

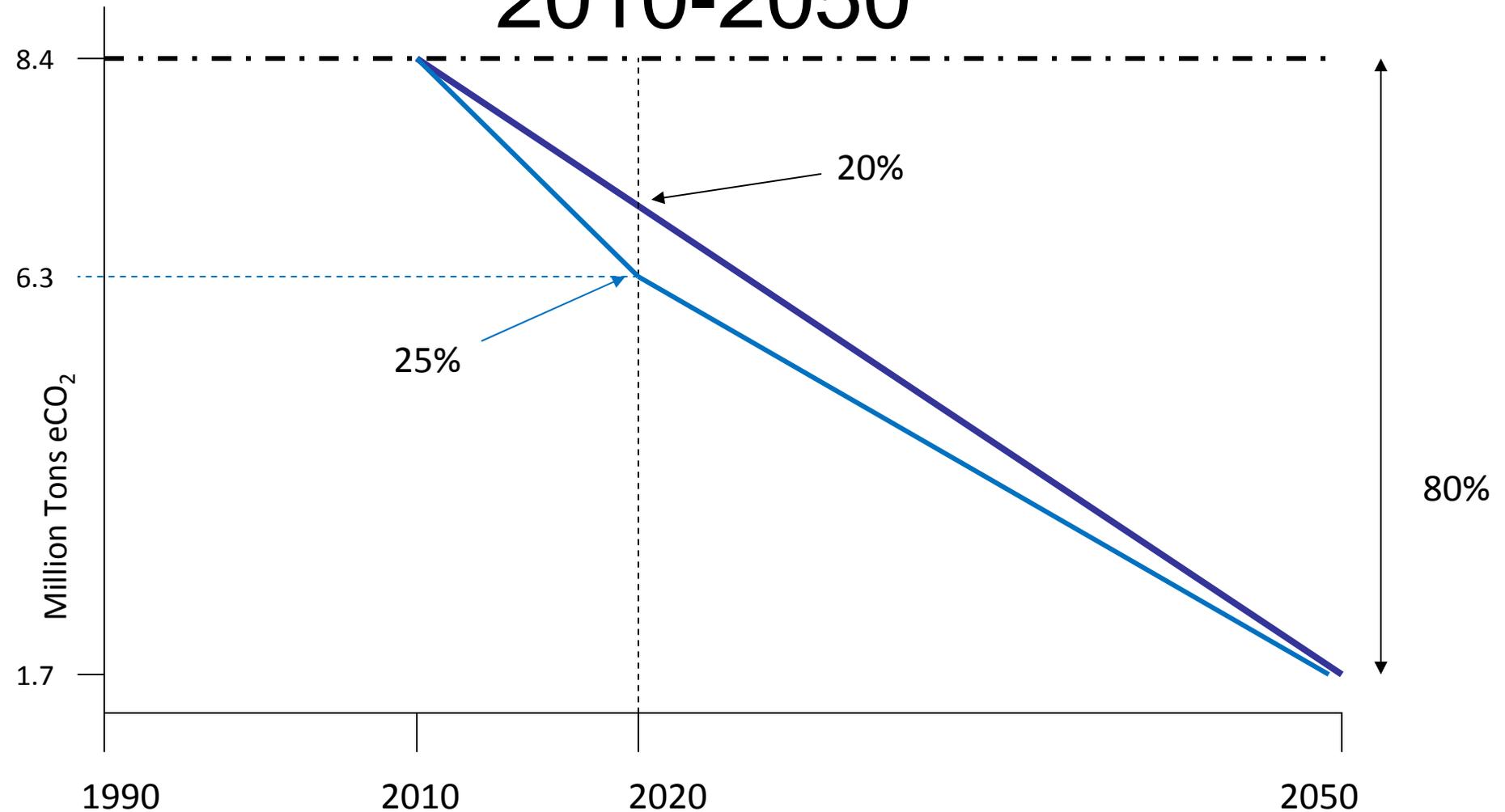
Boston Climate Action Plan: Target, New Mitigation Measures, and Net \$ Savings

March 23, 2010

Dr. Jonathan Raab

Joint Leadership/Community Advisory
Committee Meeting

Reducing GHG in Boston 2010-2050



Changes Since Last LC Mtg.

