



RESOURCE CHOICES: NATURAL GAS IN A CARBON-CONSTRAINED WORLD

Vermont Law School

July 18, 2008

Jeffrey M. Petrash

American Gas Association

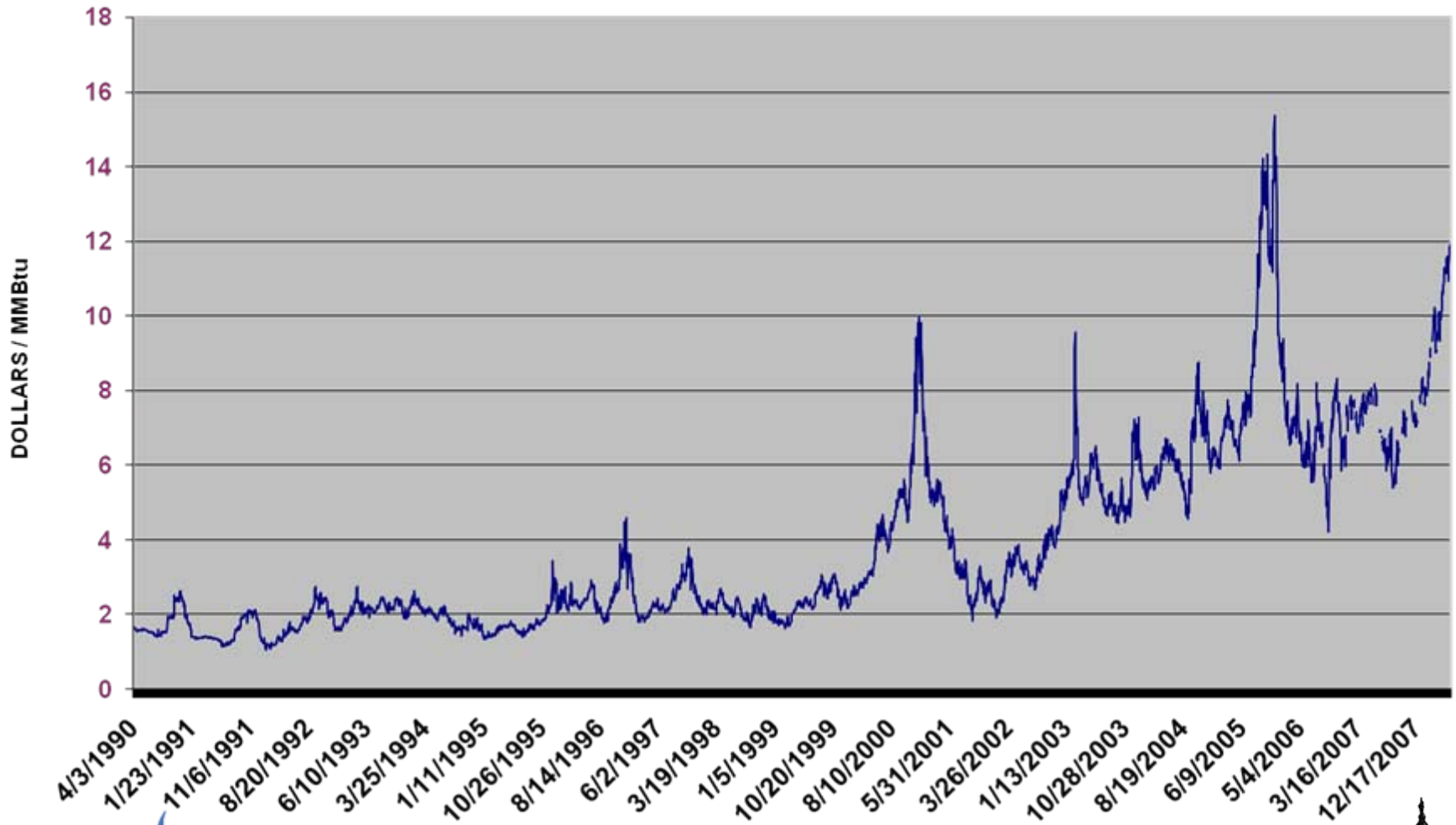
Washington, D.C.

