



EAST BAY MUNICIPAL UTILITY DISTRICT

Energy Policy and Greenhouse Gas Reduction Goal

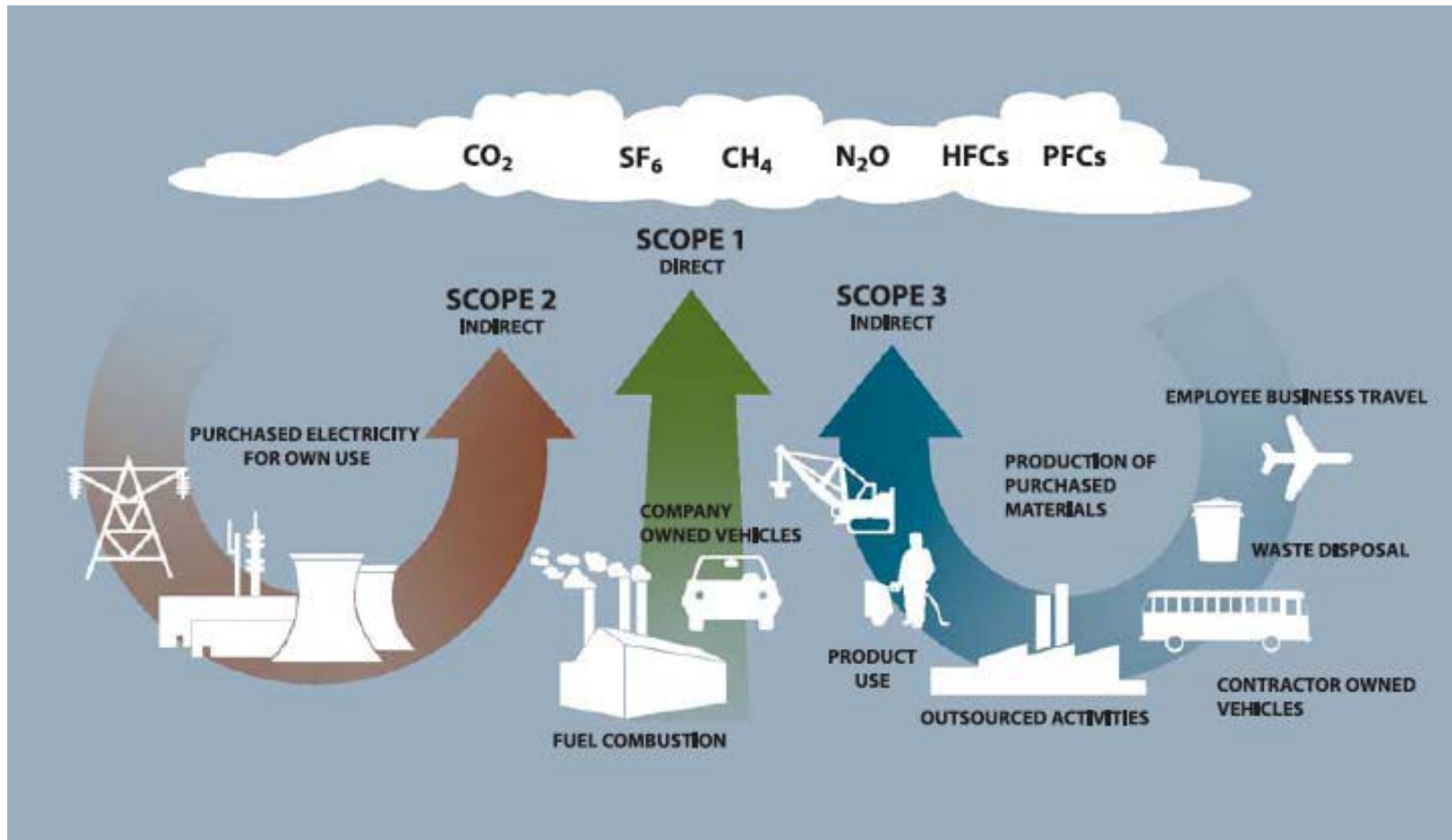
Sustainability/Energy
Committee

July 23, 2013

Overview

