



**Research  
Partnership to  
Secure Energy  
for America**

**RPSEA Ultra-Deepwater Program  
2008 Update & 2009 Project Idea /  
Problem Request  
Houston, TX  
February, 2007**

**Secure Energy for America**

Secure Energy for America





# Outline

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- 2008 RFP update
- 2009 call for project ideas & problems

# 2007 & 2008 Challenges

Field / Resource Area	Technology Challenge	Themes
Canopy Field	Low permeability reservoir	Completion of long reservoir sections Deep reservoir stimulation technology Formation Integrity at Commercial Production Conditions (fluid rates, differential pressures)
Gumout Field	High Viscosity Oil	Intervention strategies and well architecture for downhole equipment maintenance (pumps for example)
Coyote Field	Small Reserve Fields	Drilling with small margin between overburden and fracture pressure (dual density drilling is a potential solution for this issue)
Diablo Field	XHPHT (22.5 ksi x 350+°F) Sour service	Optimized UDW Field Development Concepts for Improved Economics Materials Sciences for UDW Risers and Moorings, tubulars, tools, instrumentation, and completion equipment Improved Design and Analysis Methods Mooring and Riser Integrity Management
Crosscutting	Environmental	Safety Barrier Testing and Validation Criteria Environmental and Regulatory Impact of Emerging Technologies UDW Produced Water Management
	Economics	Optimized UDW Field Development Concepts for Improved Economics Materials Sciences for UDW Risers and Moorings Improved Design and Analysis Methods Mooring and Riser Integrity Management Flow Assurance Geoscience (Subsalt Imaging, Reservoir & Fluid Charac
	Metocean	Effect of changing weather patterns on hurricane severity Operational 3-D current forecast model capable of simulating the Loop/eddies Modeling for strong near-bottom currents along the Sigsbee Escarpment
	Reservoir	Appraisal Field development Production and Reservoir Surveillance
	Subsea Facilities	Subsea Production Equipment Enhancements Mature Subsea Processing Technology Pipeline, Flowline and Umbilical Technology Subsea Well Intervention Technology improvement
	Systems Engineering and Architecture	Design Criteria for the Base Cases. System impact of proposed technologies on the field development scenarios. Grand Challenge projects Small Business Initiatives

