Cost = \$220/GSF)					
Certified		Silver		Gold	
1A Low Cost	2A High Cost	3A Low Cost	4A High Cost	5A Low Cost	6A High Cost

**LEED CONSTRUCTION COST IMPACTS\***

\$/GSF	(\$0.76)	\$2.18	(\$0.07)	\$9.57	\$2.97	\$17.79
% CHANGE	-0.4%	1.0%	-0.03%	4.4%	1.4%	8.1%

**TABLE ES-2A**

NEW COURTHOUSE (262,000 GSF, Base Construction Cost = \$220/GSF)					
Certified		Silver		Gold	
1A Low Cost	2A High Cost	3A Low Cost	4A High Cost	5A Low Cost	6A High Cost

**LEED SOFT COST IMPACTS**

EXPERT CONSULTANT APPROACH (\$/GSF)	\$0.41	\$0.46	\$0.41	\$0.55	\$0.61	\$0.80
EXPERIENCED DESIGN TEAM APPROACH (\$/GSF)	\$0.43	\$0.45	\$0.44	\$0.54	\$0.56	\$0.73

# Financial Benefits of Green Buildings

- Costs & benefits per sq.ft.

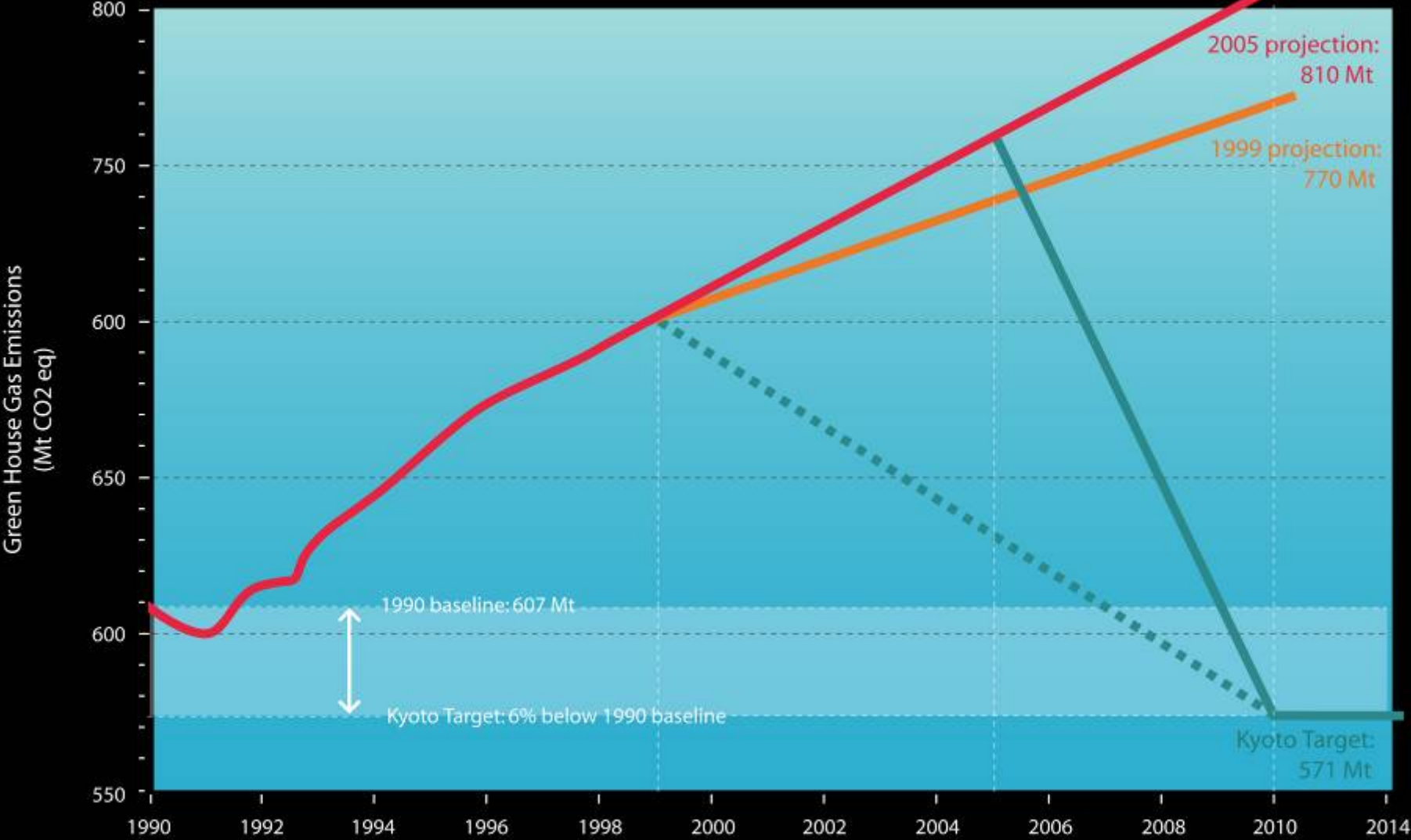
Category	20-year NPV
Energy Value	\$5.79
Emissions Value	\$1.18
Water Value	\$0.51
Waste Value (construction only - 1 year)	\$0.03
Commissioning O&M Value	\$8.47
Productivity and Health Value (Certified & Silver)	\$36.89
Productivity and Health Value (Gold & Platinum)	\$55.33
<b>Less Green Cost Premium</b>	<b>(\$4.00)</b>
<b>Total 20-year NPV (Certified and Silver)</b>	<b>\$48.87</b>
<b>Total 20-year NPV (Gold and Platinum)</b>	<b>\$67.31</b>

