

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

University of Tulsa and Halliburton

RPSEA Member Forum

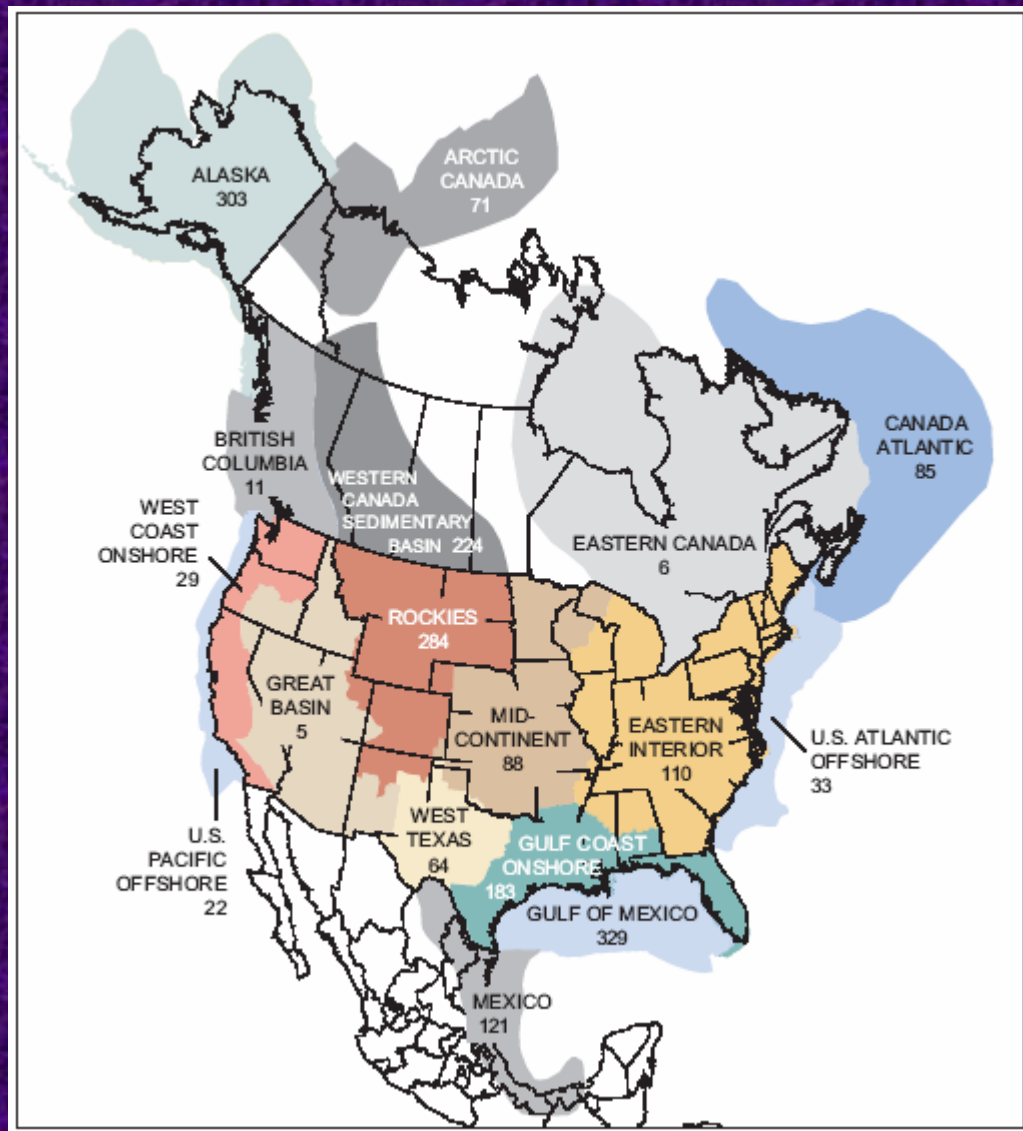
February 8, 2007



What is Section 999?