THREE POINTS FOR TODAY

- Impact of carbon regulation on resource choices and natural gas prices
- Role of natural gas in the short and intermediate terms in a carbon-regulated world
- Most effective means to reduce GHG emissions of small users



NYMEX NATURAL GAS SETTLEMENT PRICES

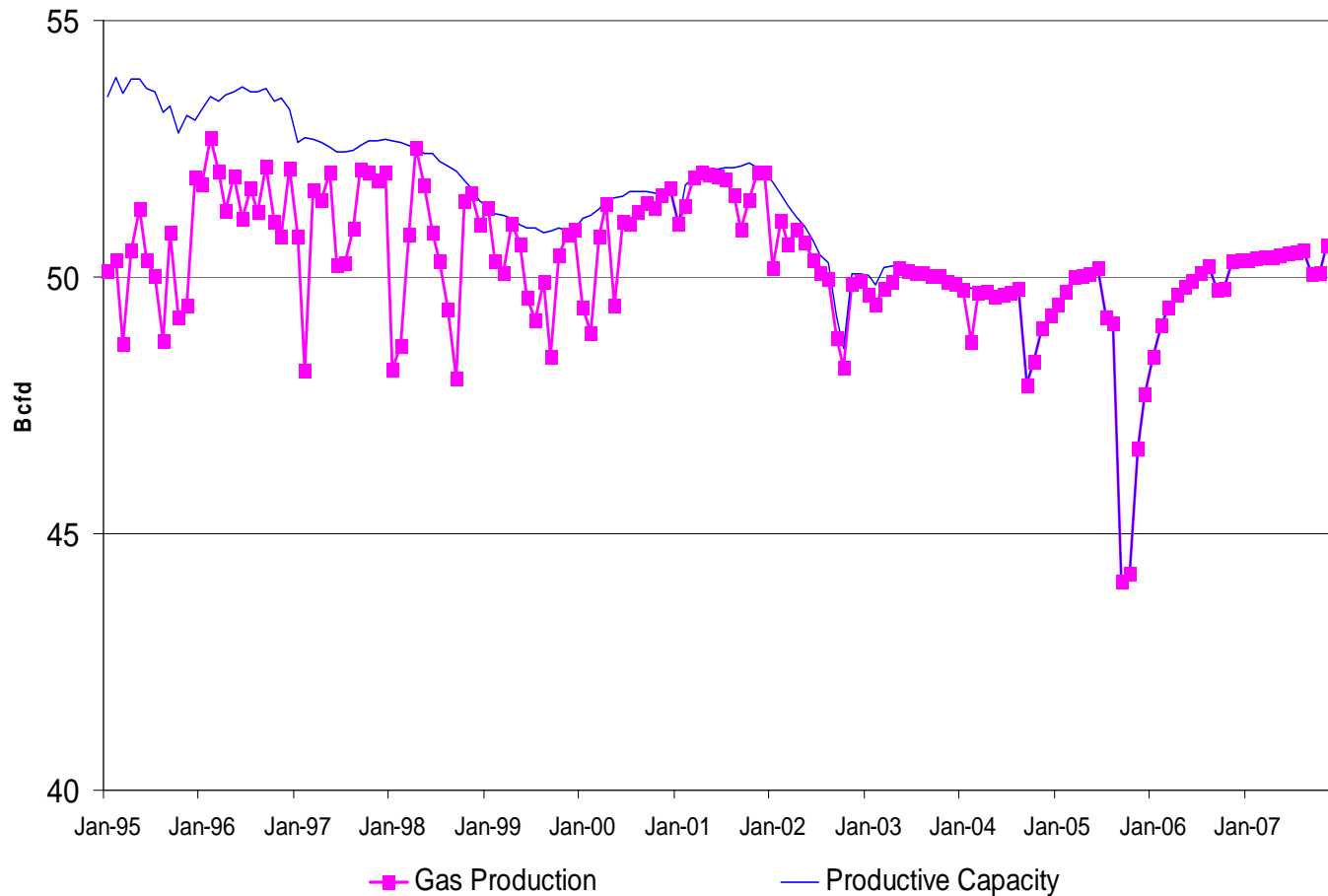


NATURAL GAS PRICES

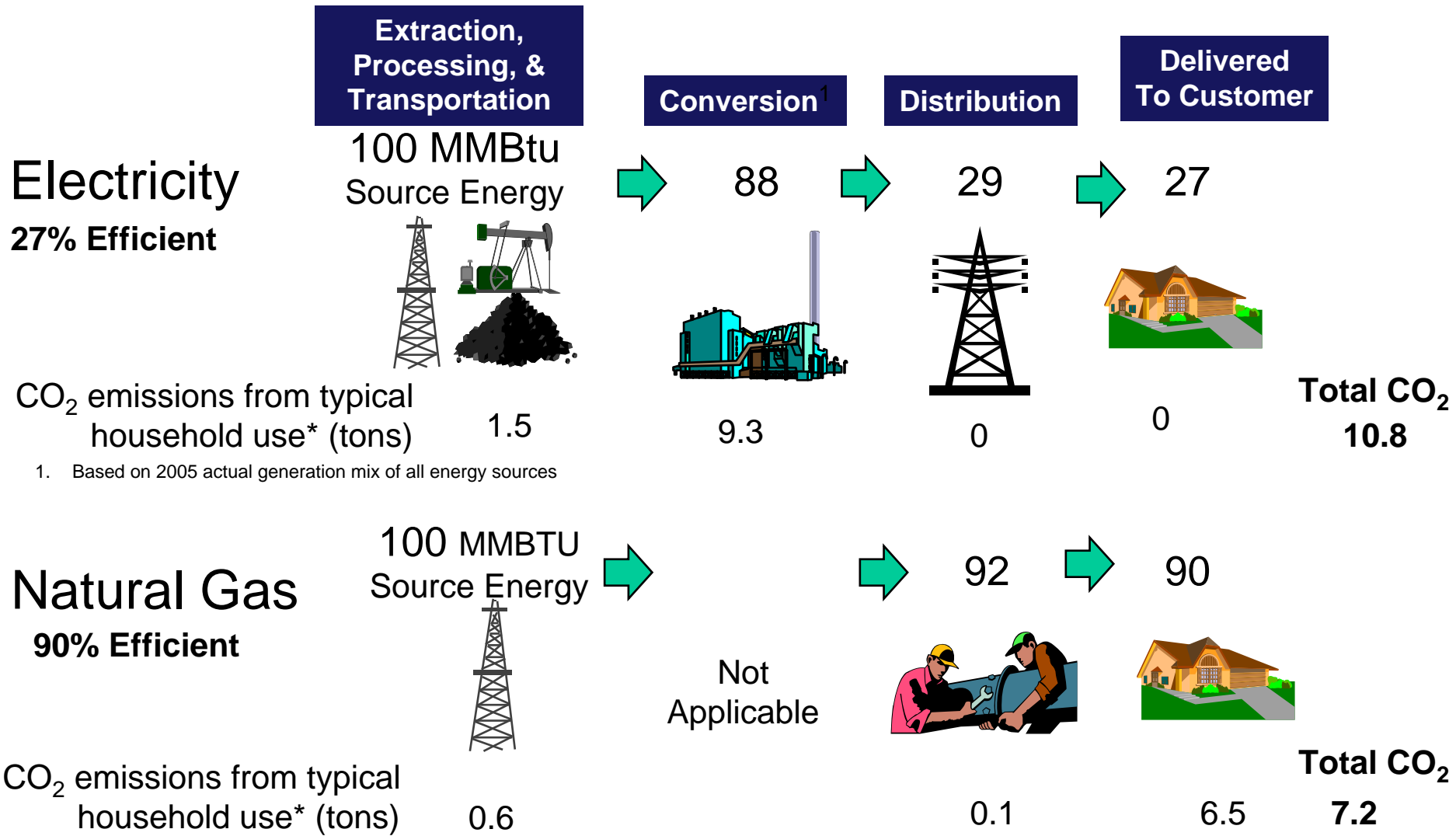


LOWER-48 DRY GAS PRODUCTION VS. DRY GAS PRODUCTIVE CAPACITY

SOURCE: ENERGY AND ENVIRONMENTAL ANALYSIS, INC.



