



# Contingent Resources

Not all created equal!

Ryder Scott: Calgary Reserves Conference 2018

Presentation by: Ian McDonald

# Acknowledgement

## Joel Turnbull



This presentation was originally presented by Joel Turnbull as part of the SPEE Annual Conference 2017 (London). I have updated Joel's presentation to reflect industry progress over the past year and current thoughts/standards. A copy of Joel's presentation can be accessed at

[https://secure.spee.org/resources/past\\_presentations](https://secure.spee.org/resources/past_presentations)

Joel Turnbull is one of the Founder Members of the European Chapter of the SPEE and a former colleague of Ian McDonald.



# Disclaimer

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The views expressed in this presentation are solely the personal opinions of the speaker and do not necessarily reflect those of any persons, companies, professional societies or institutions mentioned herein.

Issues presented within represent my ideas and are provided to encourage thought and industry discussion.



# Contingent resources in the news

## Company x

Contingent resources

“Provided by IQRE yy”

1C, 2C and 3C estimates

Comment “there is no certainty that it will be commercially viable to produce any portion of these resources”

## Company y

“Contingent resources are 267mmboe”

Some detail on what these resources are

## Company w

“Gross recoverable 2C Resources  
0.5 mmbbl”

## Company z

“Gas contingent resources are  
100%, unrisked”

## Company v

“The fields contain at least 2.4 Tcf  
of Gas contingent resources”



# PRMS 2007

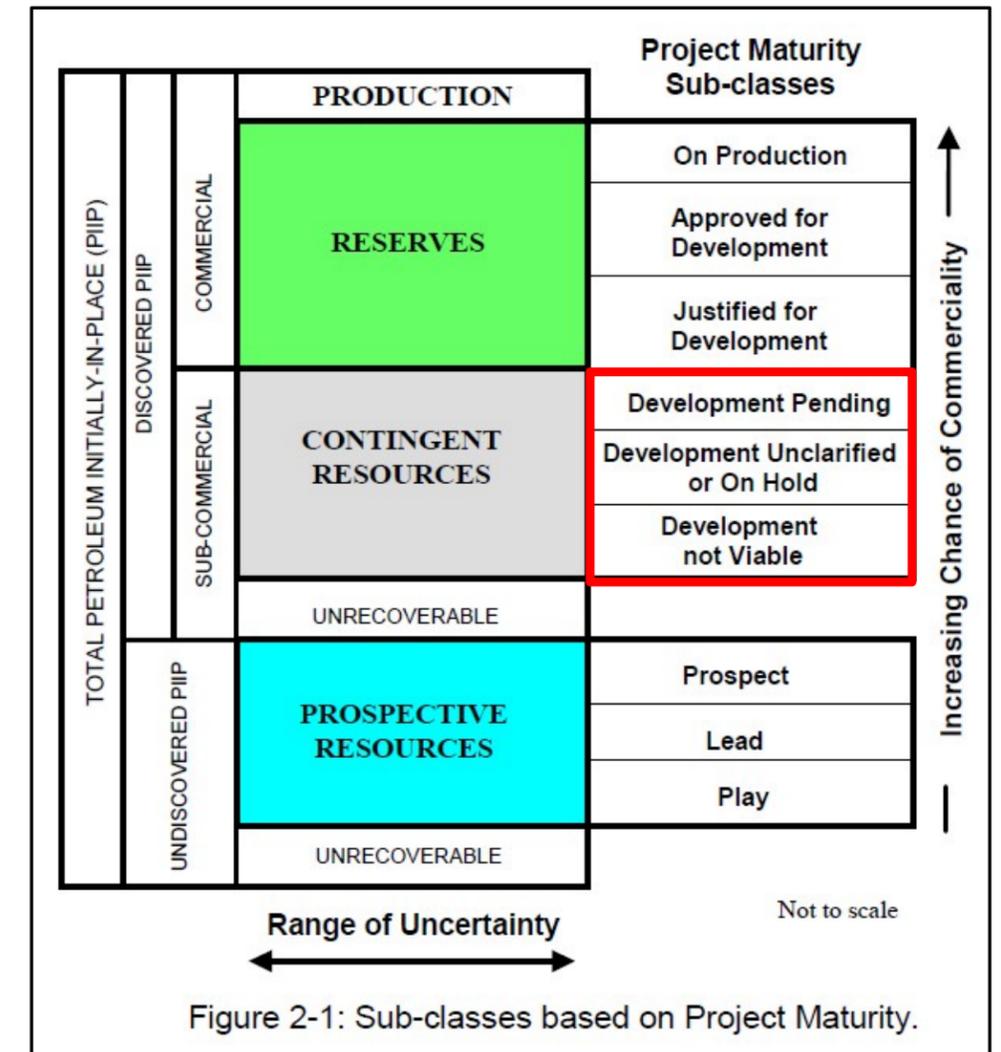
- **Subclasses (Contingent Resources)**

1. Development pending
2. Development unclarified or on hold
3. Development not viable

“Unrecoverable” is the quantity of PIIP that is not recovered by the project.

