RPSEA Research Partnership to Secure Energy for America

Member Newsletter

Vol. 2, No. 2

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To RPSEA Members:

On April 3, 2007 RPSEA submitted its draft Annual Plan to the NETL/DOE. This submission was the culmination of a series of timed deliverables that were set in motion by the signing of the RPSEA contract on January 4, 2007.

In this newsletter we will review some details of the draft Annual Plan such as resource targets, research themes to address these targets and key inputs and processes used to determine these targets. We will summarize the research and technology development needs identified at the RPSEA technical forums and will discuss information that will be applicable to the upcoming RPSEA solicitation for proposals.

As of this writing RPSEA has grown to 105 members. This is a 15% increase since the first of the year. While this is a fairly substantial growth rate RPSEA personnel and the program in general are geared to handle such growth. We believe this growth will occur for some time and look forward to welcoming new members into the organization. Remember one of your benefits of membership is networking opportunities so take time from a busy schedule to welcome the new members.

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Annual Plan Overview

RPSEA is directed by law to conduct a research, development, demonstration and commercialization program offshore in the ultra-deepwater and onshore for unconventional natural gas resources. The first step towards achieving this vision was to create a draft Annual Plan which was submitted to the NETL/DOE on April 3, 2007. This inaugural plan serves as both a 10-year strategic plan and an initial annual plan for years one and two, defining the relationship of early research both in short term results and as the foundation for longer term research and projects. **The draft Annual Plan in its entirety is posted in the member's only section of the RPSEA website.** NETL and DOE now take the RPSEA plan and with modifications present it to two Federal Advisory Committees. You have probably seen solicitations for nominations for these committees. These committees have been constituted by DOE and are expected to meet in June and July to make final recommendations as to the plan's contents. With these recommendations the Secretary of Energy will finalize the plan and present it to Congress.

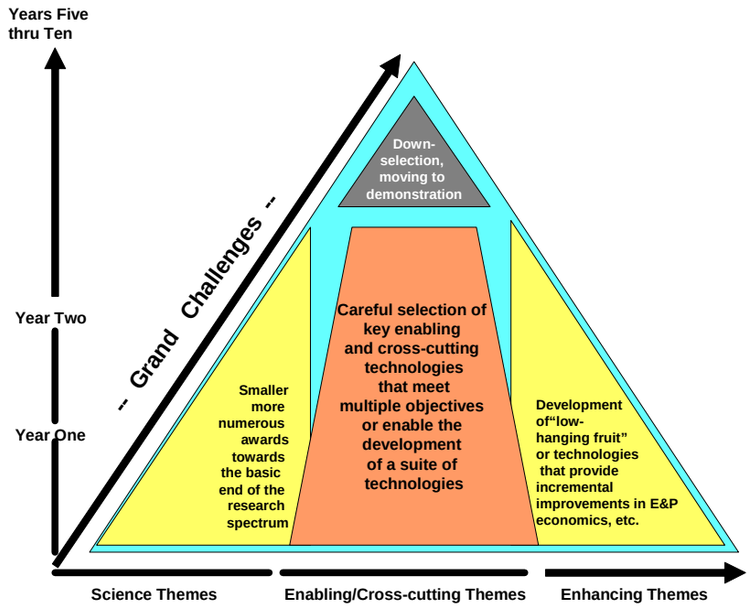
The RPSEA Plan identifies resource targets, proposes research themes to address these targets and identifies key inputs and processes used to determine these targets and themes. RPSEA received considerable input on the draft Annual Plan from its members as well as from a broad spectrum of additional experts. The Plan was written by RPSEA in consultation with the RPSEA Board of Directors. In addition, input has been provided by the National Energy Technology Laboratory (NETL) throughout the process. While our by-laws require a two thirds majority vote of the Board to approve the draft Annual plan, the Board voted unanimously for approval. This requirement was designed to ensure broad support from the stake holder community.