MARCH 21, 2007

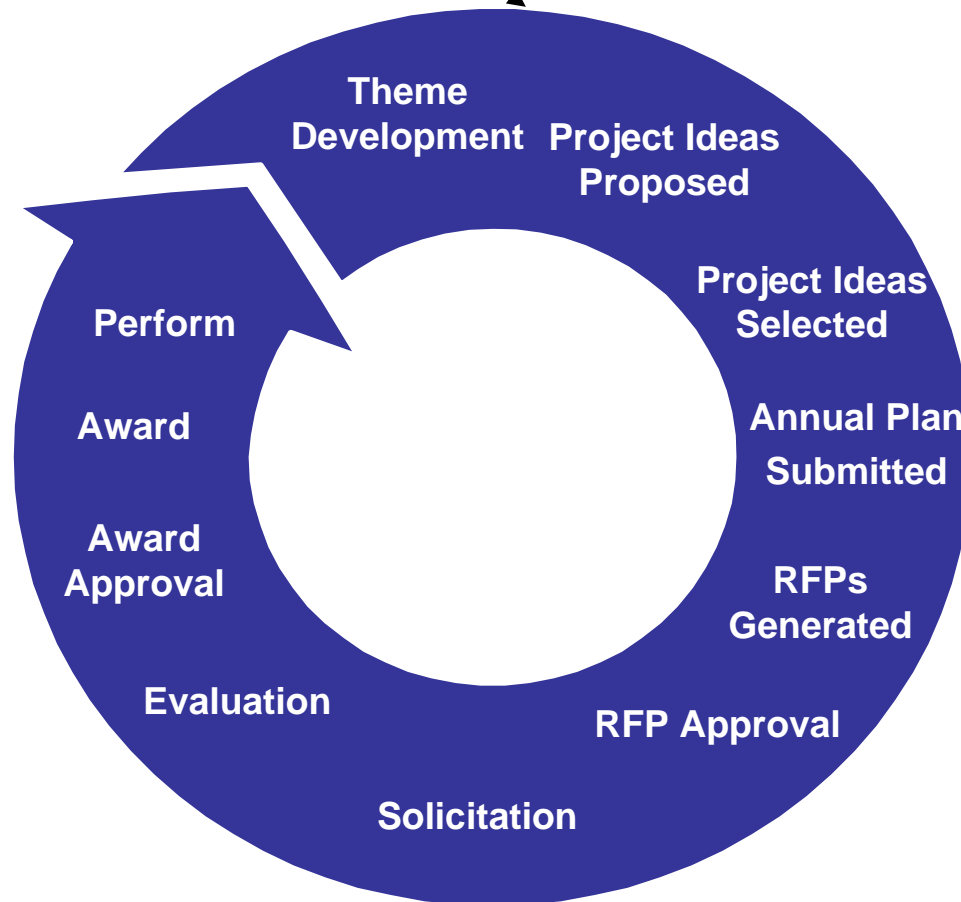
Research  
Performance

# 2008 UDW projects

TAC Number	Impact	2008 RPSEA Max Share
DW 2101	New Safety Barrier Testing Methods	\$ 128,000
DW 1202	EOS improvement for xHPHT	\$1,600,000
DW 2201	Viscous Oil PVT	\$460,000
DW 2301	Deepwater Riserless Light Well Intervention	\$3,411,500
DW 1502	Coil Tubing Drilling & Intervention	\$820,000
DW 2501	Early Reservoir Appraisal, Utilizing a Low Cost Well Testing System - Phase 1	\$880,000
DW 2502	Modeling and Simulation; MPD	\$384,000
DW 2701	Resources to Reserves Development and Acceleration through Appraisal	\$400,000
DW 2801	Gulf 3-D Operational Current Model Pilot	\$1,248,000
DW 2901	power distribution & components (Component Qualification)	\$4,811,000
10 Projects	Totals	\$14,142,500

# 2009 UDW Annual Plan Development

We are here!





# 2009 RPSEA UDW Call

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- UDW will target 4 to 7 projects for the 2009 program with a value of \$1 to \$5 million per project.
- Project integration across multiple disciplines is encouraged (eg. geoscience, reservoir and drilling).
- 2007 & 2008 follow on projects may also be funded from available 2009 budget.
- Allocation for theme based proposals expected.



# 2009 RPSEA UDW Call

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- Call for Project Ideas & Problem Statements
- Differences between 2007 & 2008:
  - Project Ideas & Problem Statements to promote innovation.
    - *“How can we place a 1000 ton module on the seafloor in 10,000’ of water without a heavy lift vessel?”*
    - *“How can we rapidly place crews and equipment 200+ miles offshore without a helicopter?”*
  - Operator Champion not initially required.
  - New UDW needs and challenges.
  - More emphasis will be required on the business incentive and value of the proposed activity.  
Qualitative value assessments are encouraged.



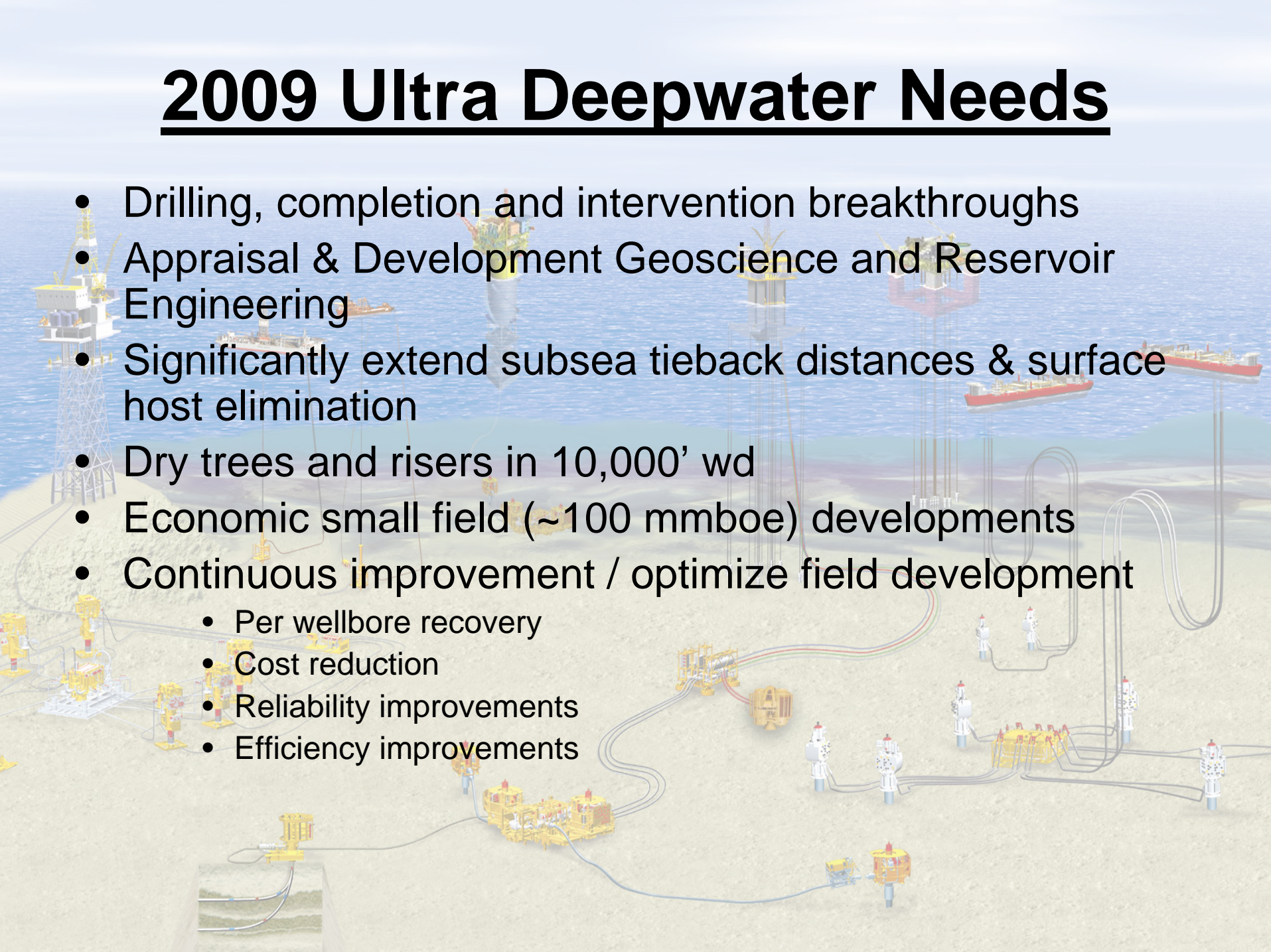
# RPSEA 2009 UDW Program Development - Timeline