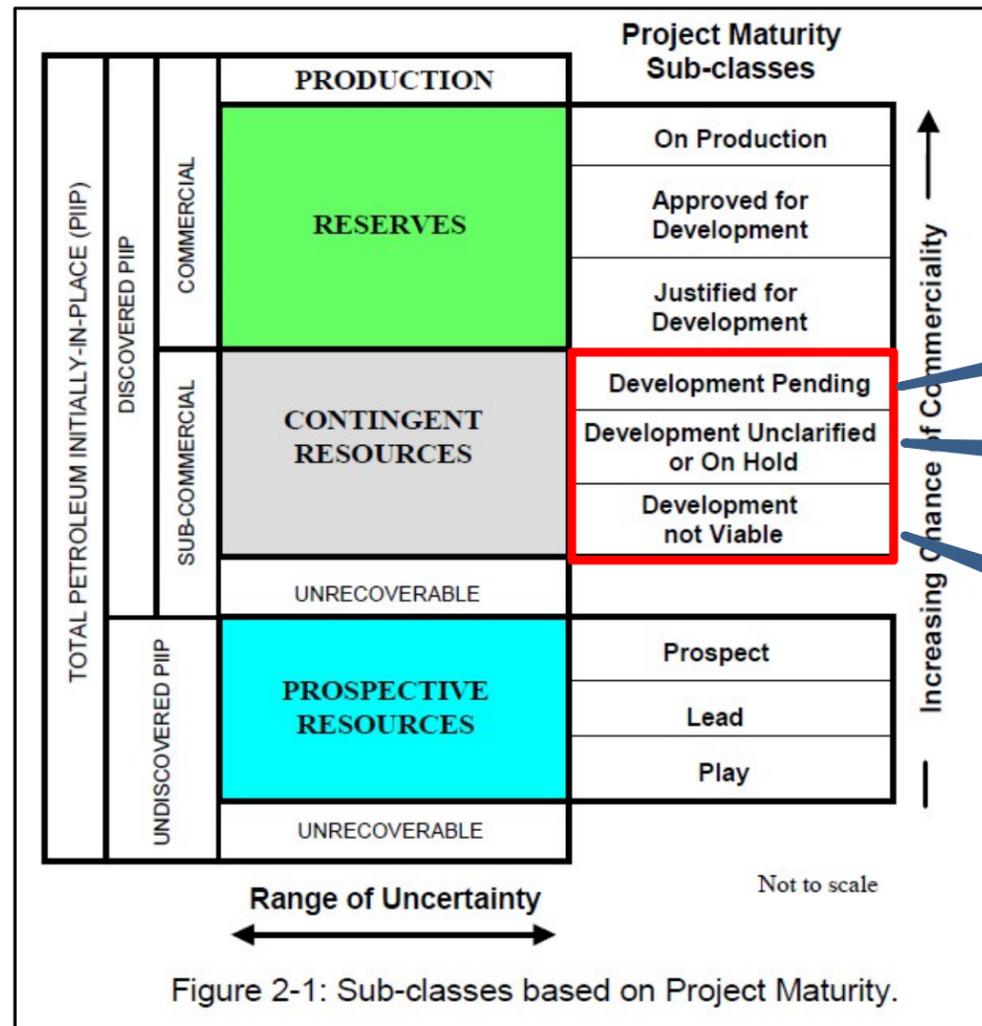


So lets be clear here.  
A contingent resource that is in category “Development not viable” is still classed as a Contingent Resource



# PRMS Guidelines 2011

- Joel's interpretation of PRMS



Roadblock free, we are progressing, but not necessarily mature

Significant roadblock and we're not progressing

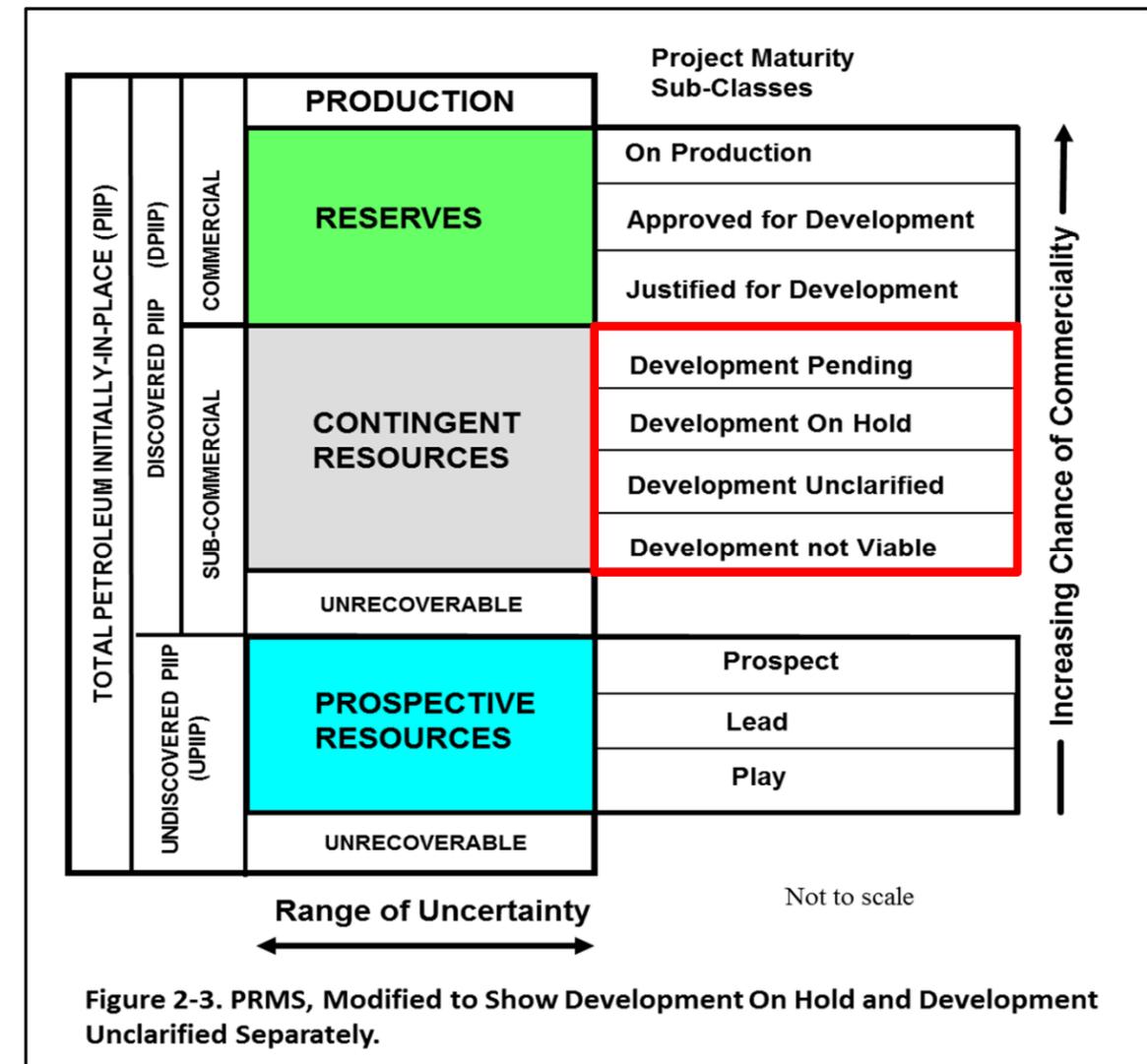
Huge roadblock and you'd be pretty lucky if this ever came in

