Unconventional Resources Technology Advisory Committee (URTAC)

February 28-29, 2012

Eighteenth Meeting

Meeting Minutes

A Federal Advisory Committee to the U.S. Secretary of Energy

Unconventional Resources Technology Advisory Committee

I hereby certify that this transcript constitutes an accurate record of the Unconventional Resources Technology Advisory Committee meeting held on February 28-29, 2012.

James Dwyer, Chair
Unconventional Resources Technology
Advisory Committee

29 Feb 12
Date

Unconventional Resources Technology Advisory Committee (URTAC) Meeting
February 28-29, 2012, Houston, Texas

February 28, 2012

The meeting was called to order at 8:00 am; Chair James Dwyer reviewed the approved agenda (Attachment 1). The presence of quorum of members was verified by the Committee Manager, Elena Melchert (Attachment 2).

Opening remarks were presented by Deputy Assistant Secretary for Oil and Natural Gas, Christopher A. Smith, the Designated Federal Officer (DFO) for the URTAC.

Report by the Research & Development Subcommittee, Mr. Ken Oglesby, Co-Chair (Attachment 3)

Mr. Oglesby's overview to the Committee explained that the Research & Development Subcommittee supports Secretary Chu's goal of addressing public concerns and reducing the controversy surrounding shale gas development with focused scientific research in order to provide a clean and affordable domestic energy supply.

The Research & Development Subcommittee's findings and recommendations were then presented to the full Committee which was followed by discussion.

Report by the Environmental Subcommittee, Dr. Robert Kleinberg, Chair (Attachment 4)

Dr. Kleinberg provided a brief overview of the Environmental Subcommittee's findings. He explained that safety and environmental protection are synergistic with improving operational efficiency and reducing the cost of oil and gas production. He also explained that innovations that improve safety and minimize environmental impact are more rapidly adopted if they also improve efficiency and reduce costs. The Subcommittee also felt that RPSEA is unknown outside of the oil and gas industry and their compressed solicitation schedule makes it difficult to form interdisciplinary teams.

After the summary, the Environmental Subcommittee's findings and recommendations were presented to the full Committee which was followed by discussion.

Report by the Value & Public Outreach Subcommittee, Mr. Gary Nilson, Co-Chair (Attachment 5)

Mr. Nilson expressed the Subcommittee's concern that Section 999 R&D funding is being spent on addressing the general public concerns about oil and gas activities. The Subcommittee feels this was not the intent of the program and would merely divert program funds and resources from its primary focus.

The Subcommittee also continued to advocate for technology transfer and described how the metrics used to evaluate the effectiveness of the Section 999 program continue to be a concern.

The Value & Public Outreach Subcommittee's findings and recommendations were then presented to the full Committee which was followed by discussion.

Report by the Policy & Regulation Subcommittee, Mr. Greg Mason, Co-Chair (Attachment 6)
Mr. Mason described how the Policy & Regulation Subcommittee feels more research needs to be directed to other "unconventional" resources as shale is becoming a more mature resource. They also feel that the Section 999 program has a need to be extended in some form with dedicated funding not subject to the budget process. Finally, they feel that the role of both RPSEA and DOE in informing not only the government, but the general public of credible research projects.

After the overview, the Policy & Regulation Subcommittee's findings and recommendations were presented to the full Committee which was followed by discussion.

Discussion and Development of Findings and Recommendations
The URTAC began discussing each finding and recommendation presented in all the Subcommittee reports. After long deliberations, the Committee tabled the discussion until the following morning.

The meeting was adjourned at 5:00 pm.

February 29, 2012
The meeting was called to order at 8:00 am, and discussions with the subcommittees continued. Discussion continued until the URTAC reached consensus on a final set of findings and recommendations.

Discussion of the Executive Summary and the Cover Letter
The URTAC then turned to discussion about key points that should be included in the cover letter transmitting the URTAC report on findings and recommendations to the Secretary of Energy.

Instructions to the Editing Subcommittee
The Chair reminded the Committee that the role of the Editing Subcommittee was simply to smooth the report, and make changes to improve the readability of the report. The Editing Subcommittee has no authority to change the agreed to findings and recommendations.

