

# The Energy Policy Act of 2005 and Section 999:

A Public/Private Partnership for R&D in the  
Ultra-Deepwater in the Gulf of Mexico and in  
Unconventional Onshore Natural Gas and Other  
Petroleum Resources of the United States



C. Michael Ming

MIT

RPSEA Member Forum

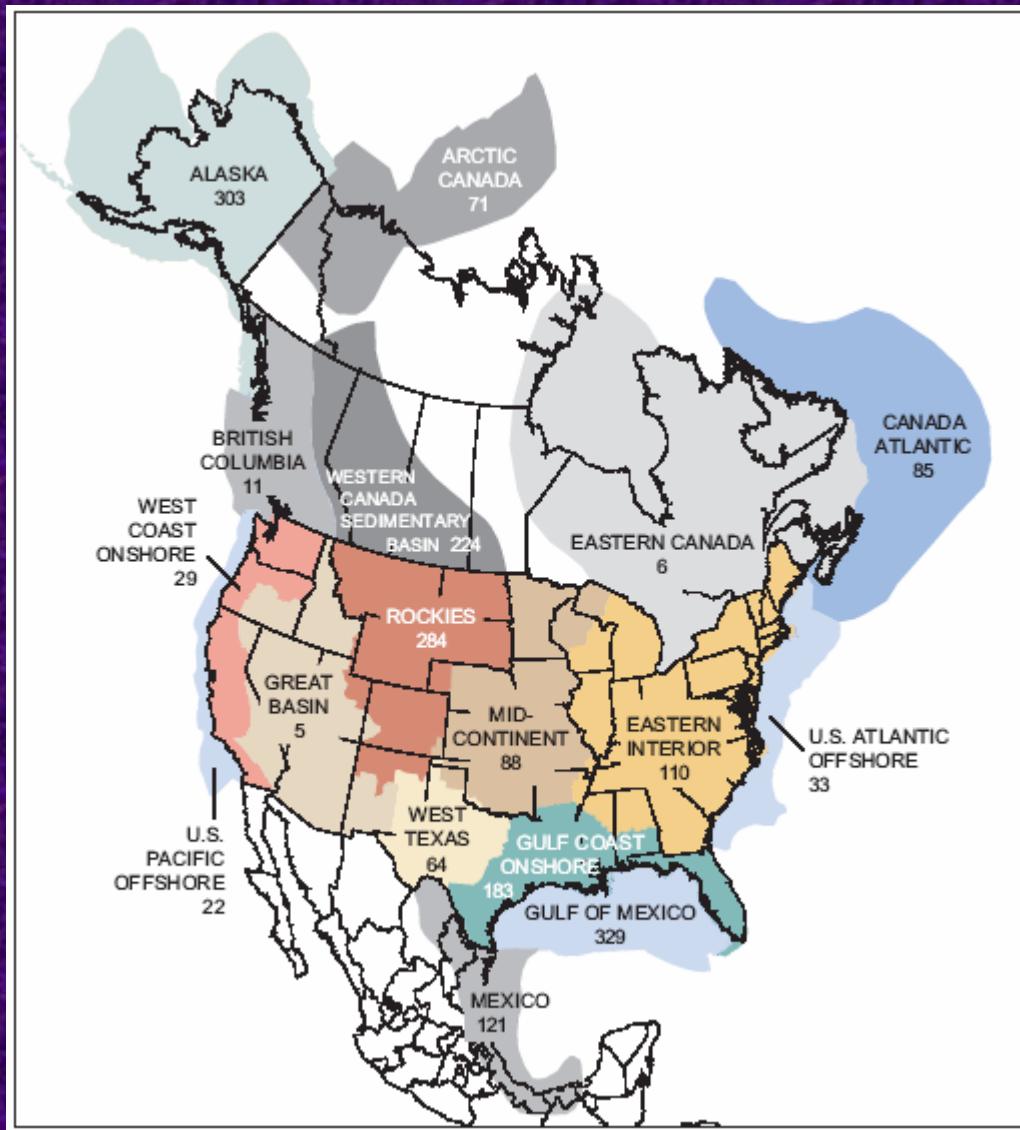
October 31, 2006

# What is Section 999?

A new federal collaborative R&D partnership, **managed by industry and academia**, engaging all stakeholders in the value chain to benefit consumers and enhance domestic productivity and competitiveness



