

New Energy  
Solutions

# Thurston County, WA

January 22-23, 2010

Buildings & Efficiency

# Buildings & Efficiency

- Using less energy is the easiest & most economical step
- Critical to large-scale deployment of new, clean technologies
- Policies are starting to move rapidly
  - Financing
  - Aggregation
- Not an option for buildings; question is whether or not to be strategic



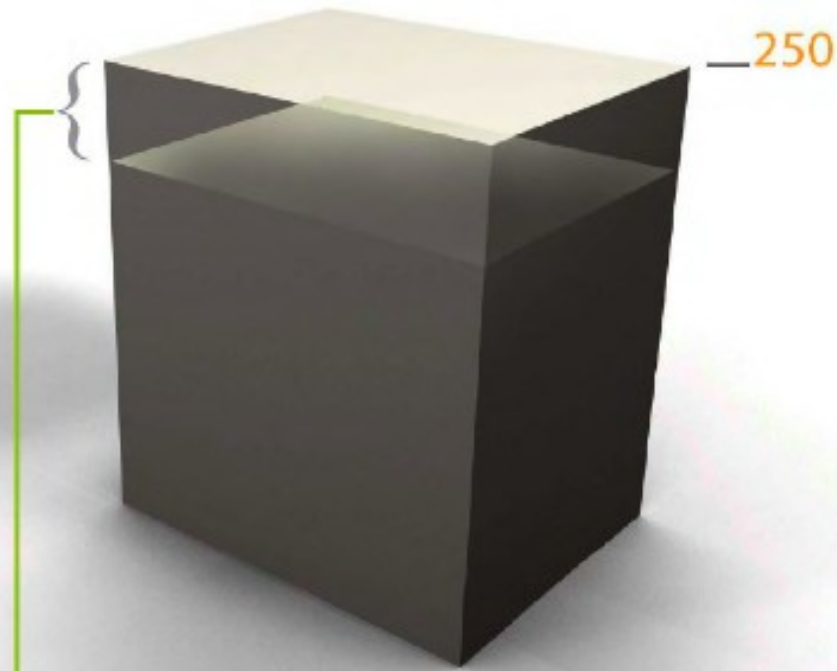
# US BUILDING STOCK IN BILLION SF



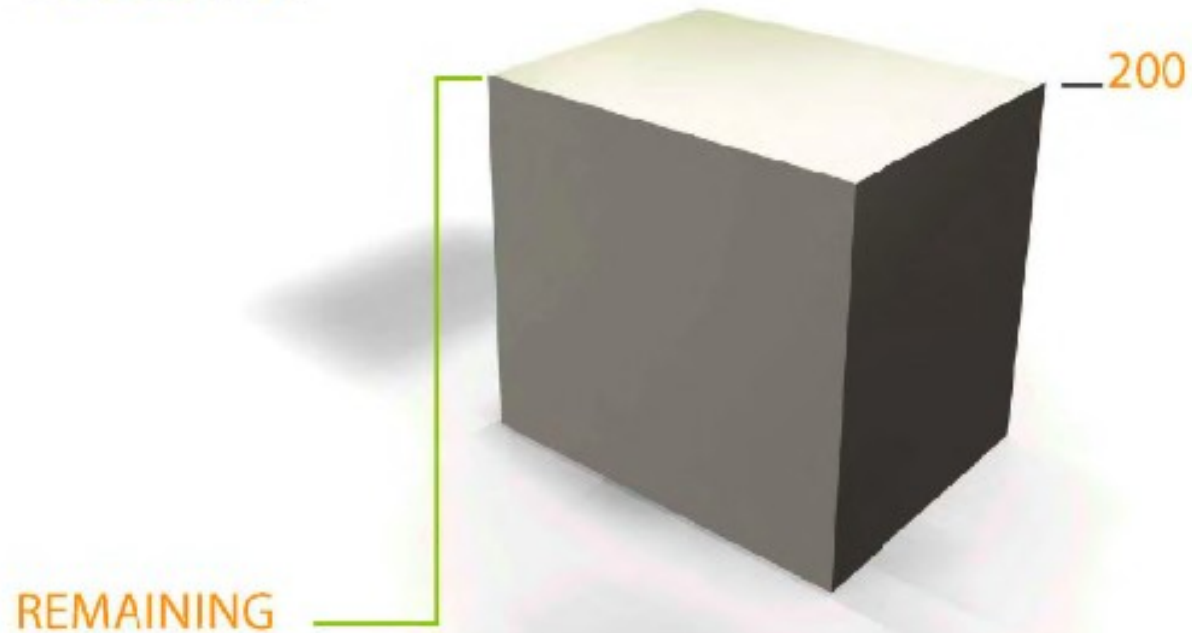