A new federal collaborative R&D public/private 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)

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)

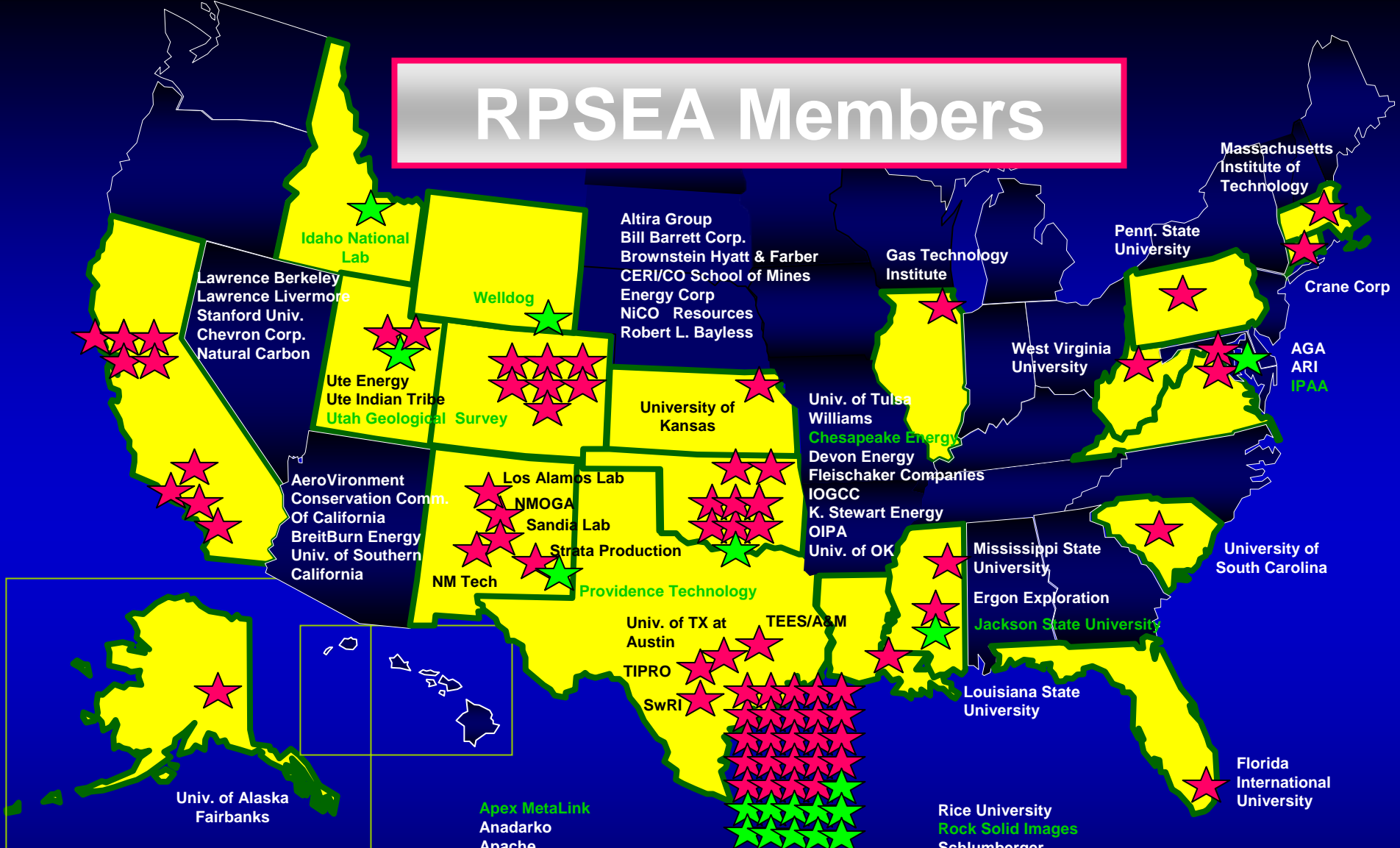


Who is RPSEA and What are its Statutory Features?