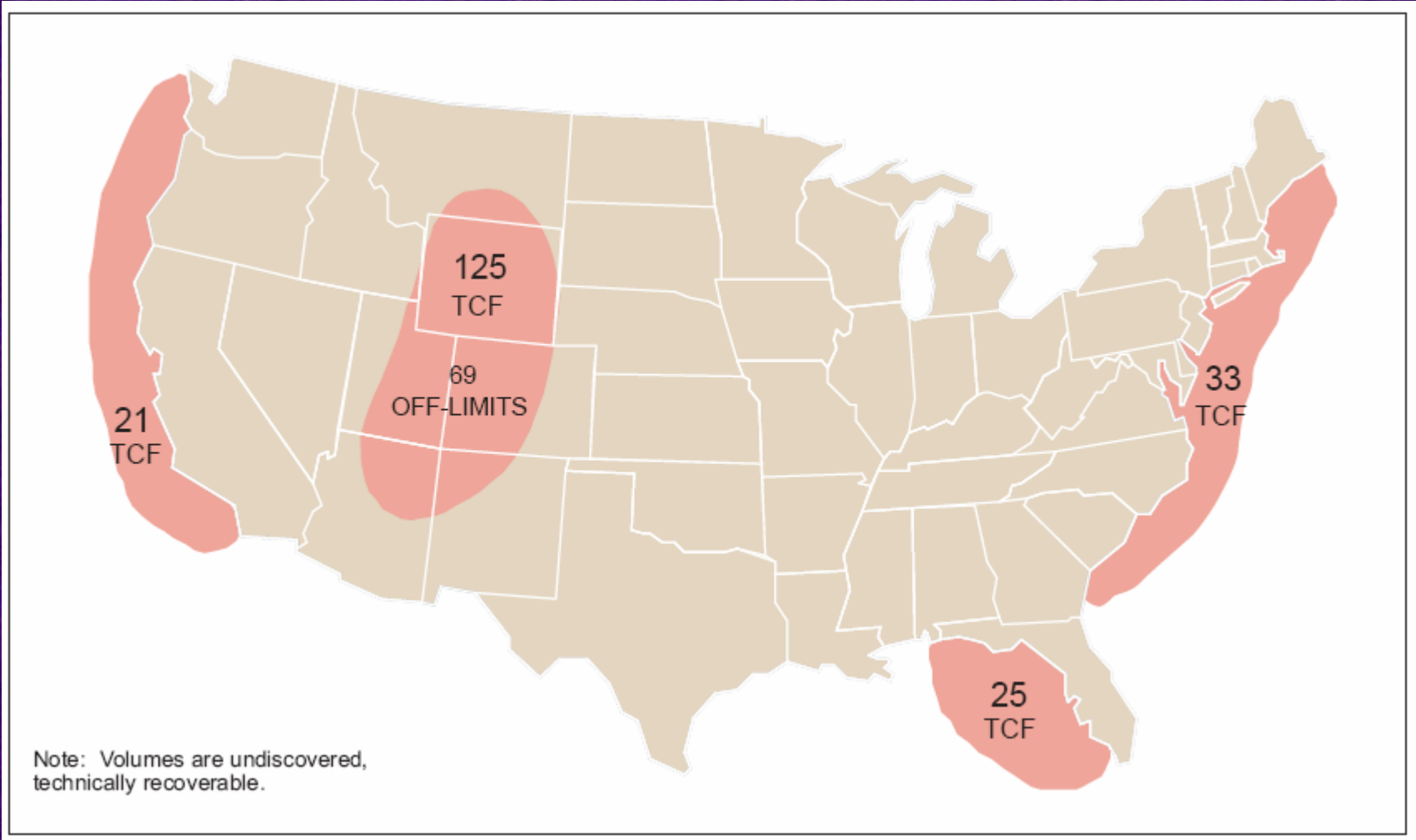




## NPC 2003 Technical Resources (TCF)

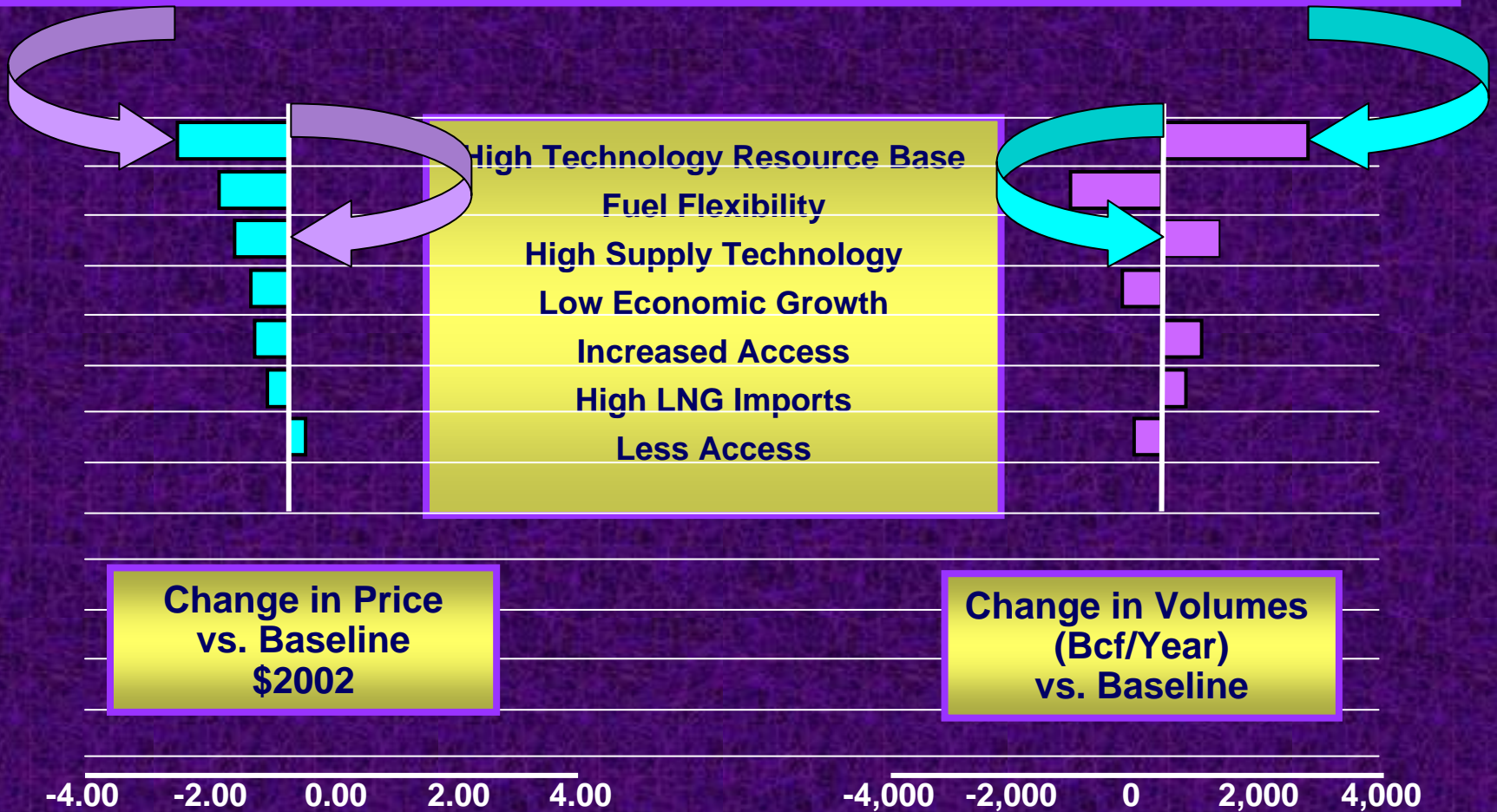


- Research
- Partnership to
- Secure Energy
- for America



## NPC 2003 Access Restrictions (TCF)

# NPC Selected Sensitivity Analyses: 2003 Natural Gas Supply Report



**Change in Price  
vs. Baseline  
\$2002**

**Change in Volumes  
(Bcf/Year)  
vs. Baseline**

-4.00 -2.00 0.00 2.00 4.00      -4,000 -2,000 0 2,000 4,000

Values shown are averages for the 2011 to 2025 period

# What is Section 999?

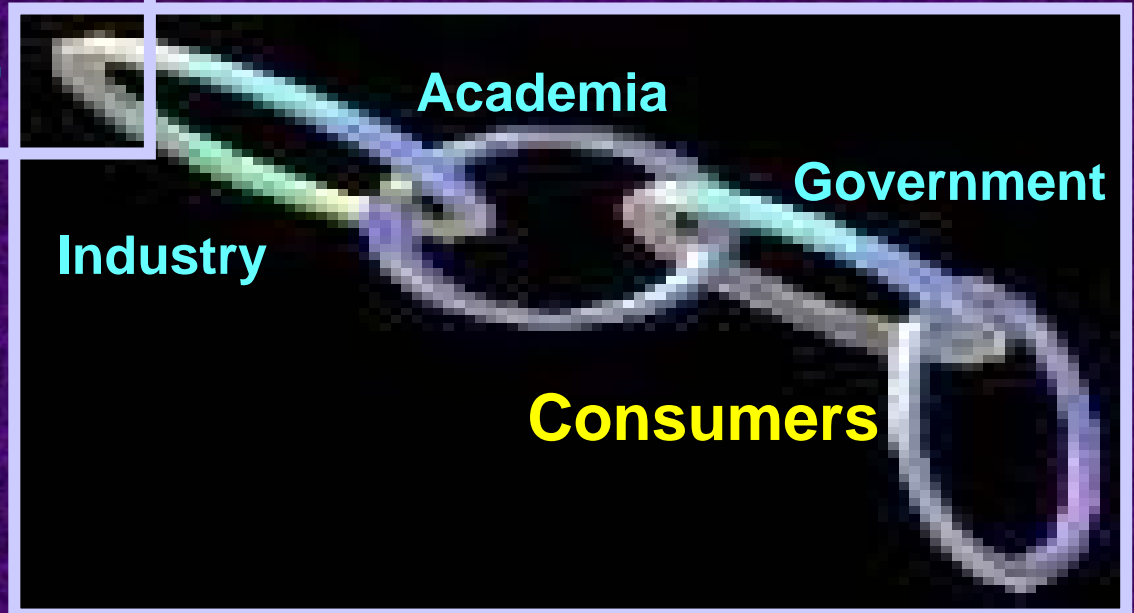
Specifically, the law directs --

- ... research, development, demonstration, and commercial application of technologies for ultra-deepwater and unconventional natural gas and other petroleum resource exploration and production. (Sec.999A.a)
- ... to maximize the value of natural gas and other petroleum resources of the United States, by increasing the supply..., ...reducing the cost ... increasing the efficiency of exploration for and production of..., while improving safety and minimizing environmental impacts. (Sec.999B.a)



# How Will Section 999 Work?

This Public/Private  
Research  
Partnership will be  
managed through a  
“Program  
Consortium”

