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• **Research**
• **Partnership to**
• **Secure Energy**
• **for America**
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Bakken Shale Forum
Grand Forks, ND
November 6, 2007

Secure Energy for America

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.



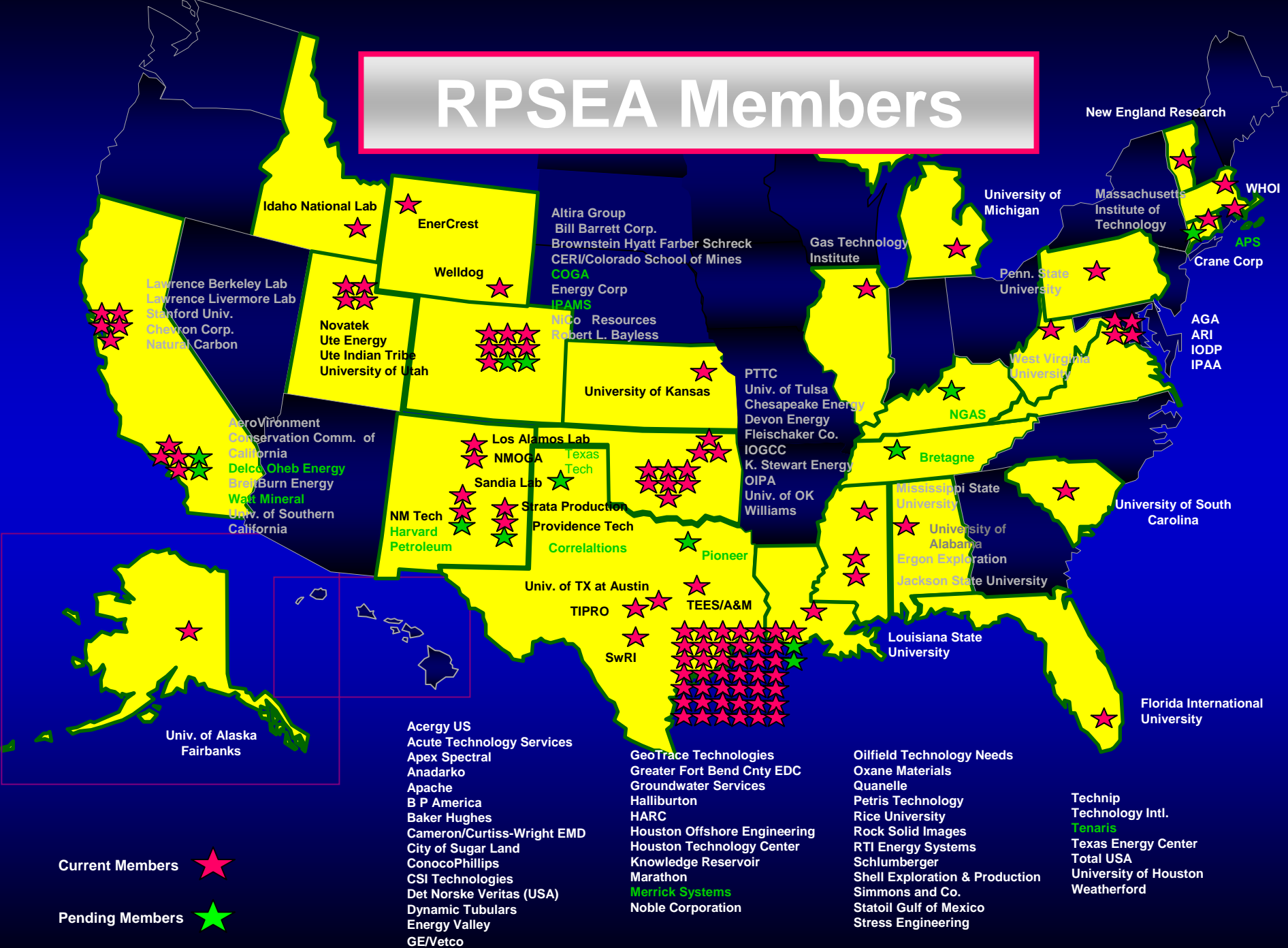


The RPSEA Organization

