



Biography:

Bernard Seiller

Bernard Seiller joined Elf Aquitaine (subsequently part of Total) as a reservoir engineer in 1979. He then held positions of increasing responsibility in reservoir engineering in Gabon, Houston (also providing economics), London and finally in Pau (France).

From 1998 to early 2009, he leveraged his geoscience and reserves expertise in several technical managerial positions at Total E&P headquarters – in addition to the responsibility of Reserves Manager.

Bernard has been VP Reserves for Total SA until February 2017, after having been VP R&D for Total E&P between 2009 and summer 2011. He is Senior Fellow Reserves for Total since December 2015.

In 2001-2005, Bernard Seiller served on the Oil and Gas Reserves Committee of the SPE of which he was nominated Chairman in 2003. He served again as a member of the OGRC between 2006 and 2009. Bernard was a member of the SPE R&D Advisory Committee of the SPE between 2009 and 2011.

He serves again at the SPE OGRC since October 2013 and is the current Chair.

Keeping PRMS Evergreen

Abstract: A status of the PRMS Update (*PRMS is developed by SPE with a number of co-sponsors including SPEE*) will be presented. The presentation will include the reviewing process and the timetable for final approval of this Update

Keeping PRMS Evergreen

Bernard Seiller

TOTAL SA

Chair of the SPE Oil and Gas Reserves Committee

SPEE

12 June 2017 – London





PRMS Historical Development

- 1965: Following plea from banks made in 1962, SPE Board approves a one page document with consistent reserves definitions
- 1981: SPE release updated Proved oil and gas reserves definitions
- 1987: SPE releases definitions for all reserves categories
- 1997: WPC and SPE issue joint release of single set of definitions
- 2000: SPE, WPC and AAPG jointly develop classification system for all resources
- 2001: Application Evaluation Guidelines issued
- 2005: Glossary of terms used in resources definitions issued
- 2005: Standards for estimating and auditing reserves information issued (revised in 2007)
- 2007: SPE/WPC/AAPG/SPEE Petroleum Resources Management System Issued (subsequently sponsored by SEG)
- 2011: Guidelines for the Application of PRMS issued
- 2016: Updated PRMS planned to be issued in 2017**

Oil and Gas Reserves Committee

- **The OGRC is the custodian of a set of definitions, standards and guidelines referred to as the “Technical Publications.”**
 - PRMS, PRMS-AG, Auditing Standards, Comparison of Selected Reserves and Resources Classifications and Associated Definitions, ...
- **The OGRC is charged with:**
 1. Responsibility for programs dealing with oil and gas reserve matters, including reserve definitions and standards;
 2. Disseminating reserve information to other organizations, agencies, and companies involved in reserve matters;
 3. Liaising with other organizations in efforts to achieve worldwide use of standard reserve definitions;
 4. Monitoring of activities of other organizations in the reserve definition area and provide reports to the SPE Board on these matters; and
 5. Providing periodic reports to the SPE Board on oil and gas reserves issues **including recommendations for revisions to SPE’s reserve definitions.**

SPE “Vision” for Reserves/Resources



SPE/WPC/AAPG/SPEE definitions and classification system (and associated estimating guidelines) will continue to be maintained evergreen and enhanced to incorporate new best practices, and unconventional resources, and will be recognized as the premier classification standard.

- **SPE will actively promote and facilitate in-depth understanding of the definitions and their universal adoption by the oil, gas, and related industries; international financial organizations; governments; regulatory agencies; and reporting bodies.**

Committee Members

Appointed by SPE President

Chair

- Bernard Seiller (France)

2017 Members (16)

- Yang Hua (China)
- Barbara Pribyl (Australia)
- John Lee (USA)
- Enrique Morales (The Netherlands)
- Doug Peacock (Singapore)
- Oscar Dario Xochipa-Lopez (Mexico)
- Elliot Young (USA)
- Mark Nieberding(USA)
- Daniel DiLuzio (USA; past chair)
- Kenneth Frederick (USA)
- Aquiles Rattia (Spain)