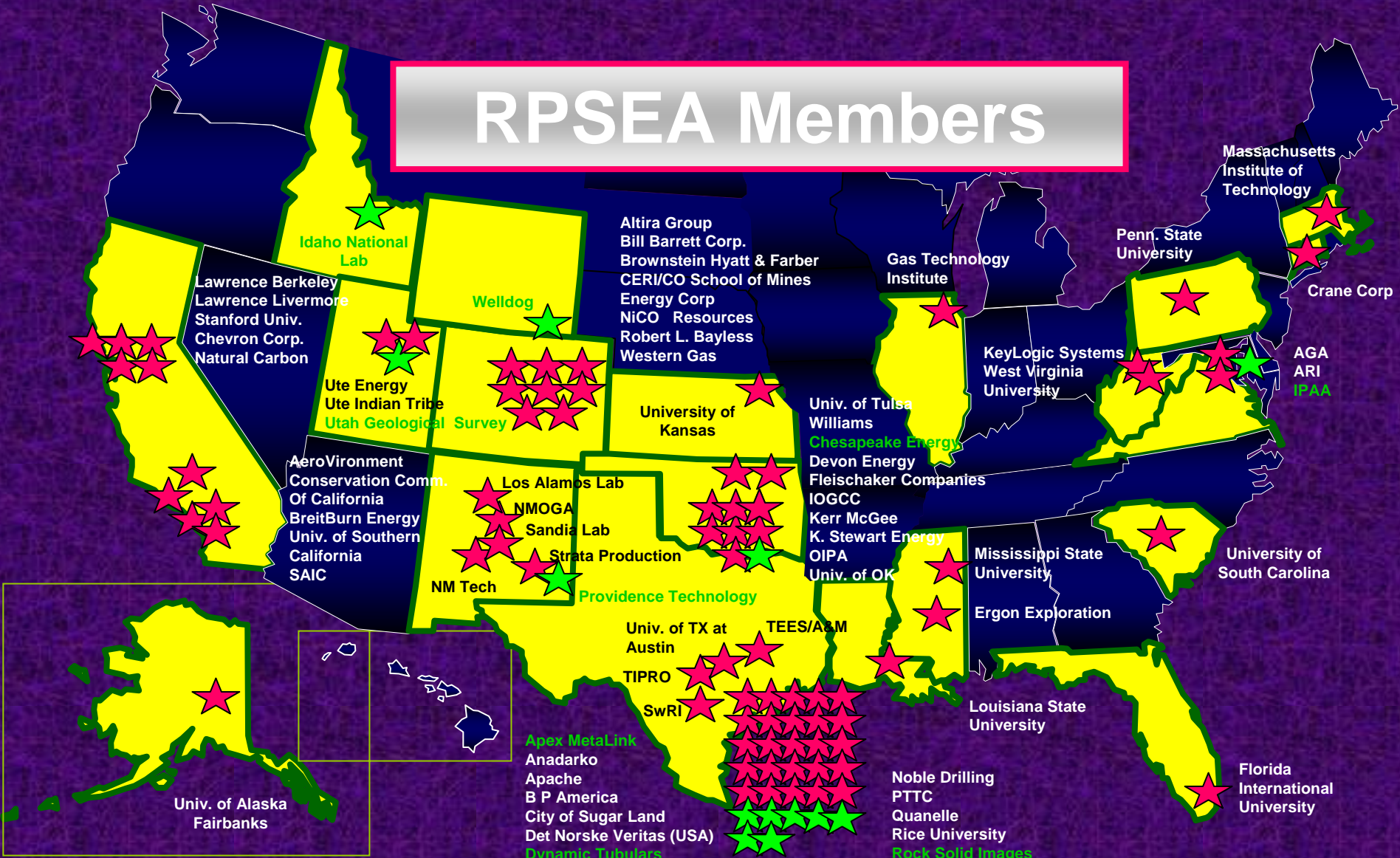


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# Who is RPSEA and What are its Statutory Features?

- A 501c3 not for profit
- Competitively selected by DOE as the Program Consortium Manager

# RPSEA Members



Altra Group  
 Bill Barrett Corp.  
 Brownstein Hyatt & Farber  
 CERI/CO School of Mines  
 Energy Corp  
 NICO Resources  
 Robert L. Bayless  
 Western Gas

Lawrence Berkeley  
 Lawrence Livermore  
 Stanford Univ.  
 Chevron Corp.  
 Natural Carbon

Idaho National  
 Lab

Welldog

Ute Energy  
 Ute Indian Tribe  
 Utah Geological Survey

University of  
 Kansas

Gas Technology  
 Institute

Penn. State  
 University

Massachusetts  
 Institute of  
 Technology

Crane Corp

KeyLogic Systems  
 West Virginia  
 University

AGA  
 ARI  
 IPAA

Univ. of Tulsa  
 Williams

Chesapeake Energy  
 Devon Energy  
 Fleischaker Companies  
 IOGCC  
 Kerr McGee  
 K. Stewart Energy  
 OIPA  
 Univ. of OK

AeroVironment  
 Conservation Comm.  
 Of California  
 BreitBurn Energy  
 Univ. of Southern  
 California  
 SAIC

Los Alamos Lab  
 NMOGA  
 Sandia Lab

NM Tech

Strata Production

Providence Technology

Univ. of TX at  
 Austin

TEES/A&M

TIPRO

SwRI

Mississippi State  
 University

University of  
 South Carolina

Ergon Exploration



Louisiana State  
 University

Univ. of Alaska  
 Fairbanks

Florida  
 International  
 University

Apex MetaLink  
 Anadarko  
 Apache  
 B P America  
 City of Sugar Land  