CURRENT BUILDINGS

# US BUILDING STOCK

IN BILLION SF

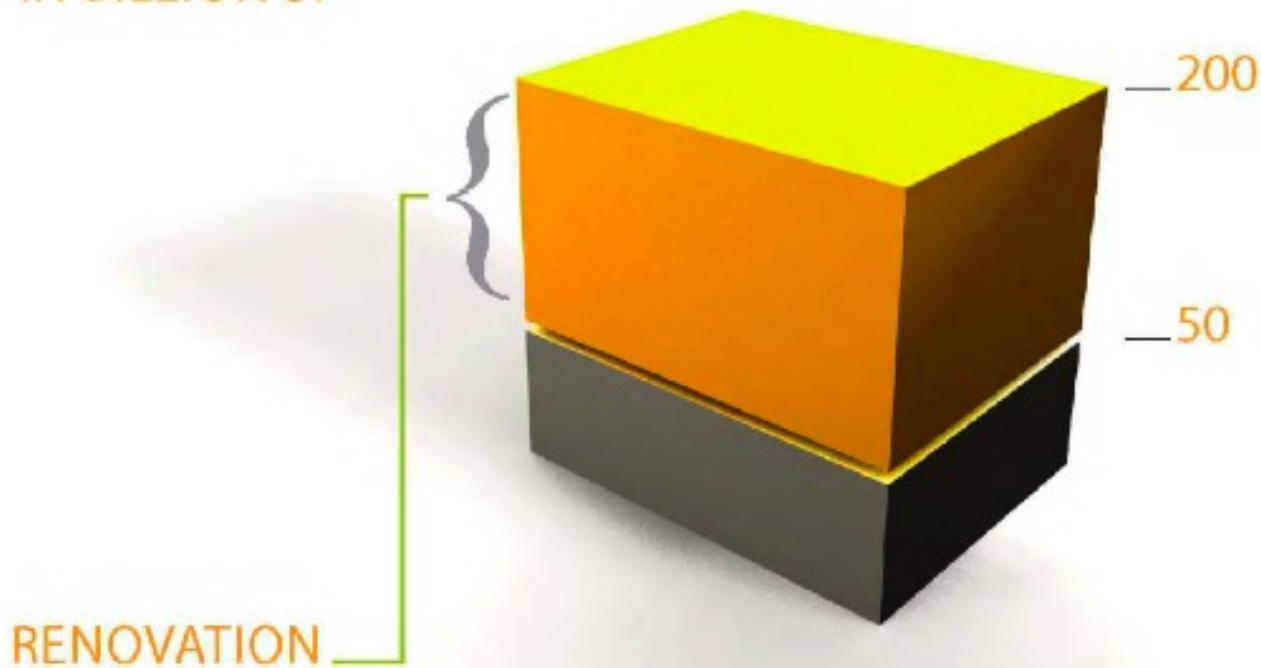


# US BUILDING STOCK IN BILLION SF



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IN BILLION SF



# US BUILDING STOCK

IN BILLION SF



BUILDINGS IN 2030

# WASHINGTON/OREGON

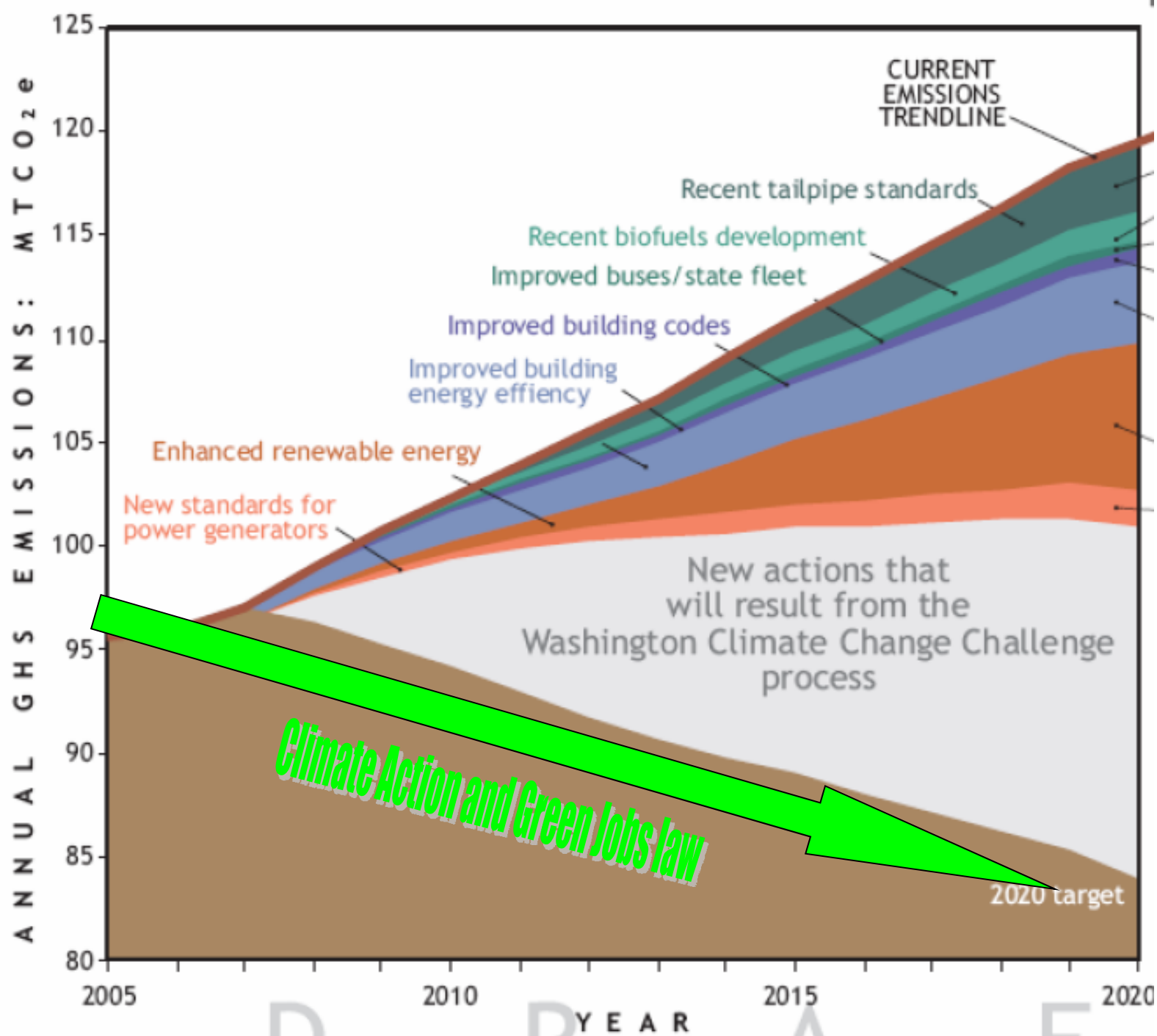
- **25%-30% Code Increase**  
*with reach code*
- **Performance Based Incentives**
  - **Tax Credits**
  - **Financing Options**



# CALIFORNIA

**Title 24 (State Energy Code) to  
require NET ZERO Buildings;**

**Residential by 2020  
Commercial by 2030**



# I-937: The Clean Energy Initiative

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- 2020 time horizon
- Current driver of energy efficiency and renewable energy efforts
- Issues being addressed around utility flexibility within the general objective

# Energy Efficiency Financing (2010)



- Authorize municipal bonding authority for energy efficiency projects
- Creates lien on property
- Pay back through property tax