- Added Behavior Change suite of measures
- Compared notes with new MA assumptions
 - Refined building code assumptions
- Downgraded measure for residential cool roofs
- Developed Net Savings/Cost assumptions
- 5 Public Workshops to garner feedback and new ideas

2020 GHG Reduction—New Estimate

		2020 Baseline		2020 Reduction Strategies	
		Tons (000)	%	Tons (000)	%
Buildings		6018	71%	1458	17.1%
Transportation		2310	27%	651	7.6%
Solid Waste/ Recycling		216	3%	58	0.7%
Total		8544	100%	2166	25.4%

Behavior Changes



 Buildings  Transportation

*Derived from T. Dietz et al. "Household actions can provide a behavioral wedge to rapidly reduce U.S. carbon emissions," PNAS, 18452-18456, November 3, 2009, www.pnas.org/cgi/doi/10.1073/pnas.0908738106

Boston Residential Greenhouse Gas (GHG) Saving Programs

Measures	GHG Savings in 2020
CAFÉ/CA GHG Standards (F/M)	3.4%
Behavior Change (buildings/transportation) (B)	1.9%
Low Carbon Fuel Standard (incl. heating fuels) (R/M)	1.5%
Utility Energy Efficiency (electric/gas) / Renew Boston (M/B)	1.5%
Mass Transit/Parking (B)	1.1%
Appliance Standards (F/M)	0.6%
Renewable Portfolio Standard (M)	0.5%
Car Sharing (B)	0.5%
Energy Efficiency Retrofit Ordinances (B)	0.4%
Oil Heat Efficiency Program (B)	0.4%
Bike Programs (B)	0.2%
Residential Solid Waste Reduction (B)	0.2%
Buildings Codes and Stretch Code (M/B)	0.1%
Benchmarking and Labeling (B)	0.1%
Anti-idling (M)	0.02%
Total	12.4%



Buildings



Transportation



Behavior Change

Color Key

Existing

New/Proposed

Modify/Expand

Letter Key: (F) Federal, (R) Regional, (M) Massachusetts, (B) Boston

Boston Commercial Greenhouse Gas (GHG) Saving Programs

Measures	GHG Savings in 2020
Utility Energy Efficiency (electric/gas) / (Renew Boston) (M/B)	6.4%
Renewable Portfolio Standard (M)	2.4%
Energy Efficiency Retrofit Ordinances (B)	1.2%
Appliance Standards (F/M)	0.6%
Building Code and Stretch Code (M/B)	0.6%
Commercial Solid Waste Reduction (B)	0.5%
Benchmarking and Labeling (B)	0.5%
Oil Heat Efficiency Program (B)	0.4%
Low-Carbon Fuel Standard (incl. heating fuels) (R/M)	0.1%
Cool Roofs (B)	0.1%
Mass Transit/Parking (B)	0.1%
Car Sharing (B)	0.0%
Anti-Idling (M)	0.0%
Bike Programs (B)	0.0%
Total	12.9%

Buildings
 Transportation

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Total 2020 Savings

	Cumulative GHG Reduced Through 2020 (000 tons)	Total 2020 Savings (\$ million)
Buildings	6,747	\$ 1,676
Transportation	3,130	\$ 406
Other	145	\$ 0
Total	10,021	\$ 2,083

Buildings 2020 Savings

	Cumulative GHG Reduced Through 2020 (000 tons)	Savings (\$/ton)	Total 2020 Savings (\$ million)
Buildings	6,747		\$ 1,676
Renewable Portfolio Standard	1,231	-64	\$ (79)
Utility Energy Efficiency Programs (Electric)	2,610	379	\$ 989
Utility Energy Efficiency Programs (Gas)	757	132	\$ 100
Building Codes	200	430	\$ 86
Appliance Standards	547	430	\$ 235
Stretch Building Code	100	430	\$ 43
Benchmarking and Labeling	175	286	\$ 50
Energy Efficiency Retrofit Ordinances	350	286	\$ 100
Oil Heat Efficiency Program	244	256	\$ 62
Cool Roofs	41	81	\$ 3
LCFS For Heating Fuels	155	-64	\$ (10)
Behavior Change (buildings)	336	286	\$ 96

Transportation 2020 Savings

	Cumulative GHG Reduced Through 2020 (000 tons)	Savings (\$/ton)	Total 2020 Savings (\$ million)
<u>Transportation</u>	<u>3130</u>		<u>\$ 406</u>
CAFÉ/Pavley	1470	137	\$ 201
Low-Carbon Fuel Standard/Renewable Fuel Standard (gasoline)	305	-64	\$ (20)
LCFS/RFS (diesel)	65	-64	\$ (4)
Vehicle Mile Traveled Reduction Strategies			\$ 0
Bike Programs	83	198	\$ 17
Car Sharing	213	198	\$ 42
Other Programs--Mass Transit/Parking	515	198	\$ 102
Anti-Idling	18	274	\$ 5
Behavior Change (transportation)	460	137	\$ 63

Other 2020 Savings

	Cumulative GHG Reduced Through 2020 (000 tons)	Savings (\$/ton)	Total 2020 Savings (\$ million)
Other	145		\$ -
Residential Solid Waste Reduction	39	0	\$ -
Commercial Solid Waste Reduction	106	0	\$ -