- John Etherington (Canada)
- Robert Harrison (UK)
- Avijit Chakravarty (USA)
- Priscila Moczydlower (Brazil)

Observers (7)

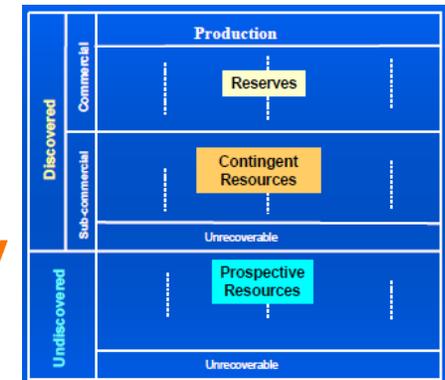
- Robert Garnett, IASB
- Ron Harrell, SPEE
- Eric von Lunen, SEG
- Ken Mallon, AAPG
- Anibal Martinez, WPC
- Luis Quintero, SPWLA
- Xavier Troussaut, EAGE



PRMS 2007 - Major Principles

PRMS is short for « **SPE/WPC/AAPG/SPEE Petroleum Resources Management System** »

1. The System is **“Project–Based”**
2. Classification is based on project’s **chance of commerciality**
Categorization is based on **recoverable uncertainty**
3. Base case uses evaluator’s **forecast of future conditions**
4. Provides more **granularity for project management**
5. Estimates based on **deterministic and/or probabilistic** methods
6. Applies to both conventional and **unconventional resources**
7. Reserves /resources are estimated in terms of the **sales products**
8. Net Resources are allocated based on **contractual entitlement**



PRMS Adoption Status - 2017

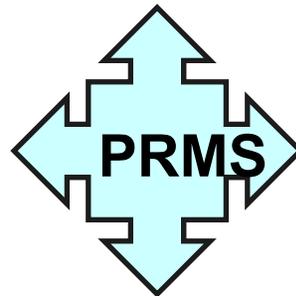
Securities Regulators

USA (SEC)
Canada (CSA)
Hong Kong (HKEX)
Australia (ASX)
UK (LSE-AIM)
Singapore
Argentina
Netherlands
Brazil
Italy
France
South Africa
(ESMA)



PRMS is implicitly or explicitly referenced by:

Oil & Gas Companies



Financial



International Accounting Standards Board (IASB)

