



NATURAL GAS OUTLOOK TO 2020

The U.S. Natural Gas Market -- Outlook and Options for the Future

David W. Biegler
Managing Partner, Estrella Energy
Chairman, American Gas Foundation

February 2005

American Gas Foundation

**Independent source of information,
research and programs on energy and
environmental issues that affect
public policy**



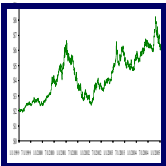
Past Studies



Fueling the Future (2001)



Meeting the Gas Supply Challenge (2002)



**Natural Gas and
Energy Price Volatility (2003)**

Current Studies



Safety Performance & Integrity of the Natural Gas Distribution Infrastructure



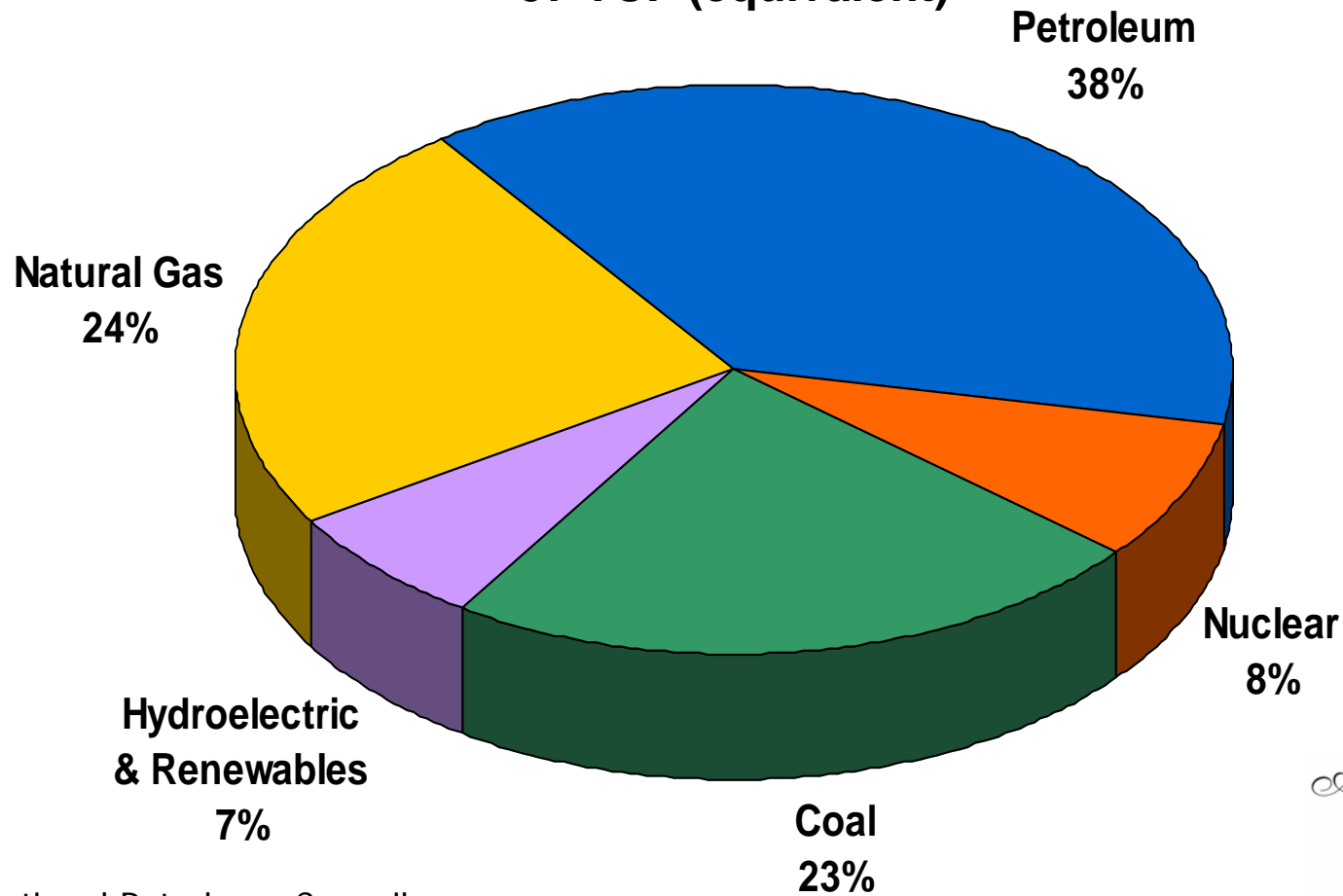
Public Policy and Real Energy Efficiency

Natural Gas Situation

- Ample natural gas resources exist
- Demand is growing
- Supply access and infrastructure are being constrained
- Prices are rising and volatile
- High prices are detrimental