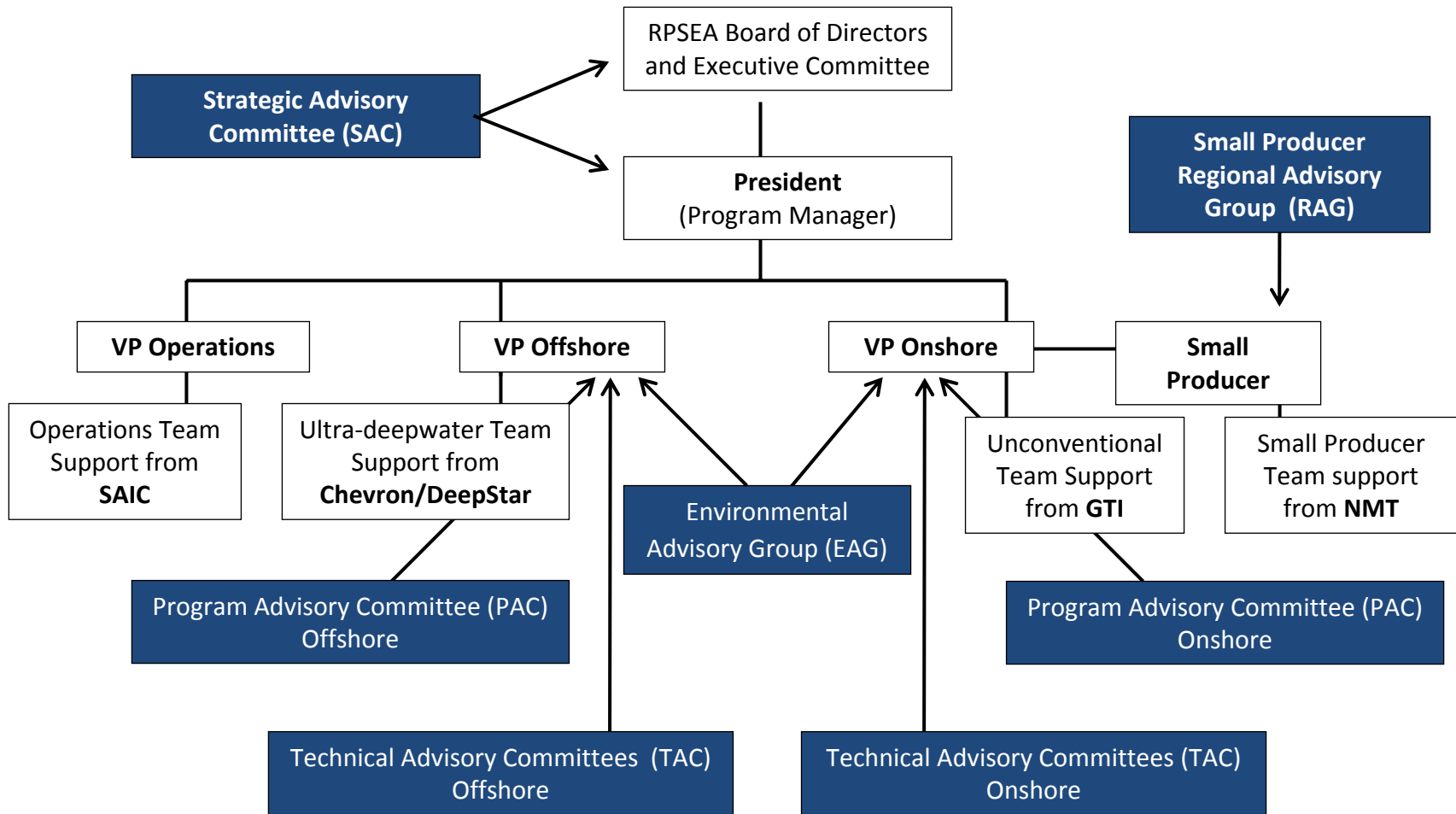
- A Research Partnership
- A Research Co-op
- A 501(c)3 not for profit
- Competitively selected by DOE as the Section 999 Consortium Manager
- 118 Members and growing

For more information visit www.rpsea.org

RPSEA Members



A Small Organization, A Large Network



Well over 1,000 experts have participated in this process!