Input for the Plan was solicited or developed from:

1) RPSEA member forums – (see member forums discussion later in this newsletter). There have been eleven forums to date
2) Universities as hosts of the member forums
3) Multiple individual meetings
4) Ultra-deepwater and unconventional onshore program advisory groups, and the Small Producer Research Advisory Group

5) Ultra-deepwater Technical Advisory Committees
6) Multiple road mapping exercises conducted by DOE, RPSEA and others prior to 2007

In addition to the above, the Strategic Advisory Committee also gave recommendations on the general focus of RPSEA's research portfolio. These recommendations were based on program timing and the type of themes addressed (science, enabling/cross-cutting or enhancing)



Strategic Advisory Committee Research Portfolio Guidance

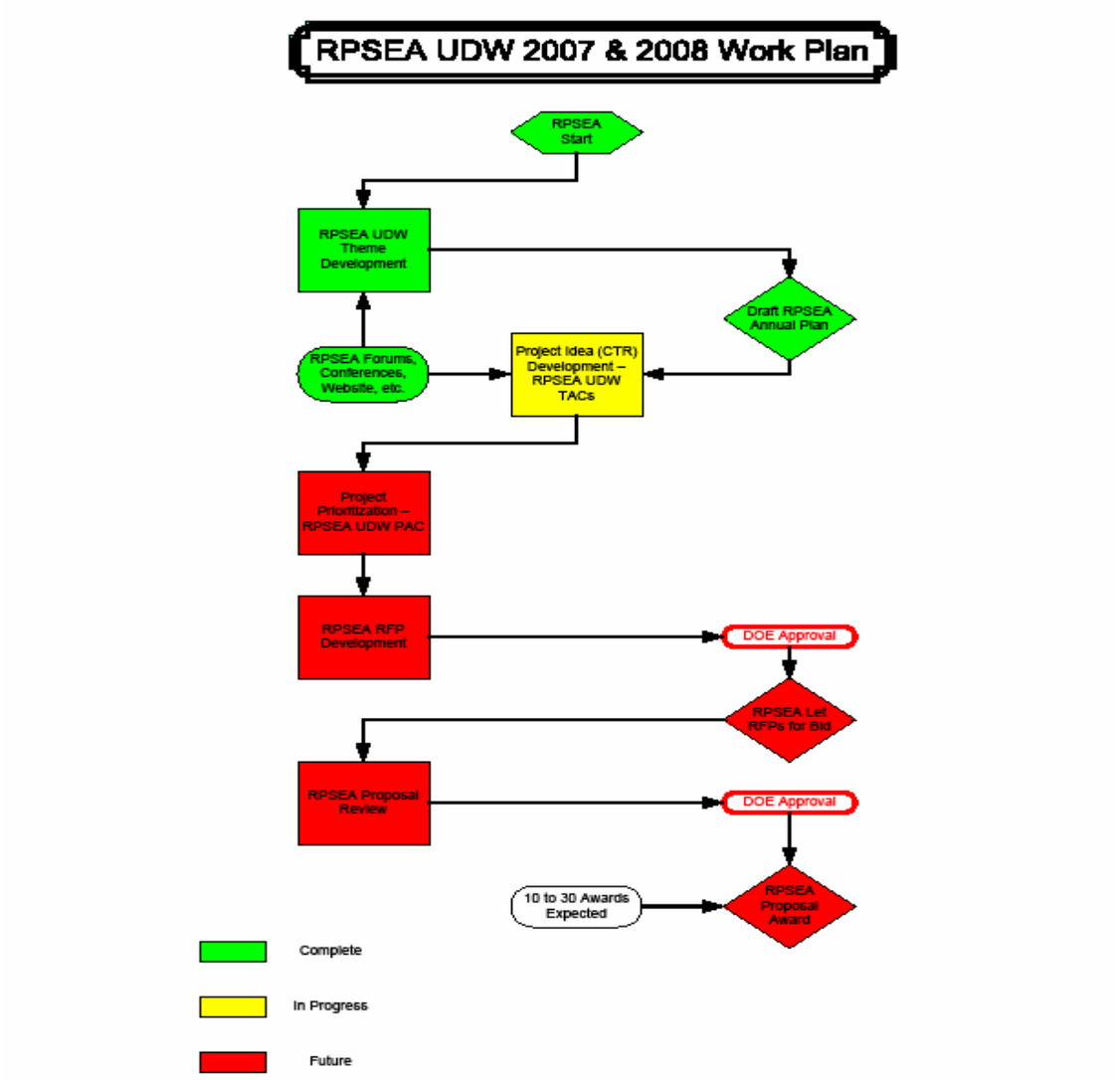
RPSEA has established a generic process to identify resource targets, opportunities, barriers and research themes among the three program elements of the Ultra-deepwater, Unconventional Onshore and the Small Producer program as defined in the Energy Policy Act (EPACT).