THREE TIMES MORE ENERGY REACHES THE CUSTOMER WITH NATURAL GAS



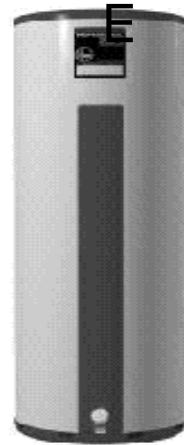
* Energy consumed in space and water heating, clothes drying, and cooking.



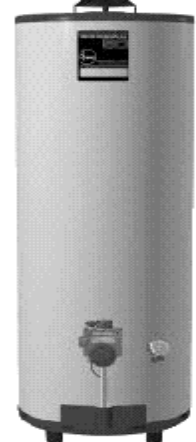
RESIDENTIAL ENERGY EFFICIENCY RATINGS WATER HEATERS

DOE site-specific energy ratings are misleading. While DOE rates an electric appliance with a more efficient energy rating than a similar gas appliance, in reality that electric appliance consumes more source energy, pollutes more, and costs the consumer more to operate.

ELECTRIC RESISTANC



NATURAL GAS



DOE NAECA Efficiency Rating ¹:
Source Energy Consumption (MMBtu/yr):
Energy Cost²/yr :
CO₂ Emissions (tons/unit/yr)³:
2006 Shipments (Sales) ⁴:
Equipment Cost

.90 EF
61.4
\$517
3.8
4,792,000
\$340

.59 EF
28.2
\$309
1.7
4,654,000
\$415

¹Energy factors based on a 40-50 gallon storage water heaters

²Energy Cost is based on 2007 DOE representative average unit costs for energy where electric rate is 10.65 cents/kWh; gas rate is 12.18/MMBtu

³Emission estimates are based on DOE's electric power emission estimates for all generation energy sources from Electric Power Annual 2005 data

⁴Gas Appliance Manufacturers Association

EF=Energy Factor



ENERGY CONSUMPTION FOR A TYPICAL HOME

Electric Home



10.8 tons CO₂

Total Source Energy Consumption: 181 MMBtu/yr
Total Site Energy Consumption: 49 MMBtu/yr
Total Annual Energy Cost: \$1,482

Natural Gas Home



7.2 tons CO₂

Total Source Energy Consumption: 122 MMBtu/yr
Total Site Energy Consumption: 107 MMBtu/yr
Total Annual Energy Cost: \$1,331

Based on a 2,000 square foot home in an average climate, using national average energy prices. Analysis includes the following only: space heating, water heating, cooking, and clothes drying. Home meets Model Energy Code standards.



DIRECT USE OF NATURAL GAS RESULTS IN 34% LESS CO₂

Annual CO₂ emissions from typical home heating, water heating,
cooking, and clothes drying energy uses