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- Call for Project Ideas & Problem Statements.
- 30 Day Open Period. Due March xx, 2008.
- RPSEA & DeepStar TAC Meetings and prioritization April 1 through April 15.
- RPSEA PAC prioritization April 15 through May 1.
- RPSEA UDW 2009 program finalized by May 15, 2008.
- RPSEA 2009 Annual Plan Developed June through August, 2008.
- DOE/NETL approval cycle September through November, 2008.
- Funds released January, 2009.

# 2009 Ultra Deepwater Needs

- Drilling, completion and intervention breakthroughs
- Appraisal & Development Geoscience and Reservoir Engineering
- Significantly extend subsea tieback distances & surface host elimination
- Dry trees and risers in 10,000' wd
- Economic small field (~100 mmboe) developments
- Continuous improvement / optimize field development
  - Per wellbore recovery
  - Cost reduction
  - Reliability improvements
  - Efficiency improvements



# 2009 Challenges

Field / Resource Area	Characteristic/Discipline	Challenges
Canopy Field	Low permeability reservoir	Completion of long reservoir sections Deep reservoir stimulation Artificial lift technology and reliability Formation integrity at commercial production conditions (fluid rates, differential pressures, etc.)
Gumout Field	High Viscosity Oil	Intervention strategies and well architecture for downhole equipment maintenance (pumps for example) Viscous oil technologies
Coyote Field	Small Reserve Fields	Optimized UDW small field development concepts for improved economics
Diablo Field	XHPHT (22.5 ksi x 350+°F) Sour service	Materials sciences for UDW risers and moorings, tubulars, tools, instrumentation, and completion equipment HPHT flow assurance
Crosscutting	Safety & Environmental	Safety barrier testing and validation criteria Environmental and regulatory impact of UDW development & emerging technologies UDW produced water management
	Economics/Development Efficiency	Optimized UDW field development concepts for improved economics Improved design and analysis methods Mooring and riser integrity management Flow Assurance - Cold flow Metocean - improved models and understanding
	Drilling & Completions	Technology breakthroughs & paradigm shifts Intervention & architecture Cost reduction
	Geoscience & Reservoir Engineering	New field appraisal & development Production and reservoir surveillance Improved recovery
	Subsea Facilities	Enable widespread industry adoption of subsea production equipment Equipment intervention Pipeline, flowline, insulation and umbilical technology Subsea control & communication systems Subsea power & distribution ROV & AUV technology
	Systems Engineering and Architecture	Optimized UDW field development & architecture concepts for improved economics Produced gas management strategies System impact of proposed technologies on the field development scenarios.



What questions can I answer?



# RPSEA UDW Structure PAC and TACs

Resource of >700 SMEs from industry, academia and government!

