



Climate Change, Infrastructure Investment and Rate Design: Emergent Energy Issues

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American Gas Association

The US Natural Gas Industry At A Glance - 2006

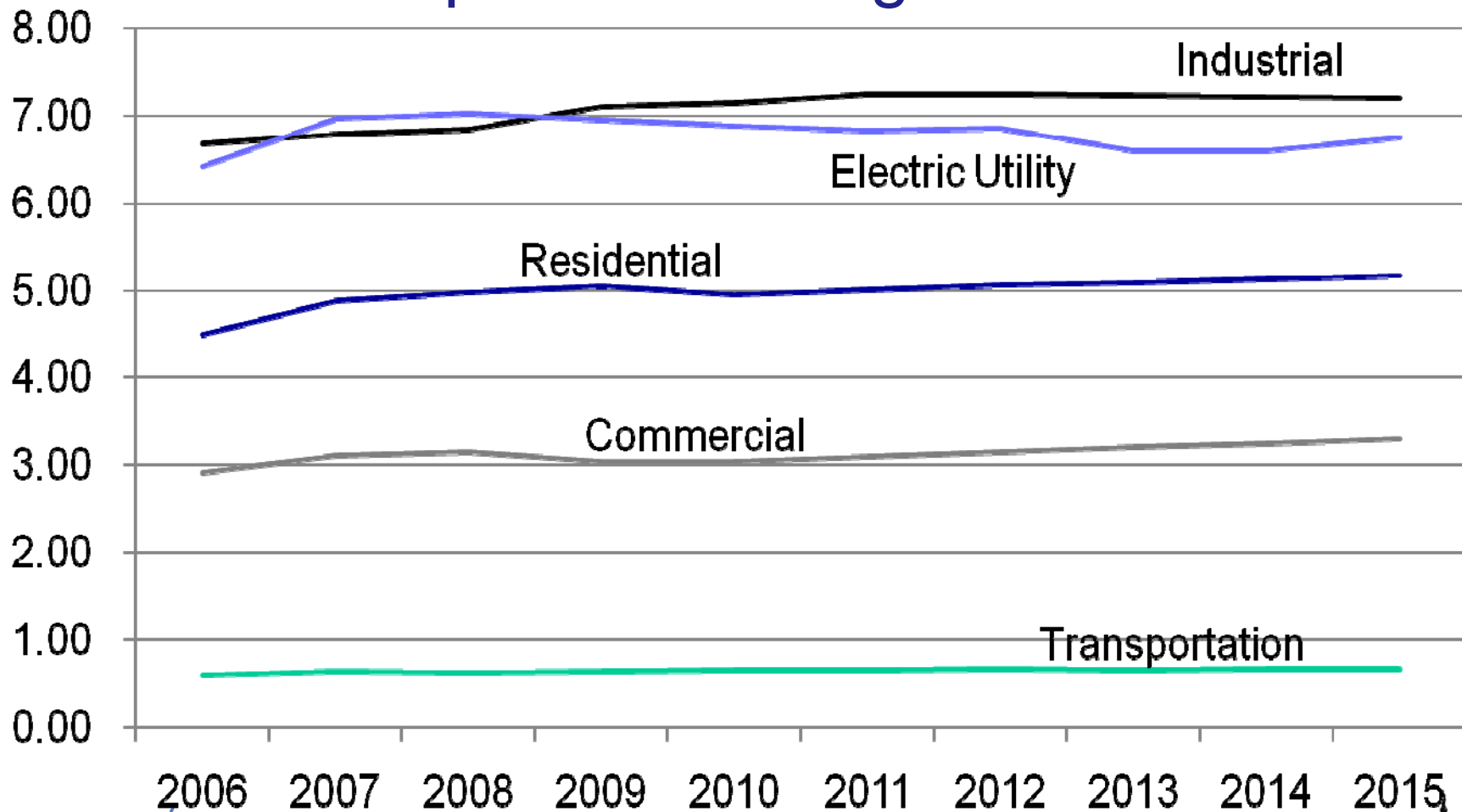
	<u>Participants</u>	<u>Miles of Pipe</u>	<u>Regulatory Regime</u>
Producers	6,800 Independents 21 Majors	0	Phased price deregulation begun in 1979, completed in 1989
Pipelines	160	295,000	Federal Energy Regulatory Commission (FERC)
Gas Marketers	250	0	Unregulated
Local Utilities		2 Million	
IOU	335		State Utility Commissions
Municipal	860		Local Governments
		<u>Consumption</u>	
End Users	Residential 63 million Commercial 5 million Industrial 200 thousand Electric Utilities 500	5 3 Tcf 7 Tcf 6 Tcf	Unregulated Interstate - FERC Intrastate - State Commissions



Source: Dept. of Energy, Energy Information Administration, AGA



Limited Growth in Natural Gas Demand Expected Through 2015



Size of US Natural Gas Utility Distribution Industry - 2006

\$79 billion in net gas utility plant

\$39 billion in total common equity

\$79 billion in annual revenues

\$4 billion in new construction investment annually
for last 25 years; \$5+ billion annually last 5 years

\$6.5 - \$9 billion projected in new construction
investment annually for the next 20 years



Natural Gas Utility Costs – 2006

Natural Gas Supply Costs

- Volumetric Costs
- 67% of Utility Revenue
- \$52 Billion
- Weighted average gas costs reduce customer bill volatility