Or....we've a lot of appraisal to do

Did I mention....all three categories are valid Contingent Resources?

# COGEH & Proposed PRMS 2018

- **COGEH /Proposed PRMS 2018** treats Contingent Resources slightly differently.
  - More explicit about what the contingency may be
  - Expressing numerical risks to the contingencies is encouraged
  - Four sub-classes making a distinction between “not sure if its good” and “we know there’s a problem”
  - The maturity aspect is more rigorously defined
  - Contingent Resources should be considered to be *economic* or *non-economic*



From COGEH Volume 2, section 2

# Development Pending (PRMS)

*A discovered accumulation where project activities are ongoing to justify commercial development in the foreseeable future.*

- The project is seen to have **reasonable potential** for eventual commercial development, to the extent that **further data acquisition** (e.g. drilling, **seismic** data) **and/or evaluations** are currently ongoing [....]
- The critical contingencies have been identified and are **reasonably expected to be resolved** within a **reasonable time frame**.
- The project “**decision gate**” is the decision to undertake further data acquisition and/or studies designed to move the project to a level of technical and commercial maturity at which a decision can be made to proceed with development and production.

Which  
Gate?



My loose interpretation is that so long as you are progressing the project, no matter what the maturity, you're in “pending”. (If you are doing seismic or appraisal drilling, you're probably a long way from development)

# Development Pending (Canada Interpretation)

**Development Pending** is defined as:

**Section 2.5.5 of Volume 2 of COGE Handbook and CSA SN 51-324:**

Where resolution of the final conditions for the development is being actively pursued (high chance of development).

**Section 2.5.1 of volume 2 of COGE Handbook states:**

The Development Pending project maturity subclass is described as requiring a “high probability of becoming a commercial development, which is the equivalent to the probability of removal of all contingencies. The term “high probability” is generally considered to be about 80 percent, which may be considered to be a minimum for the removal of all contingencies.



# Development On Hold (PRMS 2018)

*A discovered accumulation where project activities are on hold and/or where justification as a commercial development may be subject to significant delay.*

- The project is seen to have **potential** for eventual commercial development.
- Development may be subject to a significant time delay.
- Note that a change in circumstances, such that there is no longer a probable likelihood that a critical contingency can be removed in the foreseeable future, could lead to a re-classification of the Project to “Not Viable” status
- The Project “decision gate” is the decision to either proceed with additional evaluation designed to clarify the potential for eventual commercial development or to temporarily suspend or delay further activities pending resolution of external contingencies.



Must be a reasonable chance of commerciality - more likely than not that the contingencies will be resolved. Where relevant, should list the factors leading to uncertainty, and describe them so that a reader can assess. “On Hold “ timeframe depends on the project and must be justified.

# Development on Hold (Canada Interpretation)

**Development on hold is defined as:**

**Section 2.5.5 of Volume 2 of COGE Handbook and CSA SN 51-324:**

Where there is a reasonable chance of development, but there are major non-technical contingencies to be resolved that are usually beyond the control of the operator.

**Section 2.5.5 (d) of volume 2 of COGE Handbook states:**

It is more likely than not that all the contingencies will be resolved(...)

Chance of development risk should be >50% to 79%



# Development Unclassified (PRMS 2018)

*A discovered accumulation where project activities are under evaluation and where justification as a commercial development is unknown based on available information.*

- The Project is seen to have potential for eventual commercial development, but further appraisal/evaluation activities are ongoing to clarify the potential for eventual commercial development.
- This sub-class requires active appraisal or evaluation and should not be maintained without a plan for future evaluation. The sub-class should reflect the actions required to move a Project toward commercial production.



Requires current activity to be underway. If active evaluation has been suspended or otherwise not carried out, and is not planned to be resumed within a limited time period the development needs to be re-classed as “on hold” or “not viable”.

# Development unclarified (Canada Interpretation)

**Development unclarified** is defined as:

**Volume 2 of COGE Handbook Glossary and CSA SN 51-324:**

When the evaluation is incomplete and there is ongoing activity to resolve any risks or uncertainties.

- **Chance of development risk is unclear**



# Development Not Viable (PRMS)

*A discovered accumulation for which there are no current plans to develop or to acquire additional data at the time due to limited production potential.*

- The Project is not seen to have potential for eventual commercial development at the time of reporting, but the theoretically recoverable quantities are recorded **so that the potential opportunity will be recognized in the event of a major change in technology or commercial conditions.**
- The Project “decision gate” is the decision not to undertake any further data acquisition or studies on the Project for the foreseeable future.



Now we've got a really big roadblock. Even unreasonable oil prices (\$200/bbl) breakevens can go in here. **Remember – resources in this category are still valid contingent resources.** Theoretically recoverable quantities are to be used. This is not a default classification, but is determined outcome.