The Energy Policy Act of 2005 And Section 999:

Research, development, demonstration, and commercial application
of technologies for:

- Ultra-deepwater – technology and architecture focus
- Unconventional natural gas and other petroleum resource exploration and production – resource focus
- The technology challenges for small producers by consortia

All while improving safety and minimizing the environmental impacts of activities within each area, including reduction of greenhouse gas emissions and sequestration of carbon

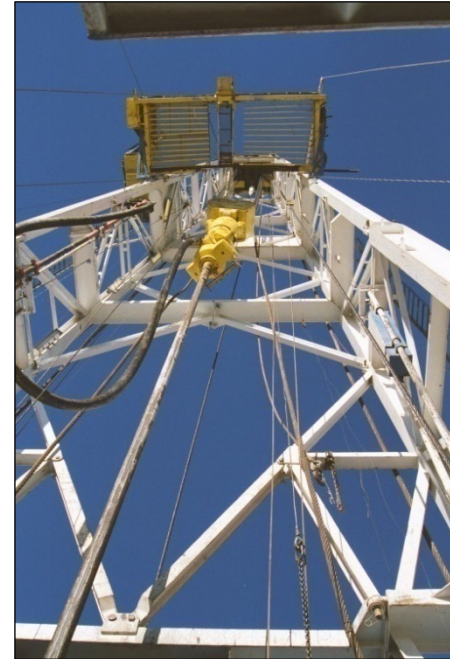
What is Section 999?

Specifically, the law directs --

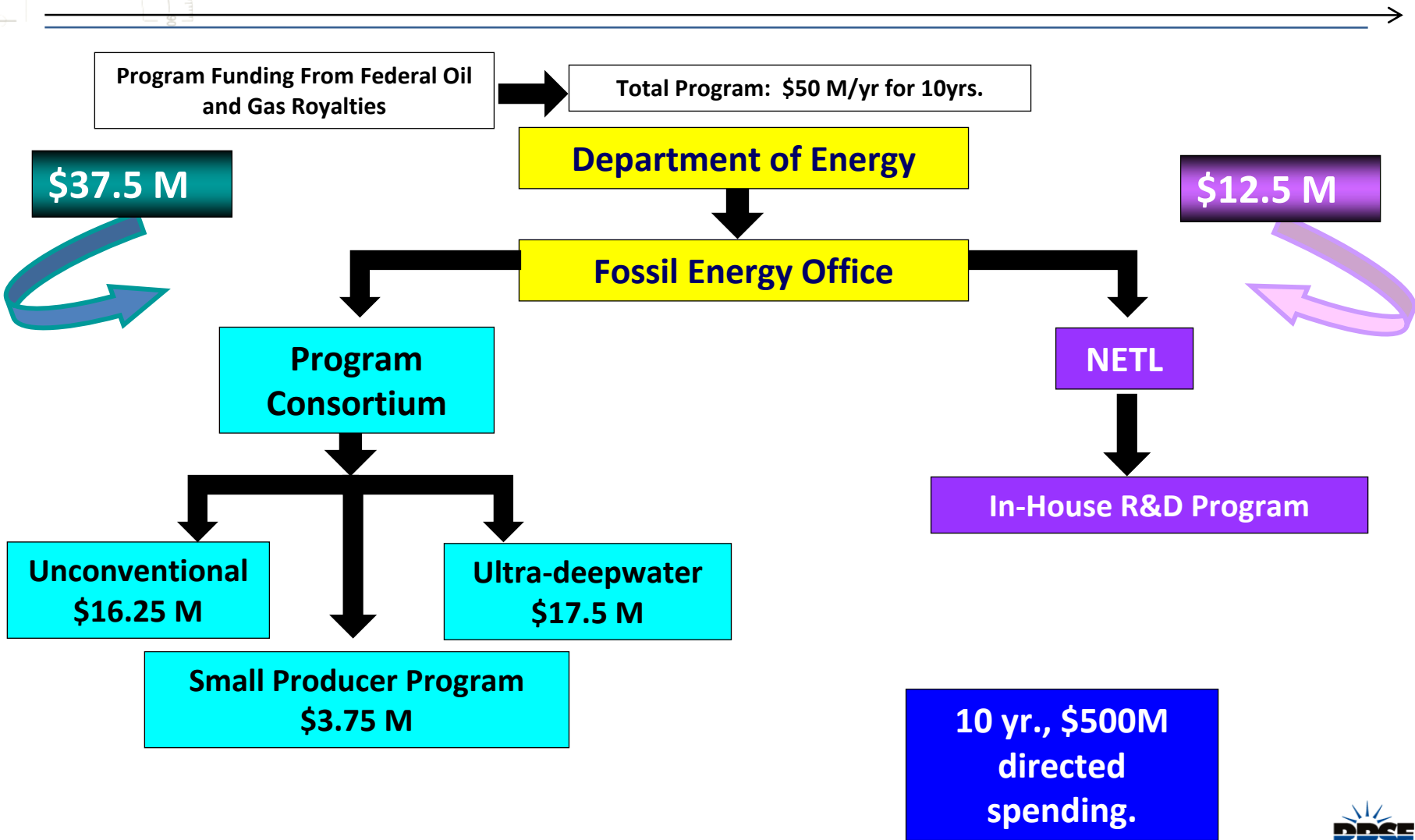
- Research, development, demonstration, and commercial application of technologies for ultra-deepwater and unconventional natural gas and other petroleum resource