Important to Our Economy

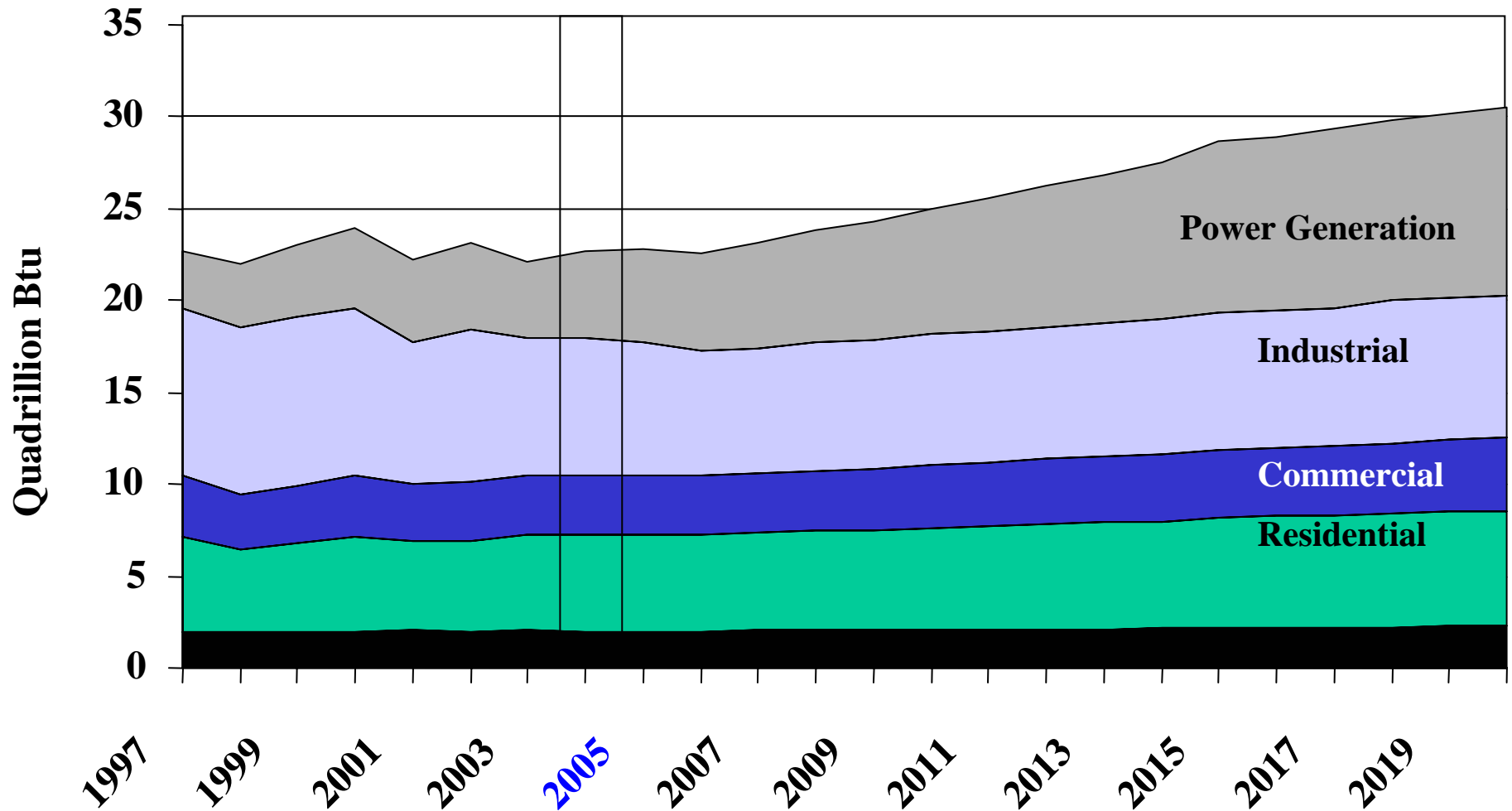
Average Annual U.S. Energy Use
97 TCF (equivalent)



