An Overview of the

Petroleum Resources Management System (PRMS)

And Its Relationship to UNFC

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Topics for Discussion
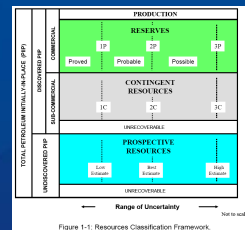
- Why are definitions needed?

- Brief history of PRMS

- Overview of PRMS

- PRMS adoption

- Questions

The Real Challenge

# Why do we need standard definitions?

- Internal business decisions

- Public reporting requirements

- Government reporting

- Mergers and acquisitions

- Project finance

- Resource studies

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Internal - Business Decisions

- Most likely value and range (minimum of three cases)
  - Low, Best, High

- All classes of resources

- Input to portfolio management and decision making

Figure 1-1: Resources Classification Framework.
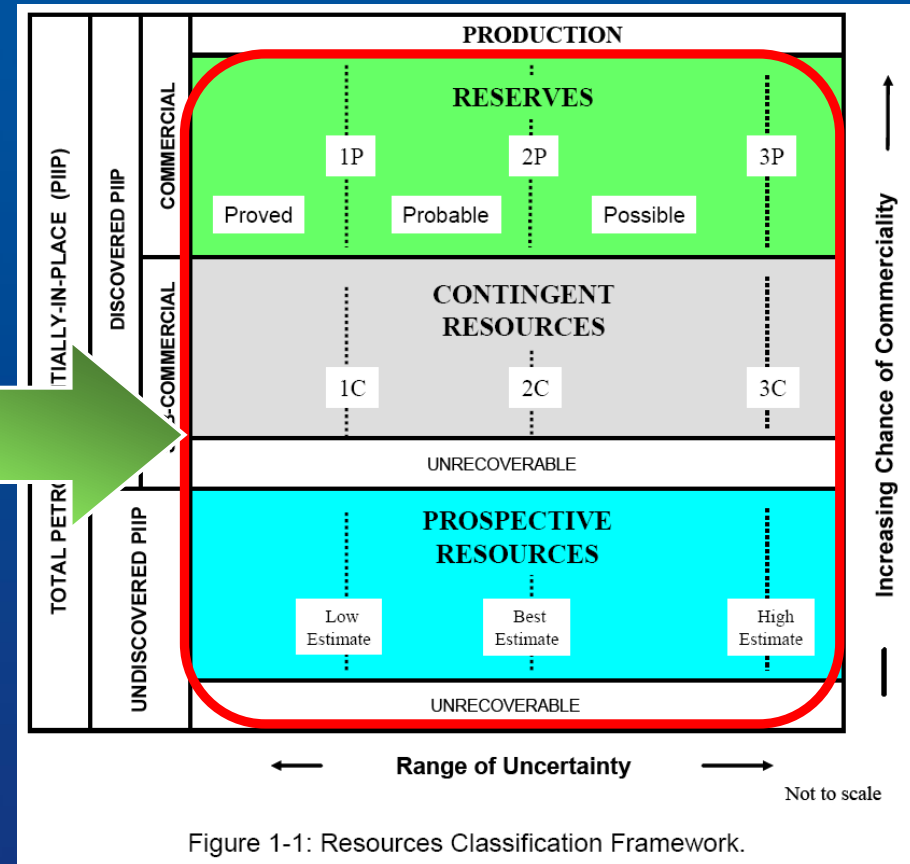
External - Regulatory Reporting

- Stock exchanges have reporting requirements
  - Own definitions (e.g. SEC) or use PRMS
  - Most Proved and Proved plus Probable

- Governments
  - US Energy Information Administration (EIA)
  - UK (SORP)