	Industry Structure	Research Management Implications
Ultra-Deepwater Program	• Relatively small number of industry players • Significant capital requirements • Consistent regulatory environment • Some internal research capability • Ready adoption of new technology • Very high cost high risk working environment	• Focus on infrastructure/ harsh environmental conditions • Setting priorities with industry input critical to success • Potential to provide significant cash matching funds • Demonstration is very expensive. High value on risk avoidance forces limited number of focus areas • Formal collaborative research model exists
Unconventional Onshore Program Element	• Large number of players, some very small • Limited access to capital • Multiple regulatory jurisdictions • Limited internal research capability • Ability to adopt new technology varies • Technology issues vary considerably with geographic/ geologic area.	• Focus on production/geology/environmental issues • Need to identify and pursue specific resource targets • Little potential for cash matching funds but history of in-kind contributions • Formal tech transfer mechanisms exist • Historical but not current formal collaborative research model • Research programs need to be designed with geographic area and technology user in mind.
Small Producer Program Element	• Number of small producers is 10,000 and growing • Limited access to capital • Multiple regulatory jurisdictions • No internal research capability • Most do not have capability to internalize new technology. • Small producers are threatened by technical, environmental, and market challenges	• Focus on geology, environmental, regulatory compliance, cost reduction • Must work with small producers to identify issues that impact small producers across and within regions • Little potential for cash matching funds but history of in-kind contributions • Formal tech transfer mechanisms exist • Some successful examples of collaborative research exist • Small producers may lack the staff to internalize complicated technology, so tech transfer must involve appropriate service providers.

Variations by Program Element

The Ultra-deepwater program utilizes four general discovery field types as case studies based on exploration results. These field types broadly represent the actual challenges that operators face as they seek to make new discoveries, commercialize smaller finds, and move from discovery to production. As prescribed in EPACT, this effort will focus on the development and demonstration of individual exploration and production technologies as well as integrated systems technologies, including new architectures for production in the ultra-deepwater. Ultra-deepwater Technical Advisory Committees (TACs) are currently focused on prioritizing specific project ideas based upon the themes developed previously. The ten TACs have generated more than 130 project ideas with approximately $330 million in estimated funding requirements. Project ideas have been submitted by research institutions, universities, exploration and production companies and private corporations. Requests For Proposals (RFPs) will be released pending final

approval of the draft Annual Plan, currently estimated late third quarter this year. If you have any questions, please contact Art Schroeder at aschroeder@rpsea.org.



The draft Annual Plan for the Unconventional Onshore program recommends a focus on three priority resource types; gas shales, coalbed methane water issues, and tight gas sands. The table below describes these focus areas and the technology challenges associated with them as defined in the draft Annual Plan. While other unconventional resource possibilities exist for research, prioritization provides the opportunity for meaningful results versus a diluted non-focused program with little chance of success in any specific area. This program is appropriately resource focused as defined by EPACT, and in contrast to the Ultra-deepwater's all-inclusive technology and architecture portfolio.