Committee Calendar and Next Steps – Elena Melchert
Ms. Melchert reminded the URTAC of the process and procedure leading to its next meeting on March 8, 2012 (Attachment 7). The focus of the next meeting will be on the Committee's acceptance of the final report after preparation by the Editing Subcommittee.

After brief discussion, the meeting was adjourned.

Attachments

	Presenter	Topic
1	For the Record	Meeting Agenda
2	For the Record	Committee Members and Meeting Participant Attendance
3	Mr. Ken Oglesby	Report by the Research & Development Subcommittee
4	Dr. Robert Kleinberg	Report by the Environmental Subcommittee
5	Mr. Gary Nilson	Report by the Value & Public Outreach Subcommittee
6	Mr. Greg Mason	Report by the Policy & Regulation Subcommittee
7	Ms. Elena Melchert	URTAC 19th Meeting Notice

Attachment 1

Unconventional Resources Technology Advisory Committee
18th Meeting, February 28-29, 2012
Houston Airport Marriott at George Bush Intercontinental
18700 John F. Kennedy Boulevard, Houston, TX

AGENDA

February 28

7:30 a.m. CDT	*Continental Breakfast/Check-In*	*Members & Public*
8:00	**Call to Order** / Welcome / Meeting objectives Overview of the approved agenda	James Dwyer, Chair
8:10	**Opening Remarks** Confirmation of Quorum	Christopher A. Smith Designated Federal Officer (DFO)
	Committee Discussion	Chair
8:25	**Subcommittee Reports*** Research & Development Program Environmental Value and Public Outreach Policy and Regulation	Chair

** Subcommittee Lead presentations = approx. 10 minutes plus 10 minutes for clarifying questions.*

10:00	**BREAK**	
10:15	**Discussion and Development of Recommendations**	Chair and Facilitator
12:00 pm	**LUNCH**	
1:00	Continue Discussion and Development of Recommendations	
2:30	**BREAK**	
2:45	Continue Discussion and Development of Recommendations	
4:45	**Public Comments**	DFO
5:00	Adjourn for the day	DFO

February 29

7:30 a.m. CDT	*Continental Breakfast/Check-In*	*Members & Public*
8:00	**Call to Order** / Session objectives	Chair
	Complete Discussion and Development of Recommendations	
9:45	**Executive Summary and Cover Letter**	
10:30	**BREAK**	
10:45	**Instructions to the Editing Subcommittee**	
11:45	**Committee Calendar and Next Steps** March 8, 2012 19th Meeting via Conference Call	DFO
12:00	**Adjourn**	Chair

APPROVED: _____
Christopher A. Smith, Designated Federal Officer

22 FEB 2012
Date

Attachment 2

Unconventional Resources Technology Advisory Committee Meeting
Sign-In Sheet - February 28-29, 2012

Last Name	First Name	Organization	Initial
Arthur	Dan J.	ALL Consulting, LLC	UNABLE TO ATTEND
Bromfield	Kenneth	Dow Hydrocarbons and Resources, LLC	
Brown*	Nancy J.	Lawrence Berkeley National Laboratory	
Camp	Wayne K.	Anadarko Petroleum Corporation	
Cavens	Jessica J.	EnCana Oil & Gas (USA)	
Daugherty	Bill	Blackridge Resources	
Dwyer	James P.	Baker Hughes	
Hall	J. Chris	Drilling & Production Co.	
Hardage*	Bob	University of Texas at Austin	UNABLE TO ATTEND
Harju*	John A.	University of North Dakota	
Kleinberg	Robert L.	Schlumberger-Doll Research	
Lewis	Fletcher S.	Rainmaker Oil & Gas	
Mall	Amy	Natural Resources Defense Council	
Martin*	John P.	JPMartin Energy Strategy LLC	
Mason	Gregory	The Energy Cooperative	
Mohaghegh*	Shahab D.	West Virginia University	
Nilson	Gary J.	Pioneer Natural Resources USA, Inc.	
Oglesby	Kenneth D.	Acorn Resources, Inc.	
Rodgers	Brady D.	Focus Resources E&P	UNABLE TO ATTEND
Sparks	Don L.	Discovery Operating, Inc.	
Whitney	Sam W.	Shell E&P Company	