- Maximize the U.S resource value by:

- Increasing supply
- Reducing the cost
- Increasing E&P efficiency
- Improving safety and minimizing environmental impacts



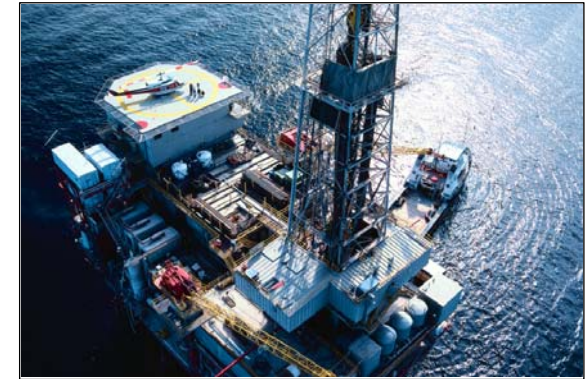
Current Program Structure/Funding



What is the Program's Focus?

The Program has four program elements:

- Ultra-deepwater 35%
(> 1500 Meters water or
15,000' OCS drilled depth)



- Unconventional Onshore 32.5%
(Economic accessibility)

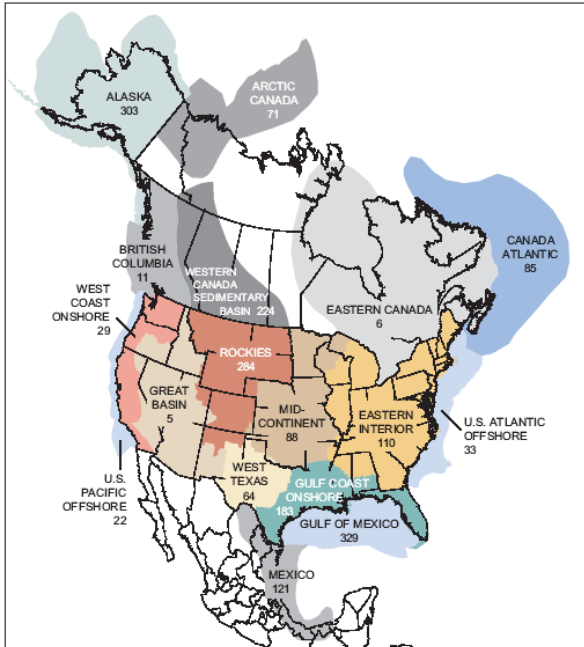
- Small Producers 7.5%
(< 1000 BOEPD)

- Complementary Program 25%

Managed by NETL



The Resources



NPC 2003 Technical Resources (TCF)