# Development not viable (Canada Interpretation)

Development not viable is defined as:

Section 2.5.5 of Volume 2 of COGE Handbook and CSA SN 51-324:

- Where no further data acquisition or evaluation is currently planned and hence there is a low chance of development.
- **Chance of development risk should be <50% and likely much lower**



# Contingent Resources (PRMS - Proposed)

Contingent Resources (Proposed PRMS 2018): *Projects on Known Accumulations that are actively being studied, undergoing feasibility review and with planned near-term operations (e.g., drilling) are placed in **Contingent Resources Development Pending** while those that do not meet this test are placed into either **Contingent Resources On Hold, Unclarified, or Not Viable**.*

CONTINGENT RESOURCES	Project Maturity Sub-Classes	Development Risk
	Development Pending	>80%
	Development On Hold	>50% to 79%
	Development Unclarified	Unclear
	Development not Viable	<50%
UNRECOVERABLE		

↑ Increasing Chance of Commerciality

COGEH, NI 51-101 and related Guidance

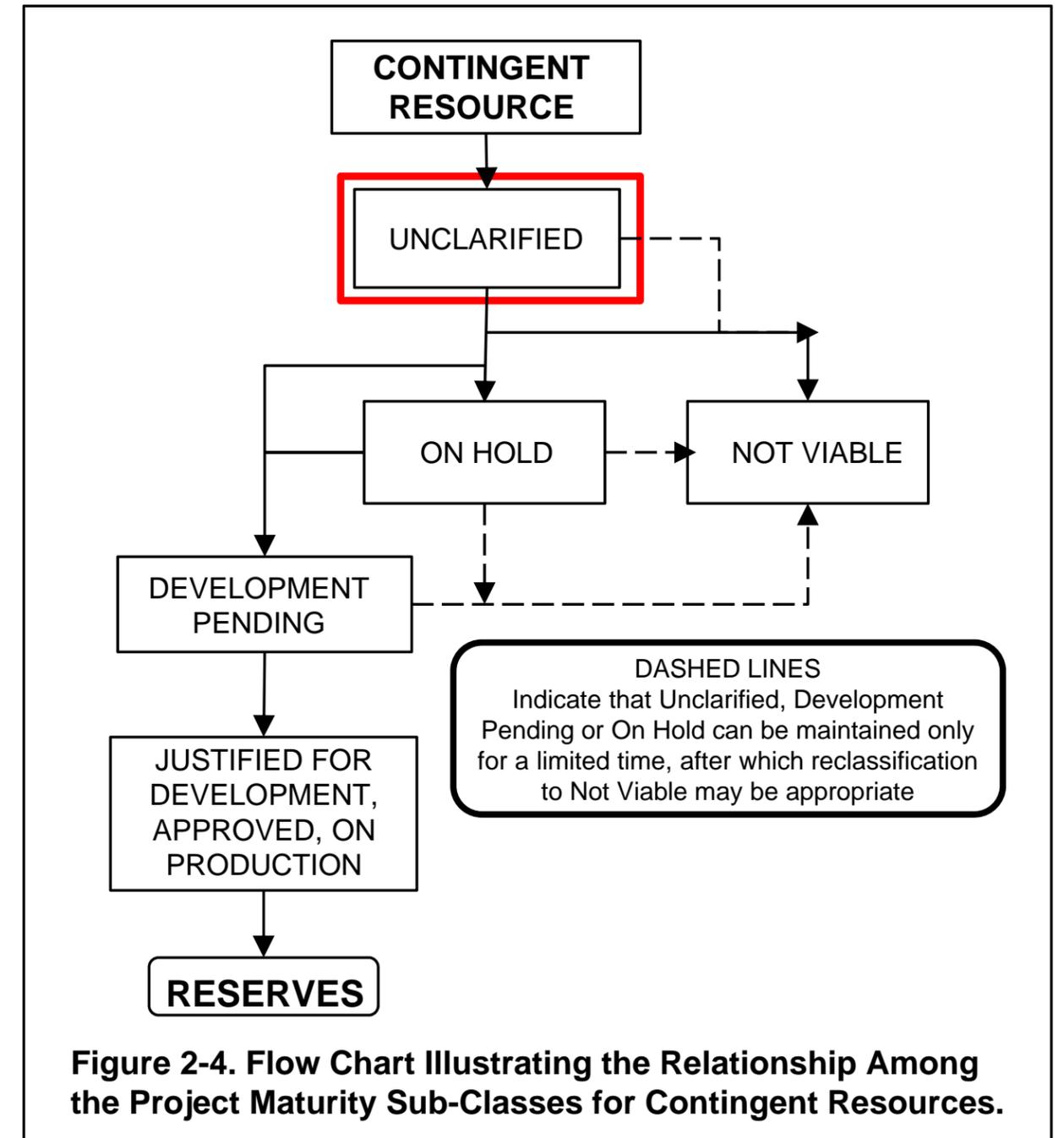
The draft PRMS 2018 wording may change as reviews/approvals progress. In addition, the quantification of development risk for each sub-class has not been universally discussed by PRMS subcommittees (but is relevant (Canadian) guidance).



