

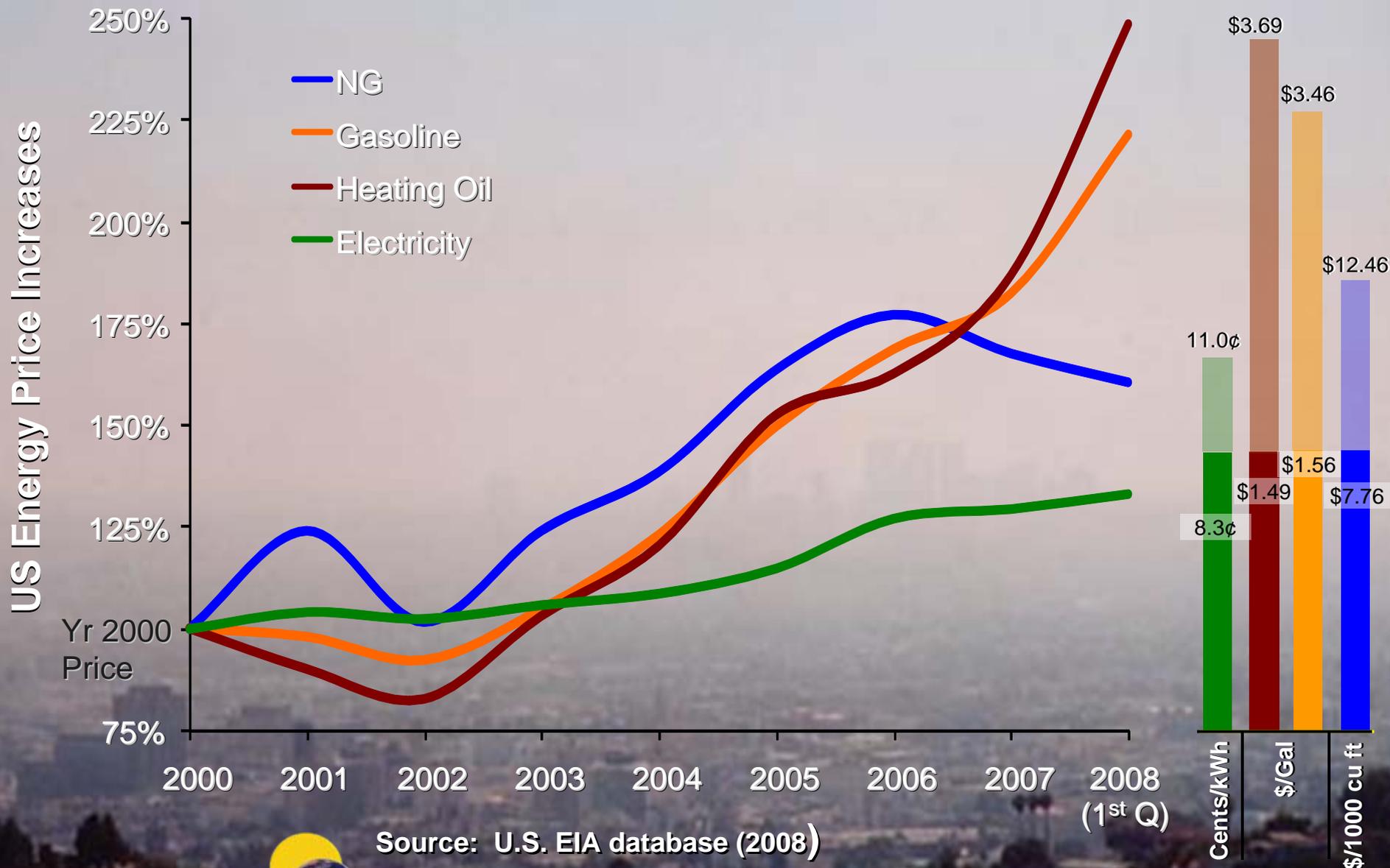
**DELAWARE ENERGY PLAN
REDUCING ENERGY USE WORKGROUP**

**DELAWARE
SUSTAINABLE ENERGY POTENTIAL &
THE SUSTAINABLE ENERGY UTILITY**

**John Byrne
Center for Energy and Environmental Policy
University of Delaware**

July 21, 2008

Climbing Conventional Energy Prices: U.S.

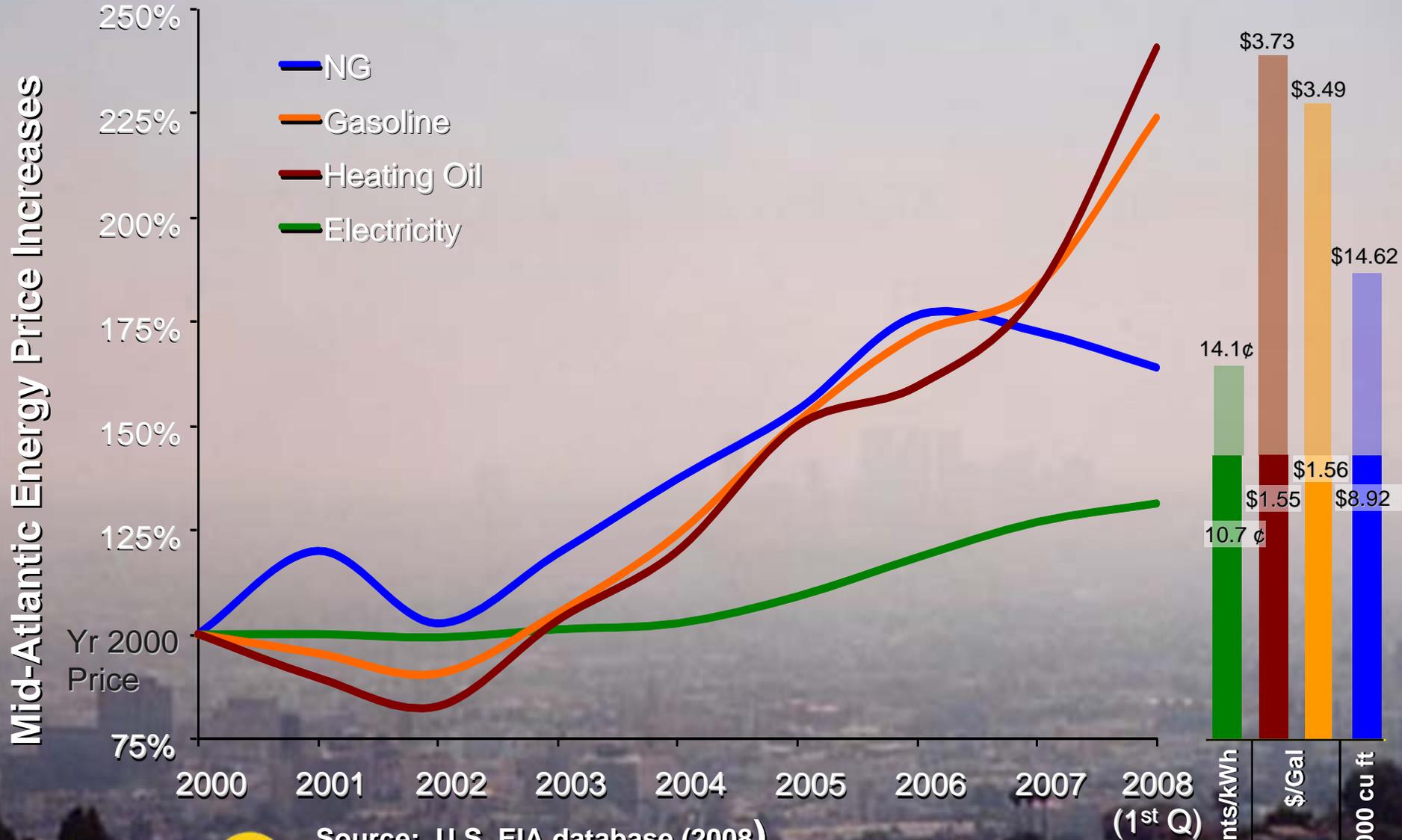


Source: U.S. EIA database (2008)