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



RPSEA Members



Massachusetts Institute of Technology
 Penn. State University
 Crane Corp
 AGA
 ARI
 IPAA
 West Virginia University
 University of South Carolina
 Mississippi State University
 Ergon Exploration
 Jackson State University
 Louisiana State University
 Florida International University
 Rice University
 Rock Solid Images
 Schlumberger
 Simmons and Co.
 Statoil Gulf of Mexico
 Stress Engineering
 Technip
 Technology Intl.
 Texas Energy Center
 Total USA
 University of Houston
 Vetco
 Weatherford
 Univ. of Tulsa
 Williams
 Chesapeake Energy
 Devon Energy
 Fleischaker Companies
 IOGCC
 K. Stewart Energy
 OIPA
 Univ. of OK
 University of Kansas
 University of TX at Austin
 TEES/A&M
 TIPRO
 SwRI
 NM Tech
 Providence Technology
 Univ. of Southern California
 AeroVironment
 Conservation Comm. Of California
 BreitBurn Energy
 Univ. of California
 Los Alamos Lab
 NMOGA
 Sandia Lab
 Strata Production
 University of Oklahoma
 University of Texas at Austin
 Gas Technology Institute
 Altria Group
 Bill Barrett Corp.
 Brownstein Hyatt & Farber
 CERI/CO School of Mines
 Energy Corp
 NiCO Resources
 Robert L. Bayless
 Idaho National Lab
 Welldog
 Ute Energy
 Ute Indian Tribe
 Utah Geological Survey
 Lawrence Berkeley
 Lawrence Livermore
 Stanford Univ.
 Chevron Corp.
 Natural Carbon
 Apex MetaLink
 Anadarko
 Apache
 B P America
 City of Sugar Land
 ConocoPhillips
 CSI Technologies
 Det Norske Veritas (USA)
 Dynamic Tubulars
 Energy Valley
 GE Oil and Gas
 GeoTrace Technologies
 Greater Fort Bend Cnty EDC
 Groundwater Services
 Halliburton
 HARC
 Johnson Performance
 Marathon
 Noble Drilling
 Oil Technology Needs
 PTTC
 Quanelle

Current Members 

Pending Members 

Apex MetaLink
 Anadarko
 Apache
 B P America
 City of Sugar Land
 ConocoPhillips
 CSI Technologies
 Det Norske Veritas (USA)
 Dynamic Tubulars
 Energy Valley
 GE Oil and Gas
 GeoTrace Technologies
 Greater Fort Bend Cnty EDC

Groundwater Services
 Halliburton
 HARC
 Johnson Performance
 Marathon
 Noble Drilling
 Oil Technology Needs
 PTTC
 Quanelle

Rice University
 Rock Solid Images
 Schlumberger
 Simmons and Co.
 Statoil Gulf of Mexico
 Stress Engineering
 Technip
 Technology Intl.
 Texas Energy Center
 Total USA
 University of Houston
 Vetco
 Weatherford