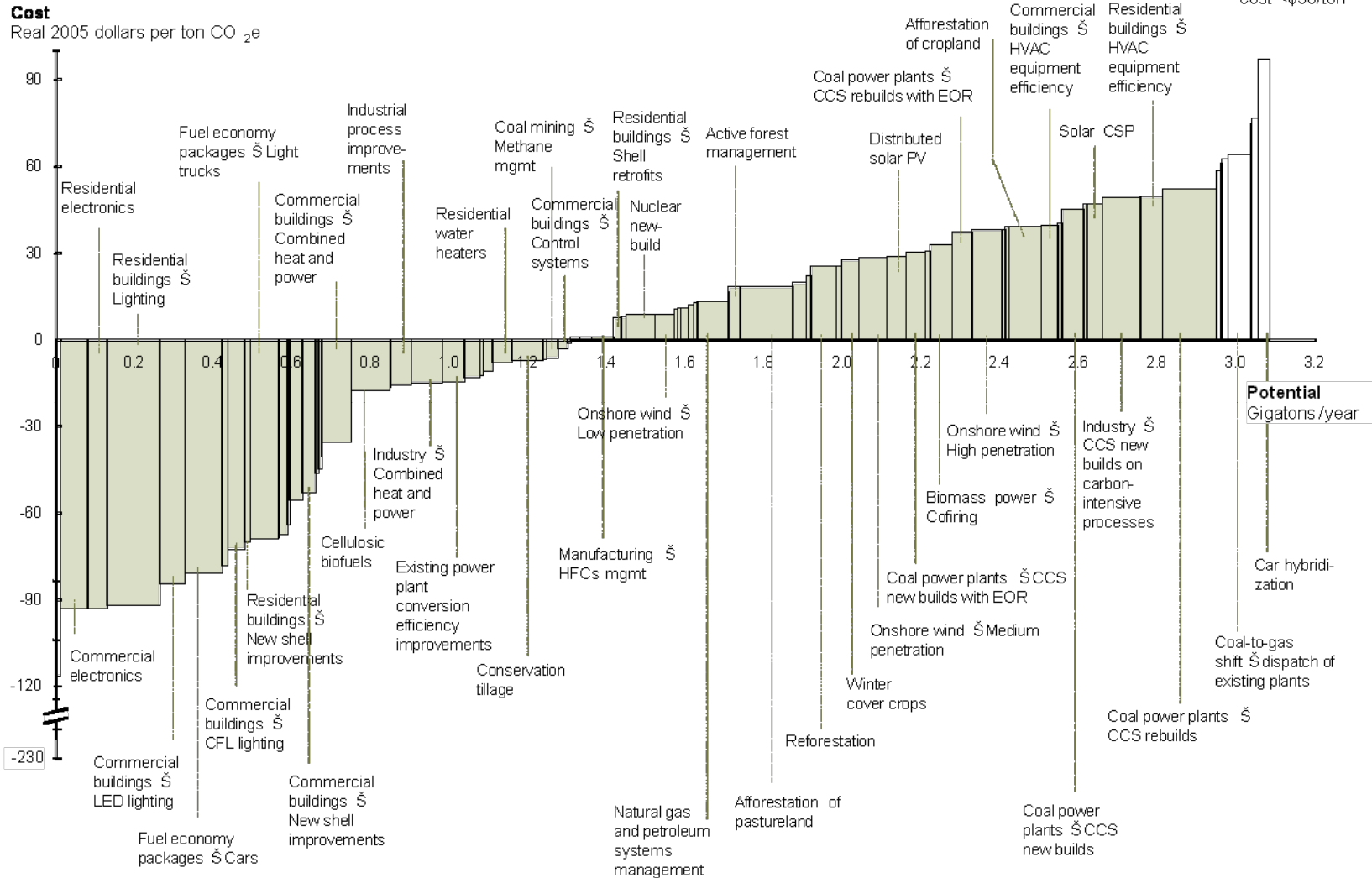
# JOBS Act of 2010

- Job Opportunities for Better Schools
- Referendum to voters to authorize increasing state's debt limit to be used for building upgrades and energy conservation retrofits in public schools.