- National oil companies and/or ministries
  - Energy policy-making

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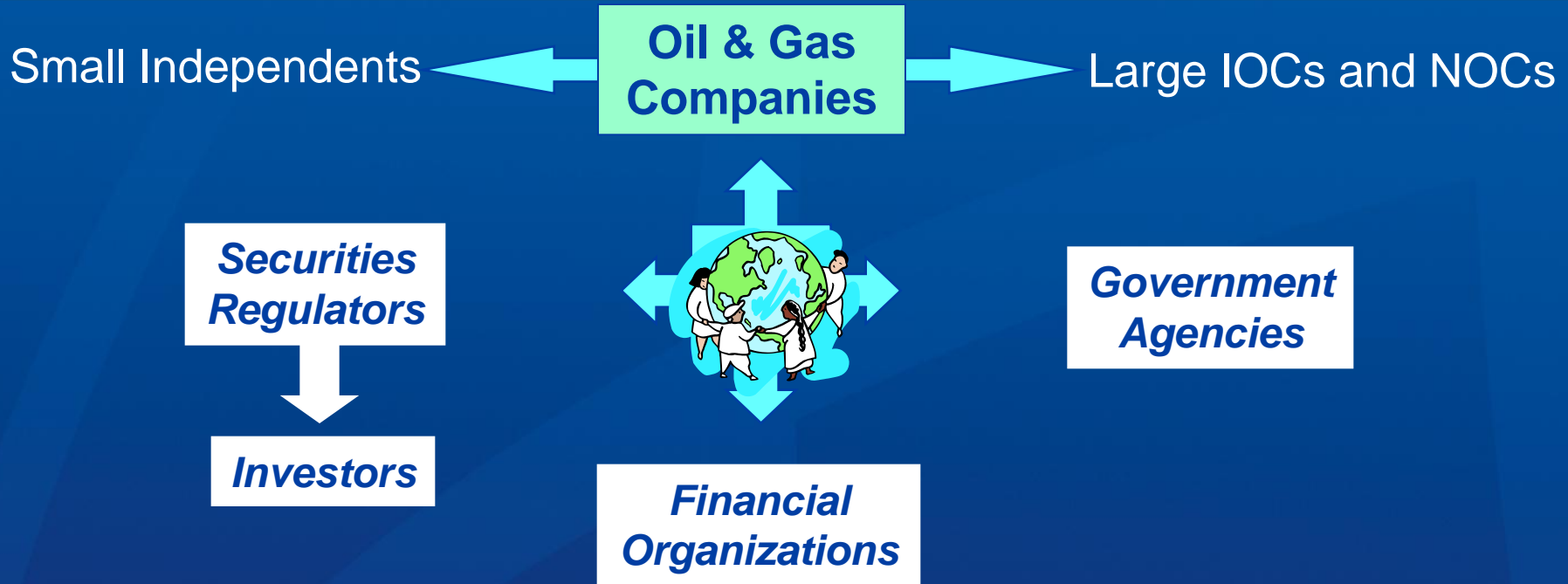Cline &
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External - Project Finance

- Independent reserve statements for banks
  - Collateral for loans

- Focus usually on Proved reserves

Understand all Stakeholders' Requirements

Small Independents ← **Oil & Gas Companies** → Large IOCs and NOCs

Securities Regulators

↓

Investors

Government Agencies

Financial Organizations

Create a Global Consensus Reference for the Industry – a "Benchmark"

All stakeholders require complete, consistent and reliable information on future production and associated cash flow estimates through full life recovery

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Petroleum Resources Management System

Published in April 2007; maintained by SPE OGRC; co- sponsored by:

Society of Petroleum Engineers (SPE)

World Petroleum Council (WPC)

American Association of Petroleum Geologists (AAPG)

Society of Petroleum Evaluation Engineers (SPEE)

Endorsed by Society of Exploration Geophysicists (SEG)

Free Download at www.spe.org

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Brief History of PRMS

- SPE recognized the need for **common standards** for petroleum resource definitions to provide **consistency, transparency, reliability**

- Create and maintain an **international standard petroleum reserves and resources classification system** based on industry best practices

- Built on the past
- Incorporated current best practice
- Prepared for the future

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Brief History of PRMS

- Provides a **common reference** for the international petroleum industry, including national reporting and regulatory disclosure agencies, and to support petroleum project and portfolio management requirements