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

Program
Consortium

NETL

In-House R&D Program

Unconventional
\$16.25 M

Ultra-deepwater
\$17.5 M

Small Producer Program
\$3.75 M

\$37.5 M

\$12.5 M

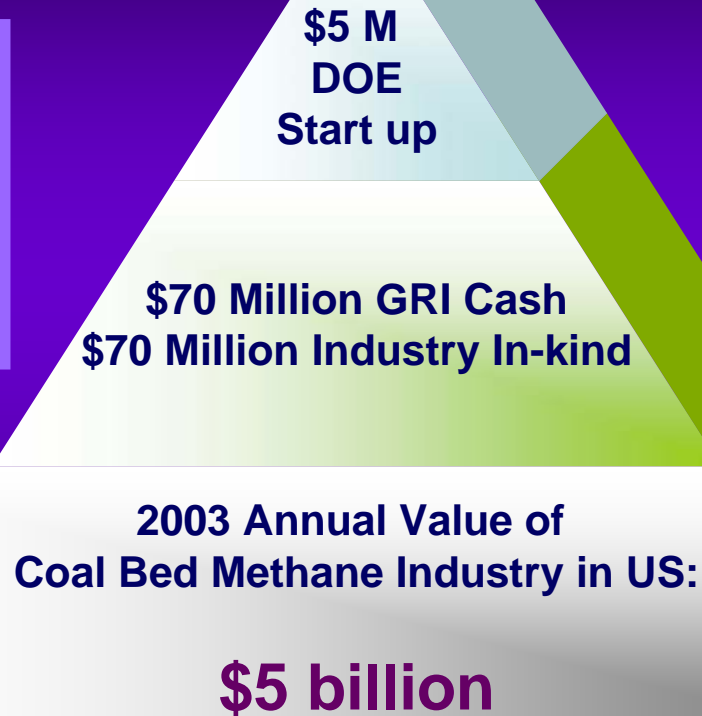
10 yr., \$500M
directed
spending



Coalbed Methane: Small Investment, Large Return

Return on R&D
investment:

34 to 1



• Research
• Partnership to
• Secure Energy
• for America

Potential for Program Funding

Program Funding From Federal
Oil and Gas Royalties

Total Program:

\$150 M/yr for 10yrs.