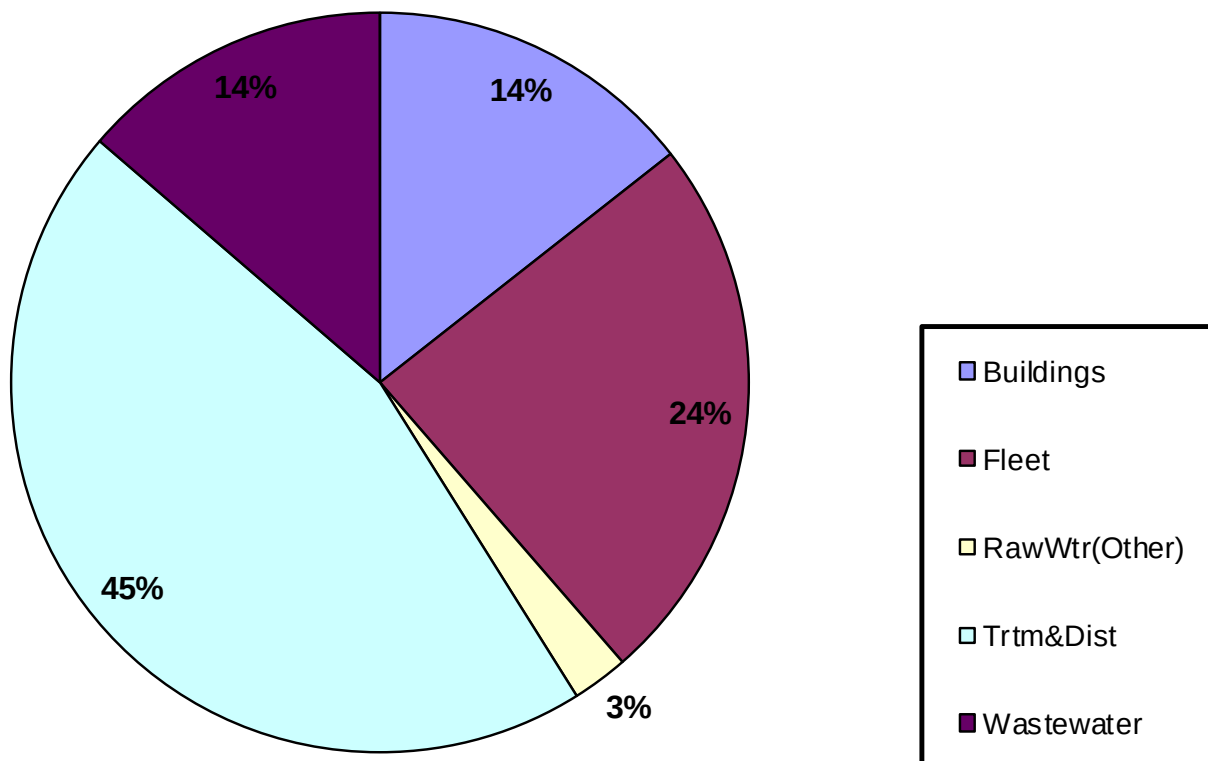
- 2012 Greenhouse Gas Inventory
- Energy Use, Purchases and Generation
- New Options for GHG Reduction Goal
- Criteria for Selection
- Next Steps