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Climbing Conventional Energy Prices: U.S. East Coast Urban Corridor

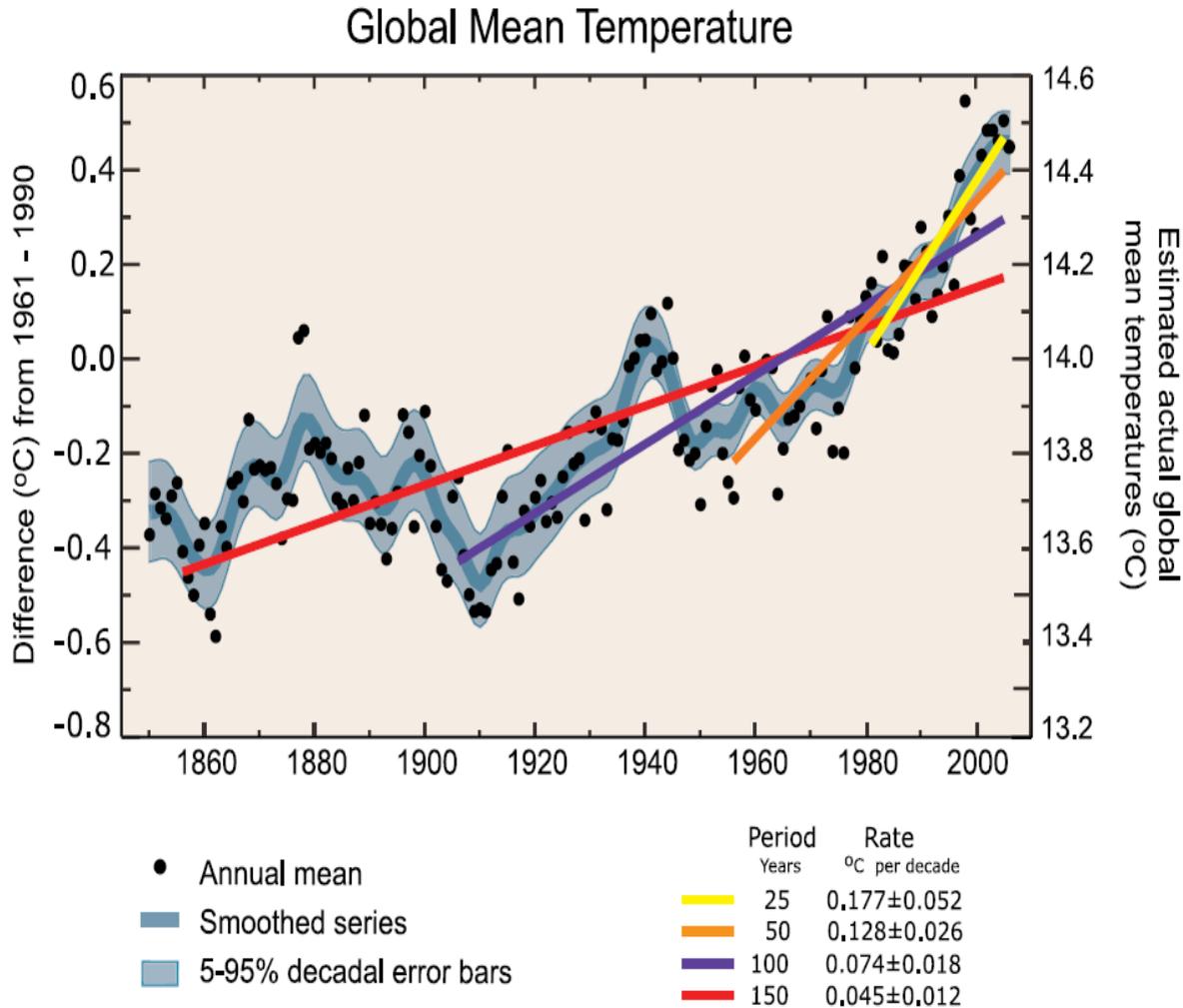


Source: U.S. EIA database (2008)



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Global Warming



- ◆ According to the 2007 IPCC report, mean global surface temperature has increased by **0.74°C** over the last 100 years (1906-2005)
- ◆ **11 of the warmest years on record occurred during the past 12 yrs**

Needed GHG Emissions Reductions to Stabilize Atmospheric Concentrations at Current Levels

Carbon dioxide	> 60%
Methane	8 - 20%
Nitrous oxide	70 - 80%
CFC 11	70 - 75%
CFC 12	75 - 85%
HCFC 22	40 - 50%

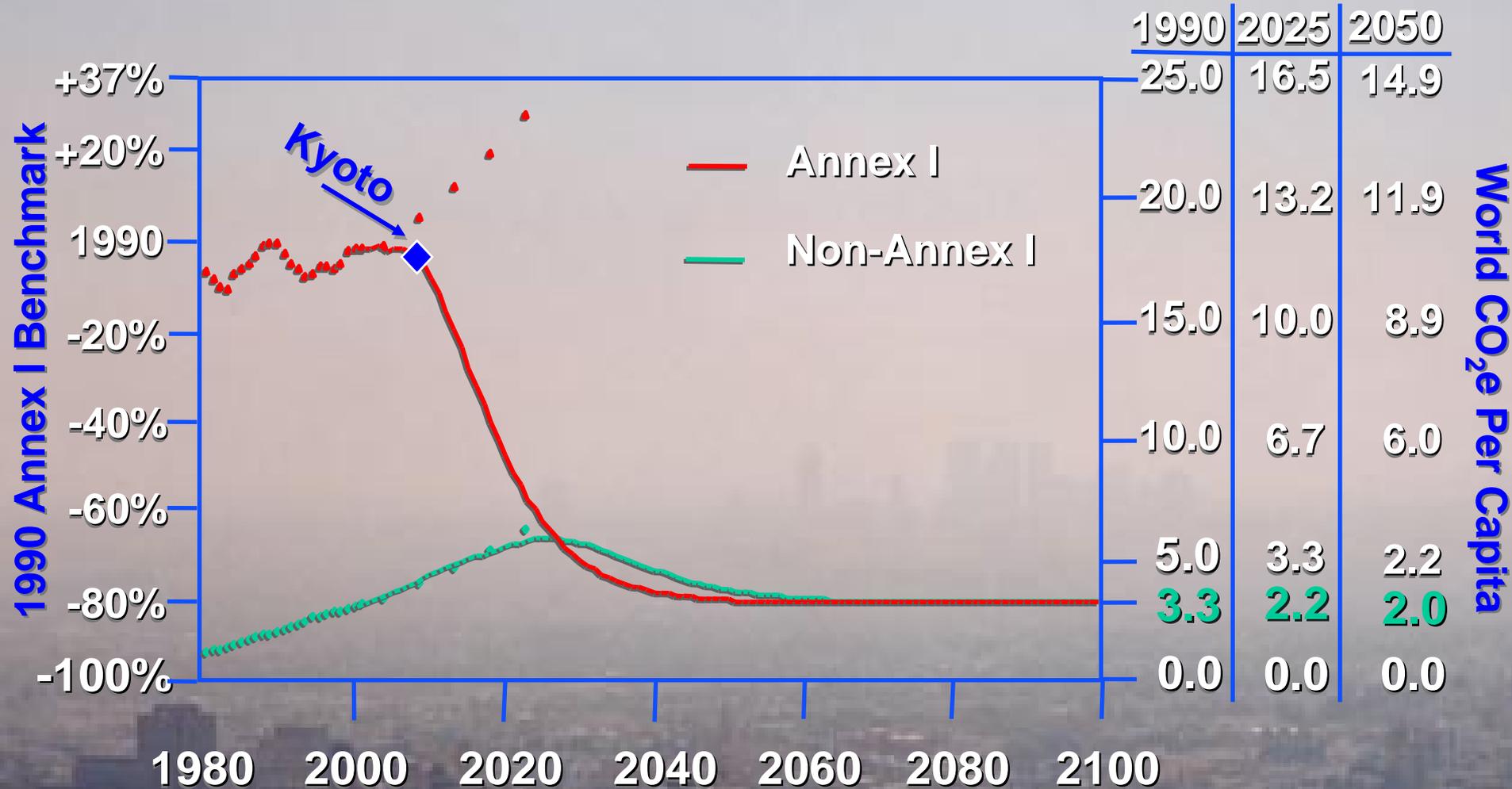
Source: IPCC Second & Third Assessment Reports



