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• **Research**
• **Partnership to**
• **Secure Energy**
• **for America**
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**RPSEA 2007 Ultra-Deepwater
Program
Member Meeting
Christopher Haver
Houston, TX
February, 2007**

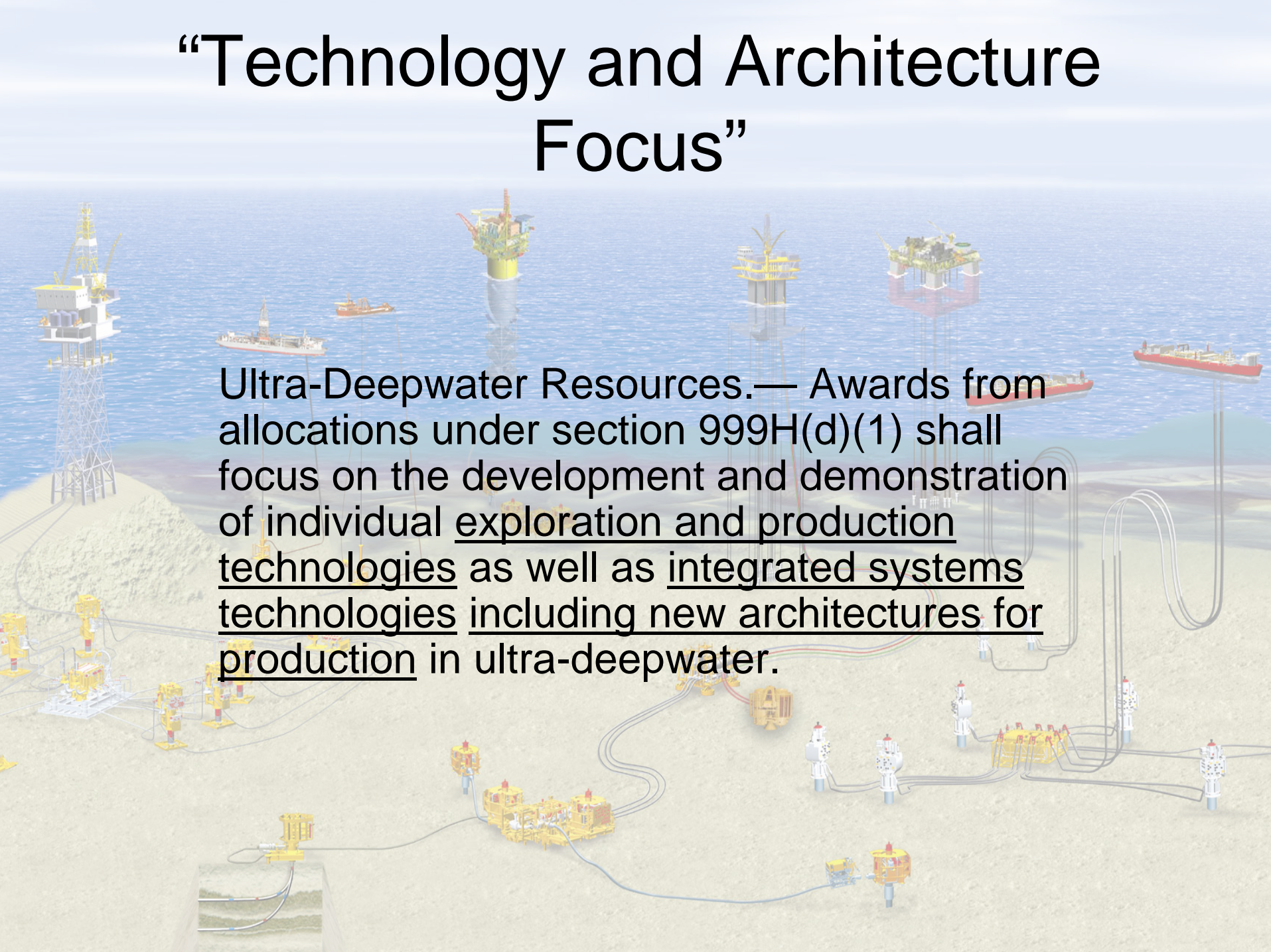
Secure Energy for America



Contents

- UDW program overview
- UDW 2007 RFP status

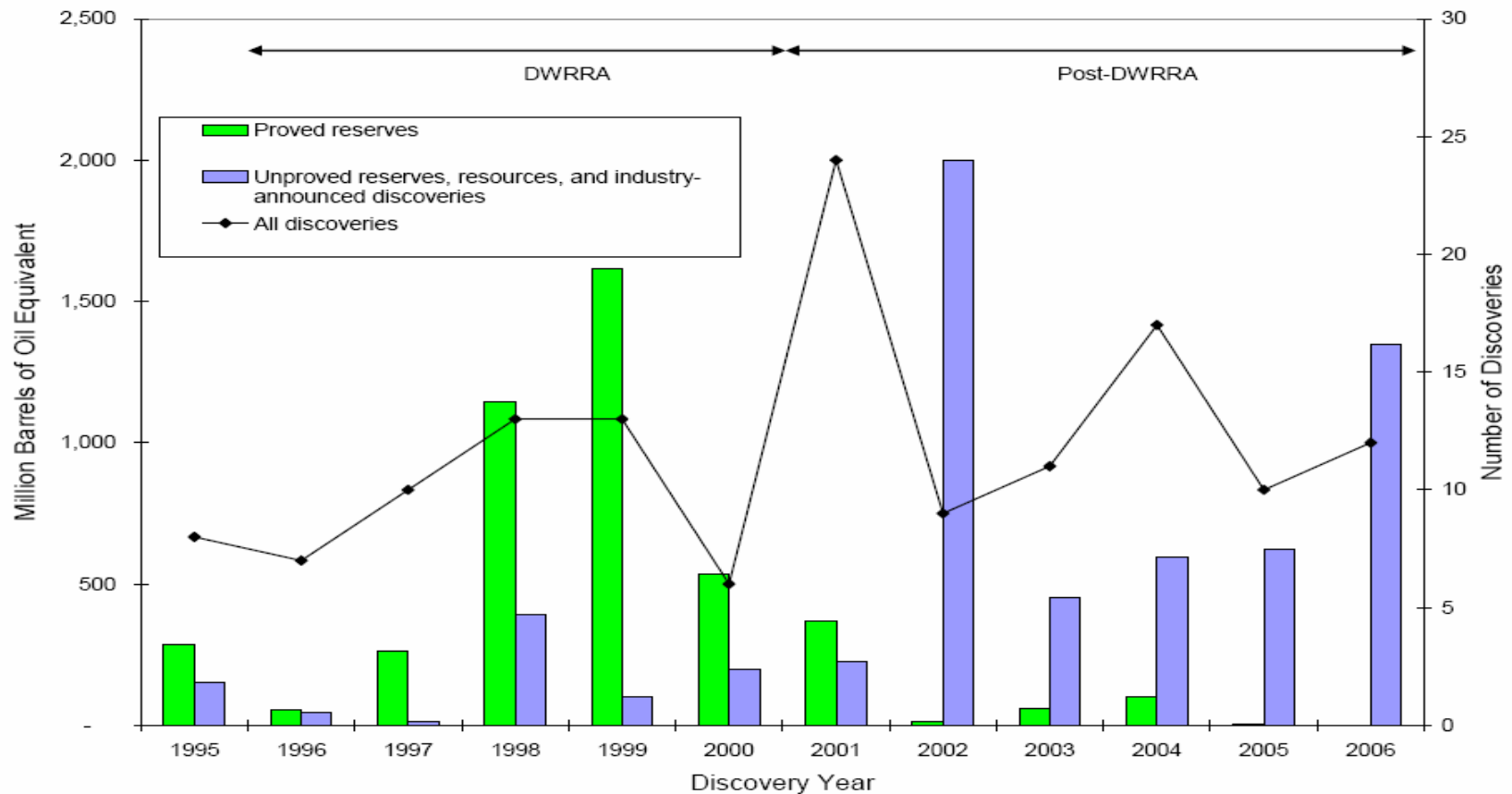
“Technology and Architecture Focus”



Ultra-Deepwater Resources.— Awards from allocations under section 999H(d)(1) shall focus on the development and demonstration of individual exploration and production technologies as well as integrated systems technologies including new architectures for production in ultra-deepwater.

Increasing Lag Between Discovery and Development

Proven Reserves Add Value



MMS Report 2007-021: Deepwater Gulf of Mexico, Interim Report of 2006 Highlights



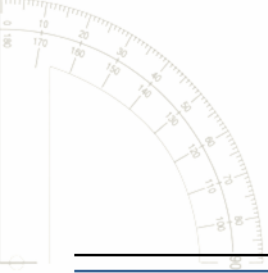
UDW Base Cases

- 4 deepwater Reservoir Base Cases focus work.
 - Canopy – (Subsalt; low perm)
 - Coyote – (Low energy reservoir)
 - Gumout – (Viscous Production)
 - Diablo (XHPHT Field)



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