# COGEH

- First step is an initial assessment to determine if there is potential for development.
  - “**Development Unclassified**”
- Once this is done, there are four possible outcomes
  1. We still need more data to decide – **Development Unclassified**
  2. We are confident of a development – **Development Pending**
  3. There is still a reasonable chance of development but there are major contingencies – **Development On Hold**
  4. There is no further data acquisition or evaluation planned so there is a low chance of development – **Development Not Viable**

From COGEH Volume 2, section 2



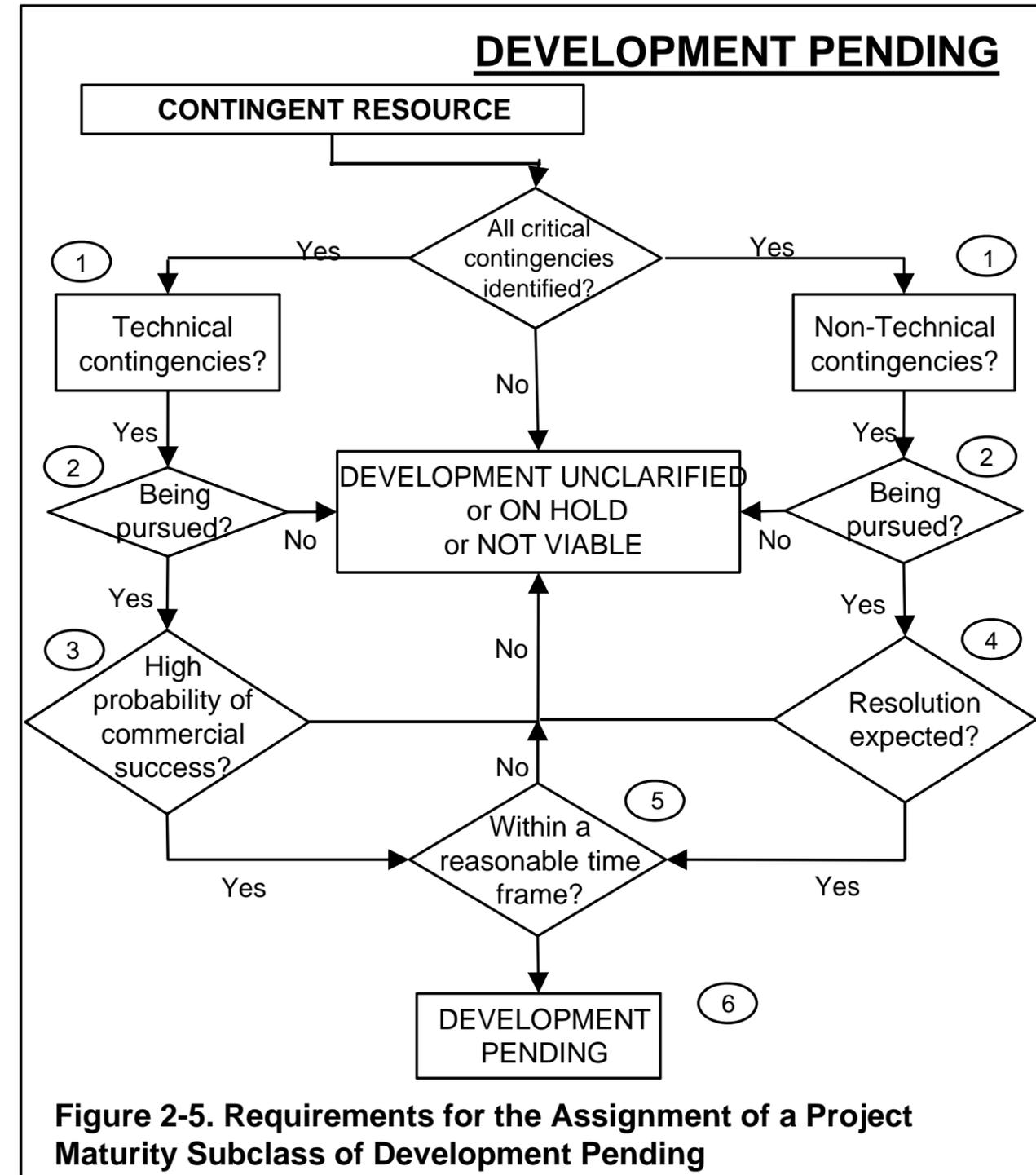
# COGEH

- **Development pending**
- “Project activities are ongoing to justify commercial viability in the near future”.
- Needs a “high probability” to proceed which is defined as 80% or greater



So for COGEH “Development Pending” you need an overall chance of 80% of development; a reasonable timeframe to development and no outstanding contingencies that you can’t influence.