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World GHG Emissions Reduction Scenario

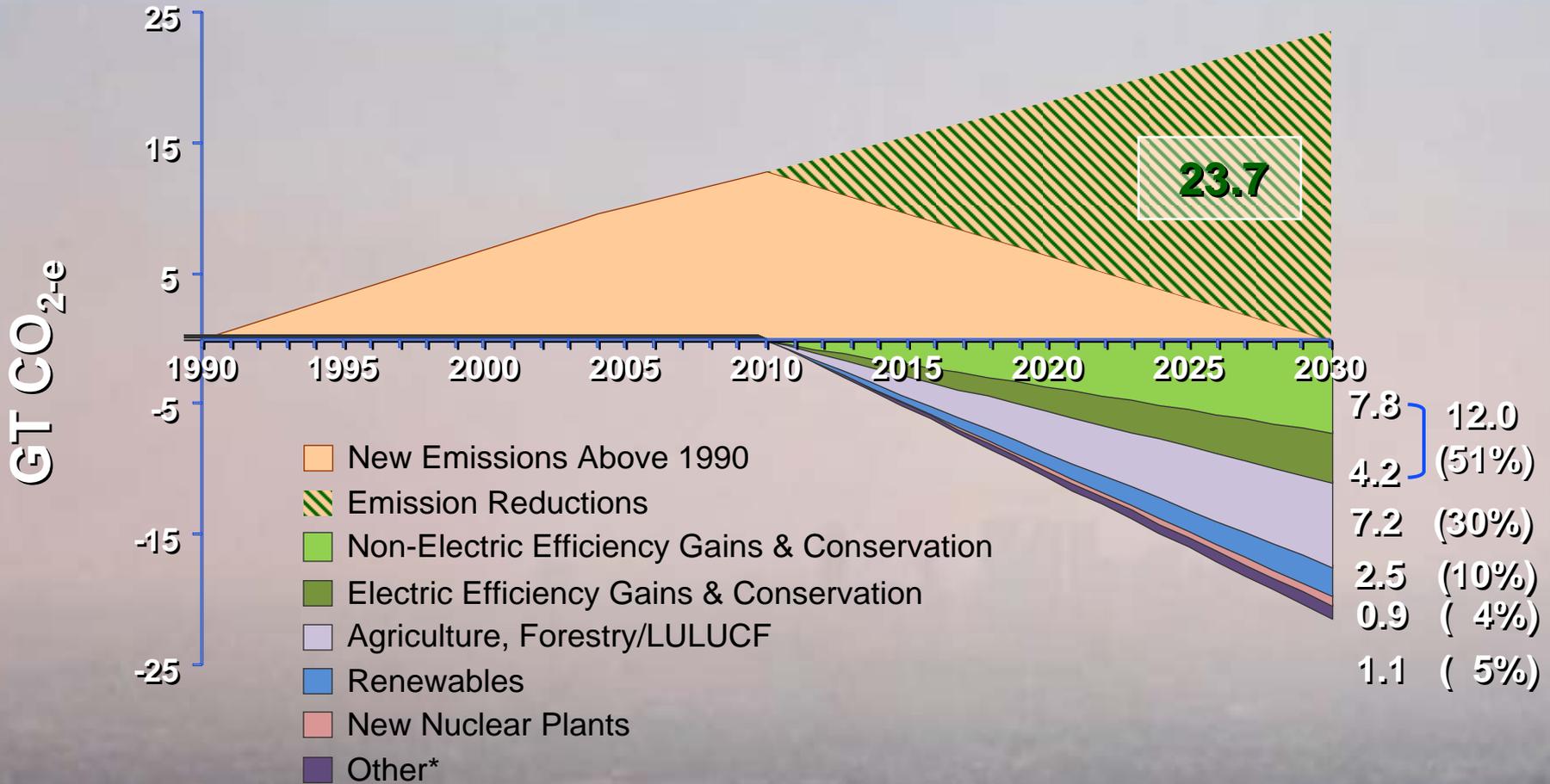
60% Reduction from World 1990 Levels by 2050



Source: Based on John Byrne et al (2004) "Reclaiming the atmospheric commons: Beyond Kyoto." In V.I. Grover (ed.), *Climate Change: Perspectives Five Years After Kyoto*. Chapter 21. Plymouth, UK: Science Publishers, Inc.