Sources of GHGs



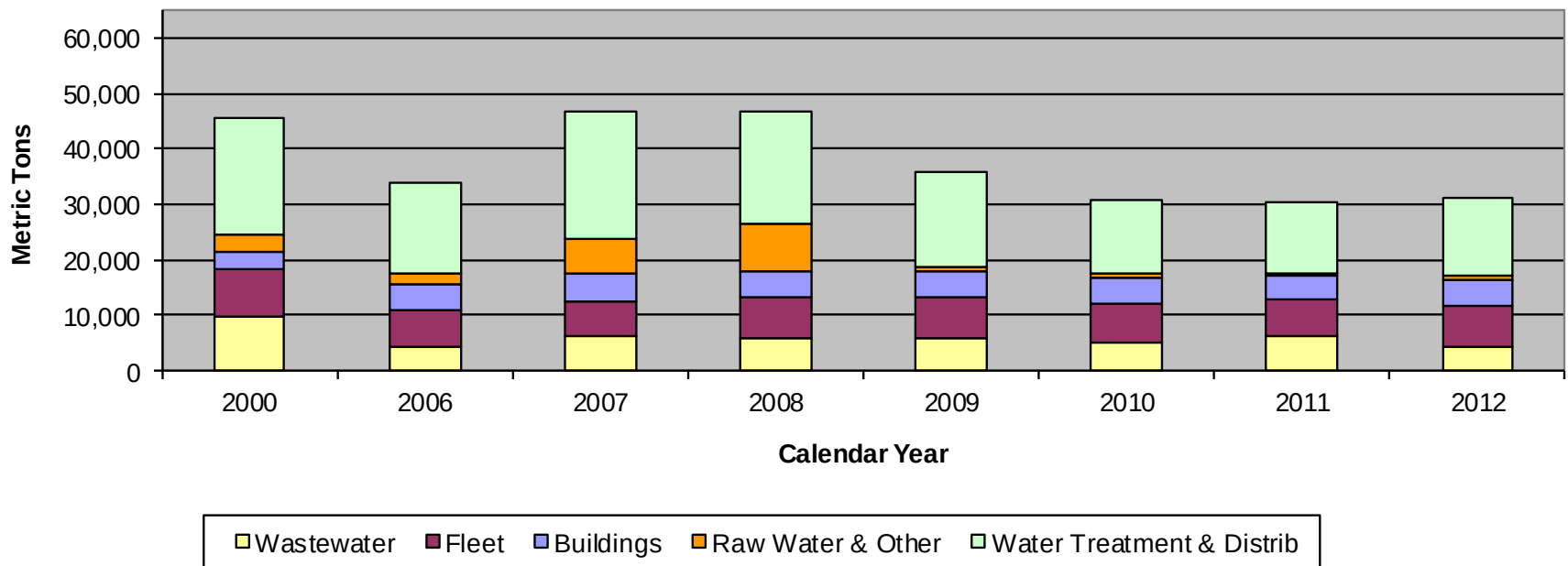
2012 Greenhouse Gas Inventory

Total for 2012 = 31,106 MT CO₂



GHG Emission History

District-wide CO₂ Emissions

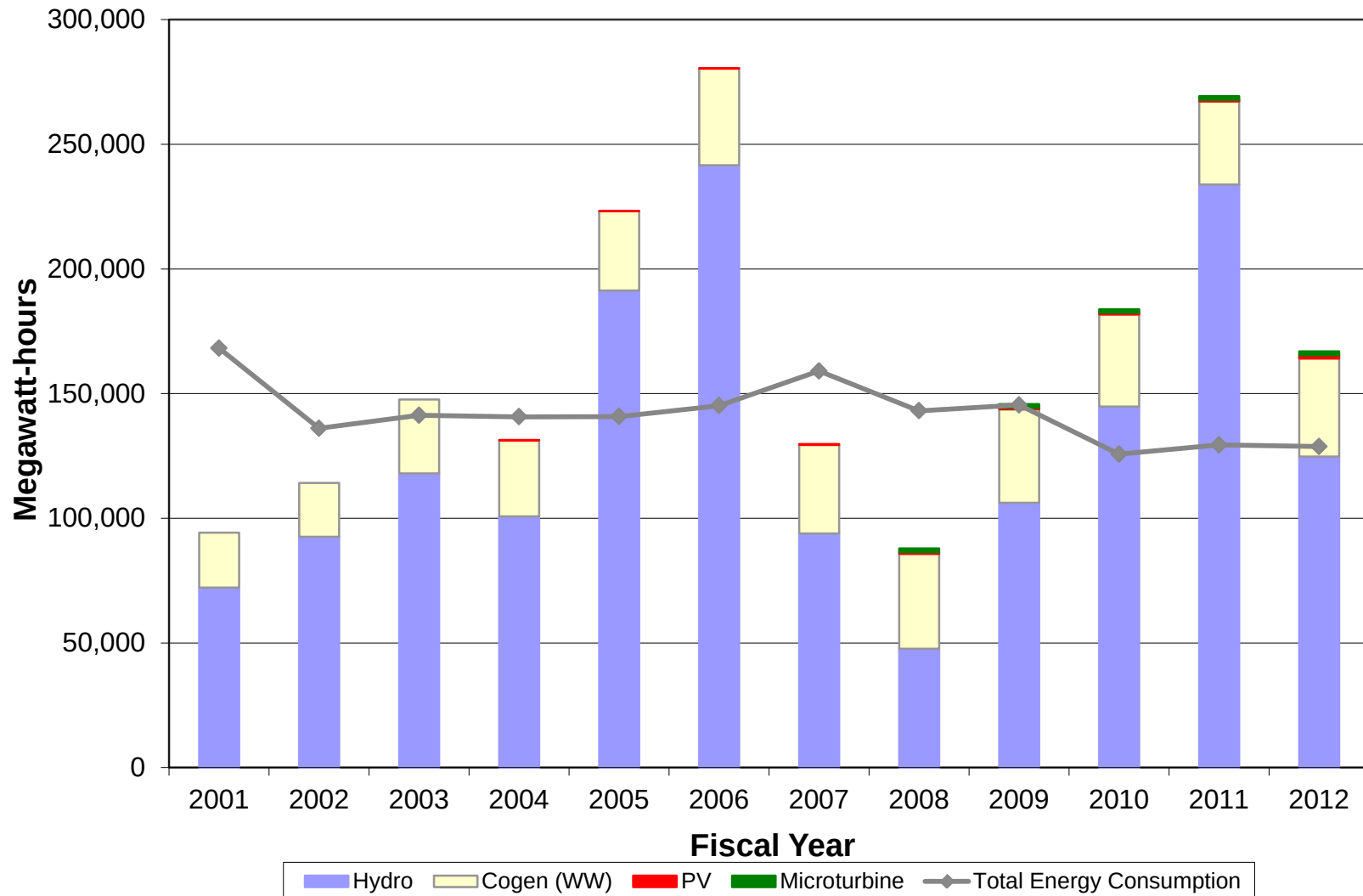


Factors Driving GHG Emissions



- Renewable Portfolio Standard
- Water demand
- Raw water source
- Fuel/Energy source
- Energy conservation efforts

District Power Use and Generation



District Power Purchases



- Purchased 89,000 MWh in FY2012
- Purchased from
 - PG&E
 - SMUD
 - WAPA

Sector	%
Water Treatment	28%
Distribution Pumping	53%
Admin/Raw Water Pumping	11%
Wastewater	8%

District Power Utilization



Sector	Self Supply (MWh/yr)	% of total Use
Treatment (5 PV systems)	1,200	3.3%
Raw Water system (hydropower)	940	2.6%
Wastewater (biofuel generation)	32,600	89.8%
Admin building (micro turbine)	1,500	4.1%
Admin (2 PV systems)	74	0.2%
TOTAL	36,314	100%

- Hydropower is the largest component of District's generation (~75% in FY2012)
- Total FY2012 Generation: 167,000 MWh
- District is a net energy producer

Current GHG Emissions Goal



- District GHG Reduction Goal
 - 10% reduction from 2000 levels by 2015
 - 2000 baseline year: 45,479 MT CO₂
 - 2015 goal: 40,931 MT CO₂
- 2012 Emissions: 31,106 MT CO₂
- 2040 Projected Emissions: 41,121 MT CO₂
- District can meet current goal through 2040 without taking any action

Other Public Agency Emissions Goals



Agency	Goal
California Department of Water Resources	50% reduction below 1990 levels by 2020 80% reduction below 1990 levels by 2050
City of Seattle	30% reduction below 2008 levels by 2020 58% reduction below 2008 levels by 2030 Zero emissions by 2050
Sonoma County Water Agency	Zero emissions by 2015
City of San Francisco	25% reduction below 1990 levels by 2017 80% reduction below 1990 levels by 2050
Los Angeles Department of Water and Power	20% of power from renewable sources by 2020 60% reduction below 1990 levels by 2020
Santa Clara Valley Water District	No specified goal Reduce GHG emissions when reasonable and appropriate
Metropolitan Water District of Southern California	50% reduction by 2015 (retail) 100% reduction by 2020 (retail) 100% reduction by 2030 (wholesale)