 Det Norske Veritas (USA)  
 Dynamic Tubulars  
 Energy Valley  
 Fairfield Industries  
 GE Oil and Gas  
 GeoTrace Technologies  
 Greater Fort Bend Cnty EDC  
 Groundwater Services  
 Halliburton  
 HARC  
 Johnson Performance  
 Marathon

Noble Drilling  
 PTTC  
 Quanelle  
 Rice University  
 Rock Solid Images  
 Schlumberger  
 Simmons and Co.  
 Stress Engineering  
 Technip  
 Technology Intl.  
 Texas Energy Center  
 Total USA  
 University of Houston  
 Vetco  
 Weatherford

Current Members   
 Pending Members 



# What is the Program's focus?

The Program has three program elements:

- **Ultra-deepwater 35%**

( > 1500 Meters)

- **Unconventional Onshore 32.5%**

(Economic accessibility)

- **Small Producers 7.5%**

(< 1000 BOPD)



# Statutory Description of Program Elements

- Ultra-deepwater program focus

Technologies and architectures

- Unconventional onshore focus

Resource perspective

- Small producer focus

Consortia addressing unique needs of small producers



# Responsibilities of the Program Consortium?

- Prepare draft annual plan for the SOE
  - Recommend award recipients
  - Develop project specifications
- Oversee implementation of awards, including monitoring activities to ensure compliance with conditions of awards
  - Disburse funds to awardees
  - Manage technology transfer



# Current Program Structure/Funding

Program Funding From Federal  
Oil and Gas Royalties

Total Program:  
\$50 M/yr for 10yrs.