IPCC Assessment of Principal Mitigation Options

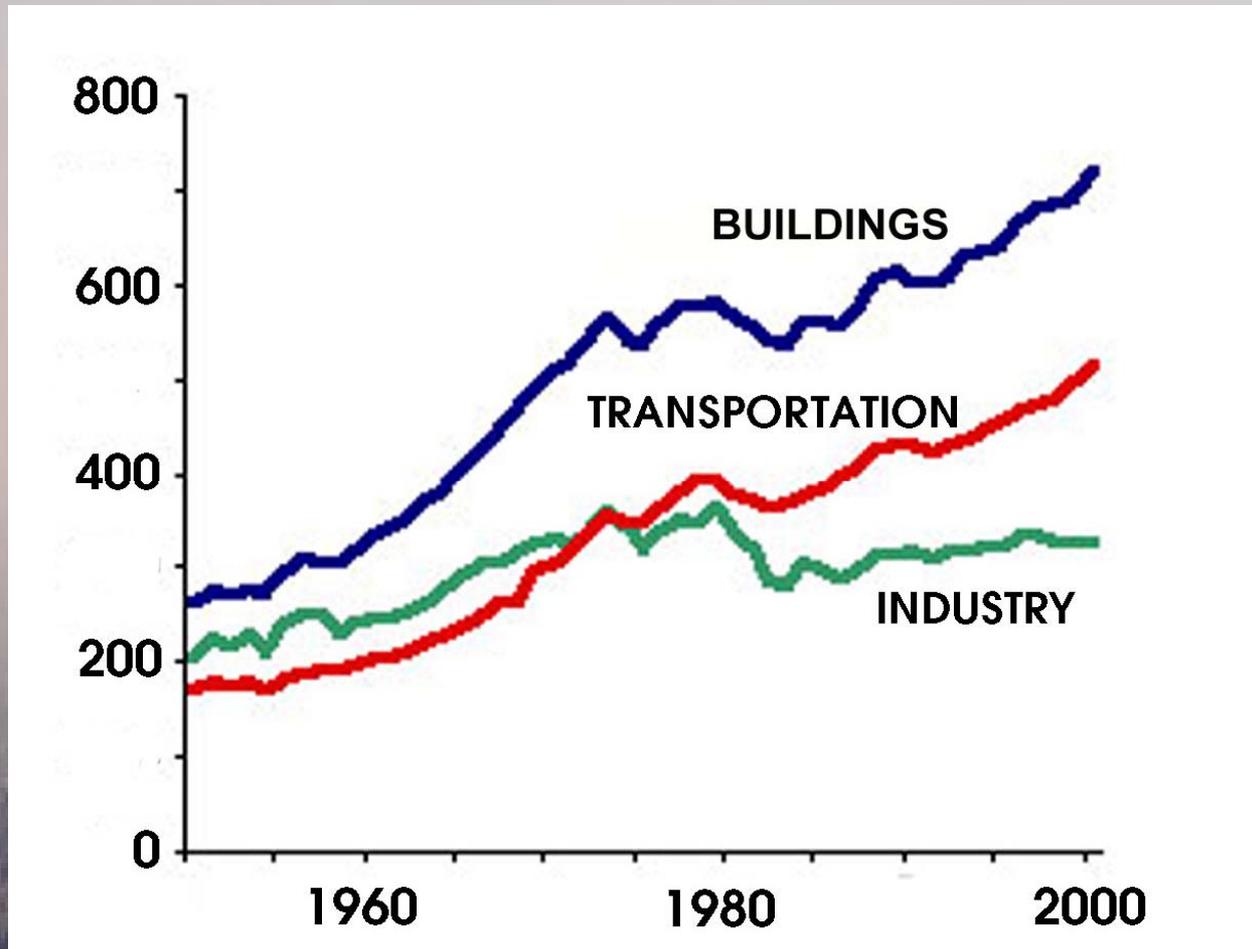


* Other includes 1.1 Gt CO_{2-e} reduced through several options including: CCS; Waste and Wastewater Management.

Source: IPCC 2007. Fourth Assessment Report, WG III Report, Mitigation of Climate Change.
Supporting Sources: Olivier et al 2006, 2005, WBCSD 2004.

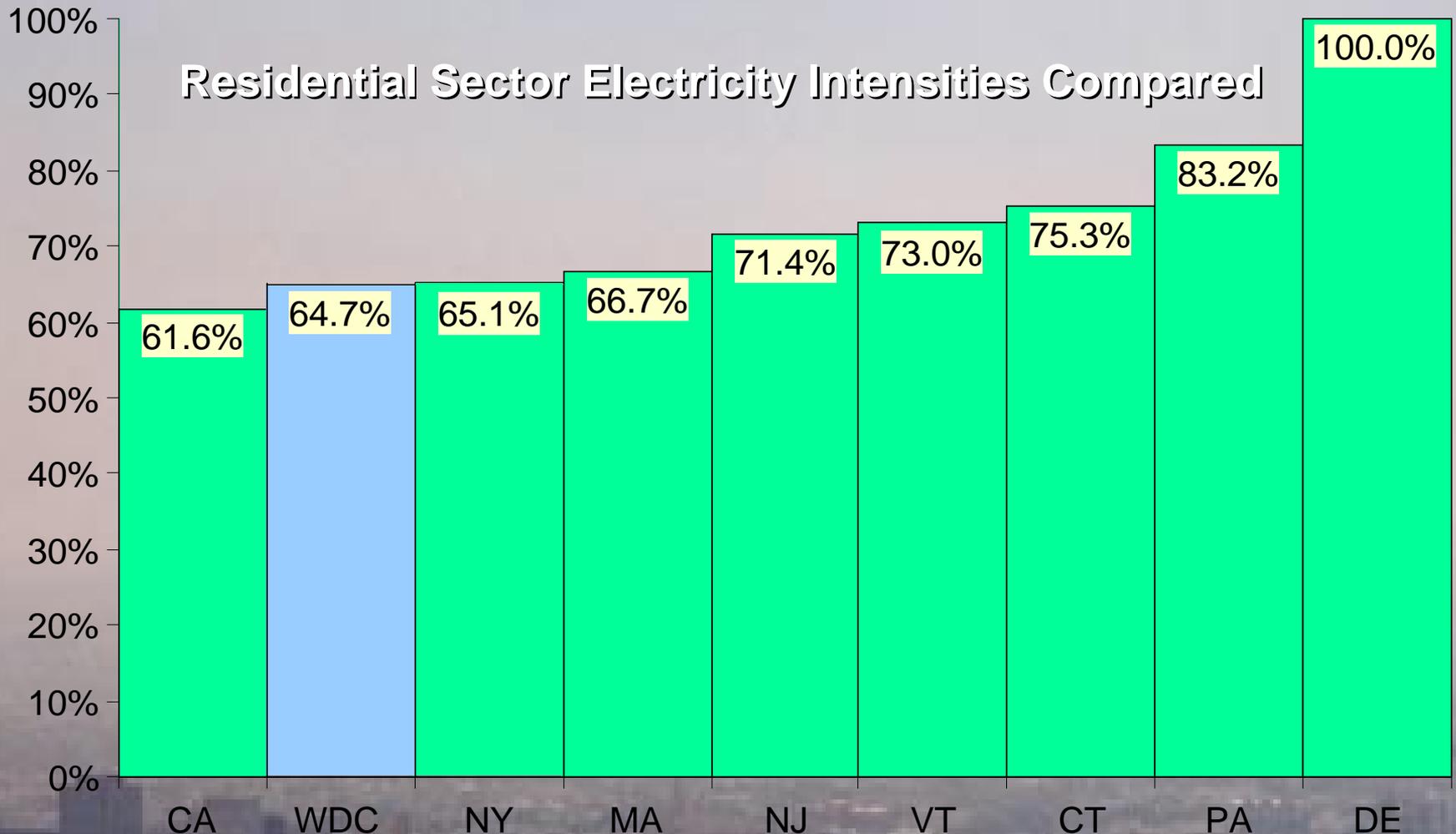
U.S. CO₂ Emissions by Sector (Million Metric Tons of Carbon)