From COGEH Volume 2, section 2



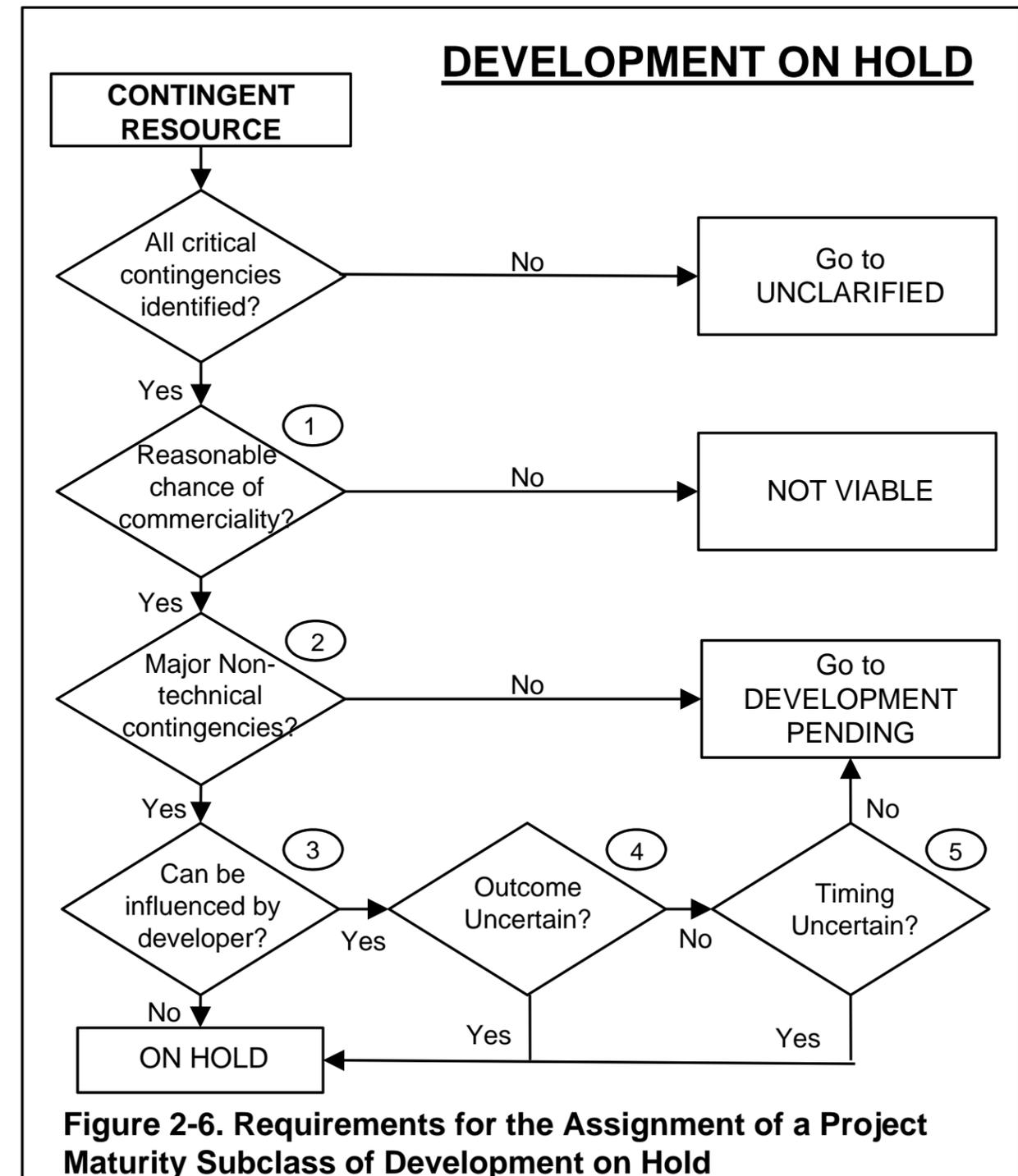
# COGEH

- **Development on hold**
- “Projects may be described as development on hold where there is considered to be at least a **reasonable chance of commerciality** but where there are **major non-technical contingencies** that must be resolved before the project can move toward development”.



The key bar here is the subjective “reasonable chance of commerciality”, if not → Development Not Viable

From COGEH Volume 2, section 2



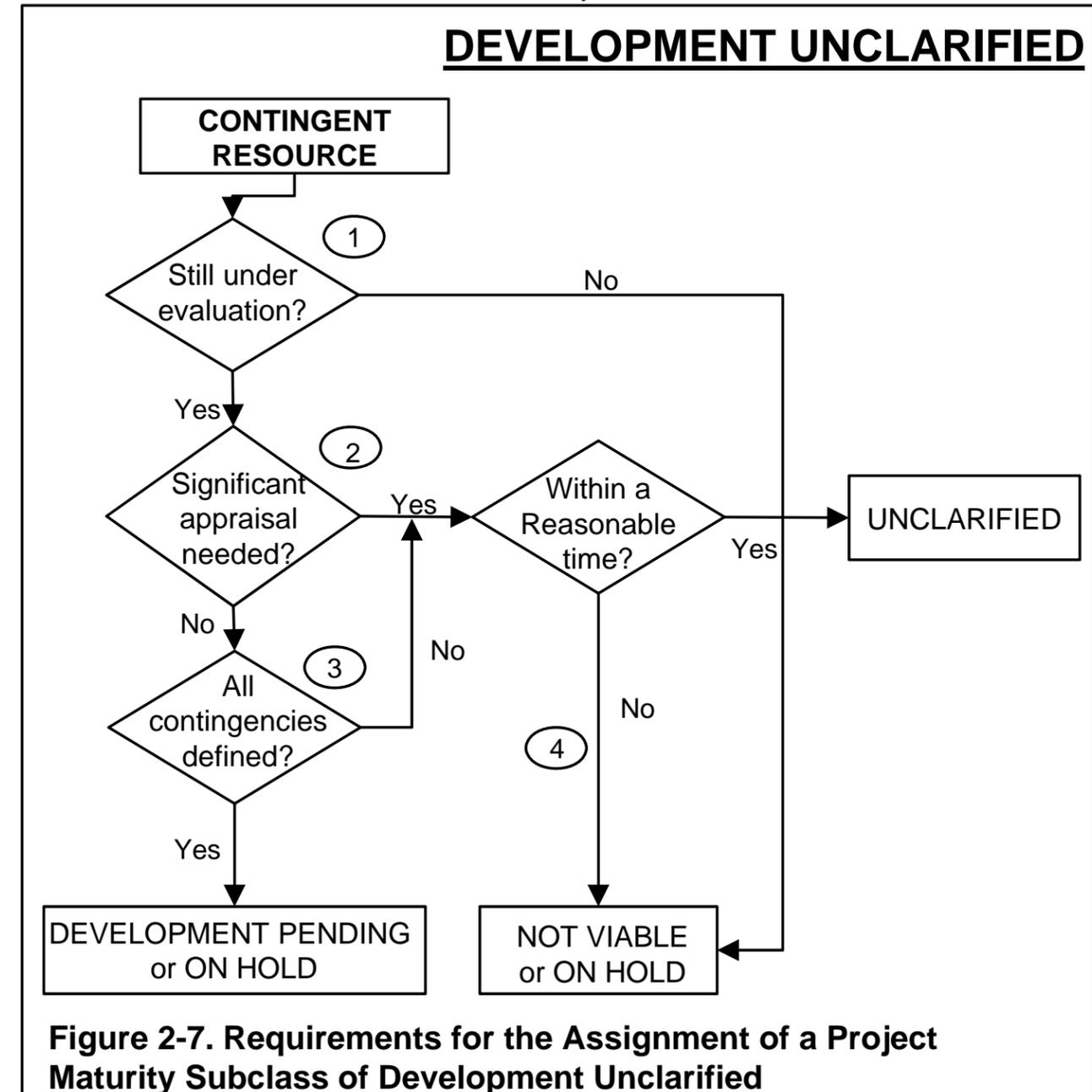
# COGEH

- **Development unclarified**
- “Projects may be assigned a maturity subclass of development unclarified if they are **still under evaluation** or require significant further appraisal to clarify the potential for development, and where the contingencies have yet to be fully defined”.