- **Improves clarity** in global communications regarding petroleum resources

- **Supplemented** with industry **education** programs and **application guides**
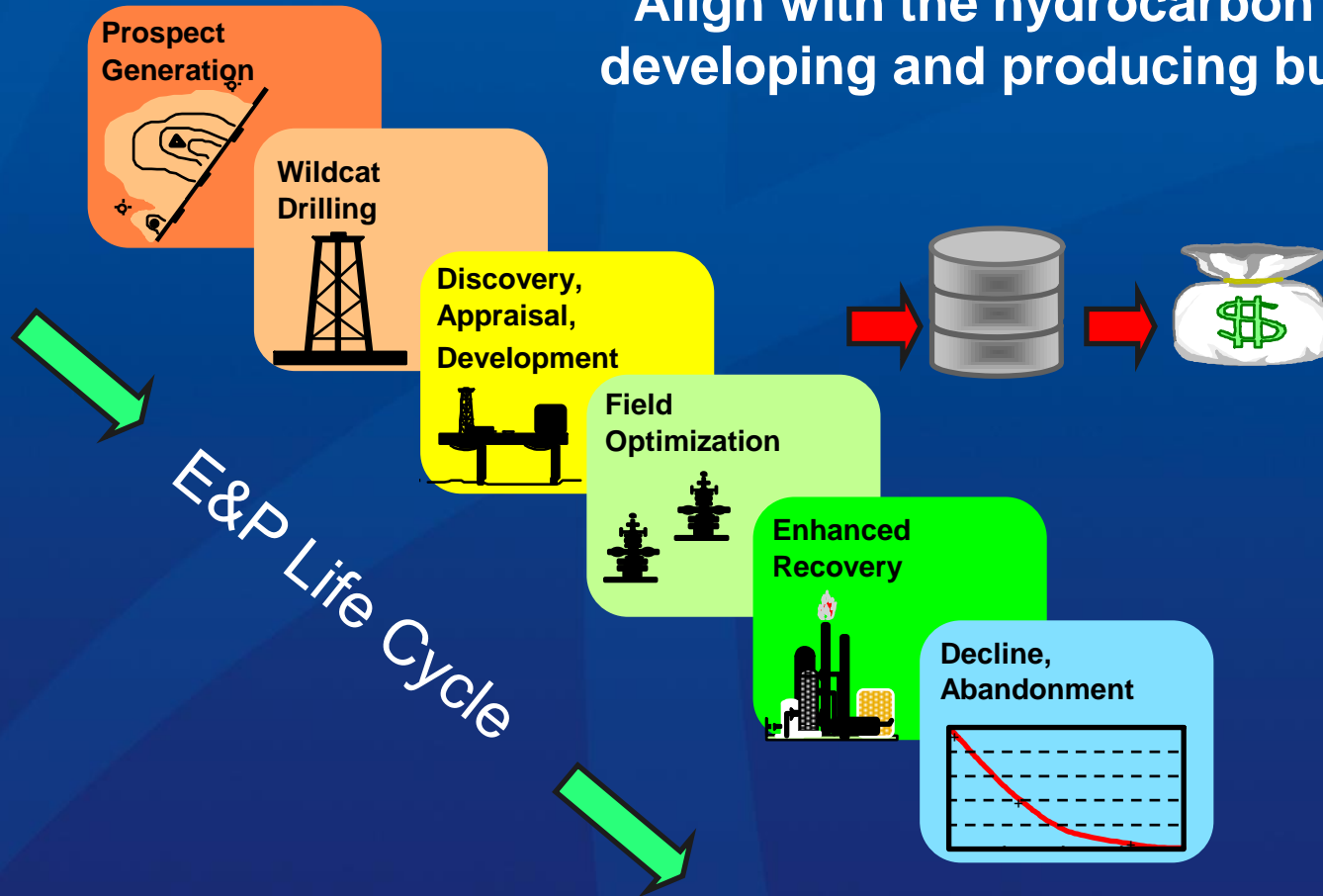
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Brief History of PRMS

- Allows **flexibility** and can be tailored particular needs

- **Does not modify** the interpretation or application of any existing **regulatory reporting** requirements