Department of Energy

Fossil Energy Office

\$112.5 M

\$37.5 M

Program
Consortium

NETL
Lab

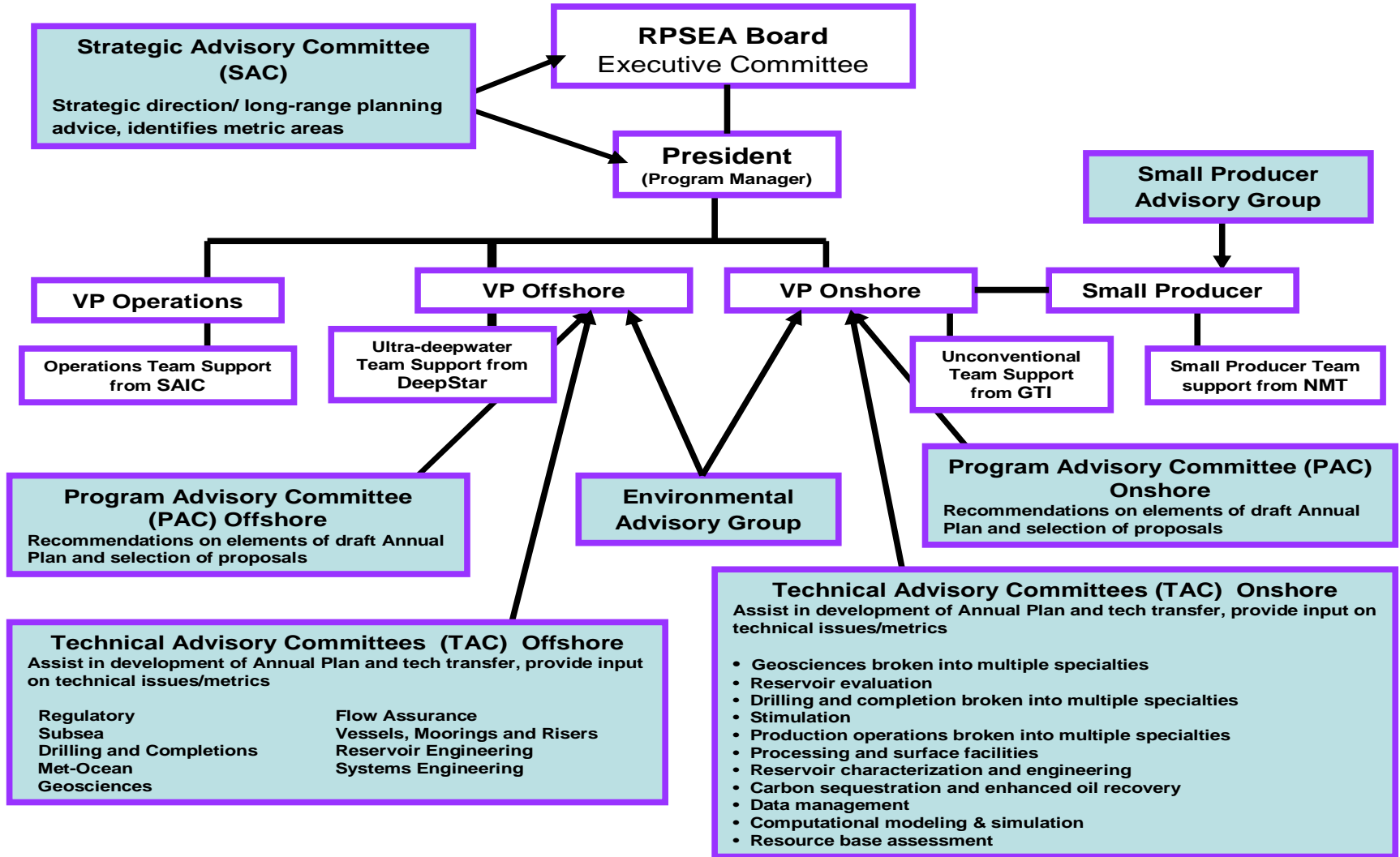
Unconventional
\$48.75M

Ultra-deepwater
\$52.5M

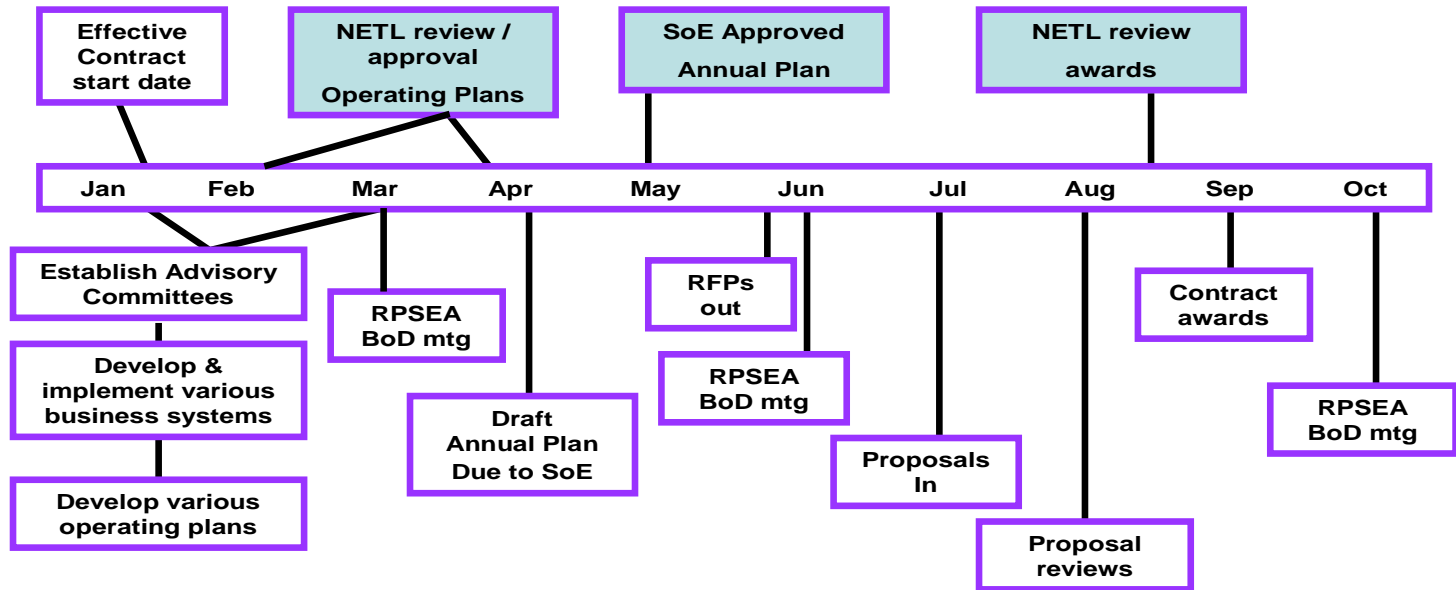
Complimentary R&D Program
\$37.5M

Small Producer Program
\$11.25M

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



RPSEA - estimated program timeline



Why Does Industry Need This?