One Million Homes



NATURAL GAS

Total CO₂
7.2 Million Tons/Year

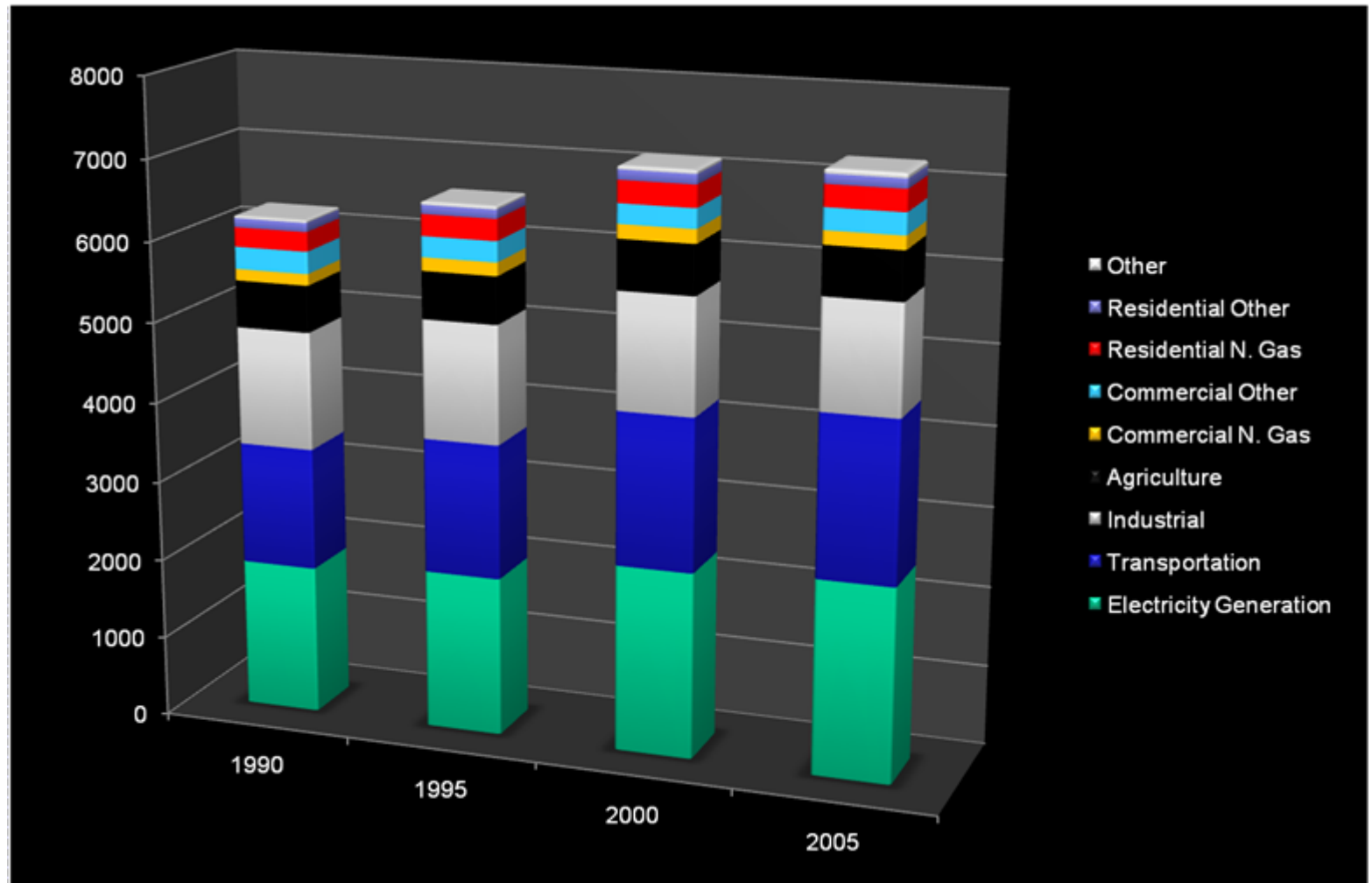
ELECTRICITY

Total CO₂
10.8 Million Tons/Year

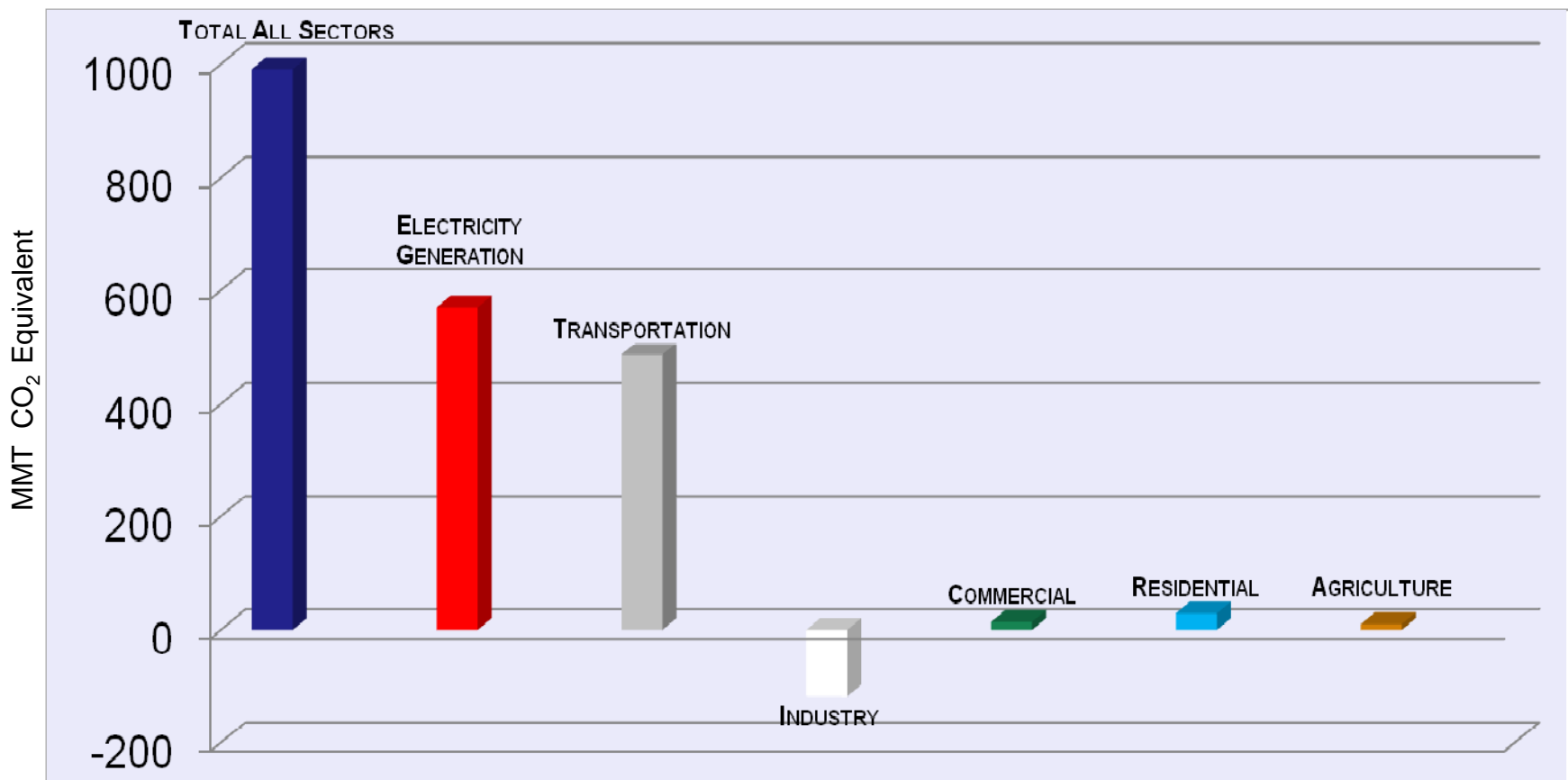
- NOTES:
1. Fuels used in electricity generation based on 2005 actual generation mix of fossil fuels, nuclear, and renewable energy
 2. 2.1 million new homes were built in 2006