Distribution Costs

- Fixed Costs
- 33% of Utility Revenue
- \$27 Billion Includes:
 - ✓ \$18 Billion – Customer Service, Operations & Depreciation
 - ✓ \$4.3 Billion - Taxes
 - ✓ \$1.5 Billion – Maintenance
 - ✓ \$3 Billion - Return on Investment



Some Costs Are Volatile or Increasing Rapidly

Natural Gas Supply Costs

- Supplies of Natural Gas

Distribution Costs

- Infrastructure Costs
 - ✓ New main pipes
 - ✓ New service pipes
 - ✓ Replacement pipes, both main and services
- Bad Debt Expenses
- Distribution Integrity Management Costs



US Natural Gas Customer Usage and Investment (Distribution Sector)

15 million new residential customers from 1980 to 2005

\$101 billion in new construction from 1980 to 2006

1980 total residential consumption = 4.7 Tcf

2006 total residential consumption = 4.6 Tcf

U.S. TREND: Declining Use Per Customer

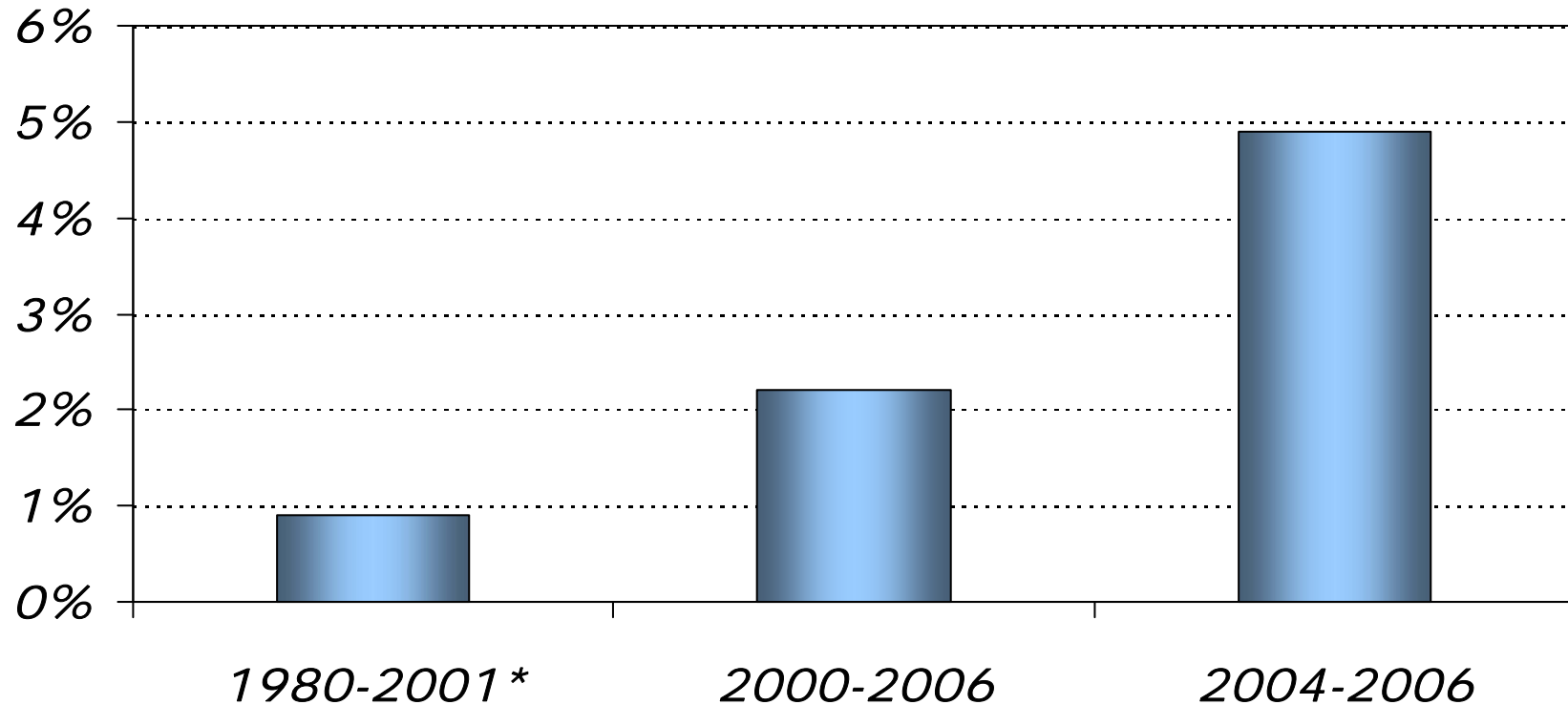


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Source: Department of Energy, EIA, AGA Gas Facts