Slide courtesy of Jesse Hensen, AIA, and Amy Hoagberg, CEM, Kyocera Solar



Source: Ed Mazria of Mazria Odems Dzurec

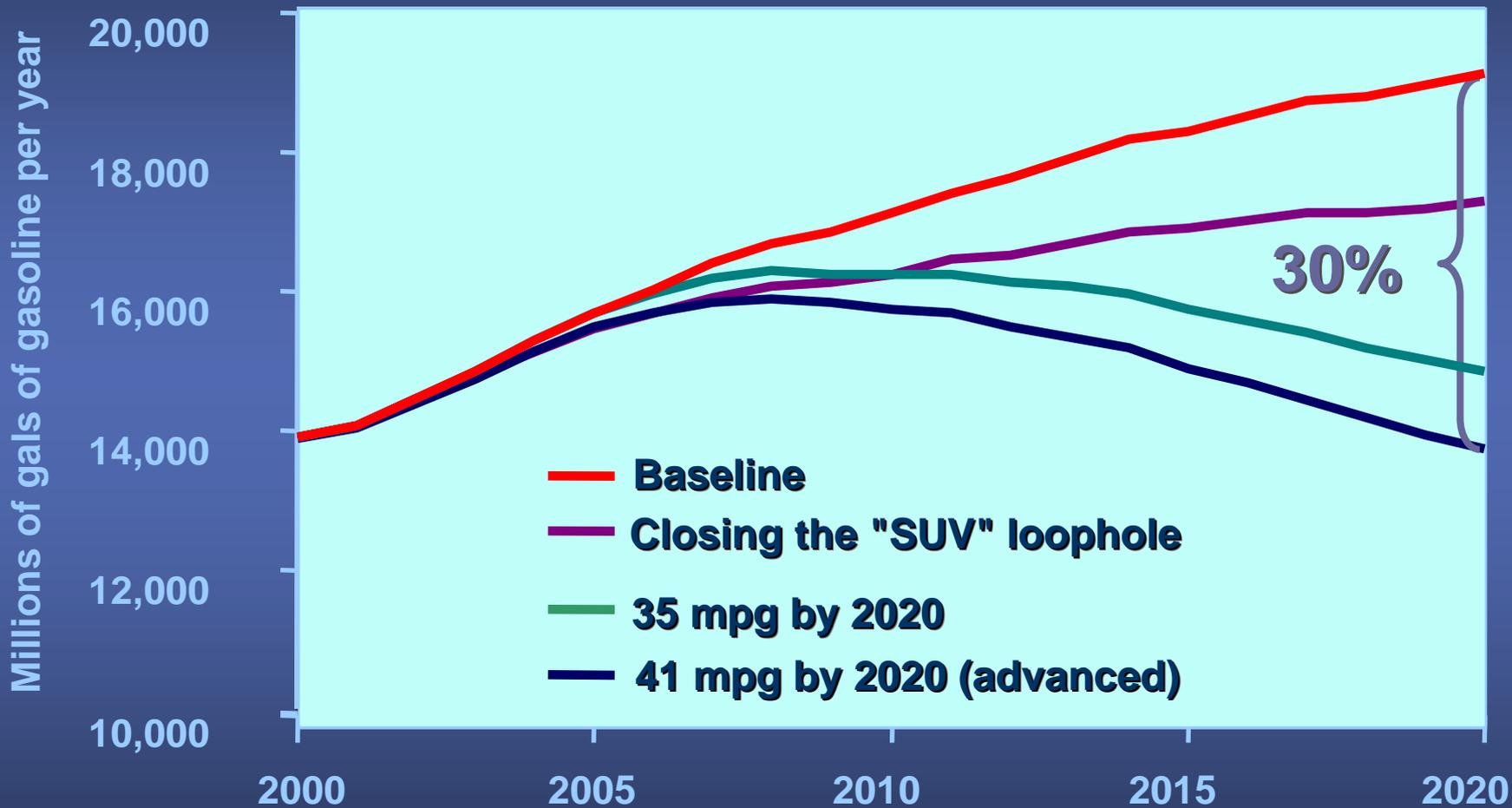
Delaware's Challenge



Source: *Sustainable Energy Utility Design: Options for the District of Columbia (2008)*. Prepared for the DDOE.



Needed Increase in Vehicle Fuel Economy



(Source: Hwang, 2006; UCS, 2008)





New Direction – A Sustainable Energy Utility



By 2015

◆ Participating Delaware residents and businesses cut conventional energy use by 30%: ALL FUELS, ALL SECTORS

- Utilize Market Transformation Rebate Programs: pay the incremental cost difference between standard and high-efficiency models
- Double the Weatherization Program: support novel strategies such as ‘white roofs’ & partner with utilities and fuel companies to reduce arrears accounts
- Create a Green Buildings Initiative: reward green renovations of existing buildings and provide incentives for new construction that contributes to Low/No Emissions Buildings
- Adopt a Sustainable Transport Plan: promote High MPG, Low Carbon Vehicles; reward Employee Commute Planning; incent Carsharing

By 2019

◆ 20% of electricity serving Delaware to come from Renewable Energy

- Upgrade the Renewable Portfolio Standard (RPS) to 20% by 2019
- Include a Solar Carveout of 2% by 2019 with High-Value Solar RECs
- Encourage a Renewable Energy Credits (RECs) Market, providing a revenue stream to customer-sited renewables