Government Reporting

NPD - Norway
BOEM - USA
Offshore
ANP - Brazil
CNH - Mexico



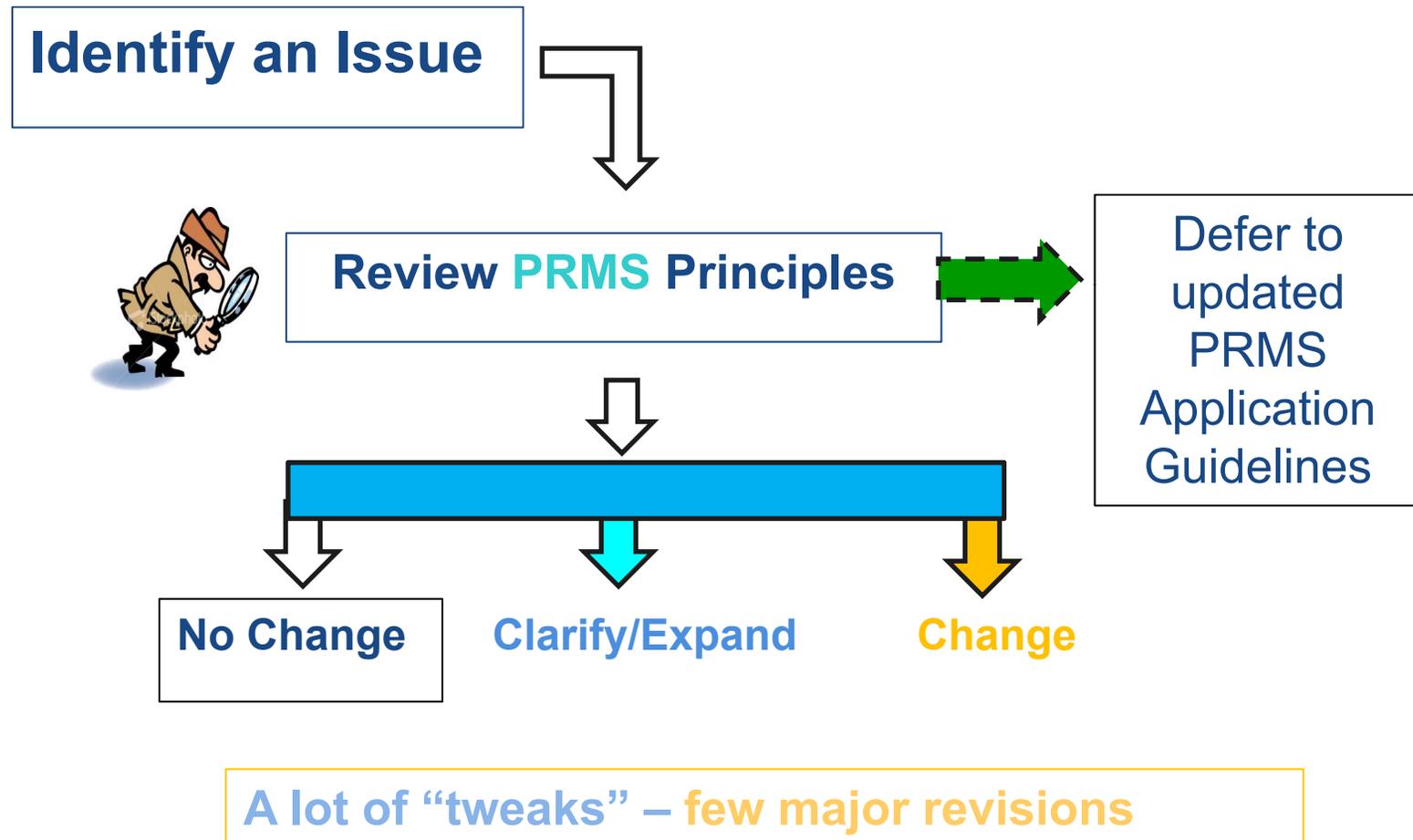
UNFC – United Nations
OPEC

PRMS 2017 Update Project

- SPE guidance is to maintain classification guidelines “evergreen” as industry focus changes and technologies evolve
- Given the widespread application of PRMS by diverse international stakeholders, areas that require clarification have arisen
- Updates based on input from ATW’s, training sessions and industry



PRMS 2017 Update - Process



PRMS 2017 Update - Problems



Principles vs
guidelines vs
rules?



How to get
consensus?



“Day Job”
Interference

PRMS Update – Issues Discussed



- Sales vs Marketable
- Consumed in Operations
- Split Conditions
- Split Classification
- Quantifying Pc%
- Justified for Development
- Discovery Criteria
- Unconventionals
- Commercial vs Economic
- Economic vs Economically Producible
- Economic Limit Test
- **A**bandonment, **D**ecommissioning & **R**eclamation
- Proved Uneconomic
- Assessment Methods
- Aggregation Issues
- Technical forecast