- Considers both **technical and commercial factors** that impact the project's economic feasibility, its productive life, and its related cash flow
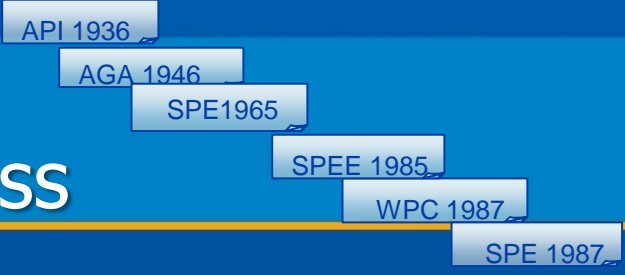
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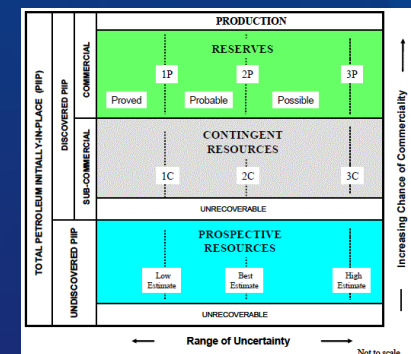
PRMS is Designed to Support Asset Management – "Cradle to Grave"

Align with the hydrocarbon finding, developing and producing business!

E&P Life Cycle

- Prospect Generation
- Wildcat Drilling
- Discovery, Appraisal, Development
- Field Optimization
- Enhanced Recovery
- Decline, Abandonment

PRMS
Building on Success

API 1936
AGA 1946
SPE1965
SPEE 1985
WPC 1987
SPE 1987

1997 SPE/WPC Petroleum Reserves Definitions

2000 SPE/WPC/AAPG Petroleum Resources Classification and Definitions

2005 SPE/WPC/AAPG Glossary of Terms

2001 Standards Pertaining to the Estimating and Auditing of Oil and Gas Reserves Information

2001 SPE/WPC/AAPG Guidelines for the Evaluation of Petroleum Reserves and Resources

2007

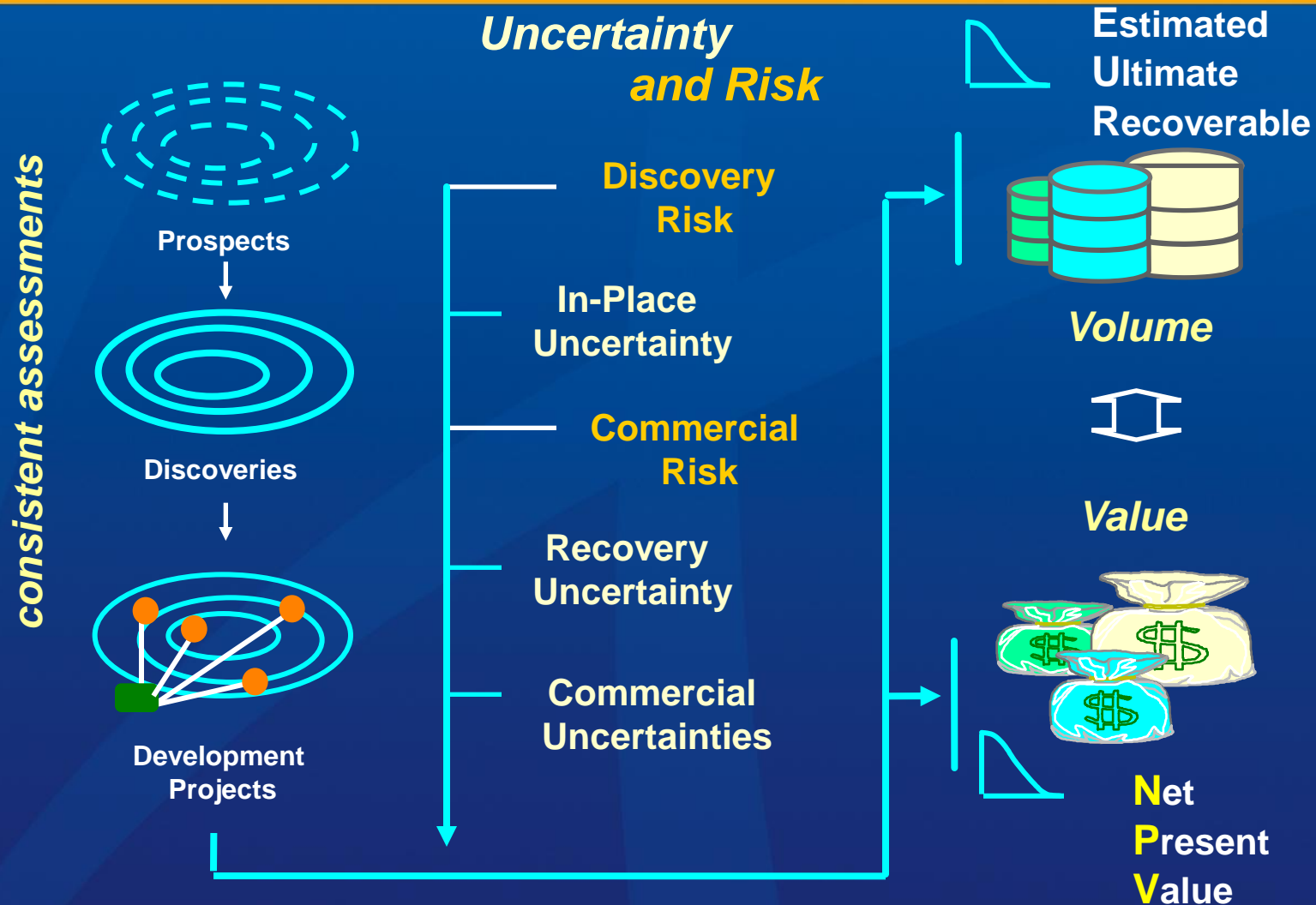**P**etroleum **R**esources **M**anagement **S**ystem