AVERAGE ANNUAL DECLINE IN WEATHER NORMAL GAS USE PER CUSTOMER

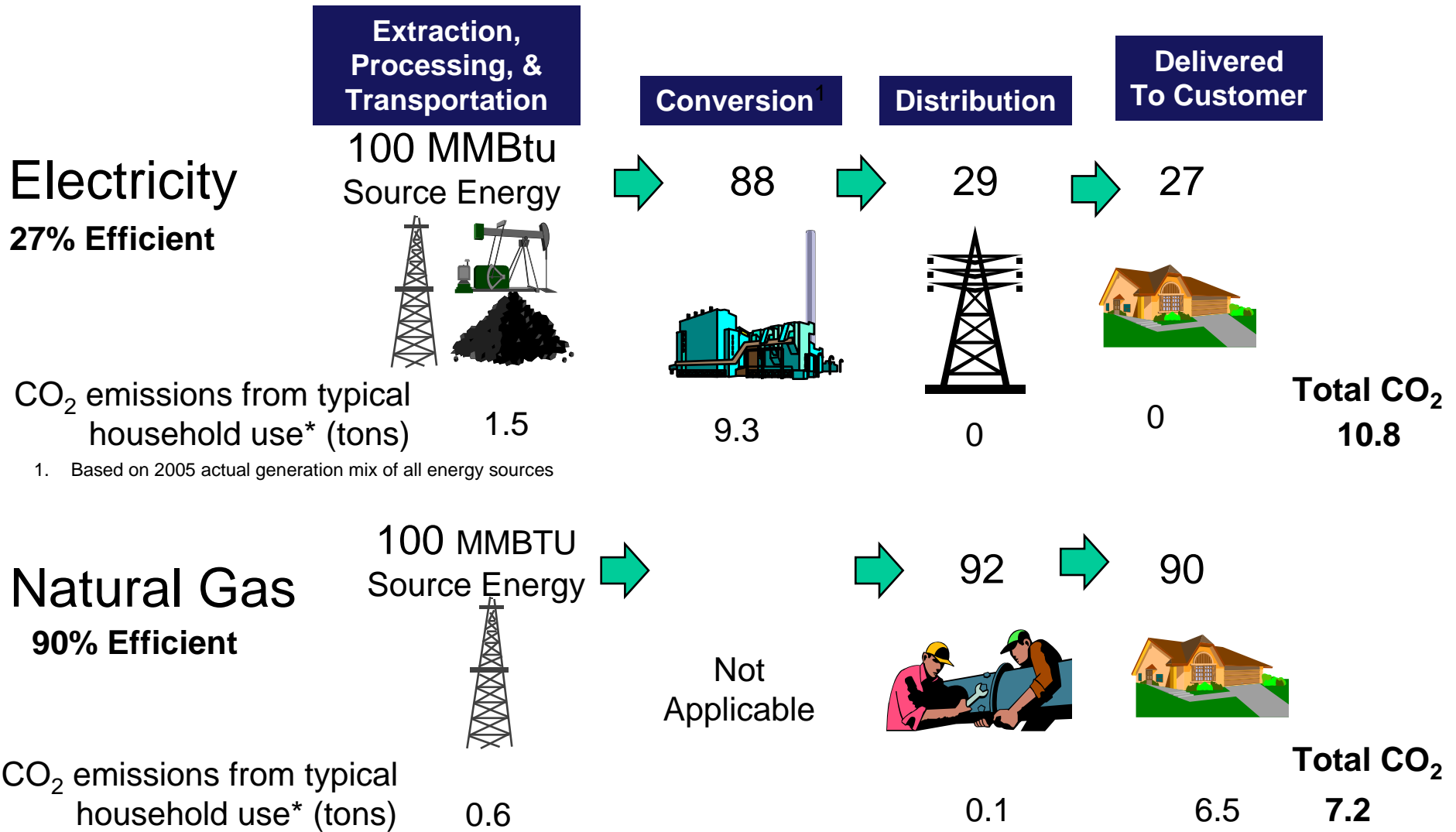


**Total per customer consumption decreased 33 percent
between 1980 and 2006**



* 2004 AGA Energy Analysis: Patterns in Residential Natural Gas Consumption, 1980-2001