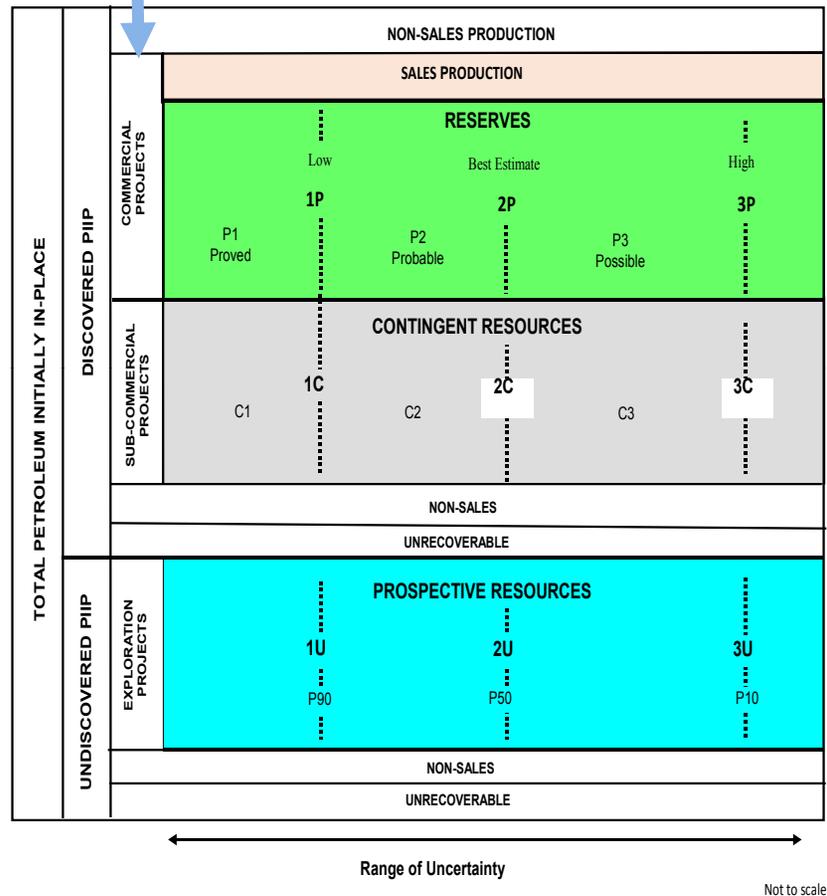
Sales vs Non-Sales



“Mass Balance”

$$\begin{aligned}
 &\text{Sales} \\
 &+ \text{Non-sales} \\
 &+ \text{Unrecoverable} \\
 &= \text{PIIP}
 \end{aligned}$$

Non-sales =
fuel, flare &
surface losses



Modify PRMS Matrix?

Still under discussion

Consumed in Operations (CiO)

Under **PRMS 2007** quantities Consumed in Operations should not be included in Sales estimates (part of Non-Sales)

However, where jurisdictions allow CiO to be included in Reserves disclosures, **they should be reported separately.**

What about national inventory reporting?



CiO has value – replaces purchased power
Value is reflected in reduced operating costs

CiO is part of “marketable resources”
Not delivered to external market (sales)

What about consultants supply/demand reports?

SEC (and others) allows CiO in reserves disclosures
Internationally regulations vary – not consistent

PRMS – 2017

2017 version will be co- sponsored by:



Society of Petroleum Engineers (**SPE**)

World Petroleum Council (**WPC**)

American Association of Petroleum Geologists (**AAPG**)