* Special Government Employee

Unconventional Resources Technology Advisory Committee Meeting
February 28-29, 2012

U.S. Department of Energy – Office of Oil and Natural Gas

Christopher Smith Deputy Assistant Secretary	Designated Federal Officer
Elena Melchert	Committee Manager

National Energy Technology Laboratory

Roy Long	Strategic Center for Natural Gas & Oil (SCNGO)
Chandra Nautiyal	Strategic Center for Natural Gas & Oil (SCNGO)
Eric Smistad	Strategic Center for Natural Gas & Oil (SCNGO)
Gary Covatch	Strategic Center for Natural Gas & Oil (SCNGO)
Jay Jikich	Strategic Center for Natural Gas & Oil (SCNGO)
Skip Pratt	Strategic Center for Natural Gas & Oil (SCNGO)

Contractors

Bob Siegfried, RPSEA	President
Kent Perry, RPSEA	Vice President, Onshore
James Pappas, RPSEA	Vice President, Ultra-Deepwater
Rob Matey, IBM	Meeting General Support
Karl Lang, LTI	Minutes/Meeting Facilitation
Bill Pike, LTI	General Support
Jennifer Presley, LTI	Registration Support

Unconventional Resources Technology Advisory Committee Meeting
Public Sign-In Sheet - February 28-29, 2012

Name	Organization	Phone	E-mail
Nate Gronewold	E&E Publishing	713-816-8020	ngronewold@eenews.net

Attachment 3

Unconventional Resource Technology Advisory Committee

Research Program

SubCommittee Report

28 February 2012

Summary

- The URTAC Research Program Subcommittee supports Secretary Chu's goal of addressing public concerns and reducing the controversy surrounding shale gas development
  - With focused scientific research in order to provide a clean and affordable domestic energy supply.
- The 2012 Annual Plan continues research focus initiated by the 2011 Annual Plan to address perceived environmental and safety concerns.
- Declined to comment on each 2012 DOE individual topics. Advise to-
- 1) ensure a balanced research program,
- 2) expanding research to petroleum resources and unconventional reservoirs other than shale gas, and
- 3) to continue funding long-term petroleum energy research through RPSEA.

Finding #1

- Annual plans prior to 2011 have contained a balance of research topics, including environmental, health and safety (EH&S) in accordance with the Section 999 goals. Past and current environmental focused research themes include:
  - Technology Integration Program and Environmentally Friendly Drilling Program
  - Pre-Treatment and Water Management of Frac Water Re-Use
  - An Integrated Framework for the Treatment and Management of Produced Water
  - Marcellus Shale Field Demonstration Project
- The continuation of only environmental and safety research proposals will fail to meet key objectives expressed by Congress in the 2005 Energy Policy Act, Section 999, to *maximize the value of domestic natural gas and other petroleum resources by increasing the supply, reducing cost, and increasing efficiency of unconventional resource exploration and production.*

Recommendation #1

- Revise the 2012 Annual Plan to include research proposals designed to re-establish a more balanced research program that takes into account public health, safety and the environment while-
  - increasing supplies of domestic natural gas and other petroleum resources
  - reducing exploration and production costs
  - increasing exploration and production efficiency
- The 2010 URTAC recommendations are hereby confirmed again and should be carried forward:
  - better communicate to the public past RPSEA project EH&S accomplishments
  - all research proposals should continue to include statements of EH&S benefits
  - EH&S objectives continue to be a formal part of the selection committee criteria
- Revise the proposed 2012 DOE plan to meet the Section 999 requirements.

Findings #2

- The energy industry has been successful in increasing domestic natural gas supplies.
- Success touted in President Obama's January 2012 State of the Union address.
- Unconventional reservoirs include, but are not limited to gas shales
- The 2012 and past Annual Plans have focused on natural gas shales although the Section 999A goals include increasing the domestic supply of "other petroleum resources", including oil, condensate and natural gas liquids.
- Other resources have the potential to also produce oil and other liquid hydrocarbons which could contribute in reducing the country's dependence on foreign oil imports
- Reservoir characterization and modeling improvements are needed to fully understand such reservoirs.