THREE TIMES MORE ENERGY REACHES THE CUSTOMER WITH NATURAL GAS



1. Based on 2005 actual generation mix of all energy sources

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



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



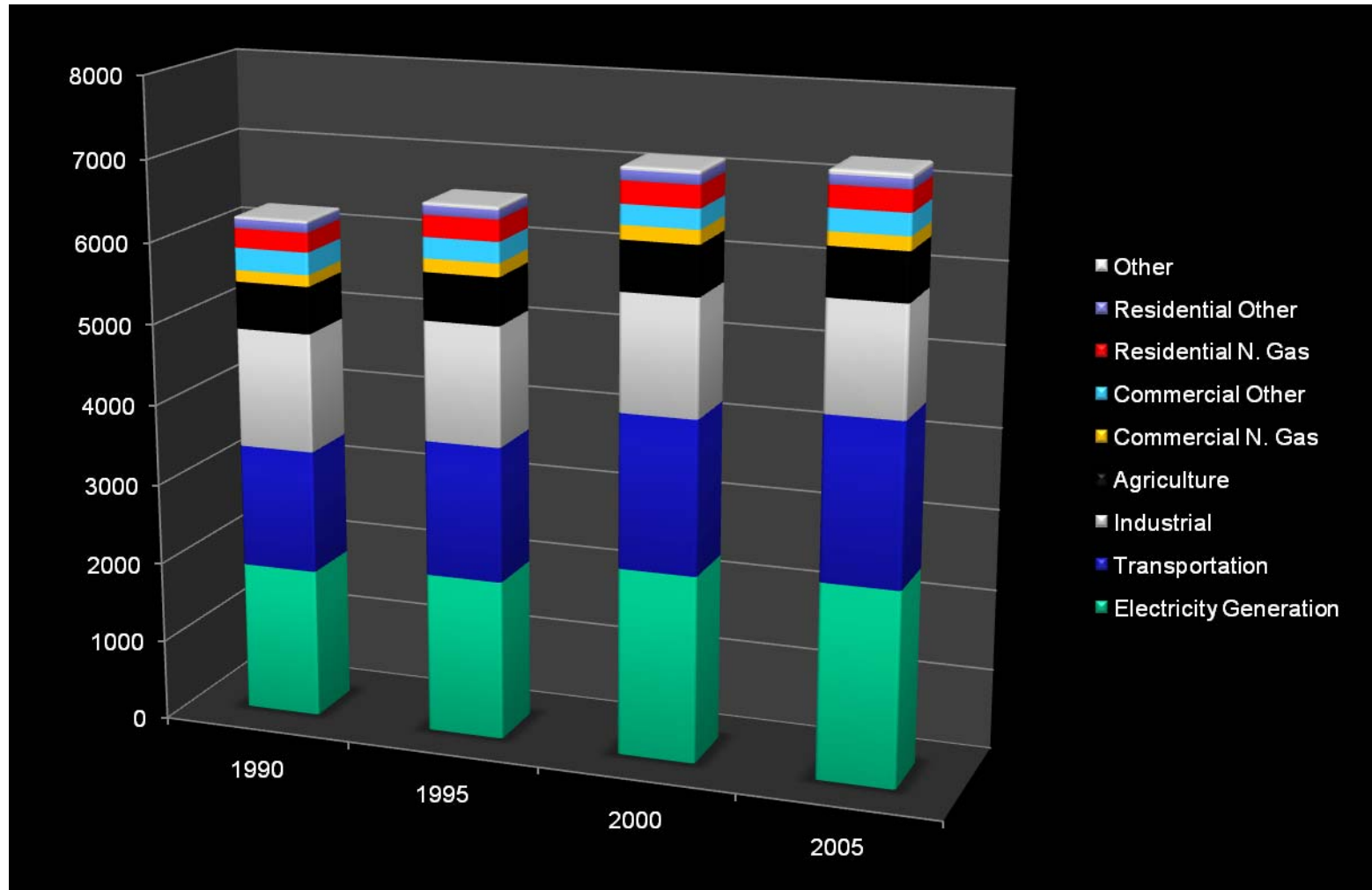
7.2 tons CO₂

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

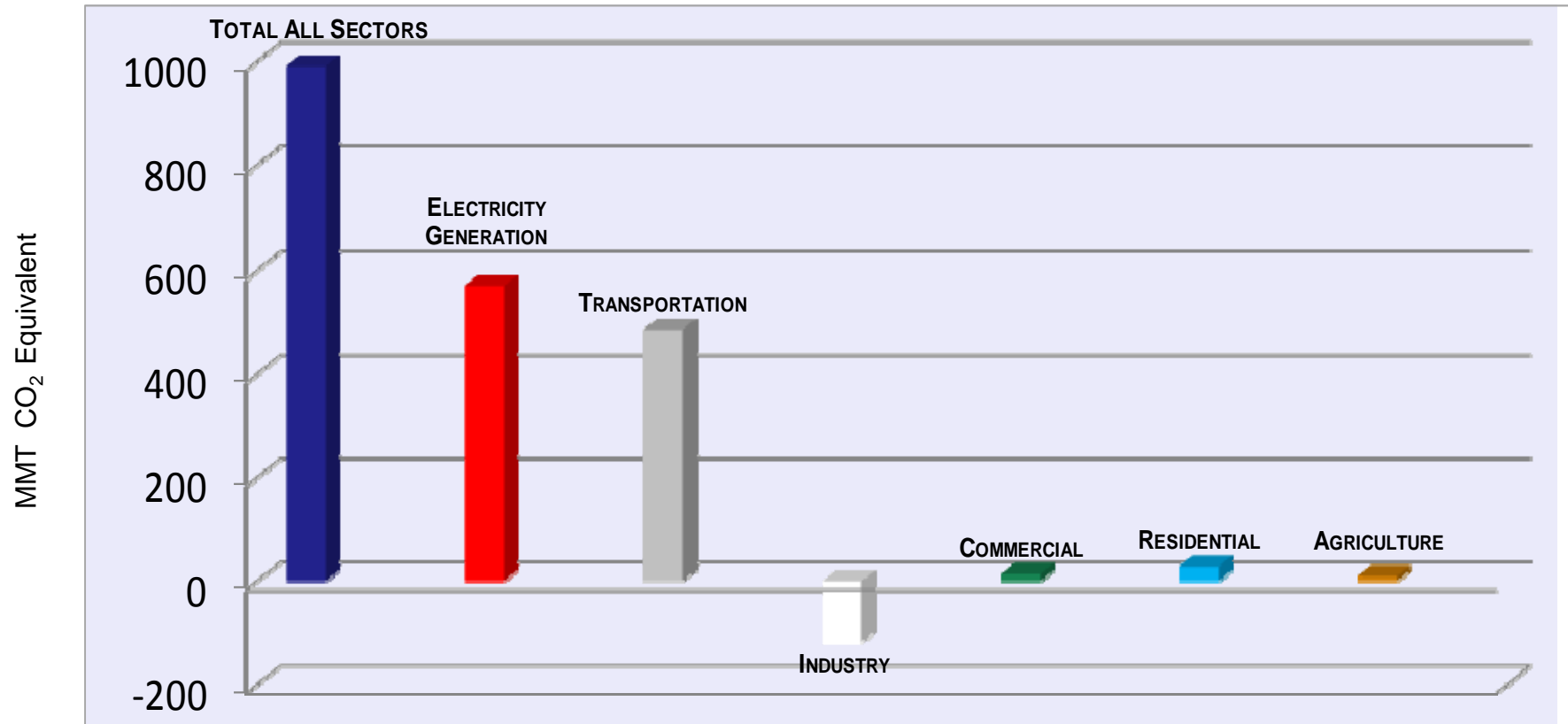
Based on a 2,000 square foot home in an average climate, using national average energy prices.
Analysis includes the following only: space heating, water heating, cooking, and clothes drying.
Home meets Model Energy Code standards.