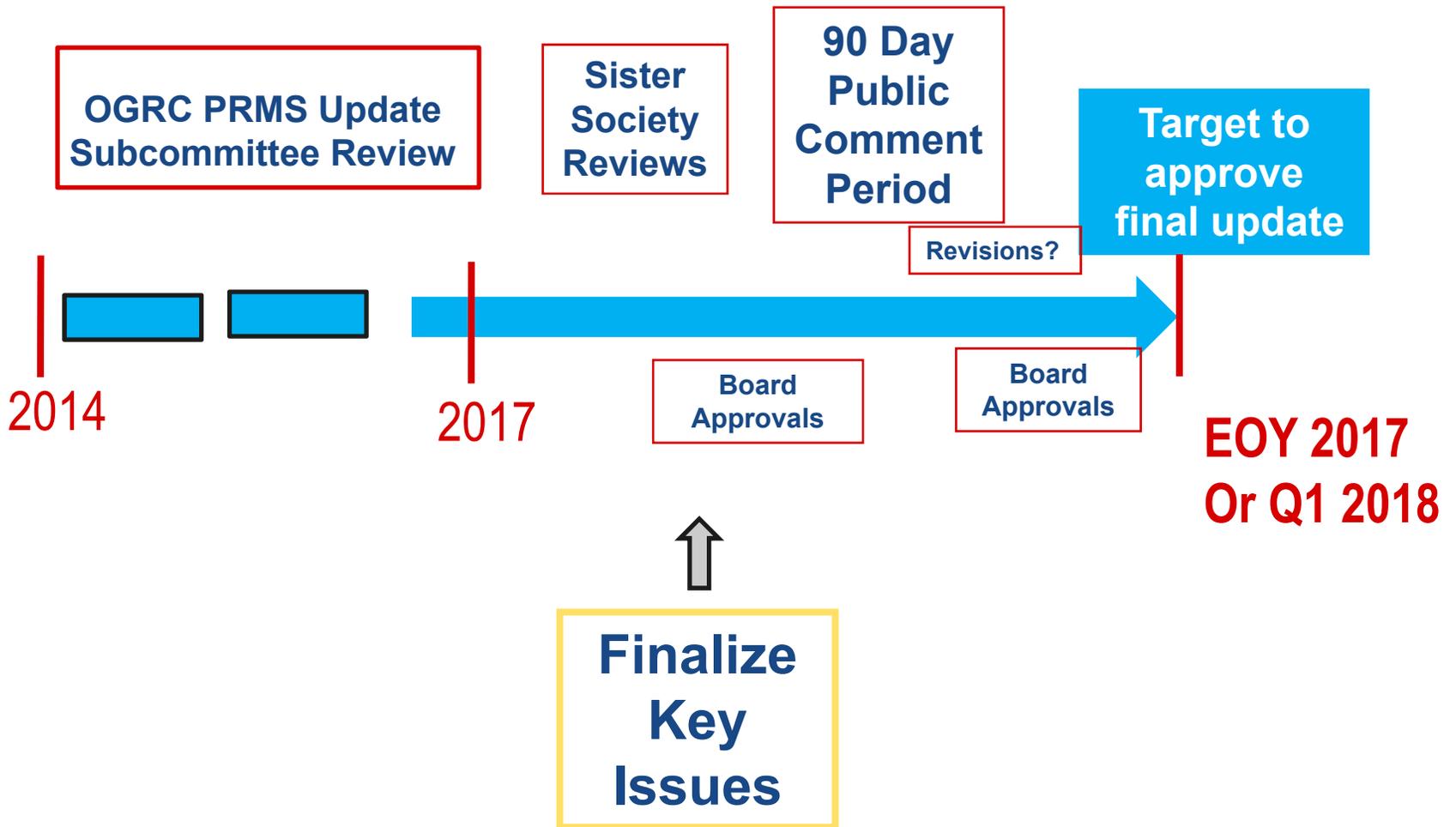
Society of Petroleum Evaluation Engineers (**SPEE**)

Society of Exploration Geophysicists (**SEG**)

European Association of Geoscientists & Engineers (**EAGE**)

Society of Professional Well Log Analysts (**SPWLA**)

PRMS Update Project Schedule



Other Activities

In addition to the Update Sub-Committee, 2 other subcommittees active:

- Proposed PRMS Reporting Guidelines
- Examples on key issues interpretation

Following adoption of the 2017 PRMS Update, work will be started on the Application Guidelines Update

- In case of questions, contact
 - Melissa Schulte at SPE: mschultea@spe.org
 - Bernard Seiller at bernard.seiller@total.com

- Thank you for your attention