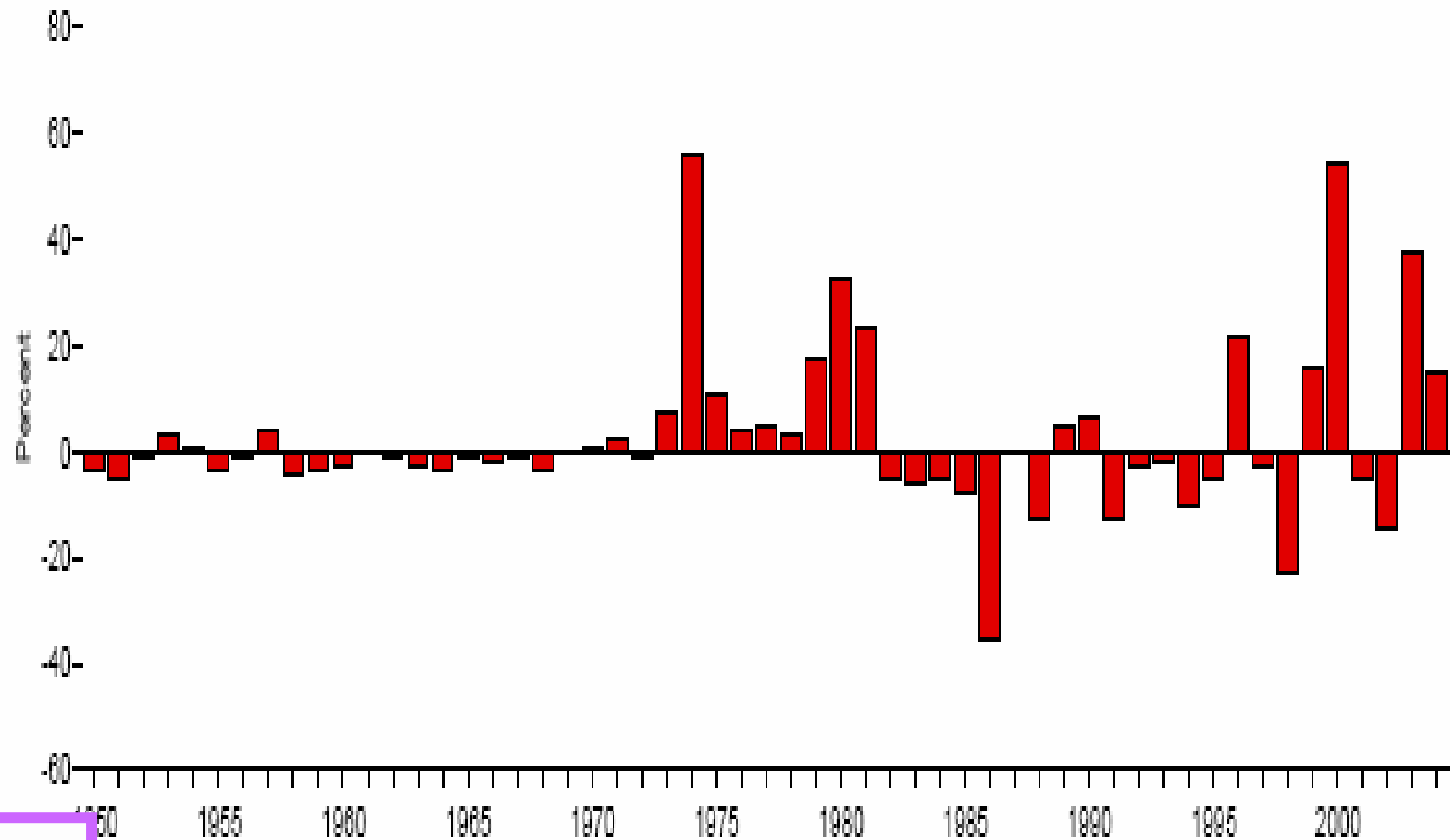
- Significantly increased E&P costs
- Continued price volatility
- Increasing personnel constraints
- Rig & service availability
- Environmental opposition & scrutiny
- Lack of research infrastructure
- Broad need for technology transfer