Resource Focus	Technology Challenges
Gas Shales	Rock Properties/Formation Evaluation
	Fluid Flow and Storage
	Stimulation
	Surface Footprint
	Water Management
Coalbed Methane	Produced Water Management
Tight sands	Sweet Spots/Formation Evaluation
	Natural Fractures
	Wellbore Reservoir Connectivity
	Surface Footprint
	Water Management

The Small Producer program recommends a program directed towards increasing commercial production and ultimate recovery from established mature fields, including both currently producing and inactive fields. This technology focus will enable RPSEA to address the needs of small producers within the funding constraints established in EPACT through a program entitled "Advancing Technology for Mature Fields," as small producers with little or no research and technology development capability are now the primary asset owner of many maturing fields that they either have developed or acquired from larger entities who historically did have such research and technology capabilities. (Back

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RPSEA Solicitation Information

Schedule
The schedule for the initial round of solicitations will be determined in consultation with NETL after approval of the draft Annual Plan by the Secretary of Energy.

Funding Estimates
It is anticipated that $14.9 million will be available for the Ultra-deepwater program, $13.8 million for the Unconventional Onshore program and $3.2 million for the Small Producer program during fiscal year 2007. The typical award is expected to have duration of one to two years, although shorter or longer awards may be considered if warranted by the nature of the proposed project.

Selection Criteria:
The following criteria are proposed to be used to evaluate proposals submitted under the RPSEA program. Weighting factors will be determined prior to the issuance of each solicitation.

- Technical merit and applicable production or reserve impact
- Statement of Project Objectives
- Personnel qualifications, project management capabilities, facilities and equipment and readiness
- Technology transfer approach
- Cost for the proposed work
- Cost share
- Environmental, Health and Safety QA/QC
- Exceptions to contract terms and conditions

The following additional criterion is proposed to be used to evaluate proposals submitted under the Small Producer program.

- Approach to application of the results, including involvement by small producers (back to top)

While formal RFP's will not be issued until after the approval of the Annual Plan, it is not too early for potential research contractors to consider partnership arrangements and plan proposals that will maximize the impact of this program on developing the nation's resource base. Technology developers will be highly encouraged to partner with operators in submitting proposals. Such partnerships will be especially important in the case of technologies at a sufficiently advanced stage of development to contribute to the near-term impact of the program. You will receive notices as further details become available. The details will also be posted on the RPSEA website at www.rpsea.org. (back to top)

Technical Advisory Committees

As RPSEA moves forward we anticipate forming specialized technical committees to allow RPSEA to take advantage of our member's expertise during the R&D program development and execution. You should have received a notice in which you or individuals within your company could detail your expression of interest in serving on various Onshore and Offshore Technical Advisory Committees. If you did not receive this notice or just need a fresh reminder of the process please email Steve Beach at sbeach@rpsea.org.

While the offshore committees are currently formed there is still time for you to participate in the process. If you are on a committee you should be receiving meetings notices. These meetings are a very important step in the process of focusing which projects will move forward toward the solicitation process and potential funding.

Unlike the Offshore Program, the Unconventional Onshore Program has only generally identified resource themes at this time. A specific request for proposals will be generated following the approval of the draft Annual Plan by the Secretary of Energy. While many of you have expressed an interest to participate at the technical level on the Onshore Technical Advisory Committees these committees have not yet been formed. Once these committees are formed those who have requested to participate will be receiving important notices about the time and location of committee meetings. (back to top)

RPSEA Member Forums

To date eleven member forums have been conducted on topics important to unconventional gas and ultra-deepwater resources. These forums allow for the sharing of ideas and growth of the RPSEA network which are critical elements for the success of the RPSEA partnership. The forums continue to be conducted on an ongoing basis as need is identified such as the next forum which will address key environmental topics in the oil and gas industry. This forum, which will be held in Baton Rouge on August 23, 2007, will be jointly hosted by Louisiana State University and the Houston Advanced Research Center.