Emission Goal for Cities in District Service Area



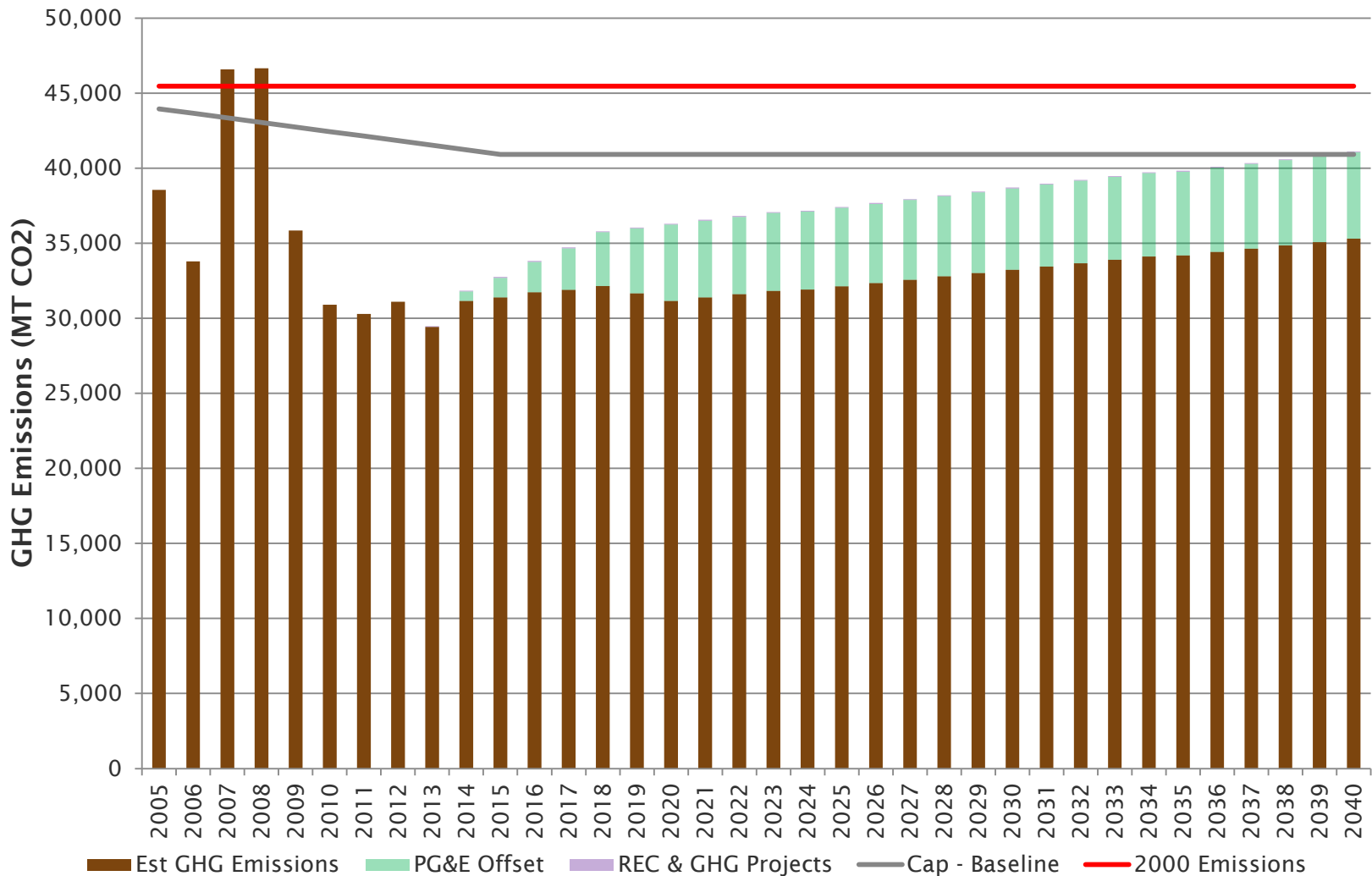
City	Goal
Albany	25% reduction below 2004 levels by 2020
Berkeley	33% reduction below 2000 levels by 2020 80% reduction below 2000 levels by 2050
El Cerrito	15% reduction below 2005 levels by 2020 30% reduction below 2005 levels by 2035
Oakland	36% reduction below 2005 levels by 2020 80% reduction below 2005 levels by 2050
Piedmont	15% reduction below 2005 levels by 2020
Richmond	Meet or exceed state goals
San Ramon	15% reduction below 2008 levels by 2020
Walnut Creek	7% reduction below 2005 levels by 2020 15% reduction below 2005 levels by 2035
Alameda County	15% reduction by 2020
Contra Costa County	15% reduction below 2005 levels by 2020