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

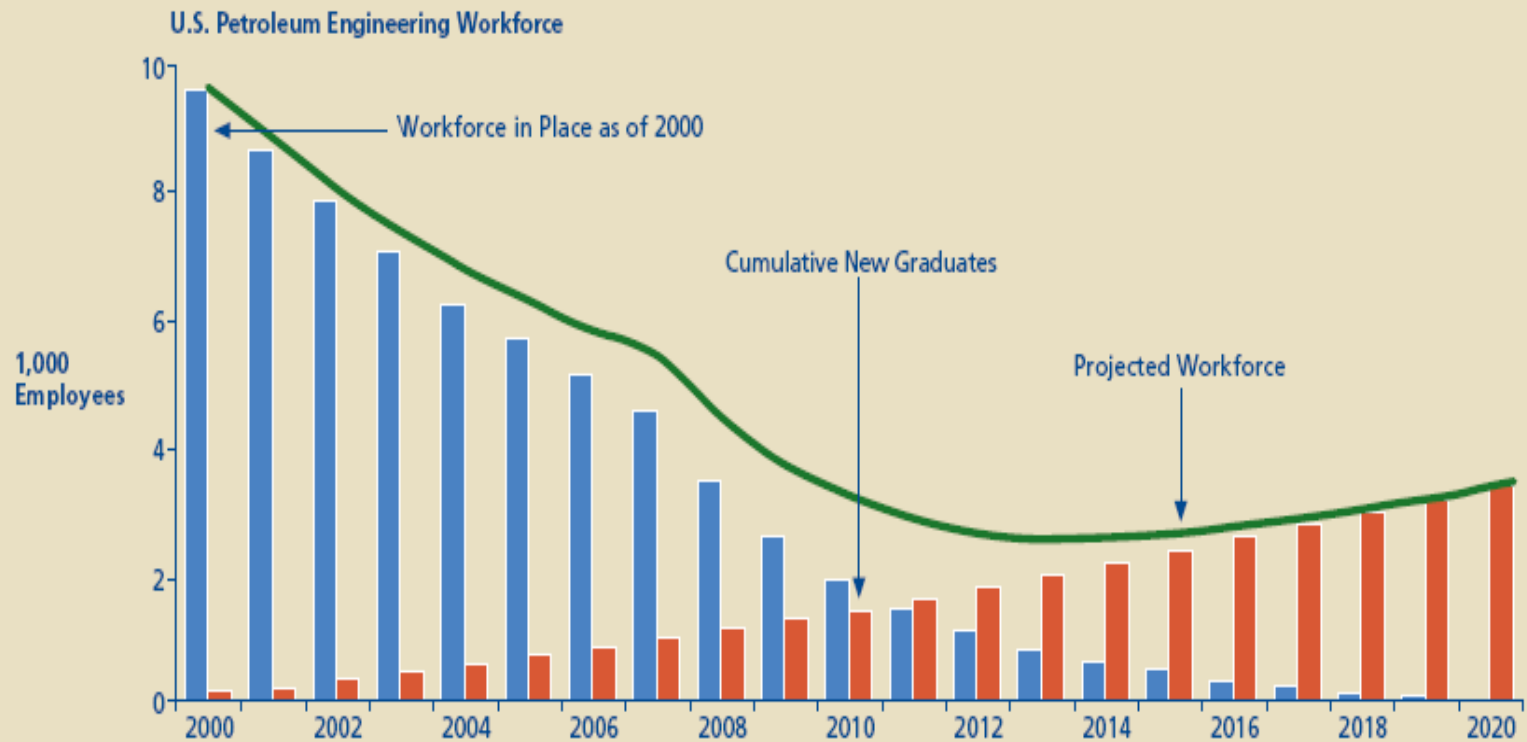


Environmental Constraints

- 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