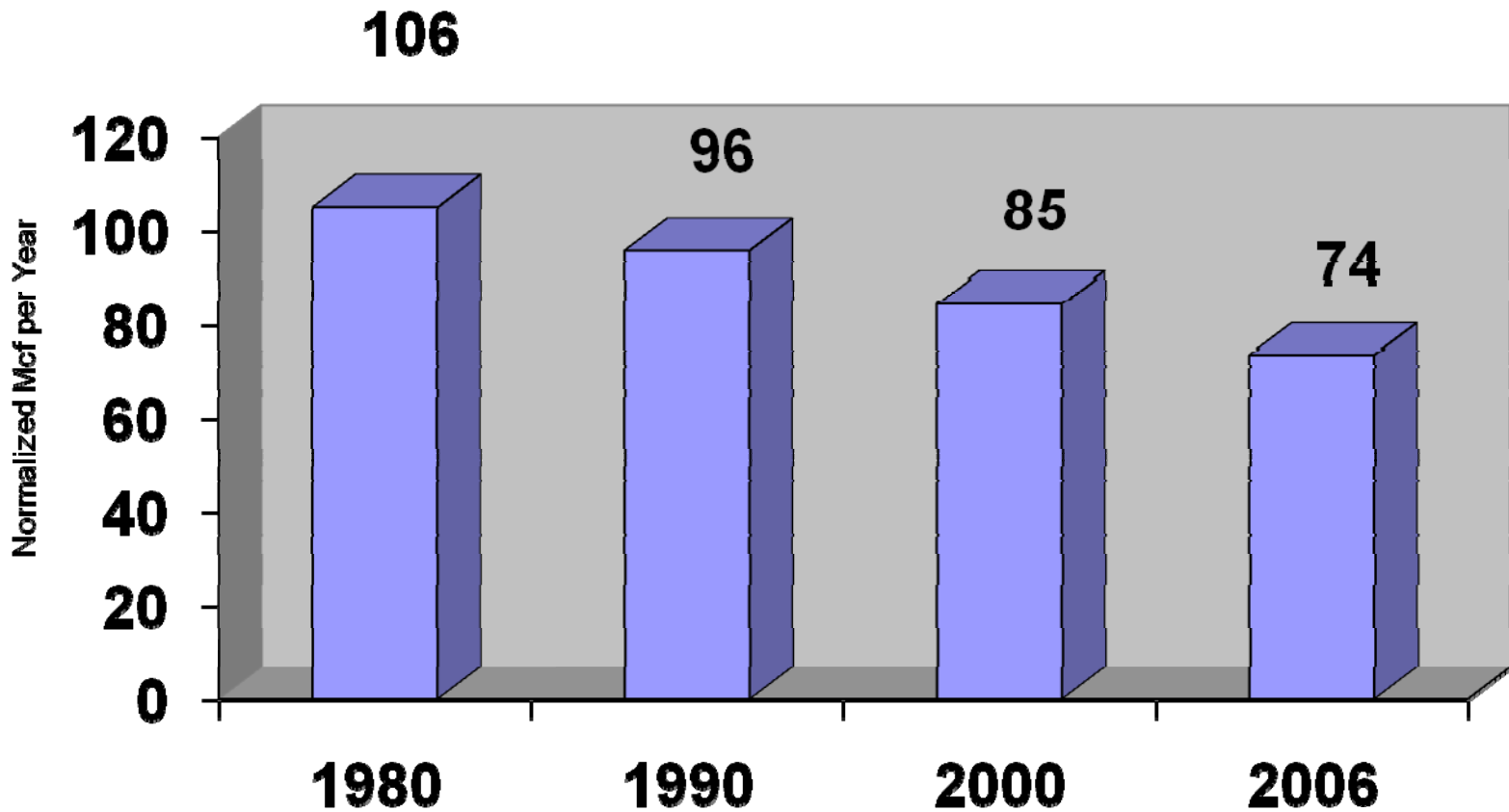
U.S. GREENHOUSE GAS EMISSIONS BY SECTOR – 1990-2005 (TG CO₂ EQUIVALENT)



CHANGE IN ANNUAL U.S. GREENHOUSE GAS EMISSIONS BY SECTOR 1990 - 2005



NATURAL GAS USE PER RESIDENTIAL CUSTOMER IS DECLINING





Thank You!

Jeff Petrash

American Gas Association

400 North Capitol Street, N.W.

Washington, D.C.

202.824.7231

jpetrash@aga.org