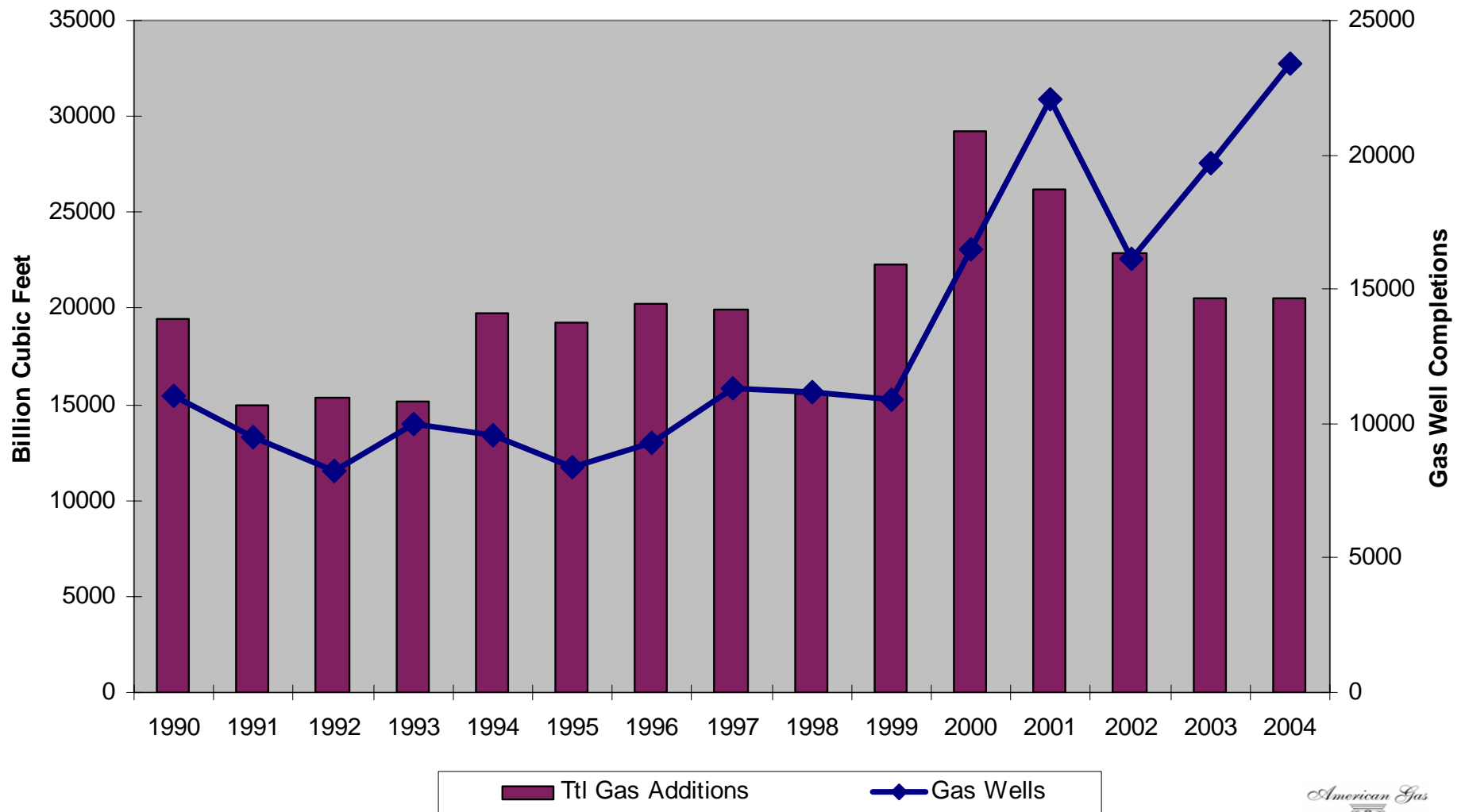
Source: National Petroleum Council



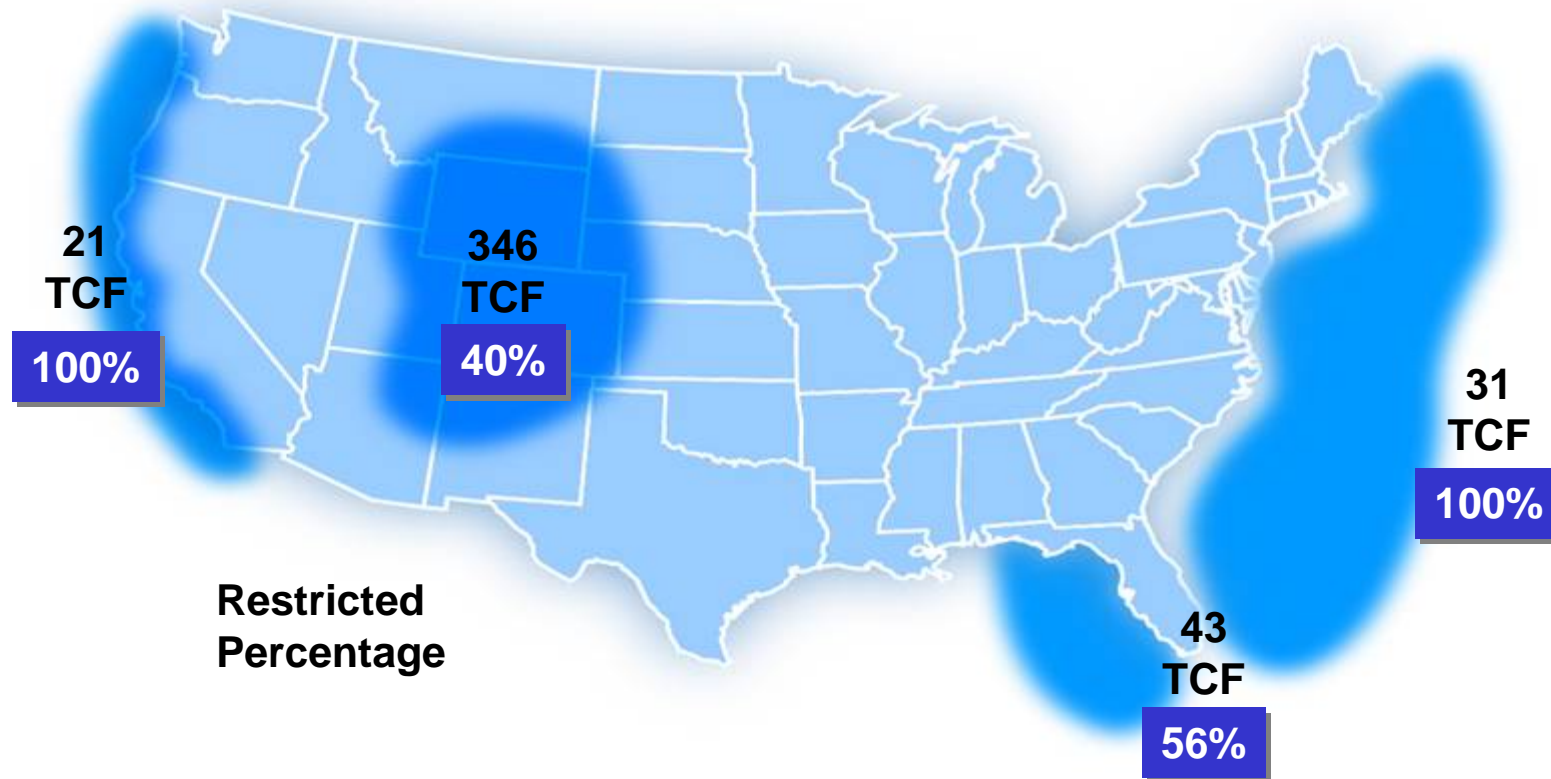
Actual and Projected Natural Gas Consumption