Audit Standards

Revised 2007

PRMS Application Guidelines

2011

Consolidate, build on, update, and replace prior guidance

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(see SPE 114162 for history)

PRMS - Major Principles

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**

Its all about Risk and Uncertainty

consistent assessments

Prospects

Discoveries

Development Projects

Uncertainty and Risk

Discovery Risk

In-Place Uncertainty

Commercial Risk

Recovery Uncertainty

Commercial Uncertainties

Estimated Ultimate Recoverable

Volume

Value

Net Present Value
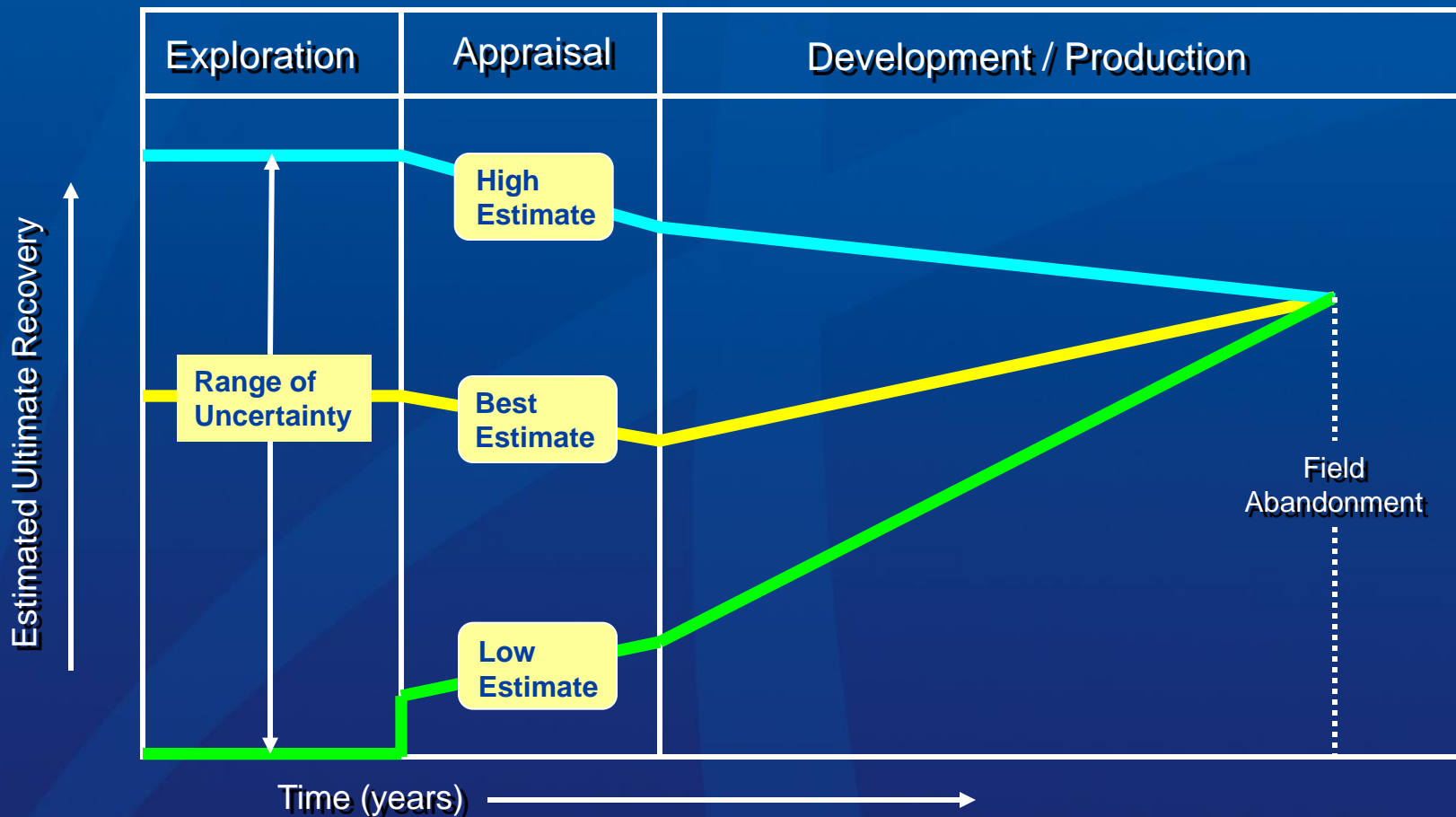
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Resources Classification

- Reserves

- Contingent Resources

- Prospective Resources

- Unrecoverable
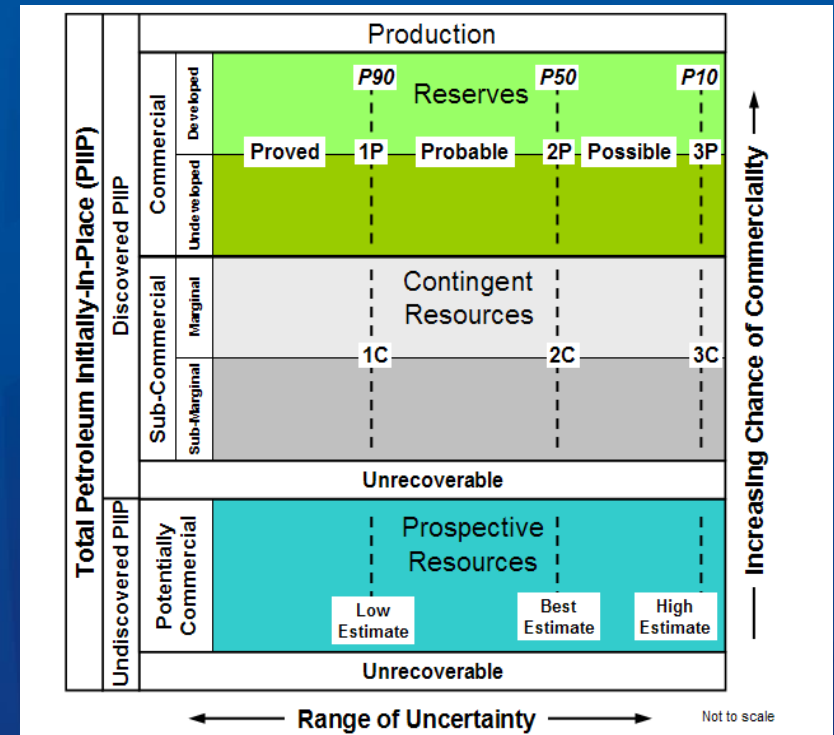
Absolute Range of Uncertainty Should Diminish as Project Proceeds (Arps, 1956)

Reserves and Resources Definitions

- Petroleum Resources Management System (PRMS)

- US Securities and Exchange Commission (SEC)

- Canadian NI51-101 (COGEH)

- Norwegian Petroleum Directorate (NPD)

- Chinese and Russian Systems

- Etc.