You can put the project in “Unclarified” for a short time but you can’t keep it there unless you have a good reason.

From COGEH Volume 2, section 2



# COGEH

- **Development not viable**
- “The project “decision gate” for a status of development not viable is the decision **not to pursue development or to undertake any further data acquisition or studies** on the project for the foreseeable future.
- However, **there may be potential** for eventual commercial development....



There “may be potential” still leaves the door open for a project that is never going to see the light of day, and allowing a project which is improbable, using what is known today, to be classified as Contingent Resource.

# COGEH

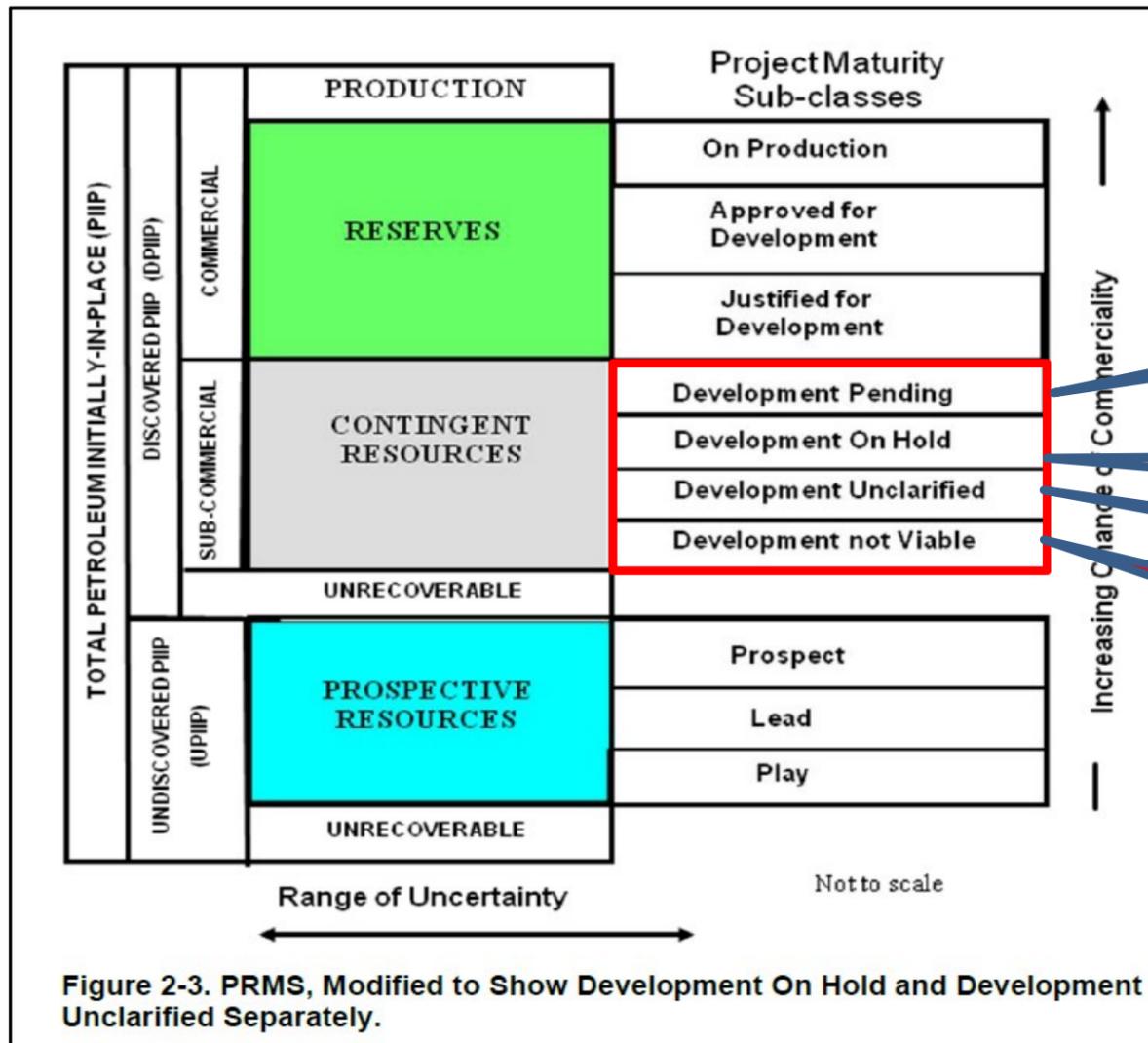
- **Unrecoverable**
- “Unrecoverable is that portion of Discovered or Undiscovered PIIP quantities which is estimated, as of a given date, **not to be recoverable by future development projects**”.
- “A portion of these quantities **may become recoverable in the future** as commercial circumstances change or technological developments occur.....
- “All quantities estimated as DPIIP or UPIIP in an accumulation that will not be recovered [.....] should be classified as unrecoverable, **even though a technically feasible project may be identified in the future**”

Remember, all projects have a portion of the PIIP that will not be recovered. This classification is the remnant petroleum the project will not recover.