- The current EH&S research directives of the proposed DOE program while founded on areas of recent public concern has the risk to not achieve the desired impact.
- Short-term research in response to public concerns with shale gas development and with the intent to develop a scientific basis for proposed federal regulation has the risk to not improve overall capability, nor securing a robust energy future for our country.

Findings #2 continued

Specific examples of needed technologies research topics are:

- Well isolation and integrity (e.g. cementing, swellable packers, and evaluation of the effectiveness of the isolation)
- Stimulation technologies that significantly reduce or eliminate water use, and that increases re-use of produced and stimulation flowback waters
- Surface systems (facilities, roads, etc) studies that improve efficiency, reduce air emissions, minimize surface impacts, encourage more use of stranded gas, including alternate (non-flare)techniques to reduce pipeline cost risk and air quality impacts (liquefaction, compression, etc.).
- Reservoir characterization and modeling improvements are needed to fully understand unconventional reservoirs, including fracture systems and the interaction with subsurface activities. Understanding fluid flow and uncertainties, will enable reduce surface activities, providing optimization and recovery insight and enhancement methods to identify areas of key risk and static and dynamic (over time) sweet spots to minimize drilling un-necessary wells.
- Technologies for Mature fields, including low pressure (and near depleted) gas and oil fields that improve recovery and field life in environmentally robust manner, for all reservoir types, including technologies that address issues of;
- Low BTU gas, problem or off-spec, and high NGL content natural gas, low thermal maturity organic-rich shale, resources in formation types where we have little knowledge.

Recommendations #2

- The 2012 Annual Plan should be modified to include research directed towards these other main resource areas:
- 1) both gas and liquid petroleum resources
- 2) unconventional reservoirs other than shale, such as low-permeability ("tight") sandstone and carbonates.

- Further, the cross-cutting technologies needed to develop those resources include (repeat of specific topics in Findings#2)

Findings and Recommendations #3

Finding #3

- President Obama's 2012 State of the Union Address-
- the increase in domestic gas supply from shale reservoirs was largely the result of long-term (30-years) proactive, anticipatory and innovative public research.
- Subcommittee-Gov't Research Funding into other large resources is now needed.

Recommendations #3

- Continue the RPSEA program beyond the current 2014 termination date.

URTAC Research Program

- Comments?

Recommendations #1-vote details

1. The proposed 2012 RPSEA plan is too focused on EHS and needs to refocus more on technical topics (6 votes)
2. The proposed 2012 DOE plan reflects short term or political needs and the not long term needs of society. Such short term needs will diminish by the time these research topics are implemented. (5 votes)
3. The proposed 2012 DOE plan does not meet the Section 999 requirements. (4 votes)
4. The proposed 2012 RPSEA plan balances Technical and EHS research topics. (3 votes)
5. The proposed 2012 DOE plan with a large focus on EHS is accepted. (1 vote)
6. The proposed 2012 DOE plan with exclusive focus on EHS topics is accepted. (1 vote)

Attachment 4

Department of Energy
Unconventional Resources Technology Advisory Committee
Environment Subcommittee

Bob Hardage, Robert Kleinberg (Chair), Amy Mall,
John Martin, Greg Mason, Shahab Mohaghegh

28 February 2012

Finding #1

1. Safety and environmental protection are synergetic with improving operational efficiency and reducing the cost of oil and gas production.

Examples:

- Reducing fresh water demand reduces environmental impact and cost of obtaining and transporting water.
- Reduction or replacement of hazardous chemicals improves safety and reduces potential future costs of litigation or liability.
- Reduction of fugitive methane emissions reduces carbon footprint while minimizing loss of valuable product.

2. Innovations that improve safety and minimize environmental impact are more rapidly adopted if they also improve efficiency and reduce costs.

Recommendation #1

1. RPSEA RFPs should associate safety and environmental objectives with efficiency improvements and cost reduction.

2. In selecting proposals to be funded, RPSEA should consider the potential for efficiency improvement and cost reduction among its criteria.

Finding #2

1. RPSEA's compressed solicitation schedule makes it difficult to form interdisciplinary teams.

2. RPSEA is unknown outside of the oil and gas industry, but is the manager of a significant portfolio of projects relevant to safety and environmental protection. It can provide reliable, nonpartisan, technical information to all stakeholders.