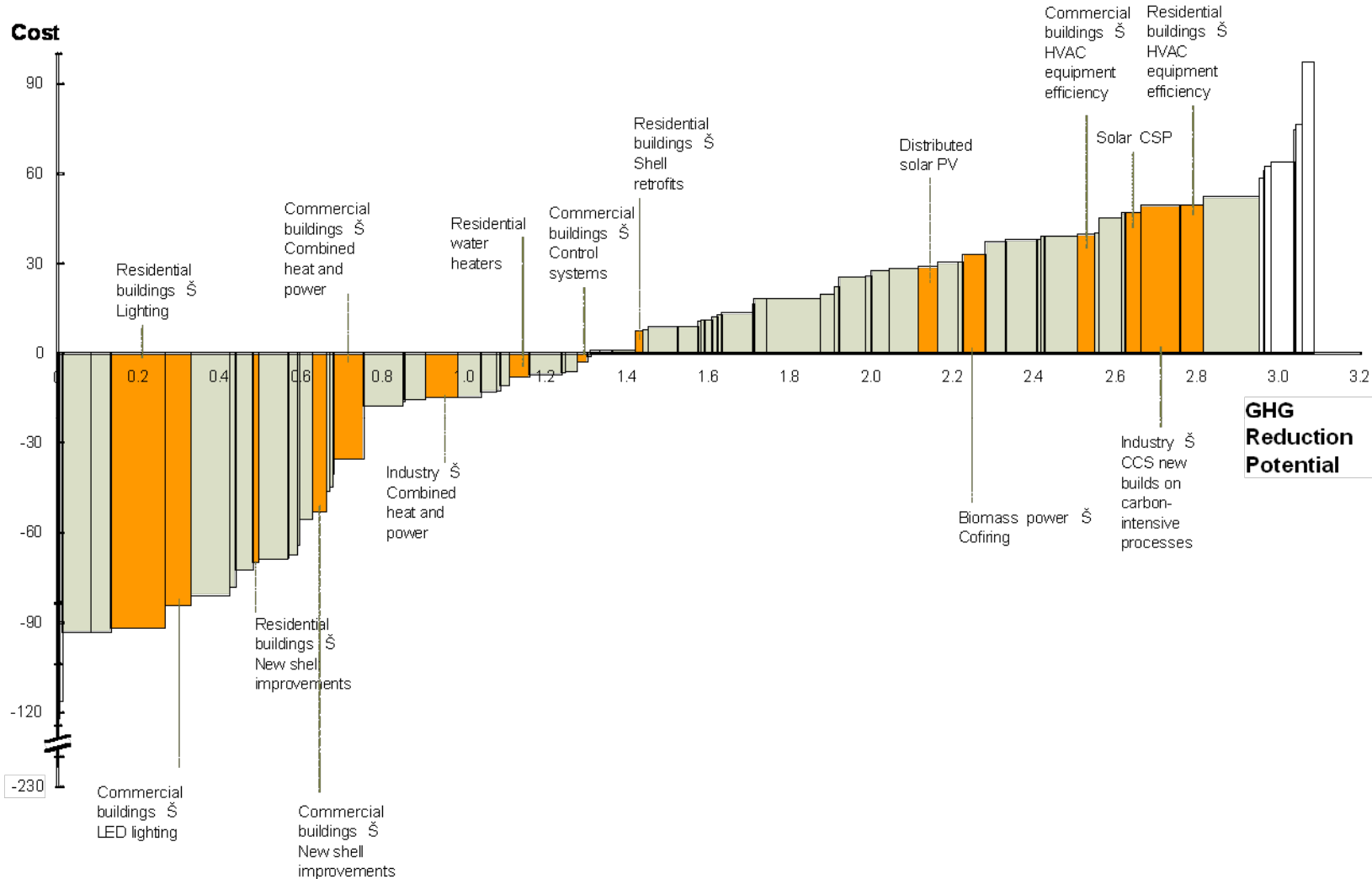
# New Energy Solutions

## U.S. mid-range abatement curve \$ 2030

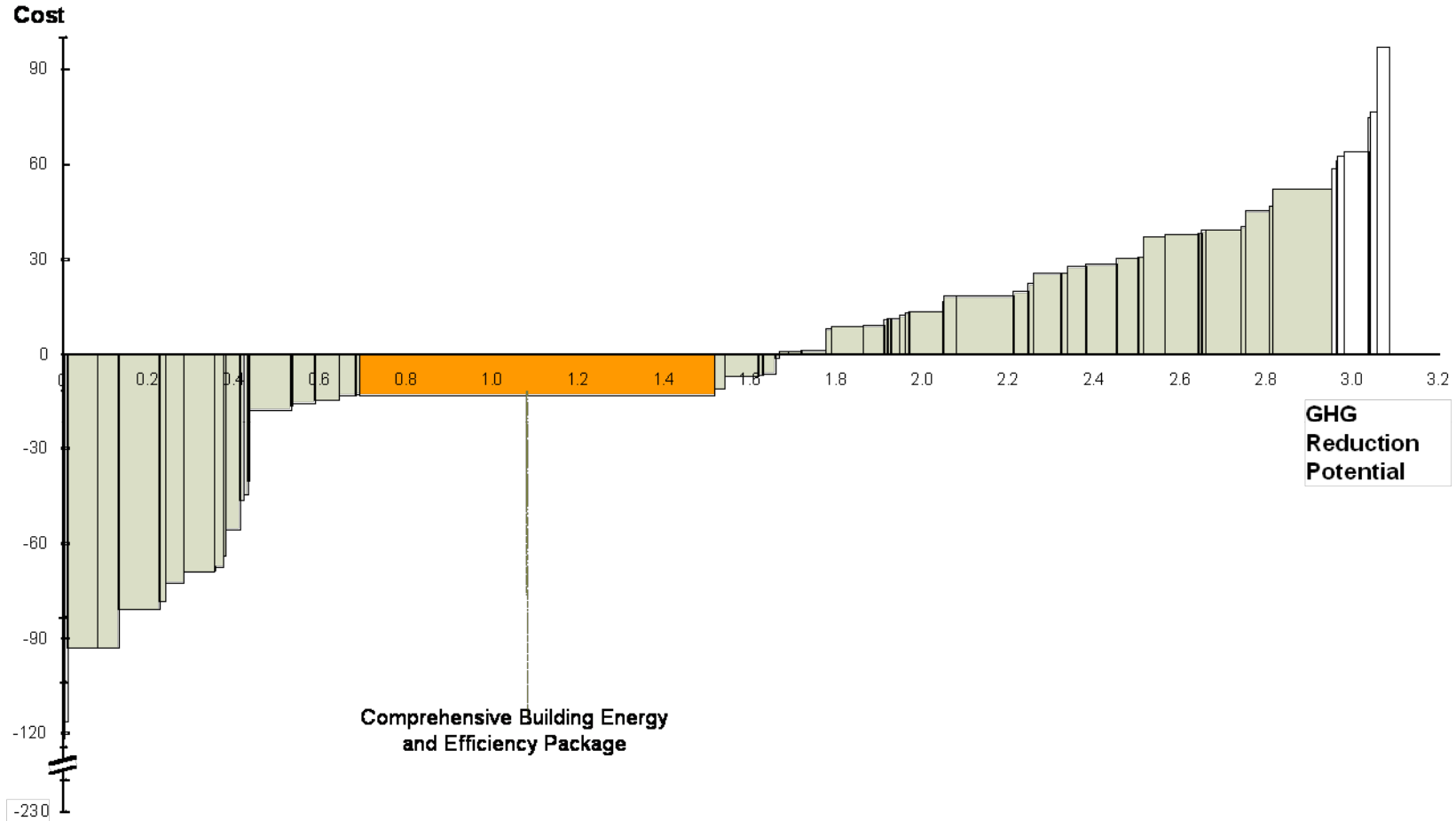


# New Energy Solutions

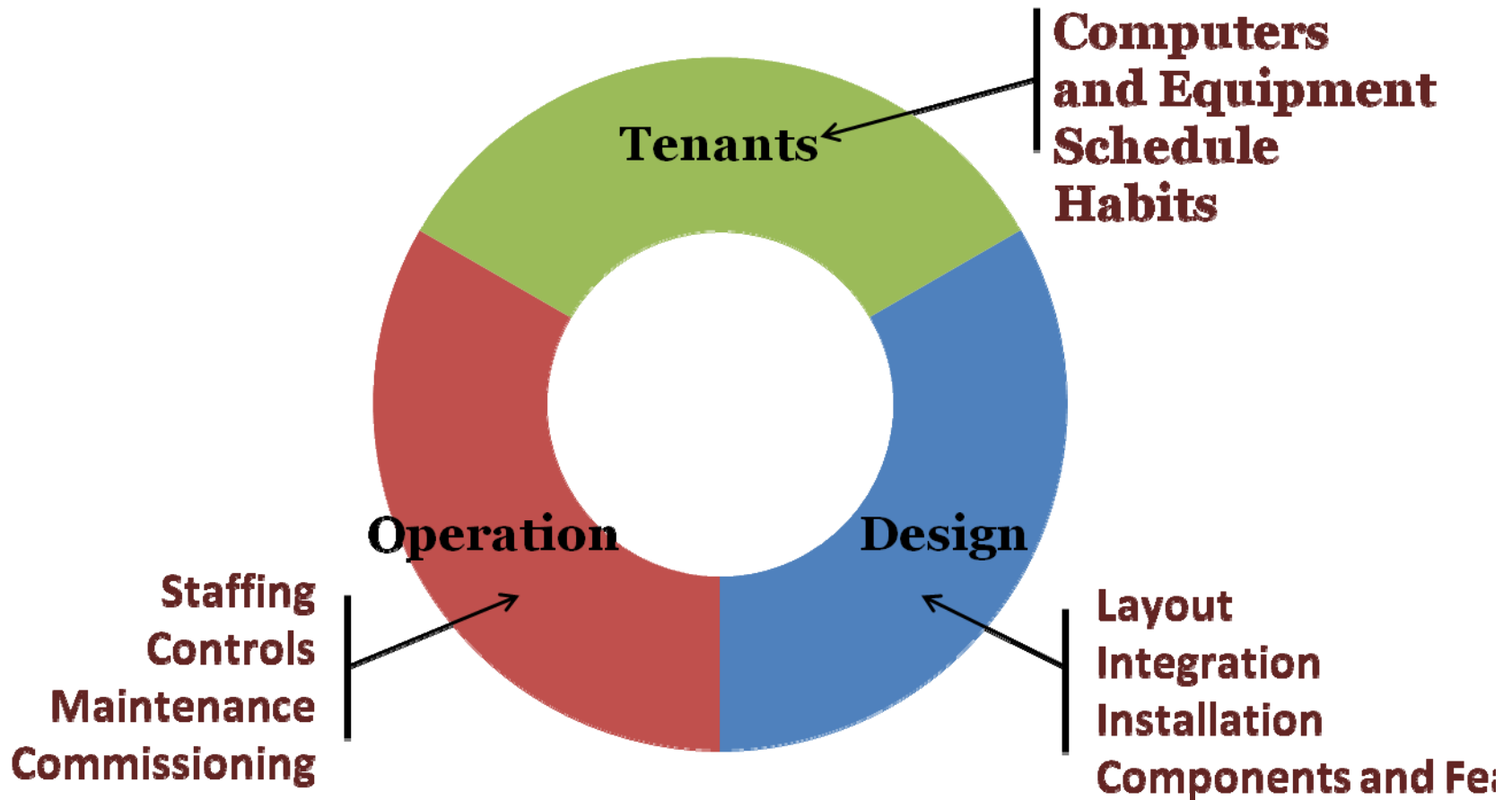
## U.S. mid-range abatement curve \$ 2030



## U.S. mid-range abatement curve \$ 2030



# What Drives Building Performance?



# Feedback to Building Occupants




# Real-Time Performance Information



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# Energy Certificate

Building Energy Performance >		As built:	In use:
Certificate type	FULL	<b>Asset Rating</b>	<b>Operational Rating</b>
Building Type	Office		
Whole or part of building	Whole building		
Very energy efficient			
A			
B			
C			
D			
E			
F			
G			
Not energy efficient			
Asset rating method:	UK National Standard 2004	Calculated	Actual
Operational rating method:	UK Office Tailored Benchmarks 2002	<b>48</b>	<b>83</b>
Units used:	kg CO <sub>2</sub> per sq m of net area per annum >		
Occupancy level	Square metres net lettable area per person	14	12
Equipment heat gain level	Watts per square metre net	12	12
Weekly occupancy hours	Hours per week	55	58
Heating performance ratings		ABCDEFG	ABCDEFG
HVAC performance ratings (cooling, fans and pumps)		ABCDEFG	ABCDEFG
Lighting performance ratings		ABCDEFG	ABCDEFG
Management rating (for in-use performance only)			ABCDEF G
Internal Environmental Quality			Not assessed
Risk level			Not assessed
Further information can be found in the Energy Log Book			
<b>GB 2004</b>		 Directive 2002/91/EC	



Building Labeling