Options for New GHG Goal



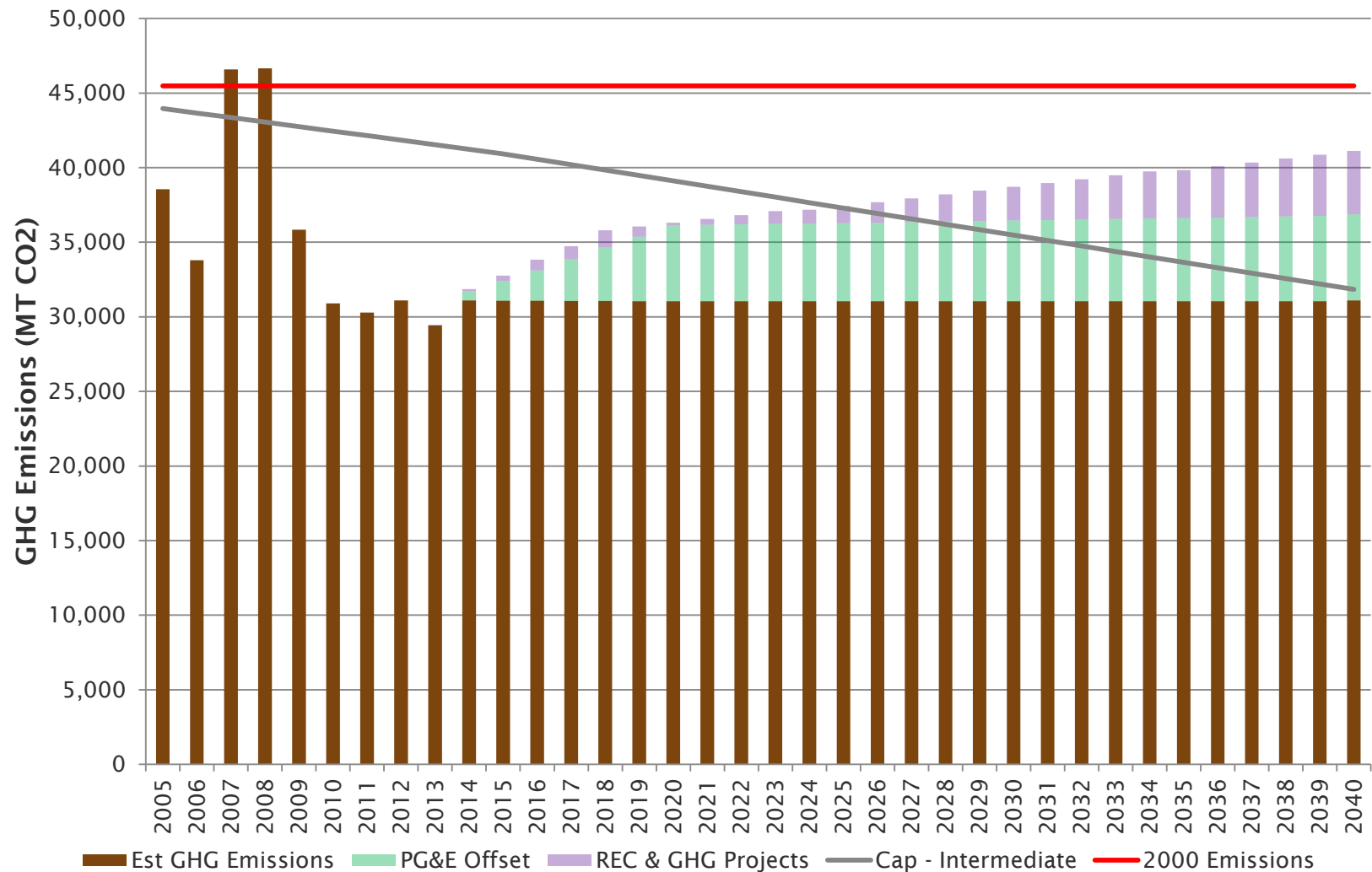
- Option 1
 - 30% reduction in emissions by 2040
 - Offset 100% of future growth
- Option 2
 - 50% reduction in emissions by 2040
- Option 3
 - 100% reduction in emissions by 2040