3. Small producers need extra assistance in adopting DOE-funded innovations.

Recommendation #2

1. Give research groups more time to develop proposals.

2. Allocate resources for dissemination of research results to state and local governments and to citizens groups.

3. Assist small producers in adopting innovations that improve safety, environmental protection, and operating efficiency.

Attachment 5

2012 Value and Public Outreach Subcommittee

Preliminary Final Report

February 27, 2012

COMMENTS ON OUTREACH:

FINDING:

There is an apparent undercurrent or expectation that Section 999 R&D funding should be spent on addressing the general public concerns about oil and gas activities. This was not the intent of the program and would merely divert program funds and resources from its primary focus.

Section 999A legislation dictates that "The Secretary shall carry out a program under this subtitle of research, development, demonstration, and commercial application of technologies for ultra-deepwater and unconventional natural gas and other petroleum resource exploration and production, including addressing the technology challenges for small producers, safe operations, and environmental mitigation (including reduction of greenhouse gas emissions and sequestration of carbon)[i]." It further goes on to state in the General introduction to Section 999B that "The Secretary shall carry out the activities under section 999A, to maximize the value of natural gas and other petroleum resources of the United States, by increasing the supply of such resources, through reducing the cost and increasing the efficiency of exploration for and production of such resources, while improving safety and minimizing environmental impacts."[ii] Clearly, in the original directives, aspects of Safety and Environmental Impacts were listed last and hence, it is believed that these aspects, while important, were of secondary concern to increasing supply through cost reduction and increasing efficiency of exploration and production.

RECOMMENDATION:

The Section 999 program should continue to focus on the four primary technical areas contained in the enacting legislation, while including elements of environment and safety.

- To the extent that operational issues that are of legitimate concern to the general public and further Research & Development (R&D) could provide better tools or operating practices to address these concerns

COMMENTS ON DEVELOPMENT OF THE SECTION 999 PROGRAM:

FINDING:

The structure of the current Section 999 program was developed through a deliberative process wherein all parties had their input. It was patterned after a model long advocated by OMB and others as a means of ensuring effective R&D and Technology Transfer (TT) that was both meaningful and effective:

- Providing the funding directly to consortium groups representing the producing community.
- The producing community would decide how the research, development and technology transfer dollars would be best spent.
- Government would have input oversight and final approval of the program.

The current legislation is designed to prevent any administration from diverting the program and to focus on its own near-term objectives. It has four primary focus areas, with the need for including environment and safety considerations as an element of the program.

The program was not supposed to be government's tool for developing increased regulatory controls on the industry.

RECOMMENDATION:
The original intent of the Section 999 program should be followed as enacted in the original Sec. 999 legislation.

Rather than designing a new program to fit the aims of any one stakeholder, specific group or administration, the program should be extended as provided for in the legislation. At such time, changes to the focus and topical areas should be considered through the normal legislative deliberative process.

CONTINUE TO ADVOCATE FOR TECHNOLOGY TRANSFER:

Technical forums should provide information of interest to the widest audience of producers possible for maximum dissemination (national coverage).
The TT component of the program should be to satisfy the "metric of measurement of success" of extending the program to all petroleum producing regions of the United States.

METRICS AND BENEFITS:

(Excepts taken from past Annual Report Recommendations)

FINDING:
The metrics used to evaluate the effectiveness of the Section 999 program continue to be a concern. Often, metrics are used that are narrowly focused on incremental production as the sole measure of the return on investment of the program. There are other benefits that should be taken into consideration.

RECOMMENDATION:
Better metrics should be identified to measure the success of the program:

- A committee of industry and other stakeholders should be established for this purpose.
- Metrics should be developed which go beyond those required by statute (e.g.: impact on Federal royalty revenues), to include others that may be of concern to various stakeholders, including
    - Increased resources and reserves (both technically recoverable resources and increased economic reserves due to application of new technologies and reduced operating costs.
    - USA jobs retention and/or growth
    - Environmental: reduced footprint and reduced emissions.
    - Increased revenues to operators and royalty owners and, consequently, increased revenues to the local, state and Federal government.