Maturing Resource Base



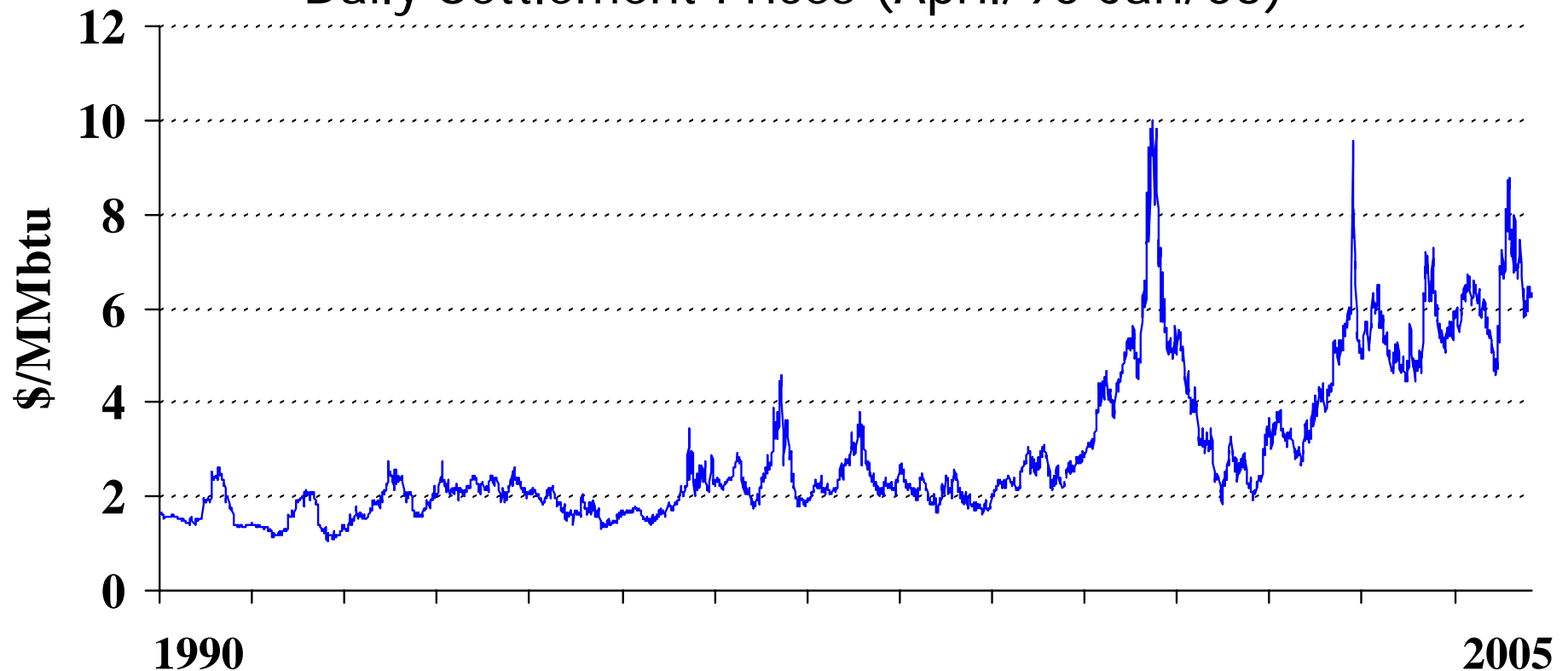
Major Portions of the Gas Resource Base Are Not Accessible



Approximately 29 trillion cubic feet (TCF) of the Rockies gas resources are closed to development and 108 TCF are available but severely restricted

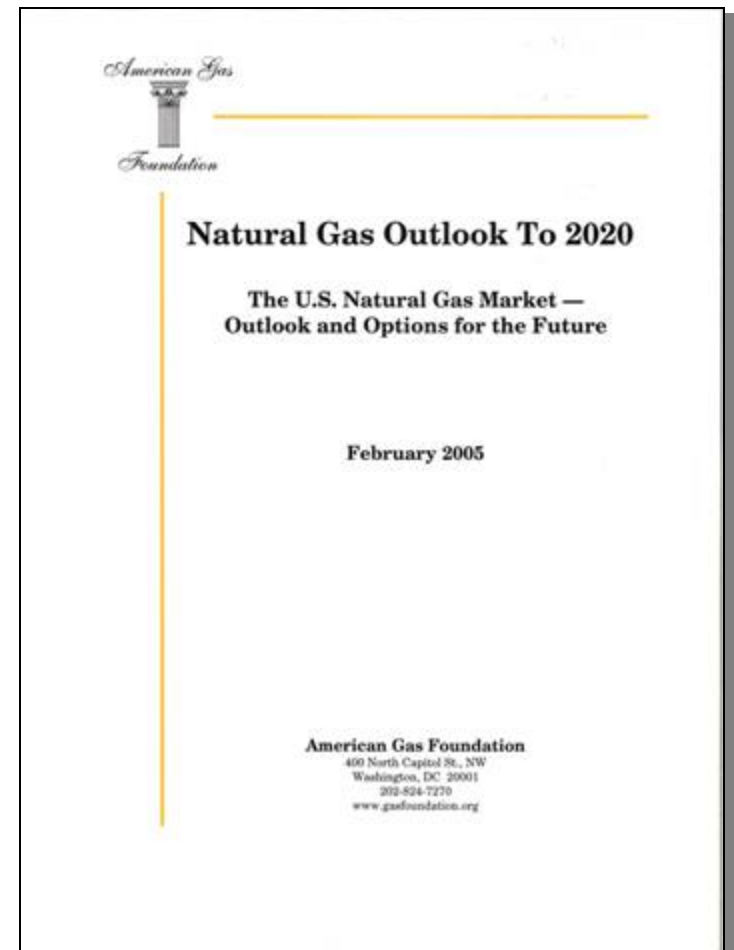
Rising and Volatile Prices

NYMEX Henry Hub Futures
Daily Settlement Prices (April/90-Jan/05)