red font = Being initially addressed in 2007 & 2008 RPSEA UDW Programs		



Significant Demand for UDW Technology Funding

April, 2007

120+ Project Ideas
\$300 MM

June, 2007

70 Project Ideas
\$175 MM

July, 2007

26 Project Ideas
\$30 MM

RPSEA 2007 & 2008 Projects

2007 UDW projects

2007 Projects	Title	2007 RPSEA Max Share
DW 2001	Synthetic benchmark models of complex salt	\$2,000,000
DW 1201	Wax Control	\$400,000
DW 1301	Multiphase Meter Technology :	\$3,564,000
DW 1302	Ultra-high Conductivity Umbilicals	\$448,000
DW 1401	Carbon Fiber Riser	\$1,680,000
DW 1402	Ultra-deepwater Dry Tree System	\$936,000
DW 1403	Fatigue Performance; High Strength Risers	\$800,000
DW 1501	Extreme Reach Development	\$200,000
DW 1603	Graduate Student Design Projects	\$240,000
DW 1701	Improved Recovery -	\$1,600,000
DW 1801	Global Warming; Hurricane Activity	\$560,000
DW 1901	Subsea Processing System	\$1,200,000
DW 1902	Deep Sea Hybrid Power System (Phase 1)	\$480,000
Totals - 2007	13 Projects	\$14,108,000



2007 UDW RFPs & proposals

<u>Traunche</u>	<u># of RFPs</u>	<u># of proposals</u>	<u>Awards made</u>
1st (closed 27dec07)	4*	9	tbd
2nd (closed 28jan08)	5	13	tbd
3rd (closes 13apl08)	5	tbd	tbd

* One 'no-bid'