Program Advisory Committee  
“The PAC”

Regulatory TAC (X100)  
51 Active Members

Flow Assurance TAC (X200)  
100 Active Members

Subsea Systems TAC (X300)  
138 Active Members

Floating Systems TAC (X400)  
150 Active Members

Drilling & Completions TAC (X500)  
66 Active Members

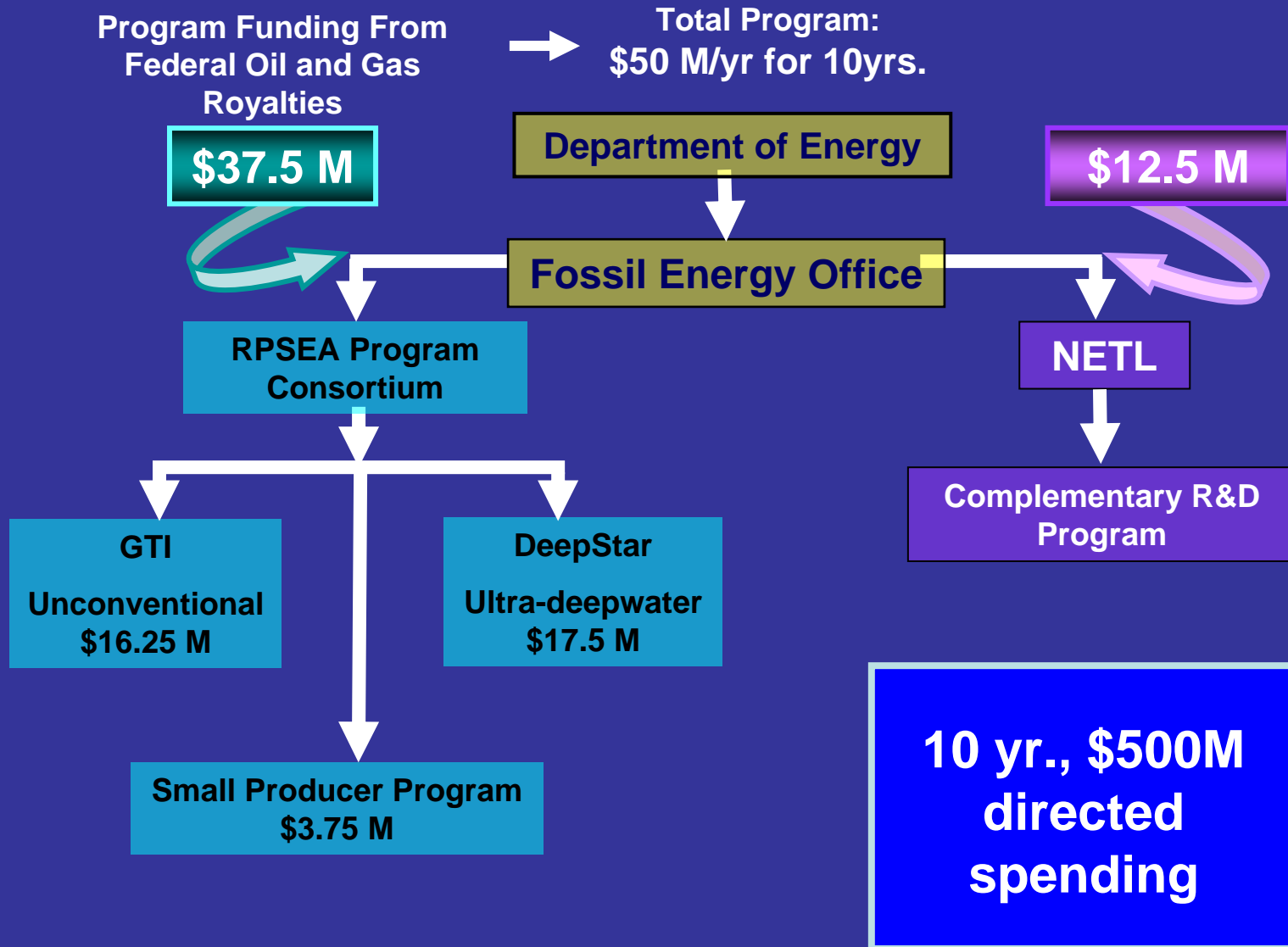
Reservoir Engineering TAC (X700)  
44 Active Members

Met Ocean TAC (X800)  
55 Active Members

Systems Engineering TAC (X900)  
76 Active Members

Geoscience TAC (X000)  
15 Active Members

# Energy Policy Act Structure



# DeepStar / RPSEA Relationship