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



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



Change in Residential and Commercial Customer GHG Emissions 2000 - 2006

2000 - 443.3 Million Metric Tons

2006 – 391.6 Million Metric Tons

Total CO₂ emissions have fallen 11% during a time when the number and size of homes and businesses served by natural gas increased steadily.



Climate Legislation - Where Are We?

- Climate change conversation began in the 1990s
- In the last several years, a number of bills have emerged, principally in the Senate
- Bingaman I and II
- McCain-Lieberman
- Sanders-Boxer
- Feinstein-Carper

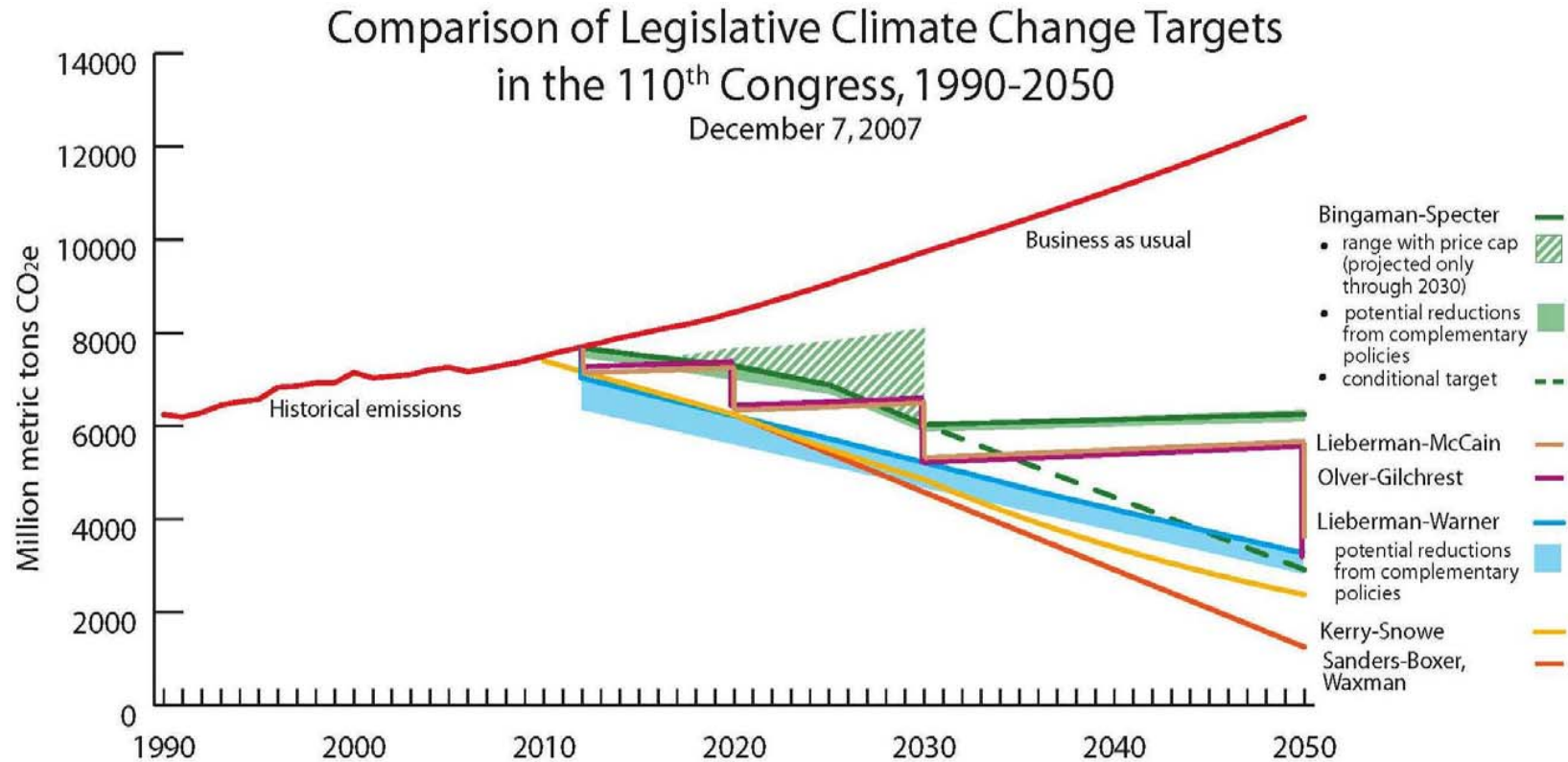


Three Major Points

- 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



NEGOTIATIONS REGARDING KEY ELEMENTS OF CARBON REGULATION



WORLD RESOURCES INSTITUTE

For a full discussion of underlying methodology, assumptions and references, please see <http://www.wri.org/usclimatetargets>. WRI does not endorse any of these bills. This analysis is intended to fairly and accurately compare explicit carbon caps in Congressional climate proposals and uses underlying data that may differ from other analyses. Data post-2030 may be derived from extrapolation of EIA projections.