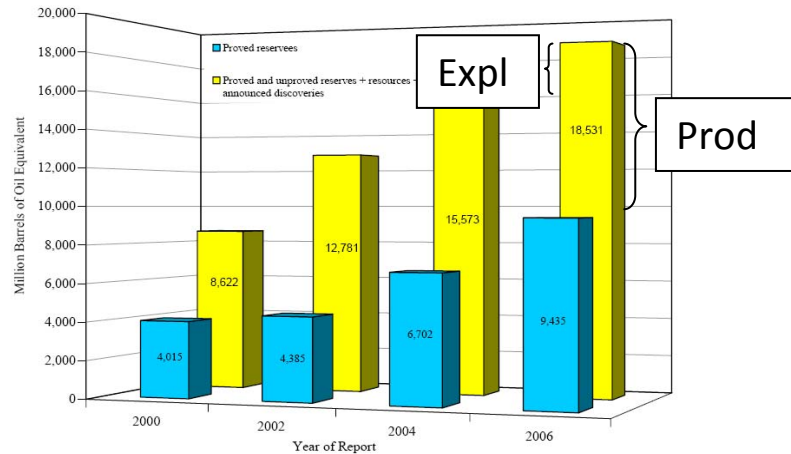
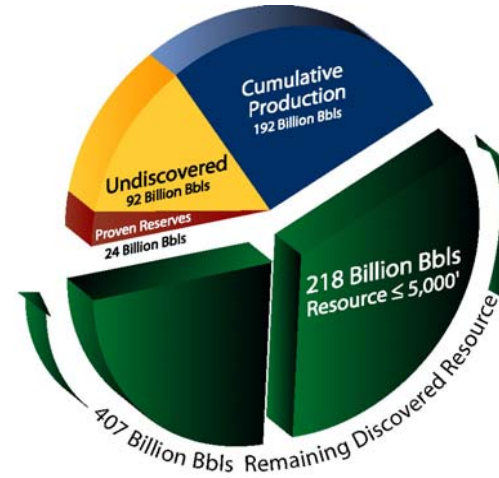


Figure 78. Comparison of 2000, 2002, 2004, and 2006 deepwater GOM reports: successive increases in deepwater BOE.



Unique Features of this New Model

- Industry led
- Integrated approach thru an Annual Plan
 - A program, not projects
- Stable 10 year directed spending
- Leverages existing capabilities
- Technology transfer





