



PTAC

Coalbed Methane & Unconventional Gas INFORMATION SESSION

Unconventional Gas Technology Roadmap Information Session

Date: Wednesday, May 25, 2005 1:30 p.m. – 3:30 p.m.

Location: Nexen Conference Centre
801 7 Avenue SW, Calgary, AB

NOTES

Eric Lloyd introduces PTAC. Len Flint introduces himself. Eric outlines roadmap process, timelines and concurrent roadmaps: Kirk Osadetz expands on "Future Fuels Technology Foresight".

Eric opens the floor for questions or comments.

Q₁. What might you expect for in-kind support?

A₁. PTAC was hoping technical writers would participate in-kind. Technical sections are key, requires experts to write.

Q₂. What do you see the main points of your roadmap?

A₂. There are parallels between oil sands and natural gas. The main points will address 1- Gain a wide recognition across all stakeholder groups that conventional gas is peaking and will be on a decline without unconventional means. 2- Make government aware that suitable fiscal measures to assist technology development is necessary.

Comment: Does not think these facts are unknown.

Comment: This gets to the meat of what makes a roadmap successful. Make a list of the barriers in the value change and determine how these barriers might be overcome. Categorize barriers as technology or cost.

Q₃. Will you be addressing LNG and how it affects our economy?

A₃. Did not plan on it from a technology perspective. Will be looking at the key challenges. Len thinks that LNG set the scene for alternatives to developing those expensive resources. Sees it as part of the backdrop to alternatives and finding out how they fit.

Suggestion: Methyl hydrates are 5-10 years out. LNG is coming into Canada. Doesn't see how MH would come before LNG. Sets a cap price at which the new technology prices have to compete. Have to look specifically at how costs can be reduced. May need to broaden the spectrum to identify the push / technologies to make a major leap forward. Not sure how to get incremental supply if we focus on those technological shifts.

Q₄. How much is it political or stakeholder issues?

A₄. These issues will be a part of it but not all of it.

Q₅. Government is aware of unconventional gas issues, how will this process proceed? In conjunction with Mac?

A₅. We didn't see that we were duplicating anything that Mac was doing, will strike communication to ensure duplication does not occur.

Comment: Mac releasing preliminary findings document / draft results in June for feedback.

Comment: Would like to be sure that do not lose sight of multi-jurisdiction of unconventional gas because the process will be going on in AB.

Comment: Important to recognize there are stress points driven by stakeholder and regulatory divisions. Roadmap should incorporate as will be influenced by



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stakeholder stresses/applications (ie. multi-pad drilling). How to limit surface exposure? Technologies will be driven/affected by external forces.

Comment: Politics, economics, environments. Mandate should end at a clear point. PTAC agrees as needs to stay on the R&D side. Identify tech barriers, some may require actions, do not have to recommend actions.

Comment: BC is interested as in early stages of coalbed gas and identified challenges: infrastructure. Interested for reasons of identifying barriers. Geoscience aspects (coal perm, better handle on shale and tight gas) help moving from resources to reserves. Environmental technologies overlap into stakeholder concerns. Information sharing in terms of geoscience, location, different processes, capturing data.

Comment: AB is interested in compressor use, noise abatement.

Comment: In proposal, PTAC was broad in issues to narrow down to issues in which technology development can resolve.

Comment: States that this is similar to process in coal capture roadmap, a set of technological parameters were defined according to economics and relates to technology

Q₆. The amount of gas used to generate steam for tar sands is a major issue. Do you think you should look at alternative energy in this case?

A₆. Point is real and major issue to get to 5 million barrels daily and did nothing but would use nearly half of natural gas reserves to do that. Nuclear energy is a possibility. Internal uses of oil sands.

Comment: Do not want to get hung up on environmental aspects. Need to keep separate. May lose regulatory concerns this way.

Eric stated PTAC intentions to put this project under the EnergyINet initiative.

Q₇. Is this a public document at the end of the day?

A₇. Yes

Q₈. How much effort are you going to spend on location and depth of resources?

A₈. The value of the technology roadmap comes down to completing a thorough investigation that zeros in on complete inventory of technology solutions. We would rely heavily on existing database sources. Can we even project how much unconventional gas will we be able to produce? to access?

Comment: One of the challenges is going to be ability to predict the rate at which the resource can be accessed.

Comment: Couldn't agree more, how big and how fast can you produce it and will it make a dent in future conventional production declines.

Comment: If we were in 1985 writing an unconventional roadmap, how would we look at CBM? There was not much production. In the mix you've picked ones that we have experience in how it takes place and can serve as useful models to project the future of other resources that are in the same respect to starting gate.

Roadmap AAPG papers available on website.

Q₉. Do you anticipate creating a baseline for how technology exists today and matching those to existing?

A₉. Yes, it would show us where we are today in technology and where there are limitations, further development of existing technologies and totally diff approaches.