Department of Energy

Fossil Energy Office

\$12.5 M

\$37.5 M

Program  
Consortium

NETL

In-House R&D Program

Unconventional  
\$16.25 M

Ultra-deepwater  
\$17.5 M

Small Producer Program  
\$3.75 M

10 yr., \$500M  
directed  
spending



# Coalbed Methane: Small Investment, Large Return

Return on R&D  
investment:

**34 to 1**

\$5 M  
DOE  
Start up

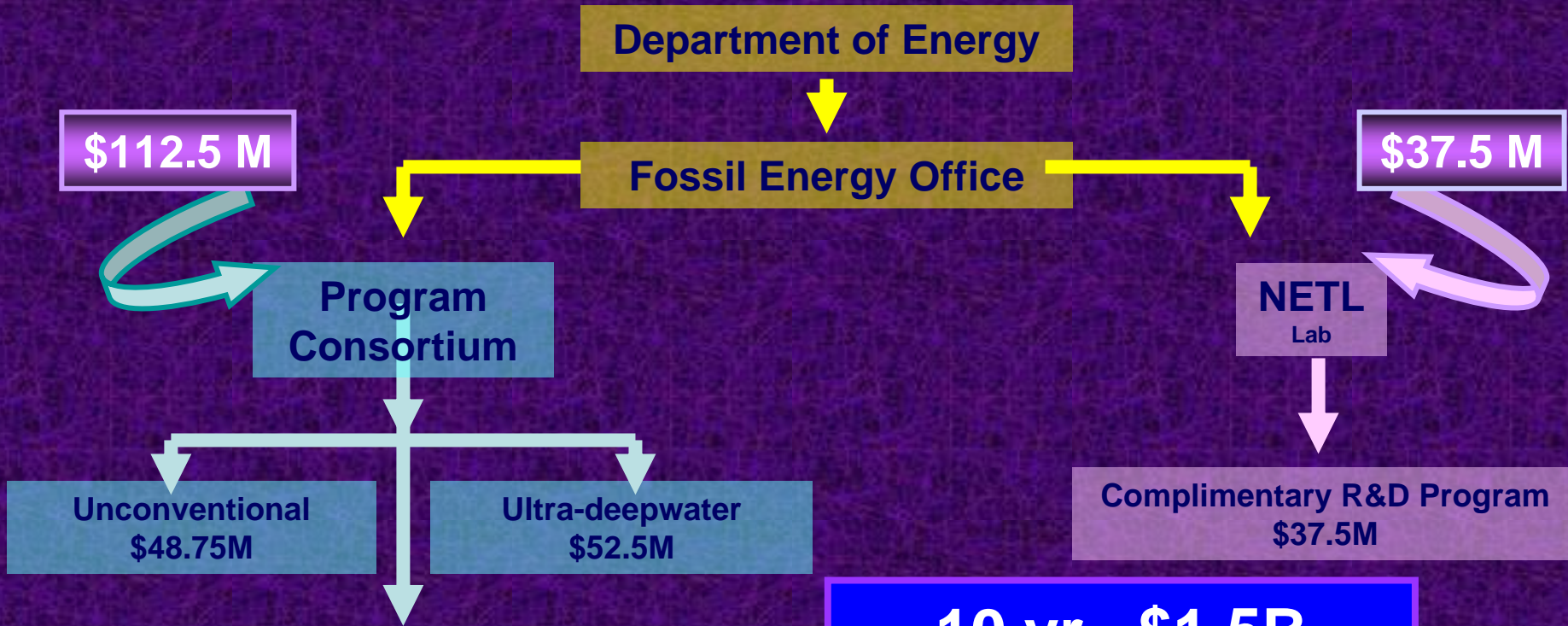
\$70 Million GRI Cash  
\$70 Million Industry In-kind

2003 Annual Value of  
Coal Bed Methane Industry in US:

**\$5 billion**

# Potential for Program Funding

Program Funding From Federal Oil and Gas Royalties → Total Program: \$150 M/yr for 10yrs.



\$112.5 M

Department of Energy

Fossil Energy Office

\$37.5 M

Program Consortium

NETL Lab

Unconventional  
\$48.75M

Ultra-deepwater  
\$52.5M

Complimentary R&D Program  
\$37.5M

Small Producer Program  
\$11.25M

10 yr., \$1.5B  
directed and  
authorized  
spending



## Strategic Advisory Committee (SAC)

provides strategic direction/  
long-range planning advice,  
identifies metric areas

## RPSEA Board

Executive Committee

## President

(Program Manager)

## Program Advisory Committees (PAC)

make recommendations on  
elements of Annual Plan and  
selection of proposals

### VP Operations

(Program Operations  
Manager)

Operations Team Support  
from SAIC

### VP Offshore

(Program Element  
Manager)

Ultra-deepwater Team  
Support from DeepStar

### VP Onshore

(Program Element  
Manager)

Small Producer Team  
support from NMT

Unconventional Team  
Support from GTI

## Technical Advisory Committees (TAC)

may rate proposals, assist in  
development of Annual Plan & tech  
transfer, provide input on technical  
issues/metrics as needed



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# Why Does Industry Need This?