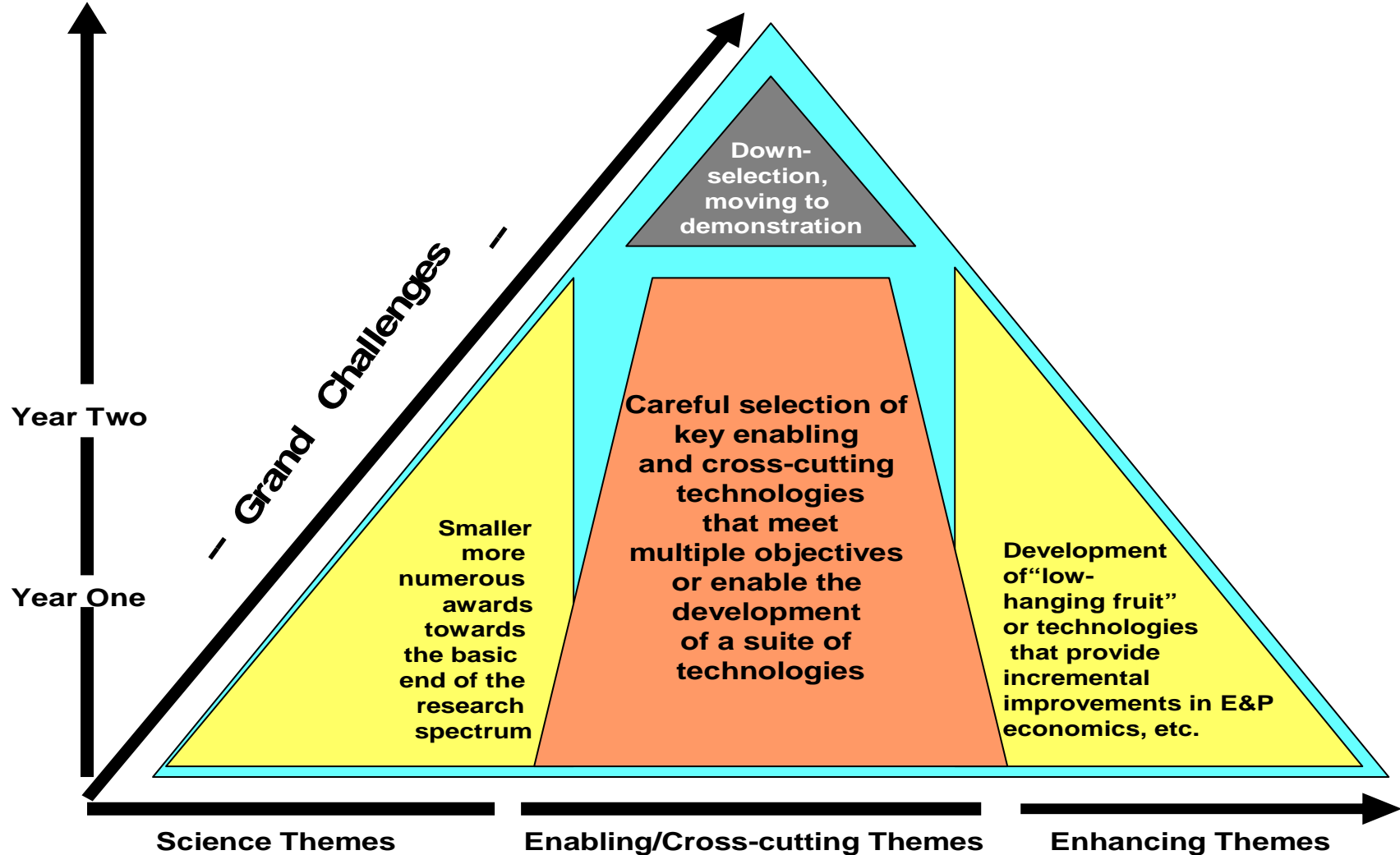
Some General Attributes of the Annual Plan

Research should create leverage on

- Funding, personnel, equipment, operations, and other resources
- Integration is a key to create synergies
 - Make 1+1=3
- Research should be accumulative to mitigate risk and build upon itself
 - Build in multiple time scales for the research plan
 - Allow for failure
 - Leave more legacies than one time projects, and plan for follow on funding
- Focus on short to mid term applied projects
 - Integrate with the NETL complementary program for more basic longer term projects
- Identify opportunities industry can't tackle or are impractical for industry to tackle
- Avoid many small projects which minimizes the potential for high impact

Some General Attributes of the Annual Plan

Years Five
thru Ten





The 2007 Draft Annual Plan

- The Draft Annual Plan requires a 2/3 super majority vote of the RPSEA Board of Directors
- This overall process provided multiple input opportunities from well over 1,000 experts
 - Multiple Advisory Committees
 - Member forums
 - Broad member input through meetings
 - DOE et al road mapping workshops
 - NETL consultation throughout



The RPSEA Process and Draft Annual Plan Basics :

- Today present resources, processes, inputs, and themes by program element
- Focus – 8 major theme areas
 - 4 Ultra-Deepwater field types
 - 3 Unconventional Onshore resource types
 - 1 Small Producer challenge
- Component themes under each major theme are identified
- There are many players in the process!