Source: The Costs and Financial Benefits of Green Buildings, California Sustainable Building Task Force, 2003

# LEED Costs

<b>LEED Registration &amp; Certification Fees (1)</b>	<b>\$3,500-\$21,500</b> ( <b>\$7,000 average</b> )
<b>LEED Certification Submittals Documentation Costs (2)</b>	<b>\$25,000 - \$30,000</b>
<b>Design Analysis Fees</b> <ul style="list-style-type: none"><li>– Energy simulation</li><li>– Daylighting studies</li><li>– Ecological survey</li><li>– Water consumption calculations</li></ul>	<b>\$5,000-\$25,000</b> ( <b>\$15,000 average</b> ) <b>\$2,000-\$5,000</b> <b>\$2,500-\$10,000</b> <b>\$100-\$1,000</b>
<b>Green Design Fees</b>	<b>\$5,000-\$45,000</b> ( <b>Integrated Design charrettes</b> )

# Canada's GHG emissions



# CaGBC Goals

- **Short & long-term goals**
  - **100,000 buildings & 1 million homes certified by 2012**
  - **Zero impact from buildings and communities by 2025**

# Enable Large-Scale Certification

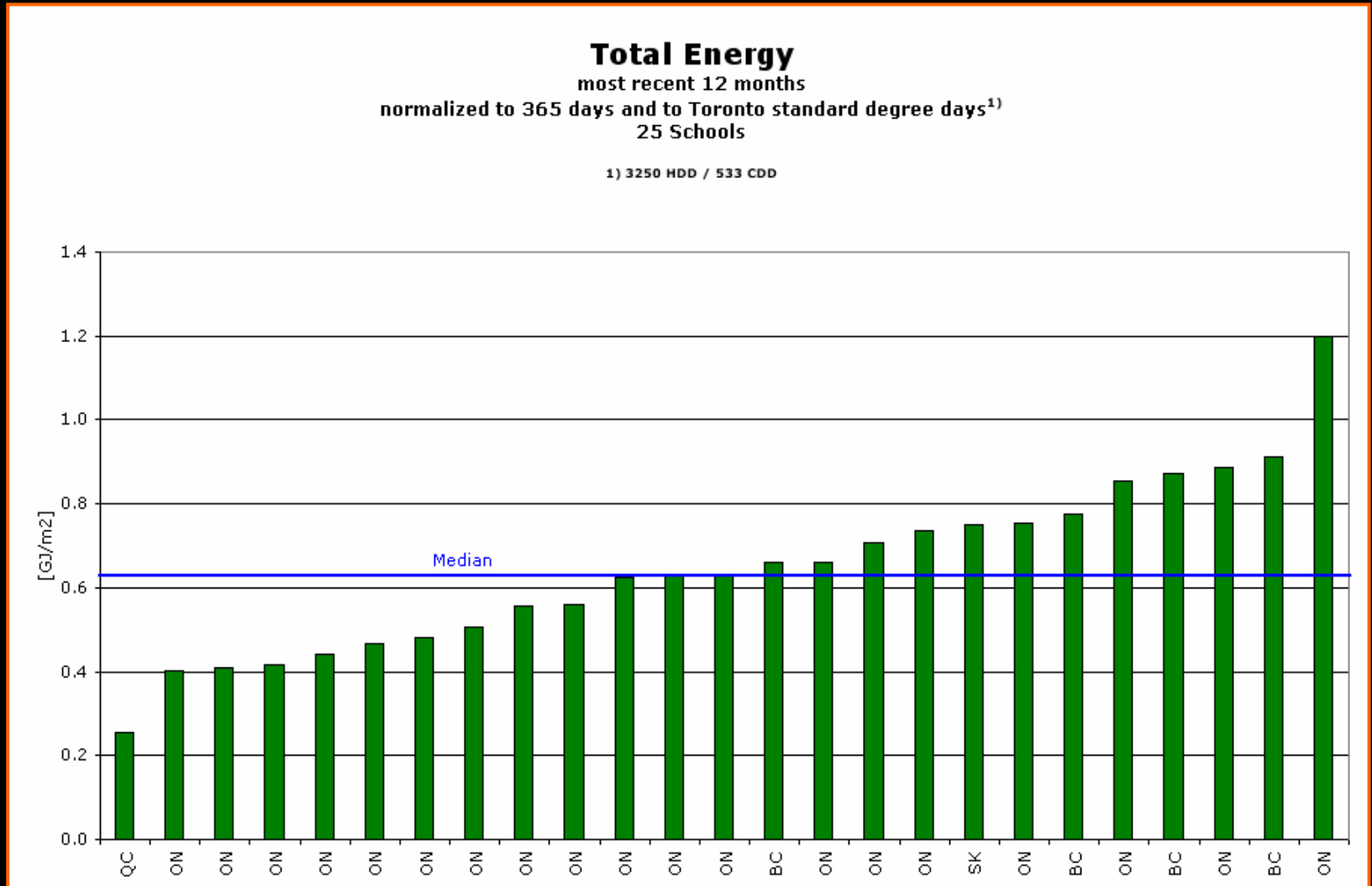
- **New tools & processes to transform large building portfolios**
  - LEED ND, LEED Homes, LEED Complete
- **streamlined certification process (self-assessment, accredited providers)**
  - Less cost & time but rigour!
- **building capacity through partnerships in education & outreach**
  - Industry, chapters, post-secondary institutions

# Verify Performance, Cost & Environmental Impacts

- **Set building performance for new & existing green buildings**
  - Performance indicators
  - Best practice & leading edge standards
  - Dynamic benchmarking
- **Data analysis, evaluation & reporting**
  - Documented savings on costs, resources, environmental impacts
  - On-line reporting
  - Build cost and performance reporting into certification process
- **Market penetration reporting**