Both Goals = 25-30% reduction in Delaware’s carbon footprint

THE SUSTAINABLE ENERGY SPACE

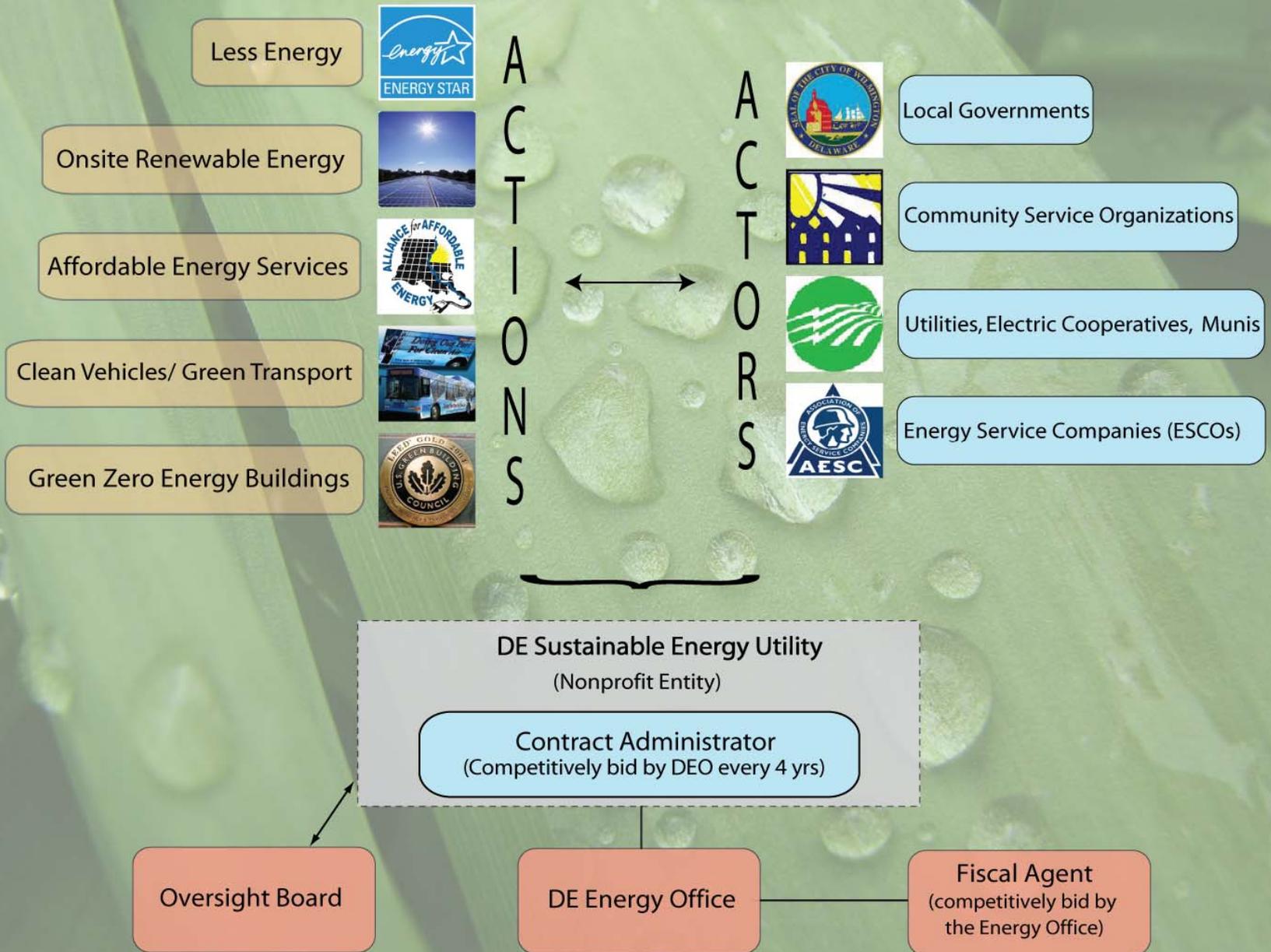


SUSTAINABLE ENERGY UTILITY

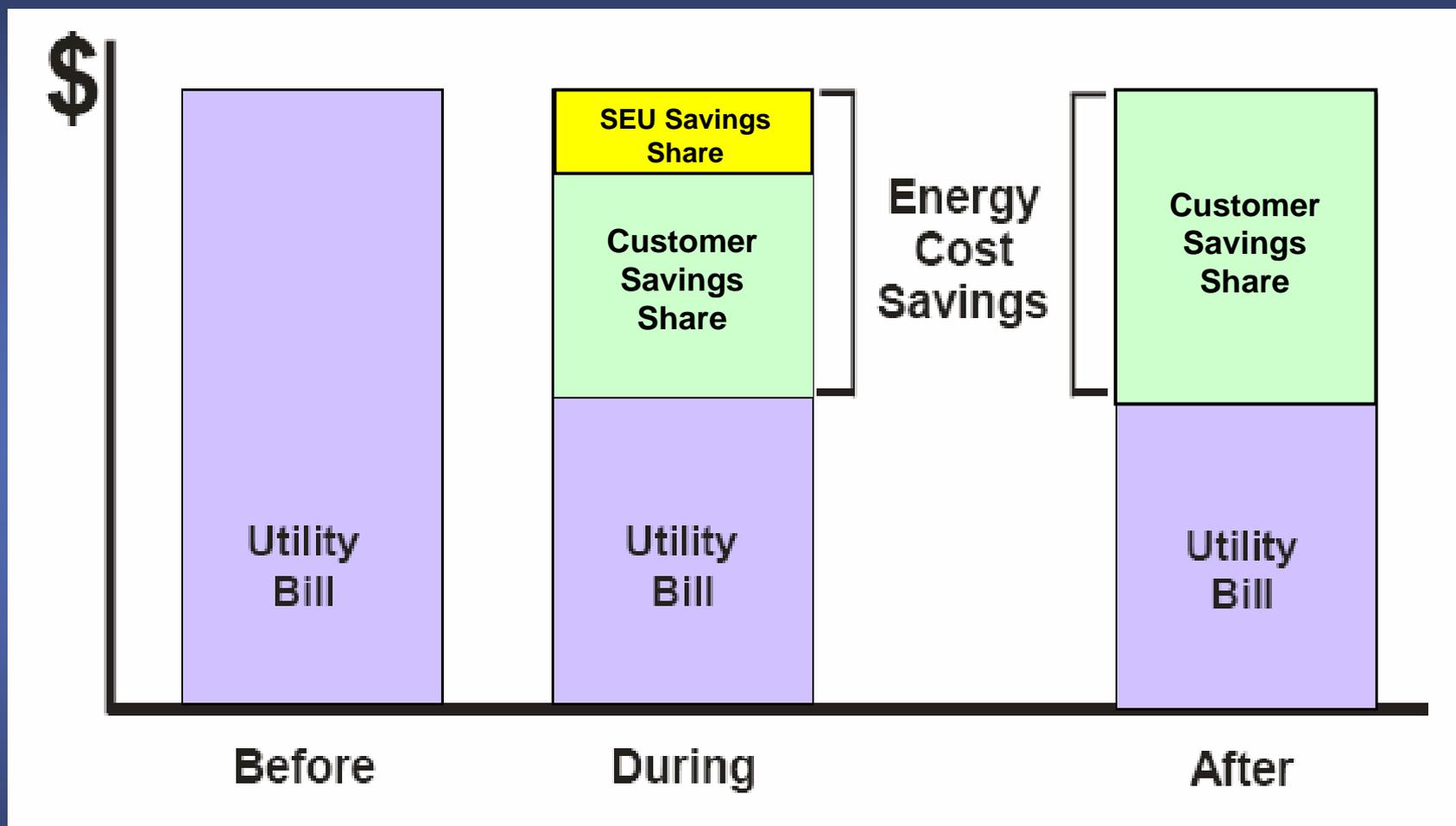
IMPLEMENTATION



THE SUSTAINABLE ENERGY SPACE



Performance Contracting



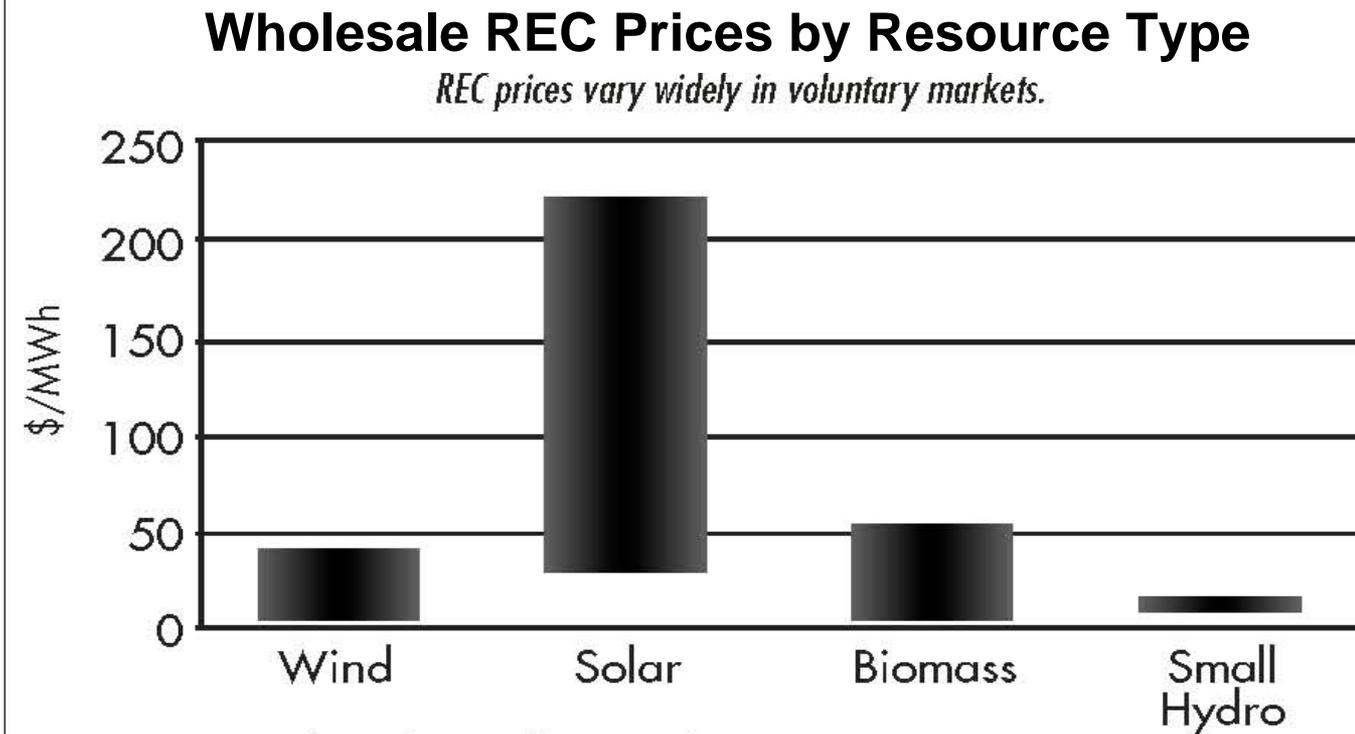
Source: King, 2003



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Renewable Energy Credits (RECs) Markets for Sustainable Energy