Natural Gas Outlook to 2020

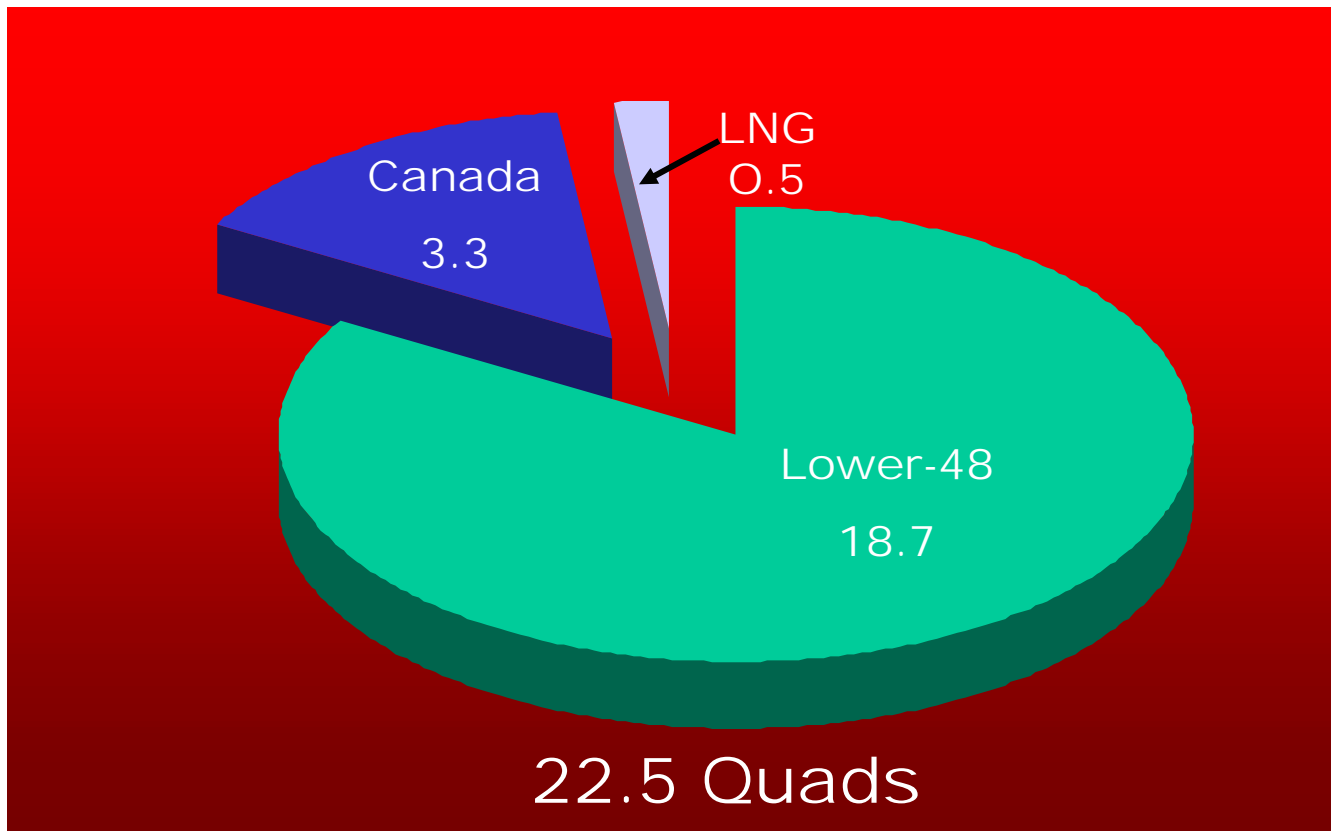
- Analyzes the effects of key policy variables
- Analyzes effects on supply availability
- Outlines supply impact on natural gas markets