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SPE Relationship with UNFC

- Long-standing agreement for the SPE to provide the commodity-specific specifications for petroleum
    - Petroleum Resources Management System of 2007 ("PRMS")

- With the Generic Specifications, these provide the foundation and keystones for consistent application of UNFC-2009 for petroleum

- PRMS is independent from UNFC-2009 and may be mandatory for reporting purposes in some jurisdictions

- Link provided by a Bridging Document

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Comparison of PRMS and UNFC

PRMS

Total Petroleum Initially in Place	Discovered	Commercial	Production
			Reserves
		Sub-Commercial	Contingent Resources
			Unrecoverable
	Undiscovered		Prospective Resources
			Unrecoverable

UNFC 2009

Known Deposit	Production
	Commercial Projects
	Potentially Commercial Projects
	Non-Commercial Projects
	Additional Quantities in Place
Potential Deposit	Exploration Projects
	Additional Quantities in Place

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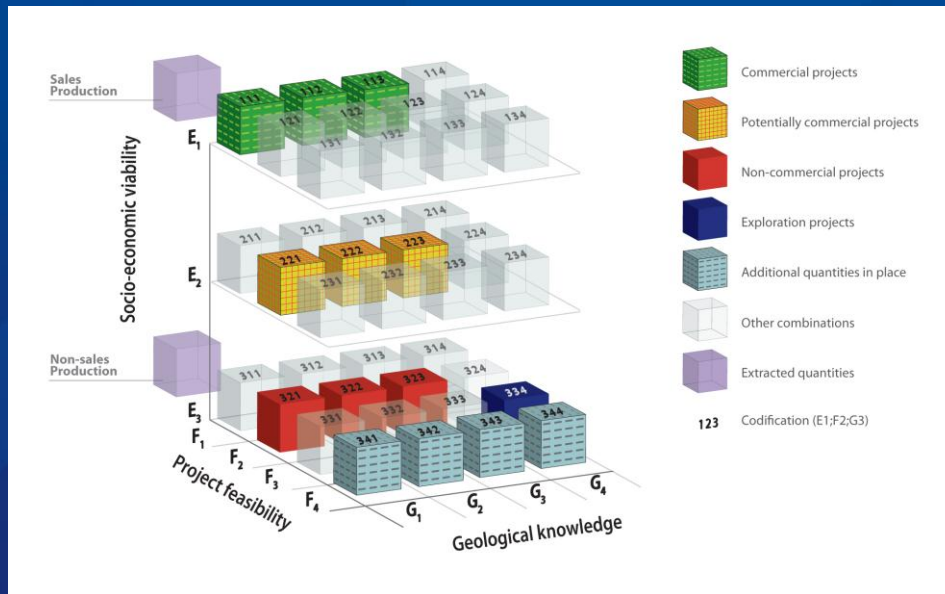
PRMS Current Adoption

- PRMS has become **the global standard** for classification of oil and gas reserves

- Numerous **oil companies** use the PRMS for resources and/or reserves evaluations
  - IOCs
  - NOCs

- Many **regulatory bodies** have adopted either the PRMS or similar system in their reporting requirements

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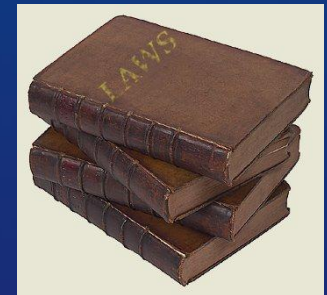
PRMS Current Adoption

The **United Nations Framework Classification (UNFC)** system identifies the PRMS as the reference standard for petroleum reserves and resources

Thank you!

Questions?