- Oil and gas production contribution to Gross Domestic Product.
- Off-setting of imports of oil and gas and consequently improved balance of payments.
- Construct a "backward-looking" model to assess how past technology successes using data from previous projects funded by DOE have resulted in increased reserves and/or production. This data can be used to help evaluate the expected benefits of the current program.

FINDING: RPSEA bullet objective #6 reads: "Demonstrate and integrate promising technologies to facilitate early utilization and commercialization." As was discussed in the URTAC meeting held on January 18th, this is deemed a value-maximization objective and is in keeping with the overall objective of the program.

Comments: Considering that the Section 999 funding is entering its final years, renewed focus towards demonstration projects should receive greater emphasis as illustrated from the following figure from the RPSEA 2012-1014 Draft Annual Plan:

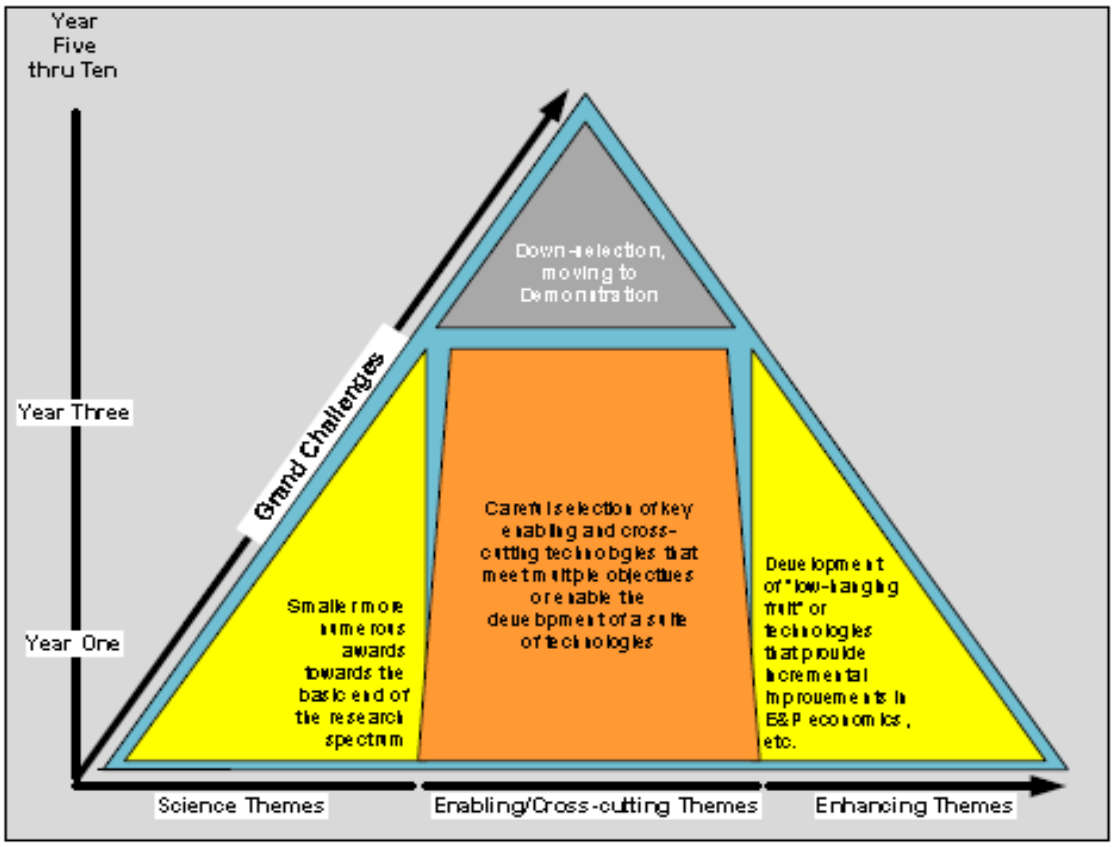

Figure 1.4: SAC Research Portfolio Guidance

Figure 1.4 makes clear that beyond year three, that continuing research should be moving to more "Down-selection and Demonstration projects". The latter implies determining which of

those projects hold most commercial promise to further the goals of the original project as stated in the preambles to Sections 999A and 999B, cited herein above. In keeping with the current state of the research, and given that so many of the projects cited in the latest red-line version of the DOE Annual Plan are 2010 projects which also focus on "more environmentally sensitive" themes, it would warrant that renewals and extensions of those projects cited that exhibit"
1) the potential to make the development of unconventional resources more efficient and
2) the most potential and innovation to mitigate environmental issues
be encouraged further towards commercialization of any processes which now show such potential.