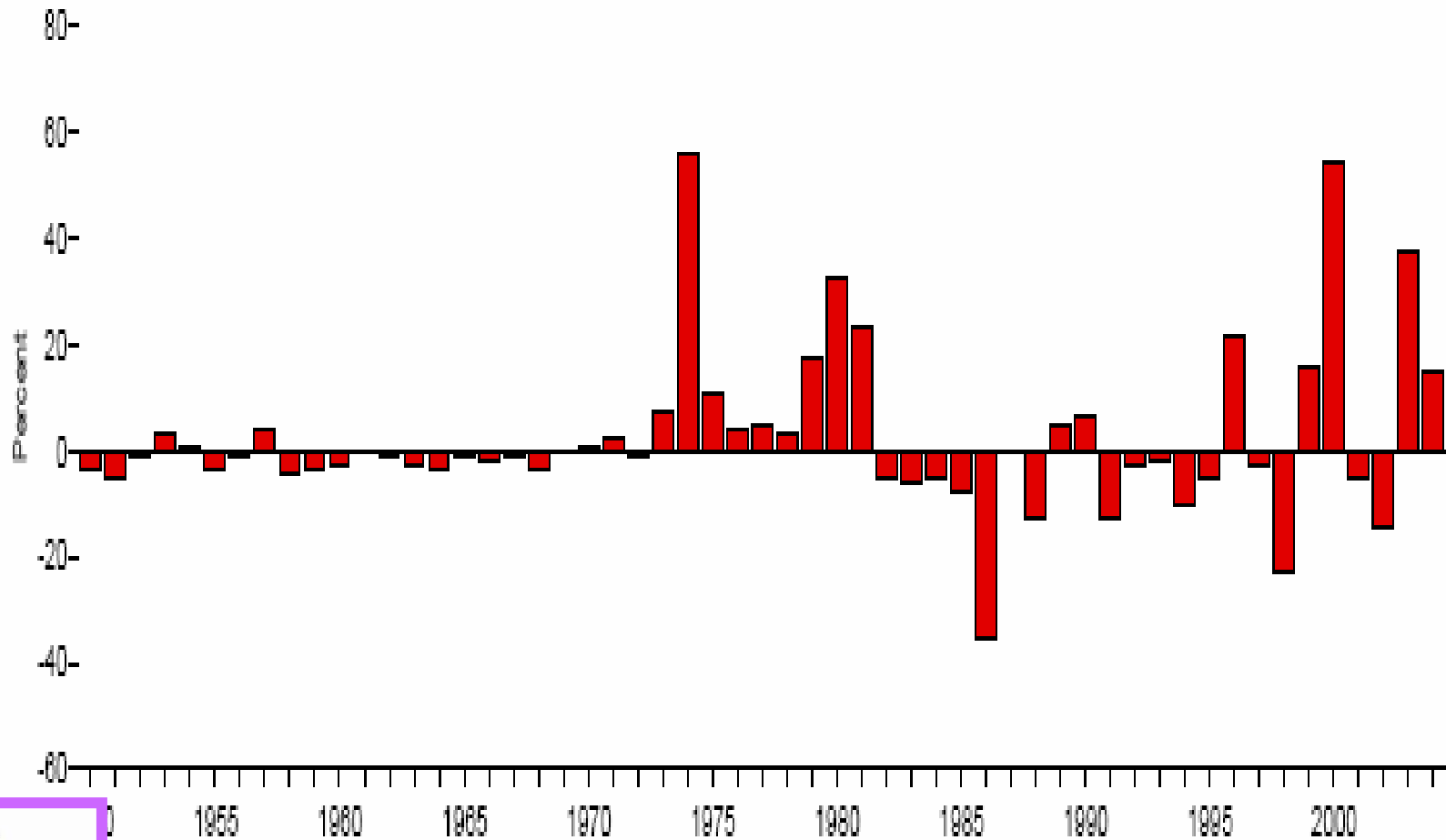
- Significantly increased E&P costs
- Continued price volatility
- Increasing personnel constraints
- Rig & service availability
- Environmental opposition & scrutiny
- Lack of research infrastructure
- Broad need for technology transfer

**It's a very challenging business environment and it's getting even more so.**



# EIA Annual Energy Review 2004

Fossil Fuel Composite Price, Change From Previous Year, 1950-2004



# Rigs & Equipment

- Has your rig(s) been short handed lately? (And more new rigs are being built or reassembled)
- Technology and improved understanding of processes must generate leverage on the existing fleet by extracting more footage and productive wells per rig
- Improved reservoir characterization leverages the rig fleet by optimizing the value of every well bore