Figure 1

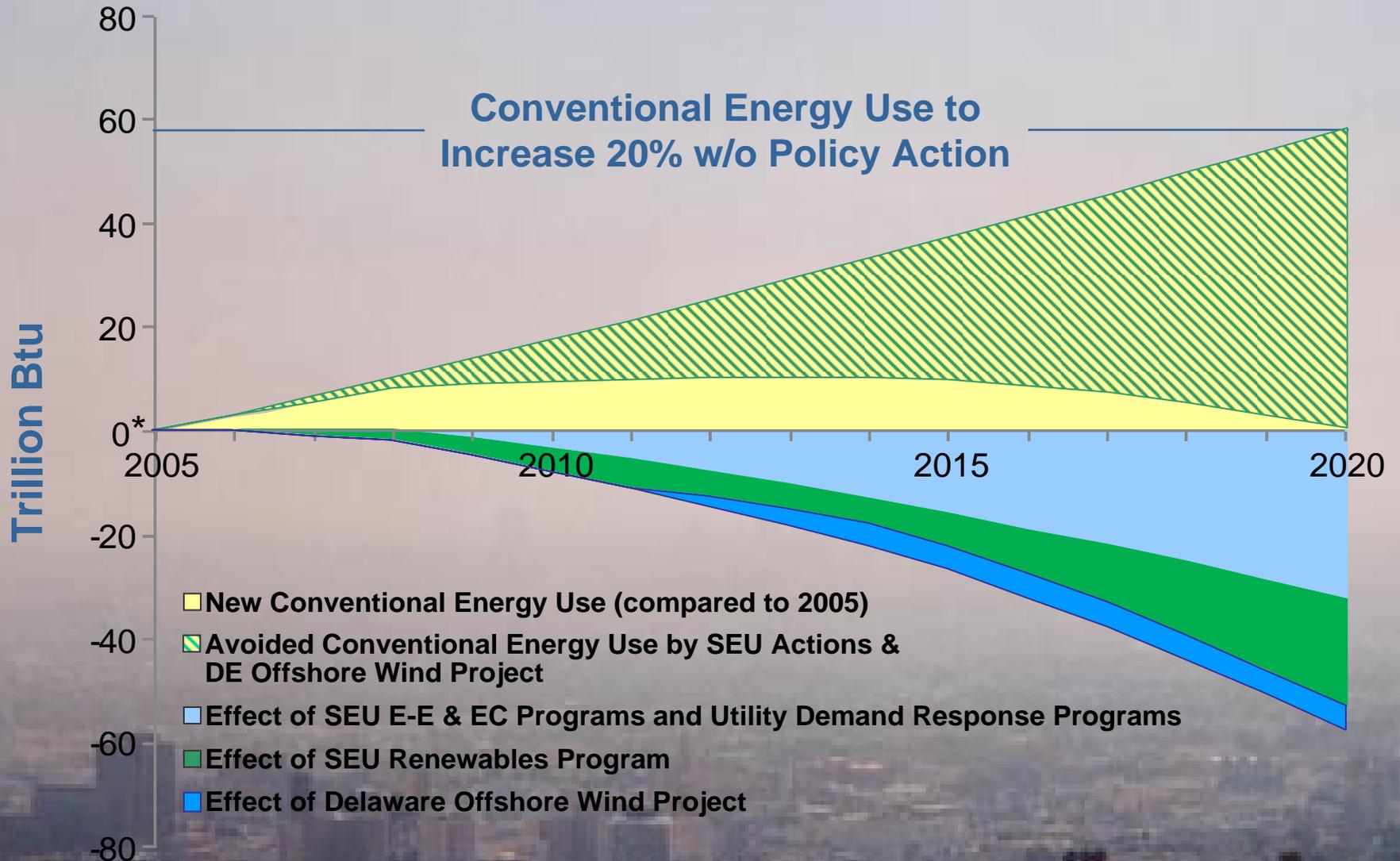


Source: National Renewable Energy Laboratory

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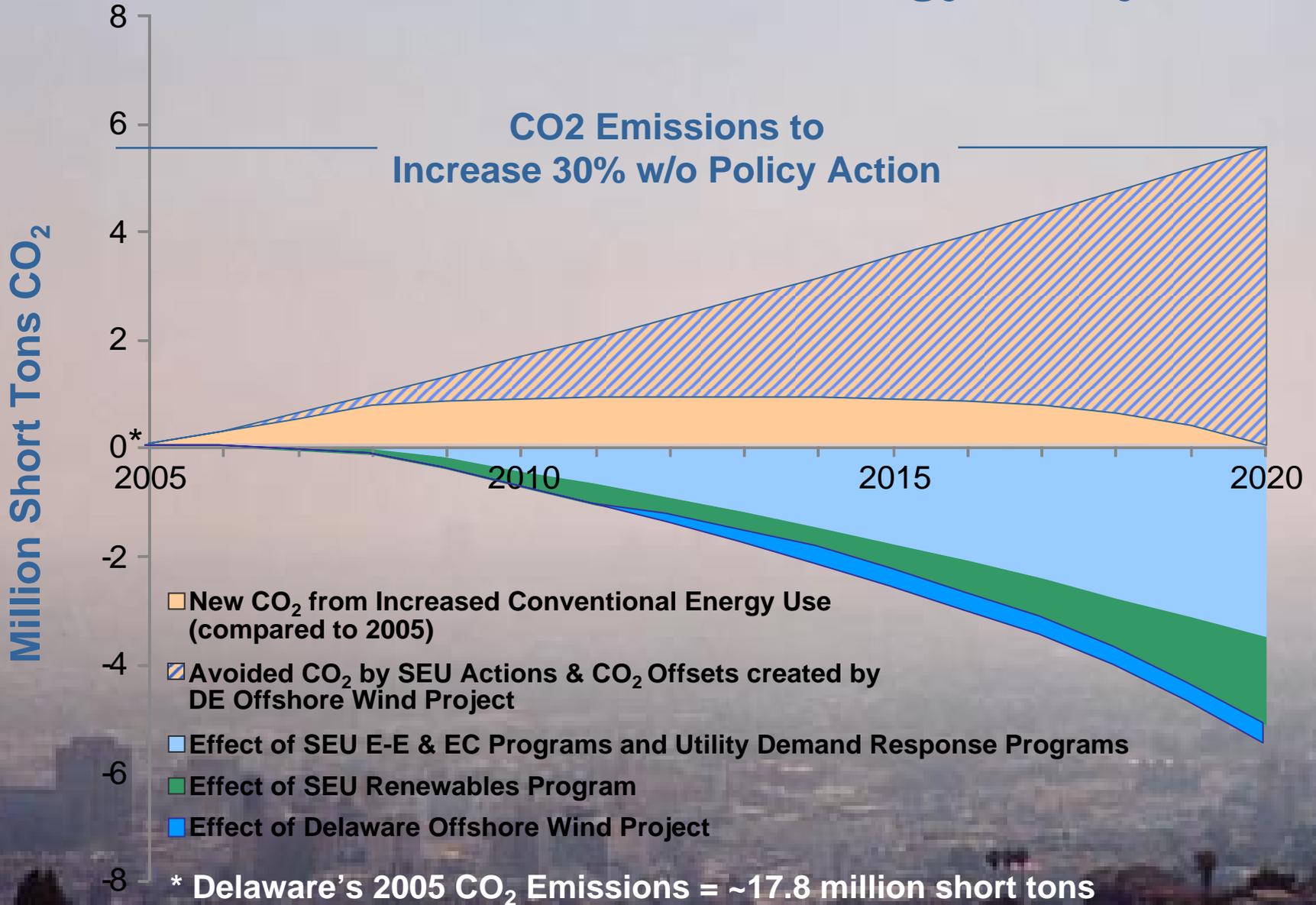