Baseline



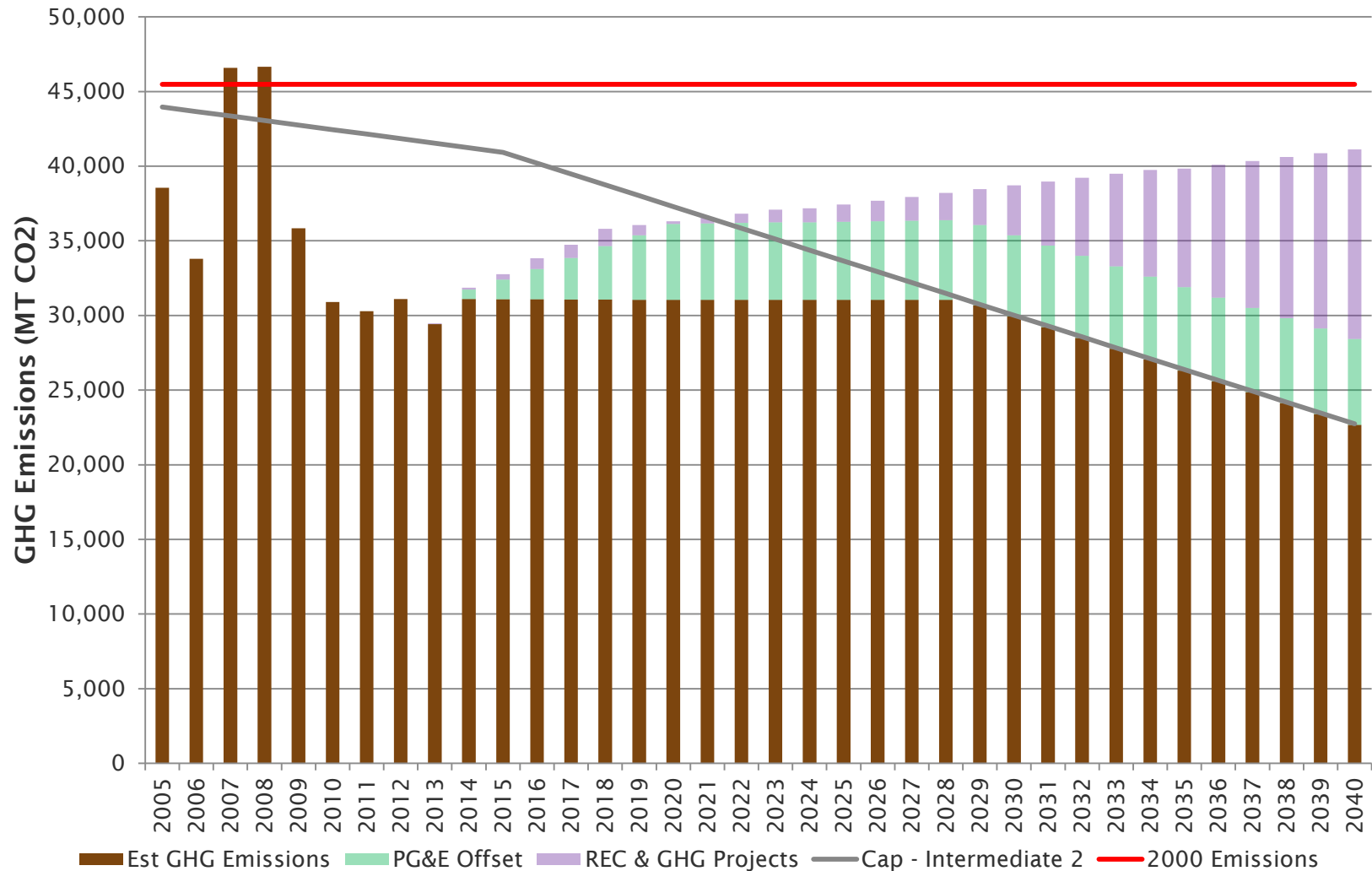
Option 1

30% Reduction by 2040



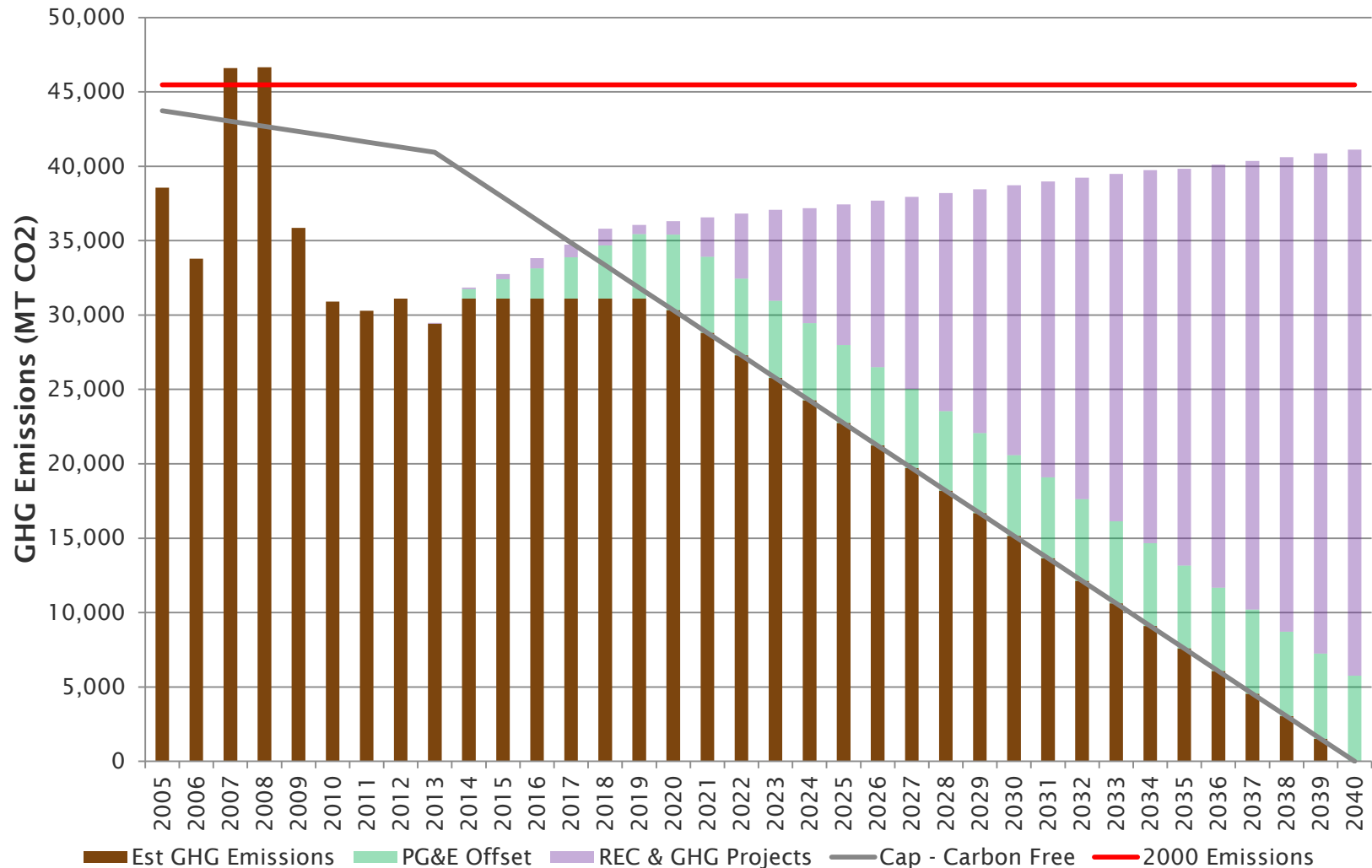
Option 2

50% Reduction by 2040



Option 3

100% Reduction by 2040



GHG Option Summary



Option	2013		2040		2013 to 2040		
	Emissions Generated (MT CO ₂)	% Reduction from 2000 Levels	Emissions Generated (MT CO ₂)	% Reduction from 2000 Levels	Emissions Generated (MT CO ₂)	Emissions Offset (MT CO ₂)	Cost with TREC's
Baseline	29,420	35%	35,305	22%	920,000	1,700	\$0
Option 1 - 30%	29,420	35%	31,106	30%	920,000	51,000	\$240,000
Option 2 - 50%	29,420	35%	22,674	50%	920,000	103,400	\$490,000
Option 3- Carbon Free	29,420	35%	0	100%	920,000	384,300	\$1,820,000

GHG Reduction Programs and Projects



- GHG reductions can be achieved through
 - Conservation
 - Community Choice Aggregation programs (e.g., Richmond CCA)
 - Renewable energy projects (e.g., photovoltaic and in-conduit hydropower)
 - Expanded use of WAPA power
 - Purchasing tradable renewable energy credits (TRECs)

Criteria for Selecting GHG Programs and Projects

- TRECs currently the least cost and easiest to implement option
- TRECs baseline for comparison
- Criteria for selecting programs/projects
 - Criteria 1: Project or program provides an economic benefit to the District