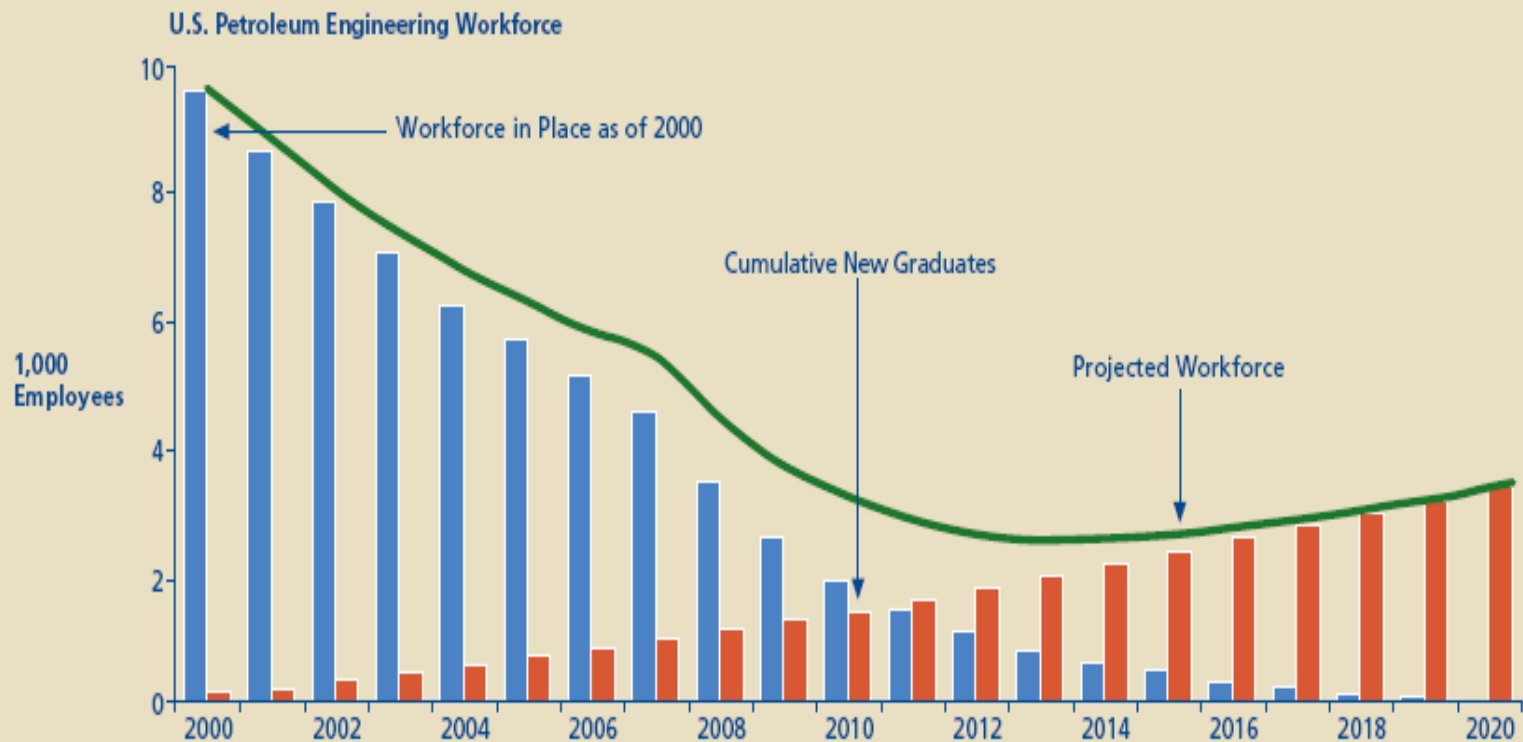


# Environmental Constraints

- A mandate - lessen the footprint and overall impact of all operations
- Technology and improved processes allow the development of more reserves per unit of activity
- Technology to address public policy concerns

# Workforce Constraints

Exhibit 2. Oil & Gas Workforce Projections



Source: Petrostrategies Inc.

# Solutions, not Rhetoric

- It starts with commitment - \$50M per year in stable directed spending with potentially an additional \$100M per year plus industry matching funds.
- Unique publicly funded opportunity to determine industry's needs and then utilize industry's leadership in partnership with universities, researchers, and technologists to develop solutions for the American consumer.
- Generate multiples by forging new partnerships and leveraging the value of new supplies with, for example, end use efficiency.



■ **The time for action is now!**

**“You miss 100% of the shots  
you don’t take.”**

**Wayne Gretzky**