Courtesy Natural Gas Supply Association; Source: World Resources Institute

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Lieberman-Warner Bill (S.2191)

- Bill includes a “cap-and-trade” scheme
- Covered facilities must submit emissions credits for each ton of carbon they emit
- The amount of credits decreases over time
- 70% decrease by 2050
- Over time a decreasing number of credits are allocated for free to certain sectors
- Remaining allowances (an increasing amount over time) are auctioned by the government



Natural Gas: Amended Lieberman-Warner Bill

- Bill was amended in committee to cover natural gas residential and commercial customers
- Regulates:
 - Natural gas at the processing plant, import point, or LNG terminal
 - Petroleum products at refinery or import point
 - Coal at the point of combustion



Draft House Climate Bill – Dingell-Boucher

- Establishes an economy-wide cap on GHG emissions
- By 2050 – emissions from covered sources would be reduced to 80% of 2005 levels
- Recognizes energy efficiency and development of clean energy technologies as vital
- Proposes allocating cap and trade revenues to only those states that implement non-volumetric rates



Draft House Climate Bill (Dingell-Boucher) Treatment of Natural Gas Residential and Commercial Customers

- Combines residential and commercial customers and doesn't place under cap until 2017
- Could be until 2021 if combined consumption per year for all R&C is 99 *mmbtu* or less for the period 2012-2015
- In 2006, total R&C consumption was 106 *mmbtu* (lowest in 15 years)



AGA Thoughts on Residential and Commercial Customers

- Natural gas provides essential human needs
- Account for less than 6 percent of GHG emissions
- Emissions are at 1970s levels
- With decoupled rates utilities are aggressively promoting conservation
- Natural gas is part of the solution



Residential and Commercial Customers

- Cap and trade not ideal for residential and commercial customers
- Should be addressed through energy efficiency and building codes and standards measures
- These are proven drivers for reducing GHG emissions



Innovative Rate Designs

- Non-volumetric – **distribution** costs are assigned per customer or on some other basis that is not tied to volumes of energy consumed
 - **45 million residential customers** in 33 states being served under non-volumetric rates
- Based on actual costs (tracked) rather than estimated and forecast costs
 - **60 million residential customers** have cost trackers as part of their rates



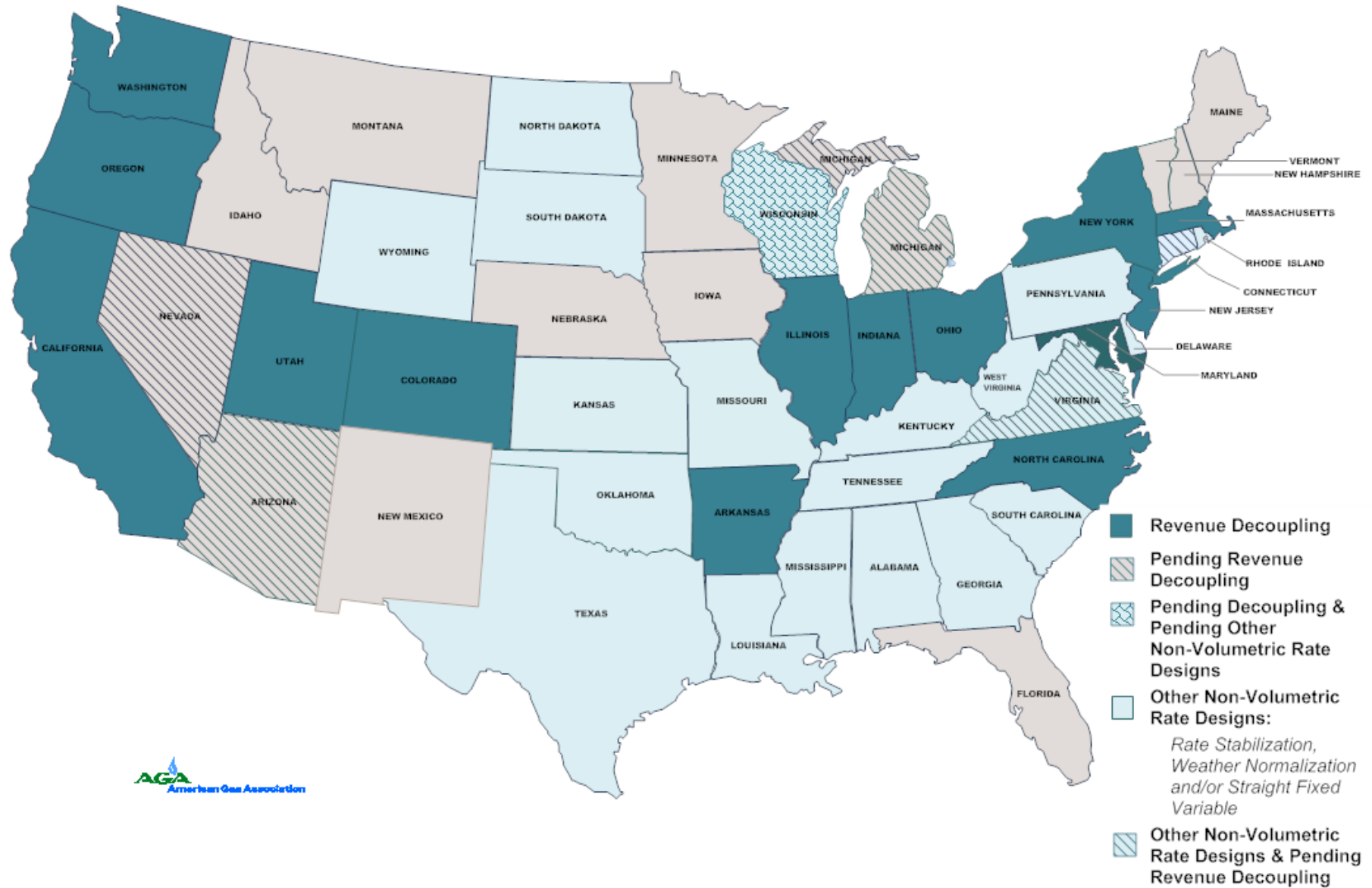
What's In Non-Volumetric Rates for the Customer?