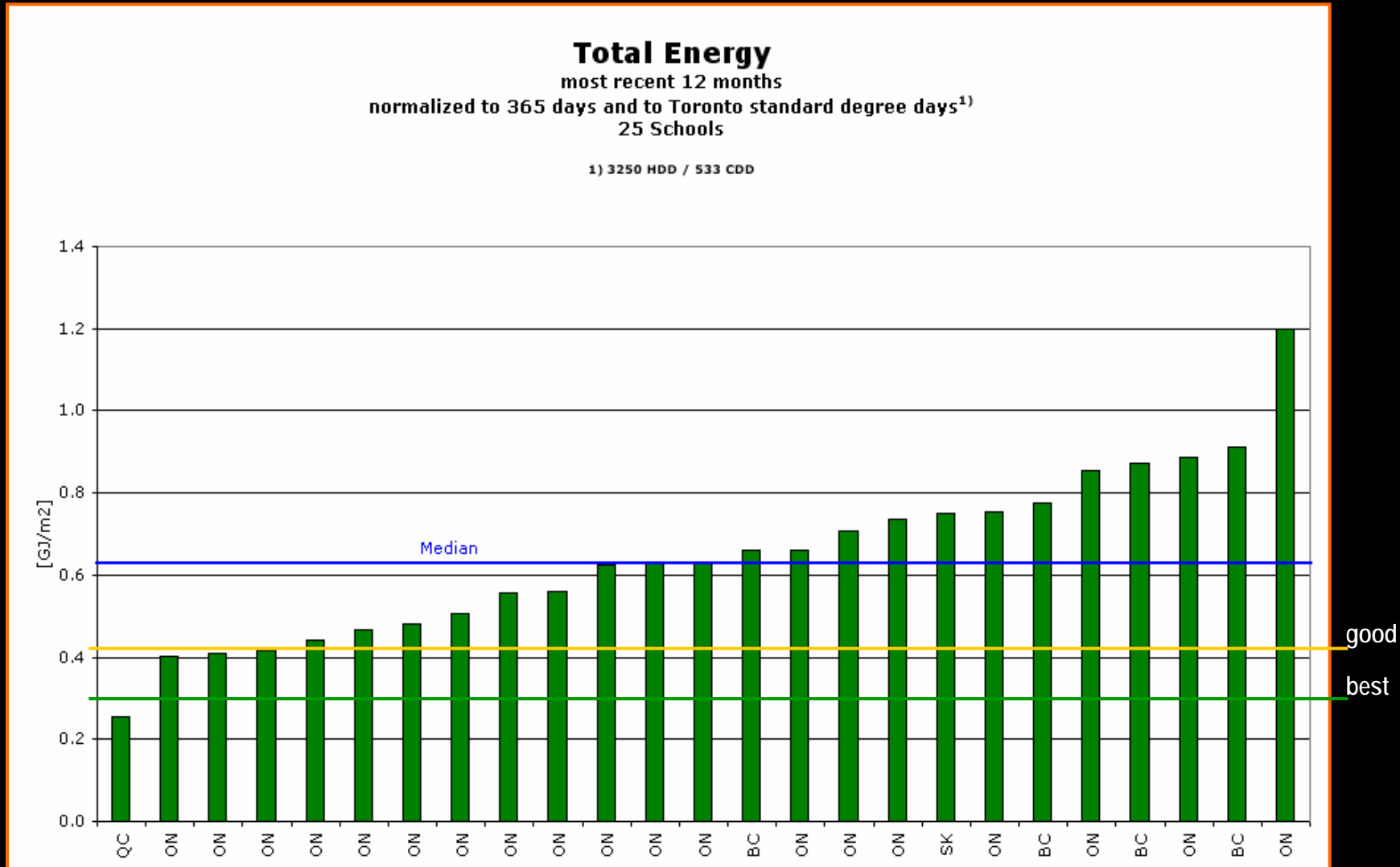
# Sustainable Schools

- Actual New School Energy Performance Baselines



# Sustainable Schools

- Energy Performance Improvement Potential





# Contact

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