Topics from the previous forums include:

- Appalachian Unconventional Plays and Research Needs
- Autonomous Intervention for Deepwater O&G Operations
- Flow Assurance
- Gas Shales
- Problem Identification (especially in mature fields)
- Produced Water
- Seafloor Technologies
- Seismic E&P
- Small Producers
- Tight Gas, Gas Shales Gas & Coalbed Methane
- Vortex Induced Vibrations

Approximately 800 participants have attended the eleven forums. Generally the participants have listened to a number of thought provoking presentations and then have assembled into small breakout groups to discuss various research needs and technology issues. An example of the process is shown below regarding research and technology development needs identified at the forums that have particular relevance to the Unconventional gas program. A similar process of identifying needs and issues for the Ultra-deepwater and Small Producer programs also occurred at those respective forums. Please contact Steve Beach at sbeach@rpsea.org if you would like to receive a copy of the research needs and technology issues. Information can also be found on the RPSEA website. (back to top)

RPSEA Forum Series
Unconventional Onshore Natural Gas
Research Needs and Technology Issues

Reservoir Characterization
Permeability/producibility in tight formations (controls, distribution and prediction), gas storage in shales (mechanisms and controls), fracture characterization in shales and tight sands, coalbed methane permeability and seismic imaging of complex structures.

Drilling and Completion
Best practices/optimized production methods (environmental, drilling, completion, stimulation), stimulation (design and modeling), formation damage prevention and mitigation and low impact/high performance drilling.

Improved Oil Recovery
Cost effective additional recovery factor, affordable technology for heavy oil and leverage with CO_2 sequestration.

Environmental
Surface disturbance including well sites and roads, air quality related to oil and gas operations, groundwater quality, CO_2 sequestration, impact of oil and gas operations on wildlife and cuttings disposal and waste management.

Water Management
Coalbed methane surface discharge (soil chemistry issues, treatment limits), coalbed methane treatment and beneficial use, improved re-injection methods, cost effective application of reverse osmosis or alternative desalinization methods, inhibiting water production from fractures without impeding oil or gas production, identify new sources of water for oil and gas operations and cost effective reliable downhole separation methods.

Resource Evaluation
Classify what reservoirs work and why, improved methods to learn from drilling results and identify sweet spots, natural fracture importance and detection, field experiments, pressure measurement in low-perm rocks and how to model shales the way we model sands (materials + fluids + chemistry).

Tight Gas Issues
Identify potential future resource plays, reservoir heterogeneity (understand reservoir vs. matrix permeability, controls on “sweet spots”), petrophysics (improved pay identification), rock properties, drainage areas (radial or elliptical) and effect of hydraulic fractures vs. refracs (understanding and modeling).

Coalbed Methane Issues
Advanced drilling and completions technologies, produced water management, CO_2 storage and enhanced recovery, production from thin, unmineable coal seams, production of coal mine methane, pumping large volumes of water/fines and improved completions, stability issues.

Gas Shales Issues
Understanding reservoir pressure, reservoir modeling(geomechanical, fracture interference, post-frac water production), analytic models for desorption, gas/condensate behavior, geomechanical/geochemical models of hydraulic fracturing, including multilaterals, definitions and models of fluid flow, leakoff mechanisms, standardized definitions of physical properties (porosity, permeability, etc.), stress dependence of physical properties, geologic/geochemical controls on shale properties, evaluation kerogen type, thermal maturity, gas composition,

occurrence and diffusion of free gas and mechanism for capturing and disseminating data and information. (back to top)

Website Update

In addition to the ongoing forum series, RPSEA personnel have also been busy redesigning the website. For those of you who are familiar with our current site please note that RPSEA will soon go "live" with a more informative and interactive website. Stay tuned and visit often to view the changes. Once our new site is up and running you will need to update your contact information on the site for access to the member's only section. (back to top)

RPSEA Internship

RPSEA is pleased to announce that Ms. Lindsey Anslinger has accepted a summer internship with RPSEA. Lindsey is currently attending the University of Houston and majoring in communications/advertising. She will be joining our team on Tuesday, May 29, 2007 and will be assisting with graphics, presentation and communication support. (back to top)