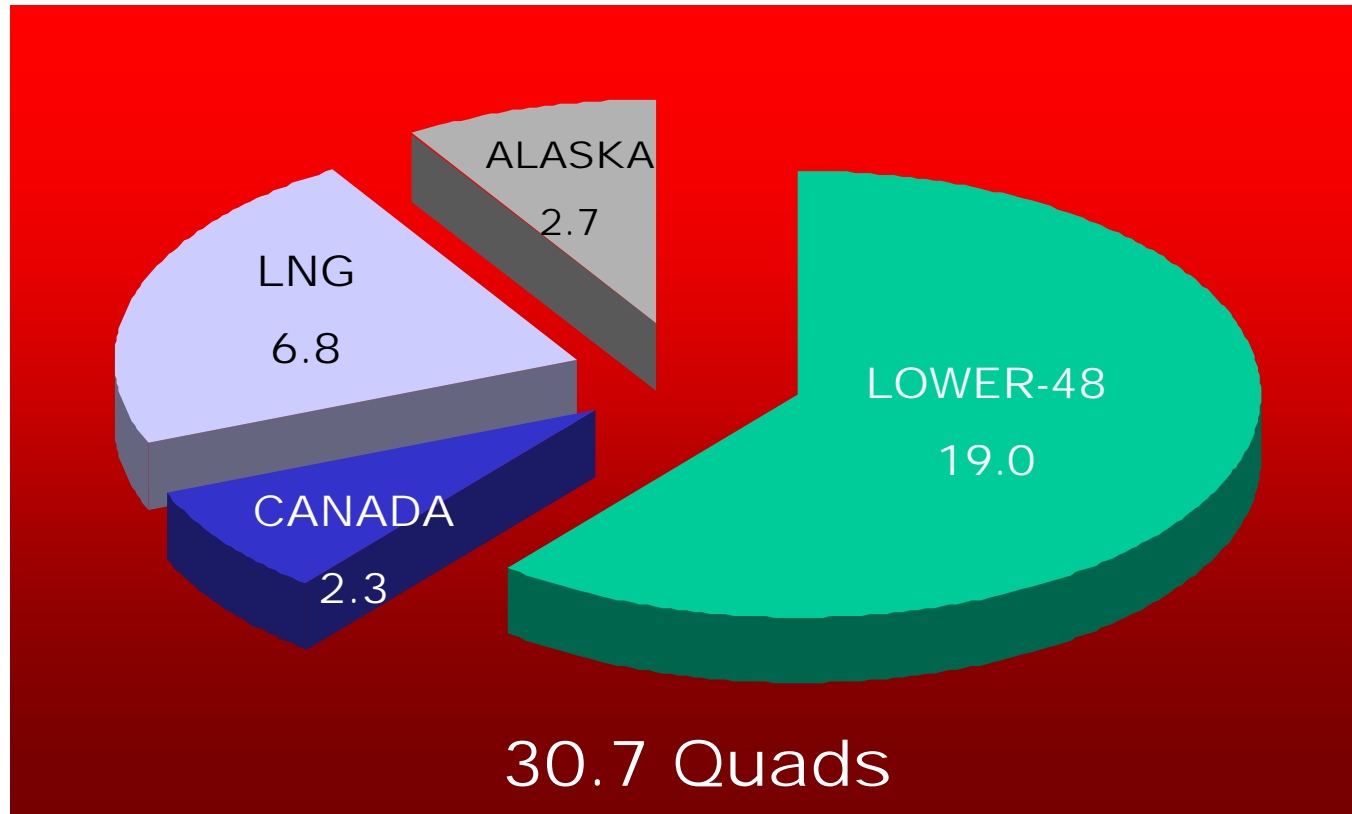
Scenario Assumptions

	<u>Expected Policies</u>	<u>Expanded Policies</u>	<u>Existing Policies</u>
Drilling Moratoria	Unchanged	Relaxed	Unchanged
Intermountain West Access	Unchanged	Increased	Unchanged
Alaskan Pipeline	2014	2014	Not Built
LNG in 2020	18 Bcfd	23 Bcfd	5.3 Bcfd
New Gas-Fired Generation	60 GW	30 GW	60 GW