Delaware Sustainable Energy Utility

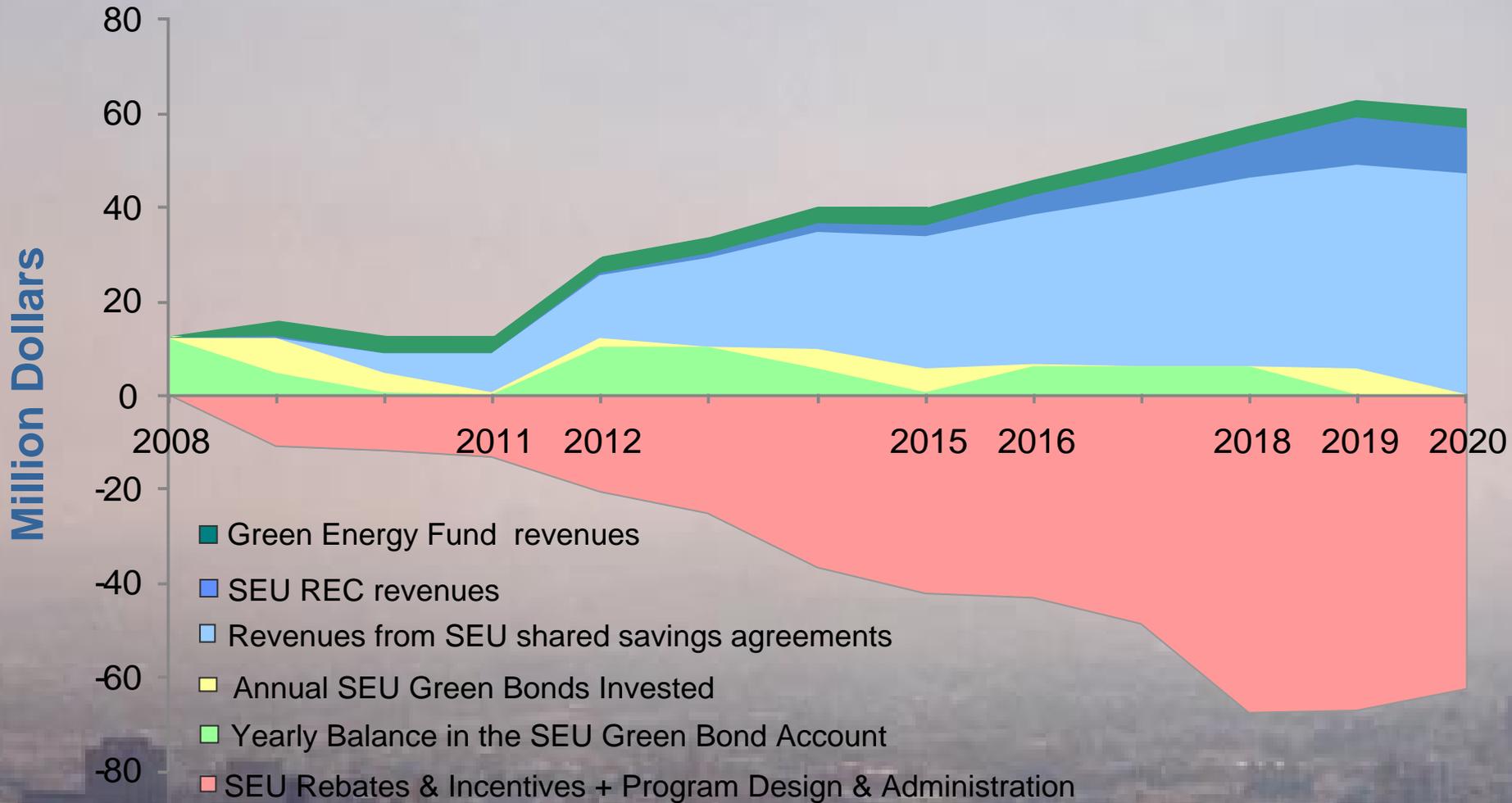


* Delaware's 2005 Energy Consumption = 312 trillion Btu

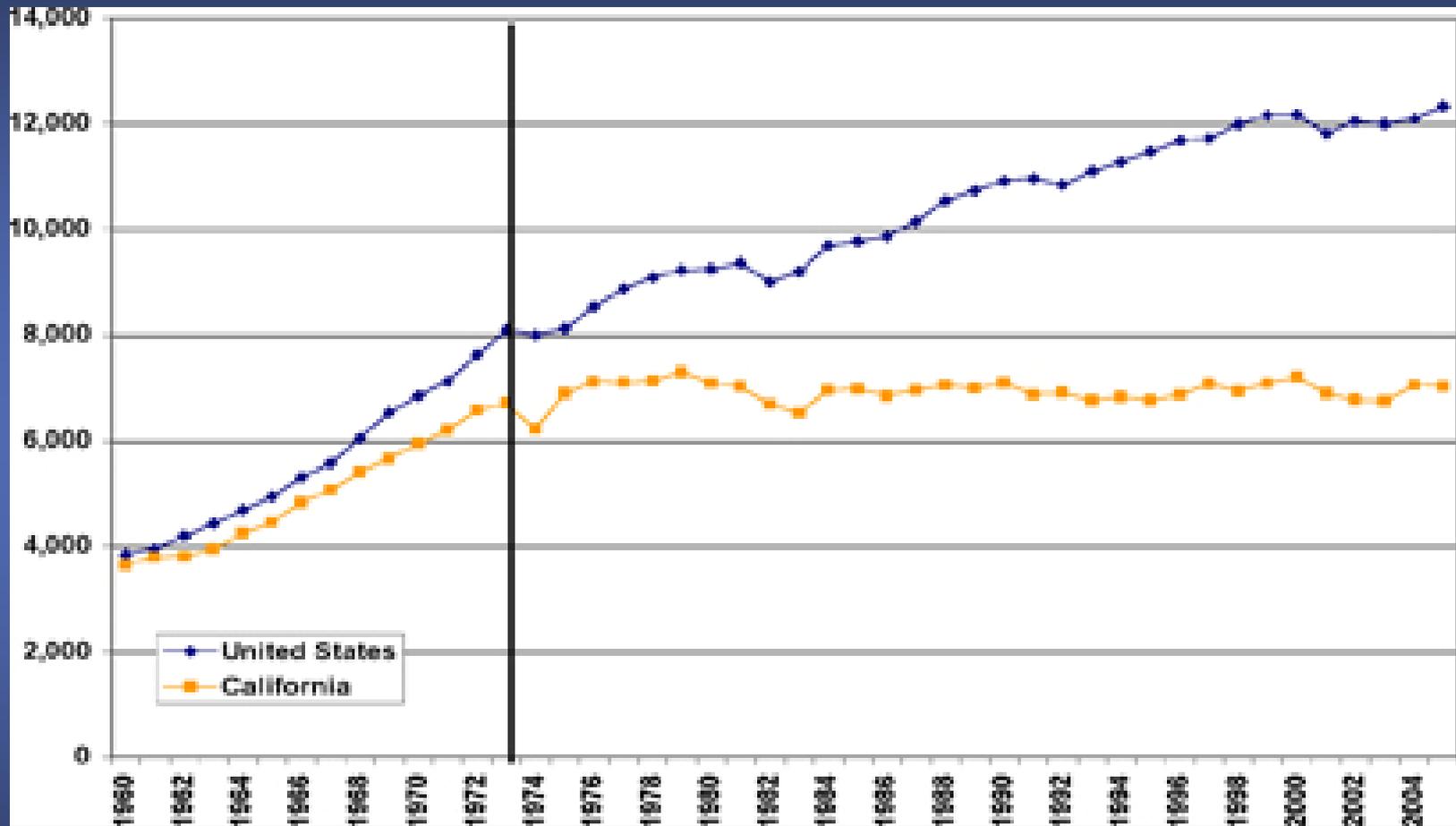
Delaware Sustainable Energy Utility



Delaware Sustainable Energy Utility



California Electricity Consumption (Annual Electricity Sales in kWh per person)



Source: California Energy Commission 2007 Integrated Energy Policy Report
(Adopted December 5, 2007) See: http://www.energy.ca.gov/2007_energy_policy/index.html



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An aerial photograph showing a dense forest with a stream winding through it. The water is a light, milky color, contrasting with the dark green of the trees.

July 15, 2008

District of Columbia

Councilmember Mary M. Cheh's Landmark Energy Bill Passes

Councilmember Cheh introduced landmark legislation in November 2007 to create a sustainable energy utility. Her “Clean and Affordable Energy Act” was unanimously passed on July 15, 2008 by the City Council of the District of Columbia to establish the nation’s capitol “as one of the leading cities tackling climate change,” said Cheh. The District’s sustainable utility proposal is based on successful models in *Delaware*, Vermont, Oregon, and New Jersey.

An aerial photograph showing a dense forest with a stream winding through it. The water is a light, milky color, contrasting with the dark green of the trees.

Sustainable Energy Utility

Website: <http://www.seu-de.org/>

For more information, please contact:

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