 - Criteria 2: If further reduction in GHG emissions is necessary, compare the cost per lb CO₂ reduction to the cost of purchasing TRECs and select the least cost option

Richmond CCA Example



- Criteria 1: Economic Benefit to District
 - Annual PG&E cost for 23 facilities: \$43,414
 - Annual CCA cost for Light Green: \$42,102
 - Annual CCA cost for Deep Green: \$44,703
- Switching to Light Green meets Criteria 1

Richmond CCA Example (con't)



- Criteria 2: GHG Reduction
 - Richmond Deep Green Program
 - Cost: \$2,601
 - GHG Reduction: 100,370 lbs CO₂
 - \$0.026 per lb CO₂
 - TREC Option
 - Cost: \$200
 - GHG Reduction: 100,370 lbs CO₂
 - \$0.002 per lb CO₂
- TREC more cost effective than participation in Richmond Deep Green program

Next Steps

- Revise Renewable Energy Policy 7.07 to be the District's Energy Policy
- Establish long-term GHG emissions reduction goal through 2040
- Present proposed Energy Policy to Board of Directors in September

Comprehensive Energy Policy



- Address all energy sources
- Include renewable energy purchase and generation
- Establish a new GHG emissions goal for 2040
- Capital projects will include energy saving practices and alternate energy sources
- Consistent with triple bottom line concept in the sustainability policy