As streamlining the Subcontracting Process, as was exhibited by Roy Long in his presentation[iii], it would also seem that streamlining the Contract Extension process for projects currently under way which are deemed most promising would also be in order. This would provide the original participants the opportunity to include other entities which could bring fabrication and marketing skills to bear on the commercialization process in order to further demonstrate the viability of new technologies generated under existing RPSEA sponsorship.

Recommendation 2f: Include as a topical bullet point to "Develop streamlined processes for extending existing RPSEA projects which have revealed potentially commercial technologies so as to encourage demonstration projects of such technologies."

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[i] **Subtitle J—Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Resources SEC. 999A. PROGRAM AUTHORITY.;**(a) IN GENERAL.

[ii] **SEC. 999B. ULTRA-DEEPWATER AND UNCONVENTIONAL ONSHORE NATURAL GAS AND OTHER PETROLEUM RESEARCH AND DEVELOPMENT PROGRAM**.;(a) IN GENERAL

[iii] NETL Sec.999 Implementation Overview, by Roy Long, Technology Manager, NETL, presentation for the 17th URTAC & UDAC meetings, Houston, Texas, January 18, 2012

Attachment 6

2012 URTAC MEETING

Houston Marriot

February 27

Policy Sub-committee

Three Conference calls: February 7, 16, 20

Topics of discussion:

- Direction of program research needs to include past research
- Reviewed Past Report Summary prepared by C. Hall
- Discussed directing a finding/recommendation towards OMB

- More research needs directed to other "unconventional" resources as shale is becoming a more mature resource.
- The 999 program has a need to be extended in some form with dedicated funding not subject to the budget process.
- The role of both RPSEA and DOE in informing not only the government, but the general public of credible research projects.
- Relative merits of DOE recommended research topics.

- **POLICY FINDINGS AND RECOMMENDATIONS**
-
- We acknowledge the Department of Energy's continued focus on environmental and safety issues as they provide funding to develop sustainable, secure domestic energy supplies. We further recognize that these environmental and safety issues are not new and are not unique to the development of unconventional (or shale) resources. There has been a paradigm shift to developing source rocks through the combination of tried and true technologies. This has brought about a shift of scale which in turn has magnified the visibility of the industry. The challenges of drilling, completion and production remain the same as they have for decades but the pace and the scale have changed. We therefore acknowledge the Department of Energy's need to focus on research to further understand the risks inherent in order to inform the federal government. This focus should also have the additional goals of informing the public discourse, increasing the resource base, and improving operational efficiencies.

- **Finding #1**
- The continued research in the direction of environmental and safety issues in the development of unconventional resources is necessary in light of the current state of the industry and its public relations concerns. We support the 2012 Annual Plan and generally agree with the planned solicitations.
-
- **Recommendations**
- We recommend the following solicitations as being of the highest import:
- "*Develop cost-effective water treatment technologies*" - Develop advanced technologies in order to reduce water consumption to include the sourcing, handling, treatment and disposal of both flowback and production water. Methods should look to reduce consumption by at least 15%
- "*Evaluate the effectiveness of current methods of protecting groundwater from contamination during shale drilling, casing and cementing and production operations*"
- "*Characterization of gas shales and associated shallow groundwater shallow groundwater aquifer systems*"
- "*Field characterization of baseline environmental impact and those impacts resulting from development and production of shale gas resources*"
- "*Quantification of fugitive methane emissions during shale gas development and development of technologies and best practices to reduce the emissions*"
- "*Evaluate the risks and impacts of induced seismic activity*"