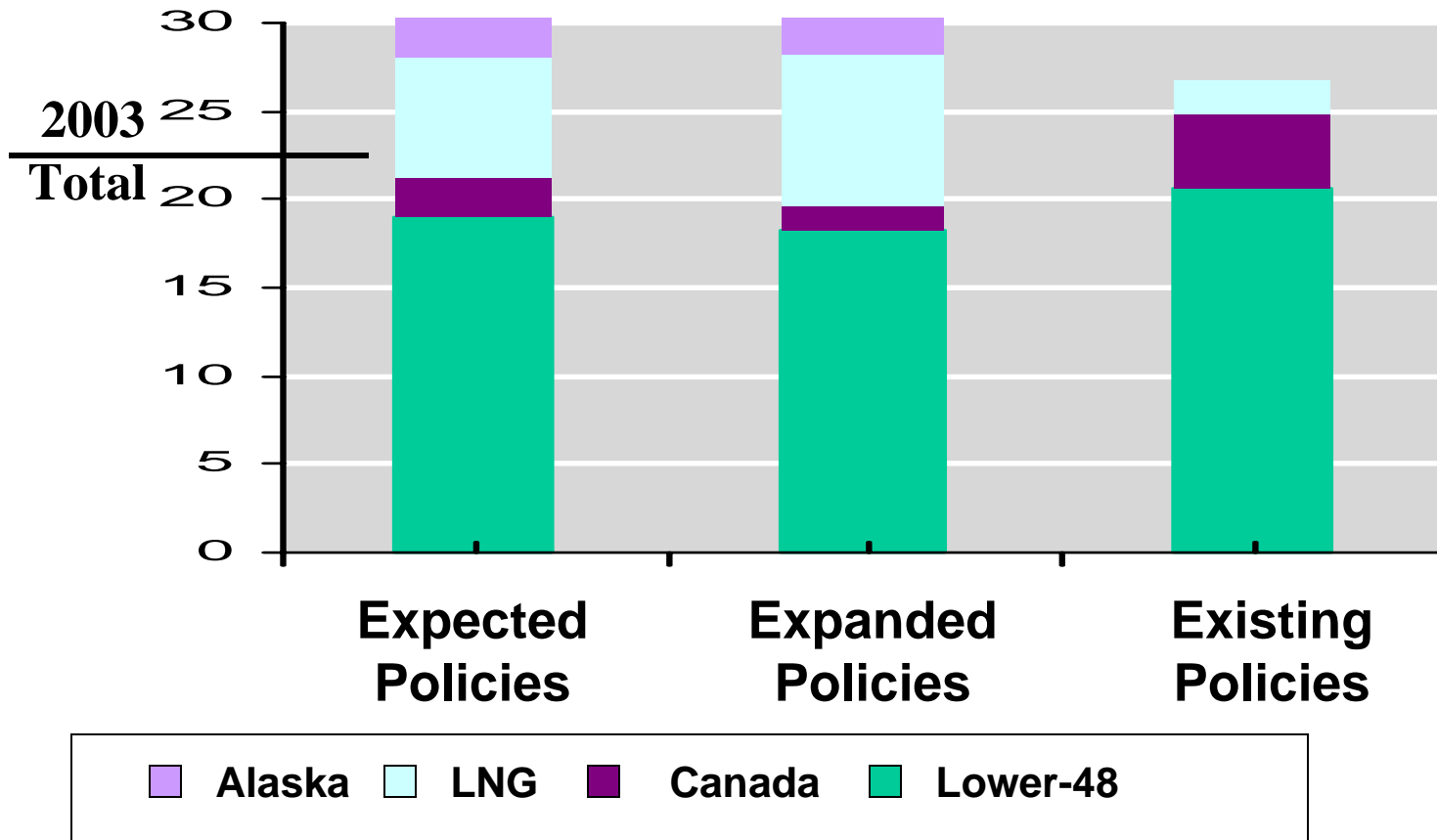
Sources of U.S. Natural Gas Supply 2003



Expected Sources of U.S. Natural Gas Supply 2020



Projected Natural Gas Supply (Quads) 2020



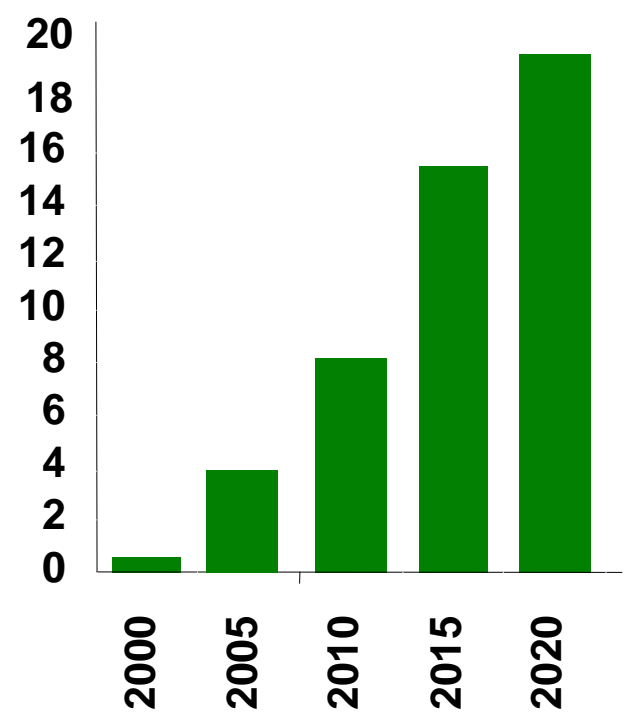
Alaska

- Potential supply from existing reserves
- Congress recently passed legislation that includes tax credits, depreciation provisions, loan guarantees and expedited approval process to construct a pipeline from Alaska to the Lower-48

