SPEE
SOCIETY OF PETROLEUM EVALUATION ENGINEERS

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My PRMS Perspectives

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Presentation Outline

- Changes in 2018 PRMS
  - Short list
  - Summary
  - Timing for Public Release and for follow-up documents
- Observations and thoughts to improve the “PRMS/SPEE Mission”
  - Changing landscape
  - Have we determined that “One size doesn’t fit all”?
  - What to do?
- Q&A

2018 PRMS “Short List” of discussed topics - 1

- Clarify “Commercial” vs. “Economic”

➢ Edits clarify “commerciality” criteria is **all** items listed, not just an economic test

- Explain “Economic” v. “Economically Producible” v. “Economic Limit”

➢ Projects are “Economic”; Production is “Economically Producible”; reserves from both Projects and Production end at the “Economic Limit”

- Define when ADR (Abandonment, Decommissioning & Restoration) costs should be included in an economic criteria

➢ Calculation of each term is explained including when ADR costs should be included

- Allow reserve volumes to be “Proved Uneconomic”

➢ In projects where 2P Reserves are Economic, this would allow 1P Reserves to be recognized even if the 1P case was not Economic. Discussed but **NOT** accepted.

2018 PRMS “Short List” of discussed topics - 2

- Include CiO (“Lease Fuel”) as reserves
  - ➢ Remains Reserves = Sales volumes as base case, allows including CiO as exception
- Allow a “Learning Curve” for forecasts of costs, time
  - ➢ Recognizes conditions for proper application of “Learning Curve”
- Eliminate “Stand-alone” Possible Reserves
  - ➢ “Stand-alone” P3 allowed if associated with 2P Project/volumes, even other operated, but not if completely separate from other 2P reserves
- Clarify the “Justified for Development” maturity sub-class
  - ➢ Need “reasonable expectation” of FID, permits, facilities, etc., not fully approved
- Recognizes “Statistical” method using analog well EUR distributions
  - ➢ A marriage of deterministic EUR per well with probabilistic reserve approach

2018 PRMS “Short List” of discussed topics - 3

- Limit “resource play” discovery based on distance from well control
  - ➢ Must consider geoscience confidence at distance from known productive areas
- Added definitions for QRE and QRA
  - ➢ Tied to references in SPE Standards for Reserve Audit document
  - ➢ Same as COGEH (QRE = 3/5 yrs; QRA = 5/10 yrs)
- Guidance on reconciling production from non-commercial projects
  - ➢ Not reported reserves but positive revision then subtracted as production

2018 PRMS Summary Outcome

- Intended mission for update of 2007 PRMS was “evolutionary”, not “revolutionary” changes
  - ✓ **Mission Accomplished !!**
- No “revoluntionary” changes in definitions, guidance - only a few “tweaks”
- Edits mainly added clarity and improved consistency to what was meant but, perhaps, not perfectly explained

2018 PRMS Next Steps

- Full public release by SPE planned for _____
- Additional PRMS instructional examples to be done
- Update of PRMS “Application Guidelines” document” will come next

SPEE Mission (excerpt) and RDC actions

- "…the Society is dedicated to the promotion of professional growth of the membership and to the advancement of the profession… by promoting continuing education of our membership and by education of the public in the area of oil and gas reserve definitions…"

- Preserve current proper and valid practices ("if it ain't broke,…")
  - To meet the needs of experienced evaluators
- Provide clear, easily understood guidance for "new" evaluators
  - Either new to reserves evaluation or new to a different setting/situation

SPE explains worldwide systems are different

"North American practice has been based largely on risk as the determinant for classifying reserves…In contrast, in many other parts of the world uncertainty-based systems have been used…The reasons for this parallel development can be traced back to the way the industry itself developed, reflecting differences in onshore and offshore environments, the size of properties/leases and discoveries, the reporting regulations and many other factors."

- From SPE Guidelines for the Evaluation of Petroleum Reserves and Resources

End-member examples of O&G Business

Separate, Independent Entities

- Private resource owner
- Gov't Regulators - operations
- Operating company
- Funding from stock or banks (RBL) - empowers security regulators and may require 3rd party auditors

Consider also…

- Smaller leases, often much less than full reservoir
- Commerciality goes beyond operator intent as separate, independent entities must approve; execution expected shortly after all approvals
- Proved must be economic to support loans, stock

One entity, integrated actions

- Owner = National Gov't
- Regulator = National Gov't
- Operating Co = Nat'l Oil Co. (with partners)
- Funding = National Gov't (may use partners for carry)

Consider also…

- Larger concessions, often full reservoir or very large part
- Commerciality is a single decision by National Gov't; execution may come later if volumes not needed by nat'l supply plan
- Economics tested on 2P only; 1P need not be economic

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Drives Incremental Deterministic Method

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Drives Scenario Method

The challenge of complex regulations

Now consider understanding level (and need for specific guidance) of the many less-experienced reserve evaluators:

- Unfamiliar with methods used or situations found that are not locally common
- Lack expertise to apply “principles”; need specific rules to guide them
- …OR fully understand but exploit “flexible” wording (done so guidance will fit all) to estimate reserves in opportunistic but unintended ways

➡ “One size fits all” principle-based definitions do not fit these needs

IMPORTANT NOTE: *Although differences in needs do exist, all reserve evaluators deserve educational/guidance instructions to ensure they can do their job properly…or be held accountable if they don’t.*

Key points

Good news:

- Increased interest in understanding and compliance
- Thus, more and new worldwide engagement
- And more outspoken comments when rules seem unclear in new and different settings/situations

Bad news:

- New users need detailed rules, not ready for principles-based guidance (lack expertise needed to turn principles into intended practices)
- Everyone wants the “mother” document to have details specific to their situation (rather than later or local builds on high-level guidance)
- Long-time experts need to carefully watch for changes to satisfy need for clarity that may abandon prior accepted approaches

What to do?

- Educate ?
  - *REP?/Mono X? …on "Proper Use of Incremental Deterministic Method"*
- Replicate and Separate ?
  - *ala Accounting's "Successful Efforts v. Full-Cost"*
- But don't Non-participate !!!

Now…your questions

Thanks for your interest and attention…..