GOM Deepwater Trends

Walker Ridge /Keathley Canyon

- Sub-salt
- Deeper wells
- Tight formations

Alaminos Canyon

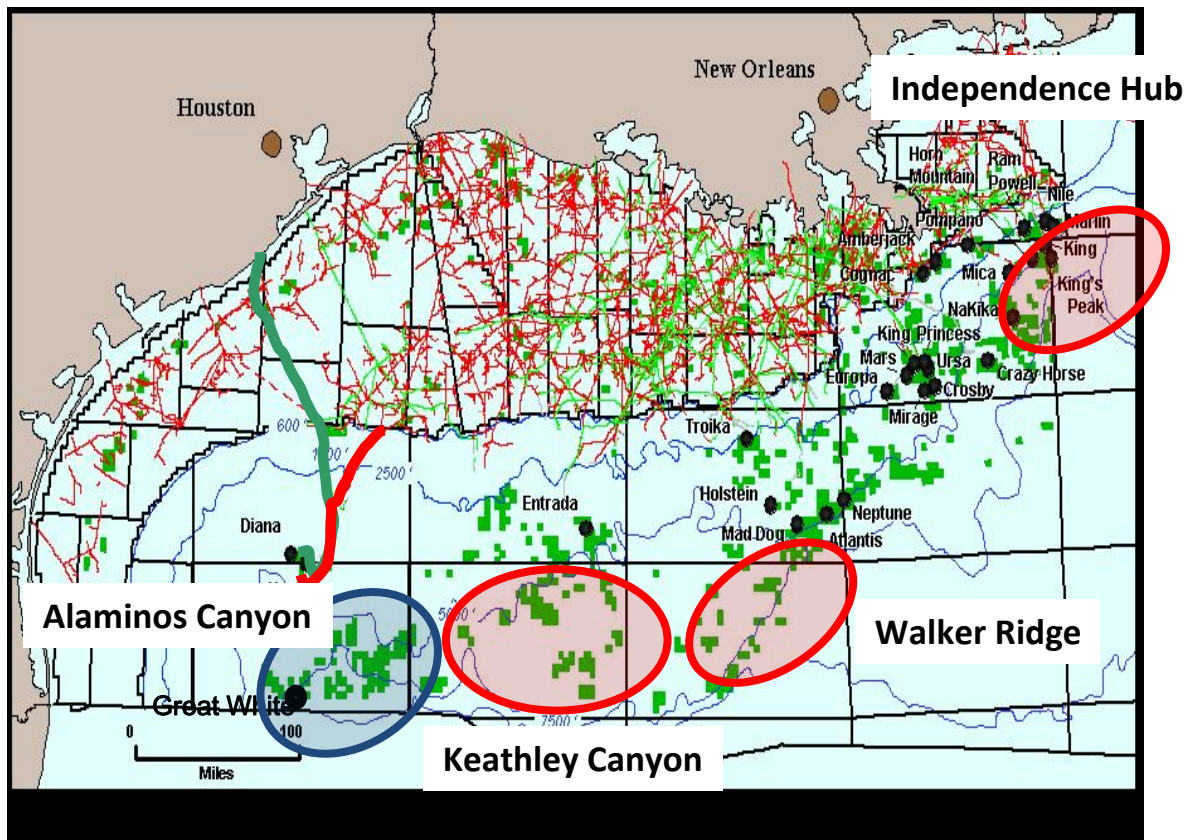
- Viscous crude
- Lacking infrastructure

Eastern Gulf – Gas Independence Hub

- Higher pressure
- Higher Temperature
- CO₂ / H₂S

Higher Drilling Costs

Challenging Economics



Unconventional Onshore Themes

■ Gas Shales

- Rock properties/Formation Evaluation
- Fluid flow and storage
- Stimulation
- Water management

■ Coalbed Methane

- Produced water management

■ Tight Sands

- Natural fractures
- Sweet spots
- Formation Evaluation
- Wellbore-reservoir connectivity
- Surface footprint

Cost Reduction in
All Aspects of
Operations





The Technology Challenges of Small Producers

Focus Area – Advancing Technology for Mature Fields

- Target – Existing/Mature Oil & Gas Accumulations
 - Maximize the value of small producers' existing asset base
 - Leverage existing infrastructure
 - Return to production of older assets
 - Minimal additional surface impact
 - Minimize and reduce the existing environmental impact
- Lower cost and maximize production



What Can You Do?

- Support the effort:
 - Promote the open innovation model
 - Encourage others to join RPSEA
 - Participate in the process
 - Provide input, proposals, or cost share
- Get involved and educated in energy
- Support workforce development efforts and science and engineering in K-12 & college

There's some urgency here!





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

- - Wayne Gretzky

QUESTIONS?