- **Finding #2**
- The Department of Energy has a duty to present credible research to the federal government to inform both reasoned regulation and the public discourse. The fast pace of development has found both the regulators and the industry with a public relations issue. We find this to be a particularly pressing issue and are recommending this solicitation bullet point be set out as a separate issue:
- "*Improve transparent public disclosure of data of interest to the public, to include chemicals used in hydraulic fracturing*"
- This bullet point is hardly a research topic but should be addressed through various means in order to disseminate informed research to both the government and the public.
-
-
- While the Department of Energy is not specifically tasked with regulatory responsibilities, it does interact with other Departments and Agencies so as to ensure that rules and regulations are enacted which promote responsible oil and gas development; in this capacity it should strive to defend responsible industry practices and advocate for domestic oil and gas development as part of the nation's energy portfolio.
-
- The Department of Energy has a unique position in its ability to work between the industry and the regulators. This can best be achieved by their providing sound science which contributes to finding the optimum balance between the need to support a crucial domestic energy industry, while enhancing the safety of its operation, and protecting the environment.

- **Recommendations:**
- The Department of Energy needs to more proactively promote domestic oil and gas development as a significant energy source. This should include:
- DOE should be issuing statements in support and defense of the industry where it is warranted.
- DOE should be promoting the economic and energy supply benefits of oil and gas development.
- DOE should be advocating for development of all petroleum energy sources.
- DOE should be ensuring that unnecessary rules and regulations on both the state and federal level are not enacted which unnecessarily interfere with responsible oil and gas exploration, development and production.
- DOE should conduct regional panel discussions in the presentation of research data.

- **Finding #3**
- George Mitchell, pioneer of gas shale development in the Barnett, stated that his decision to invest in the Barnett shale came from work sponsored by the Department of Energy in the 1970s, and that shale development would have not have occurred without that government funding of basic research. The time from the early research to the emergence of gas shale as a resource of national significance was about three decades. No one company can be expected to undertake precompetitive research and development over this time scale. Drawing on this example and others, we find that major new resource developments require steady, long-term cooperation between government and industry.
-
- Section 999 of the Energy Policy Act of 2005 has been a mechanism for providing long-term cooperative research with the steady funding required to make real progress toward the development of a safe and efficient gas shale industry. We find this program has been remarkably successful in meeting its objectives. We believe this approach to be much more efficient than start-and-stop funding which depends on annual appropriations.
-
- The Section 999 program has functioned as envisioned:
- The funding provided a stable funding source with which the Department of Energy could invest in helping to seed and transfer technology.
- Mid and long term programs and projects can be planned and executed without threats of annual shutdowns or cutbacks while funding sources were uncertain.
- The funding is not subject to the vagaries of annual appropriations debates and the changes in direction imposed by political agendas.
- Scheduled termination of the present 999 program coincides with the emergence of a strong gas shale industry no longer in need of government assistance.

- **Recommendations:**
- The Committee recommends the following for Section 999 Program duration:
- Congressional clarification that the "sunset" provision will last through at least 2017 (rather than being cut off in 2014); and
- Ultimate amendment of Section 999 to extend the program funding and "sunset" provisions to 2030, based on continued Program success.
- DOE should identify new areas for energy development research. NETL already has a strong gas hydrate program. Other program areas of interest include Green River oil shale and domestic heavy oil resources.
- The Department of Energy should request additional funding that is authorized under Section 999.

Attachment 7

19th Meeting
Unconventional Resources Technology Advisory Committee
March 8, 2012
Conference Call

Time: 11:00 a.m. EST
Date: Thursday, March 8, 2012

Purpose: During this meeting, the Committee will vote to accept the final report of comments and recommendations discussed at the meeting of February 28-29, 2012, and assembled by the Editing Subcommittee.

Instructions: **Please call-in before 11:00 am EASTERN.** The conference call-in line will be open as of 10:45 am. If you experience any problems connecting to the conference call, please contact The Office of Oil and Natural Gas at 202-586-5600.

Toll Free Number	**1-800-857-5148**
Passcode	**40724**

PUBLIC ACCESS: 1000 Independence Avenue, SW, Washington, DC 20585

AGENDA

10:30 a.m. EASTERN	Registration; Begin Member call in
11:00 a.m.	Roll Call; Opening Remarks by the Committee Chair; Remarks by Designated Federal Officer; Report by the Editing Subcommittee; Member discussion regarding final report; Vote of Approval of Committee final report. Member discussion regarding next steps
12:30 p.m.	Adjourn

APPROVED: _____ _____
Christopher Smith, Designated Federal Officer Date