- No overpayment of the monthly distribution charge
- Bill stability in only area of costs that the utility controls
- Bill variability due to natural gas energy prices is transparent to the customer
- Bills are simpler and easier to understand
- **NO** additional costs to the customer beyond those approved in the rate case

Only price signal that is meaningful



STATES WITH NON-VOLUMETRIC RATE DESIGNS FOR NATURAL GAS AS OF OCTOBER 2008



Decoupling Tariffs (as of October 2008)

APPROVED - 14 States

1. AR – Arkansas Oklahoma
2. AR – Arkansas Western
3. AR – CenterPoint Energy
4. CA – Pacific Gas and Electric
5. CA - San Diego Gas and Elec.
6. CA – Southern California Gas
7. CA – Southwest Gas
8. CO – PSC of Colorado
- 9 & 10 IL – Integrys - Peoples Gas/North Shore Gas
11. IN – Citizens Gas & Coke
- 12 & 13 IN – Vectren Indiana/ Southern Indiana
MA – Generic Proceeding
14. MD – Baltimore Gas and Elec.
15. MD – Washington Gas
16. NJ – NJ Natural Gas
17. NJ – South Jersey Gas
18. NY – Consolidated Edison
19. NY – National Fuel Gas Dist.
20. OH – Vectren Ohio
21. OR – Cascade Natural Gas
22. OR – NW Natural Gas
23. NC - Piedmont Natural Gas
24. NC – PS Co. of North Carolina
25. UT – Questar Gas
26. WA – Avista
27. WA – Cascade Natural Gas

PENDING - 6 Additional States

1. AZ – Southwest Gas
2. CT – Southern Connecticut
3. IL – CILCO
4. IL – CIPS
5. IL – Illinois Power
6. IL – Nicor
7. MA – New England Gas
8. MI – CMS Energy
9. NY – National Grid Niagara Mohawk
10. NV – Generic Proceeding
11. VA – Virginia Natural
12. WA – NW Natural Gas
13. WI - WPS