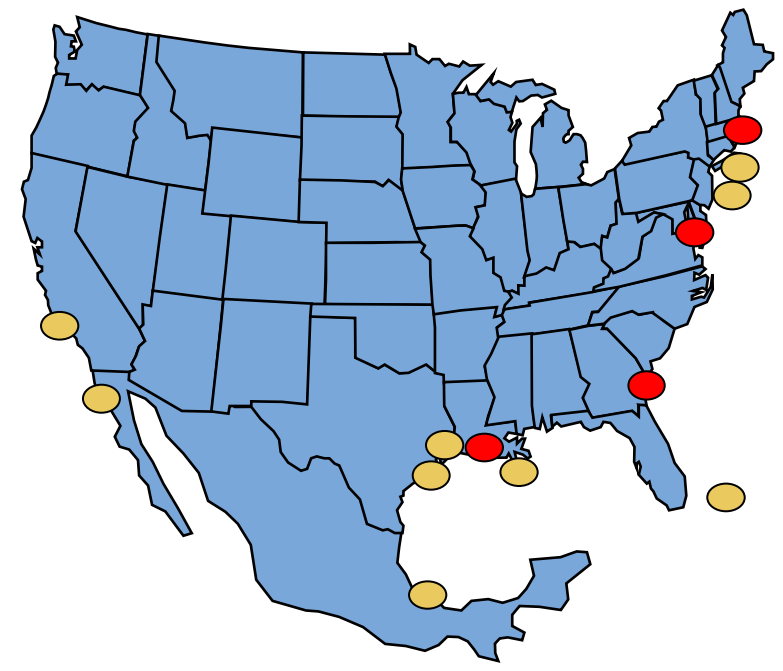


LNG Imports Face Challenges

Projected Imports
BCFD



Import Terminals



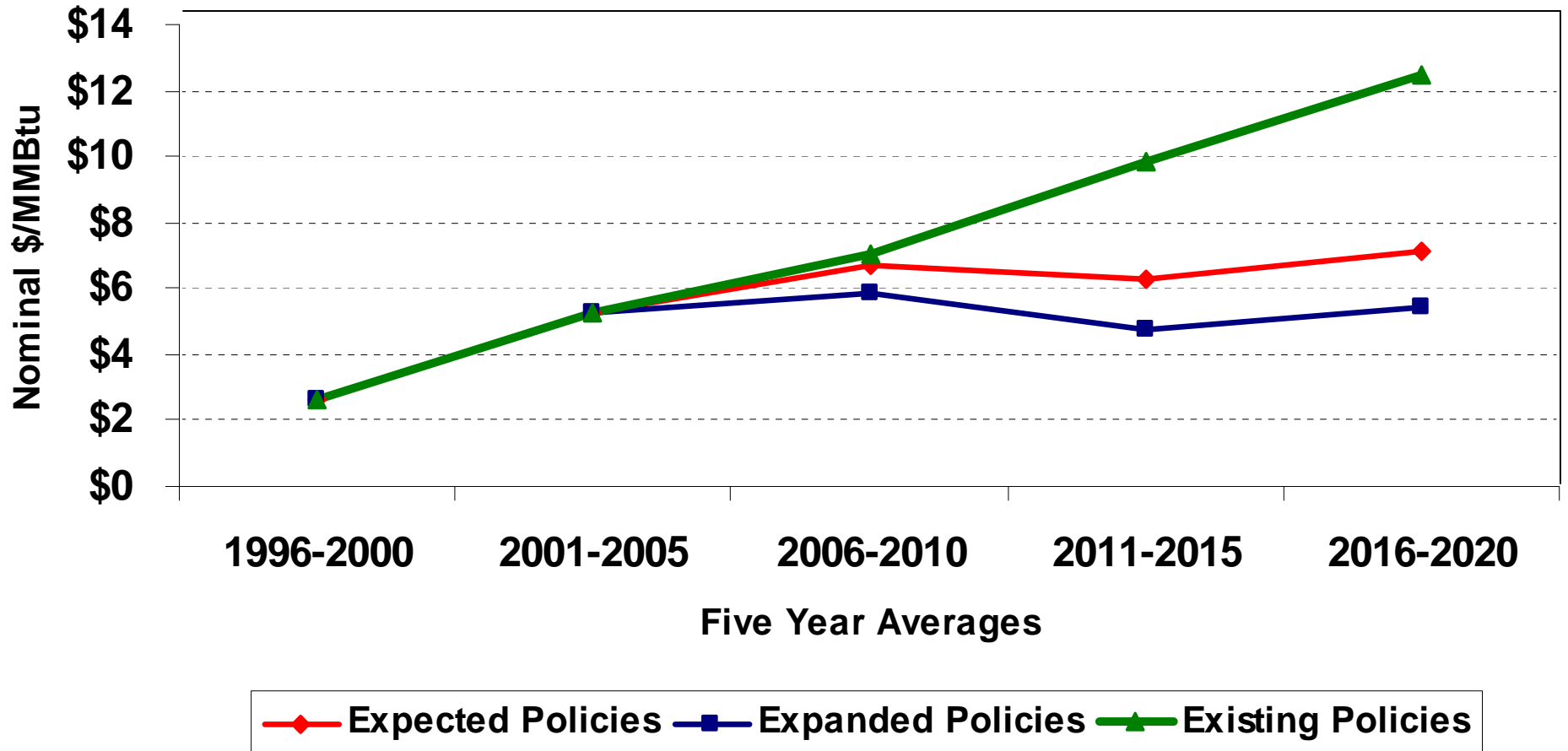
- Existing
- Potential



Study Implications

- Under no scenario will natural gas markets return to the 80's-90's era of supply surplus and low, stable prices
- Policy makers and industry decision makers need to act immediately
- Failure to take action will lead to more instability and cost U.S. consumers billions of dollars in additional energy costs

Actual and Projected Natural Gas Prices (Henry Hub)




Scenario Projections

	<u>Expected Policies</u>	<u>Expanded Policies</u>	<u>Existing Policies</u>
Supply	Greater diversity	Diversity with more LNG	Reliance on Conventional; Strain on Lower-48
Demand	30.6 quads	30.6 quads More Industrial; Less Electric Gen	26.7 quads
2020 Prices*	\$8.15	\$5.47	\$13.76
Average* (2004-2020)	\$6.72	\$5.50	\$9.43

* Nominal

Impact to Consumers

	<u>Expected Policies</u>	<u>Expanded Policies</u>	<u>Existing Policies</u>
Supply	Greater diversity	Diversity with more LNG	Reliance on Conventional; Strain on Lower-48
Demand	30.6 quads	30.6 quads More Industrial; Less Electric Gen	26.7 quads
2020 Prices	\$8.15		
			\$13.76

Over \$120 billion in additional cost in 2020

Impact to Consumers

	<u>Expected Policies</u>	<u>Expanded Policies</u>	<u>Existing Policies</u>
Supply	Greater diversity	Diversity with more LNG	Reliance on Conventional; Strain on Lower-48
Demand	30.6 quads	30.6 quads More Industrial; Less Electric Gen	26.7 quads
2020 Prices	\$8.15	→ \$5.47	

Approximate Savings of \$80 Billion in 2020

Conclusions

- Today's decisions about supply, infrastructure, and efficiency will govern future gas prices
- Existing Policies "status-quo" scenario must be avoided
- Work hard to make the Expanded Policies scenario a reality

Needed Policy Actions

- Pursue new natural gas supply strategies
- Pursue energy diversity
- Ensure the Alaskan Pipeline and adequate LNG terminals are built
- Promote real conservation and efficiency

Needed Policy Actions

- Promote additional drilling with advanced technology
- Remove policy and regulatory constraints for drilling and infrastructure
(Dec 2004 DOE/Argonne Nat'l Lab Study "Environmental Policy and Regulatory Constraints To Natural Gas Production")
- Align energy strategies with environmental and national economic interests



American Gas



Foundation

www.gasfoundation.org