5 Million Residential Customers

** Of 63 Million Customers in U.S. **

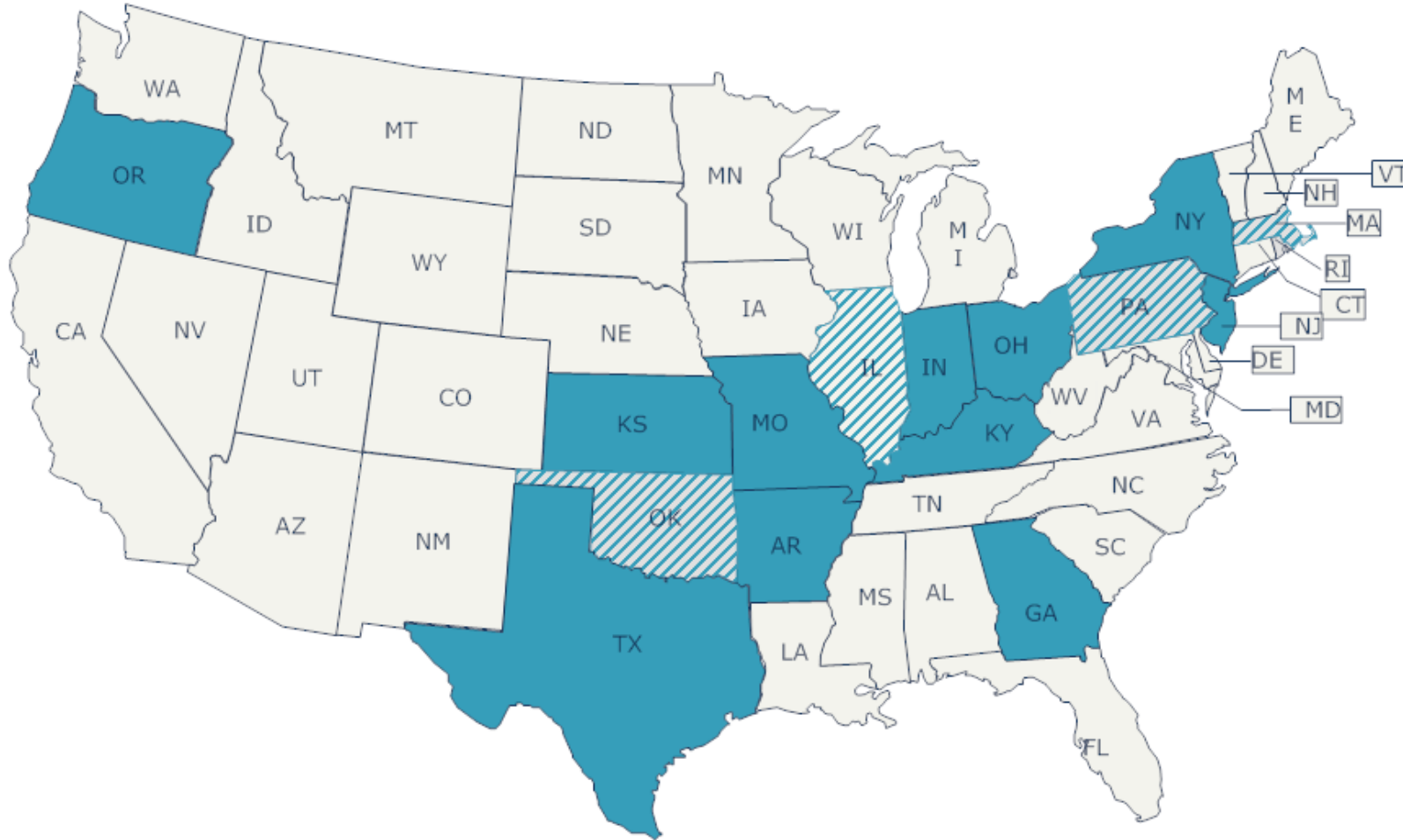
20 Million Residential Customers



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STATES WITH INFRASTRUCTURE COST RECOVERY MECHANISMS AS OF DECEMBER 2007



Pending Infrastructure Cost Recovery Mechanisms



Approved Infrastructure Cost Recovery Mechanisms



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Infrastructure Cost Recovery Mechanisms (as of December 2007)

APPROVED - 11 States

1. AR – Arkansas Oklahoma
2. GA – Atlanta Gas Light
3. IN – Vectren South – SIGECO
4. KS – Aquila
5. KS – Kansas Gas Service
6. KY – Duke Energy
7. MO – Atmos Energy
8. MO – Laclede Gas
9. MO – Missouri Gas Energy
10. NJ – Elizabethtown Gas
11. NY – National Grid
12. OH – Duke Energy
13. OR – NW Natural
14. TX – All Natural Gas Utilities

8 Million Residential Customers

PENDING - 5 Additional States

1. IL – North Shore Gas
2. IL – Peoples Gas Light & Coke
3. IN – Vectren North Indiana Gas
4. MA – Bay State NiSource
5. OH – Columbia NiSource
6. OH – Vectren Ohio
7. OK – Oklahoma Natural
8. PA – All Natural Gas Utilities

7 Million Residential Customers

** Of 63 Million Customers in U.S. **



NATURAL GAS UTILITY MARKET FUNDAMENTALS – Supply

It is critical that US national energy policy should support the economy by emphasizing supply diversity (coal, oil, nuclear, wind, solar, and natural gas) and supply source diversity.

Depending on one source of natural gas (shales, for example) is not necessary, is not economically justifiable, and does nothing to ensure reliable and affordable sources of clean energy to gas utility customers.

Natural gas utilities will continue to provide reliable service by drawing upon a resource base that continues to expand.



NATURAL GAS UTILITY MARKET FUNDAMENTALS – Energy Efficiency

The average American home uses 30% less natural gas today than in 1980. The natural gas distribution industry and its customers have had great success with energy efficiency and GHG reductions.

Total CO2 emissions from residential and commercial natural gas customers decreased 11 percent from 2000 to 2006 (**total, not per capita**).

A 2006 survey of AGA member natural gas utility energy efficiency programs showed that 53 programs in 27 states covering 32 million residential and commercial customers resulted in decreased usage of 8% percent overall.



NATURAL GAS UTILITY MARKET FUNDAMENTALS

Infrastructure and Investments Are Strong

Natural gas utilities are financially strong and will continue to invest resources in new and replacement infrastructure.

Natural gas utilities have increased their investments over the last 25 years and will continue to fund new capital projects in the future. Adequate ROEs are necessary to attract investment capital.



NATURAL GAS UTILITY MARKET FUNDAMENTALS

Innovative Rates Stabilize Customer Bills

Working together, natural gas utilities and state commissions over the last three decades have implemented innovative rates that stabilize customer bills.

Only two thirds of the customer's bill is tied to the volatility of natural gas commodity markets and utilities mitigate the volatility of the commodity component by using dollar cost averaging.



For further information, contact

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