“Unrecoverable” is the difference between Discovered PIIP and recognized quantities of Reserves plus Contingent Resources.

# COGEH 2014



- Interpretation of COGEH

Roadblock free, and at least 80% chance of development

Significant roadblock but at least a 50% chance of development

We don't know yet

Significant road block is unresolvable at present: less than 50% chance of development

Did I mention.....all four categories are valid Contingent Resources?



# So what are the problems?

1. Contingent Resources include a considerable range of commercial impediments
  - Contingent Resources vary between >80% Chance of Development to 0.1% Chance of Development
2. You are allowed to have Contingent Resources even when there is a virtually zero chance of development
  - You can mention Contingent Resources in a press release with no intention to develop them.
3. The reason you are in Contingent Resources (and not reserves) is either maturity or the fact there is a problem
  - Even within some subcategories
4. The length of time prior to development is not spelled out in most circumstances
  - Relies on “Reasonable potential for commerciality” (PRMS) or “80% chance of development” (COGEH)



# So what could be the solutions?

- Before answering this question, it's worth reminding ourselves why we have Contingent Resources at all:
  - Reporting
    - Most reporting jurisdictions do not require reporting of Contingent Resources
    - In fact, in the US you are not allowed to
  - Investor information
    - Typically (outside of Canada) the statements are light on technical (classification) detail. Issuers can provide information as they see fit.
  - Company valuations
    - Will be done by a qualified person
  - Internal portfolio management
    - You can do what you like! (But would be easier if there was a simple system)



# So what could be the solutions?

## Proactive role in controlling resource disclosure - Canada:

- CSA 7.1(1)(a) Contingent Resource Data requires classification of estimates by **project maturity sub-class**
- CSA **requires the numeric value of the chance of development risk to be provided and discussion of risks and uncertainties** to accompany ROTR disclosure:
  - Section 5.7(2) of 51-101CP, Section 2.7(4.1) of 51-101CP and Guidance (4) of Part 7 of Form 51-101F1 are designed to ensure adequate description and explanation of the resource estimate.
  - CSA intention is to discourage disclosure below development pending in the Form 51-101F1

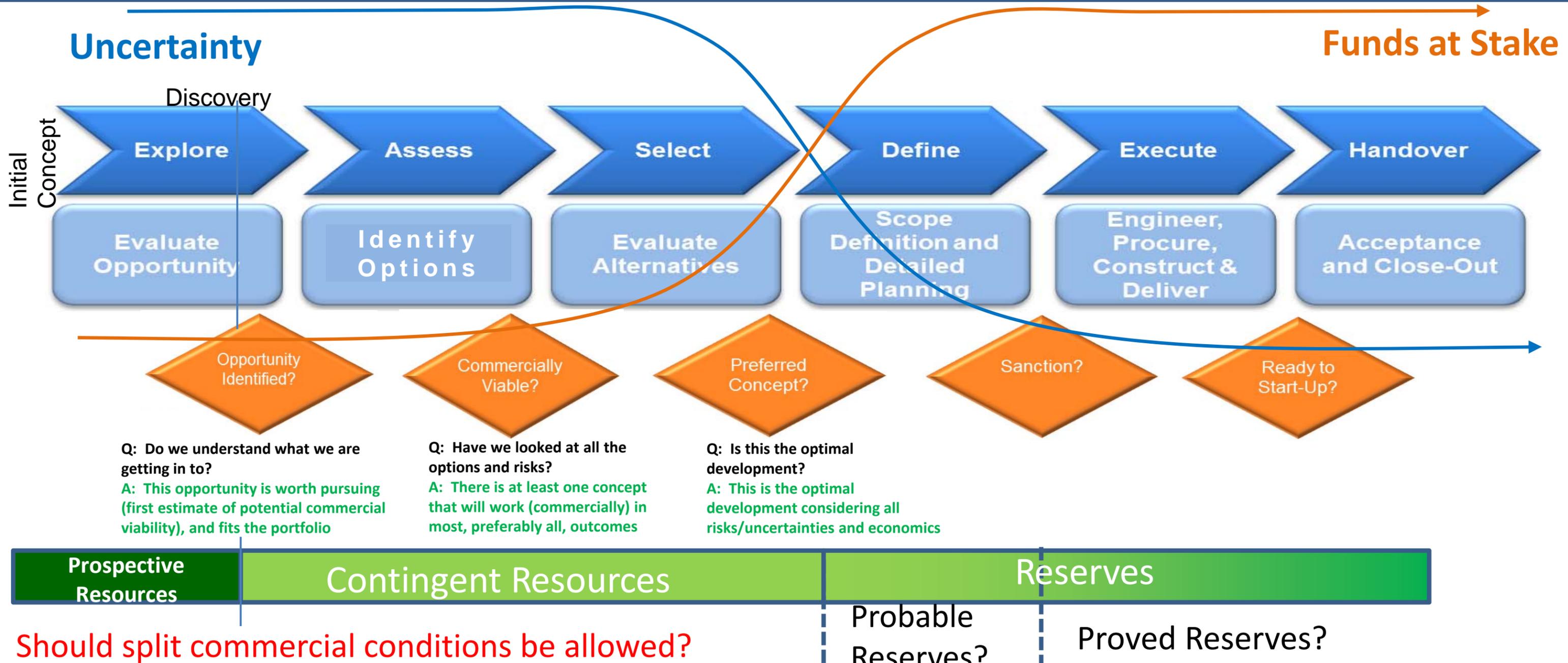
## **Form 51-101F1 Guidance (4):**

All public disclosure by reporting issuers is subject to the general prohibition against misleading statements. The **disclosure of development on-hold, development unclarified or development not viable contingent resources, or prospective resources**, in the statement of reserves data and other oil and gas information might be misleading where there is a significant degree of uncertainty and risk associated with those estimates.”

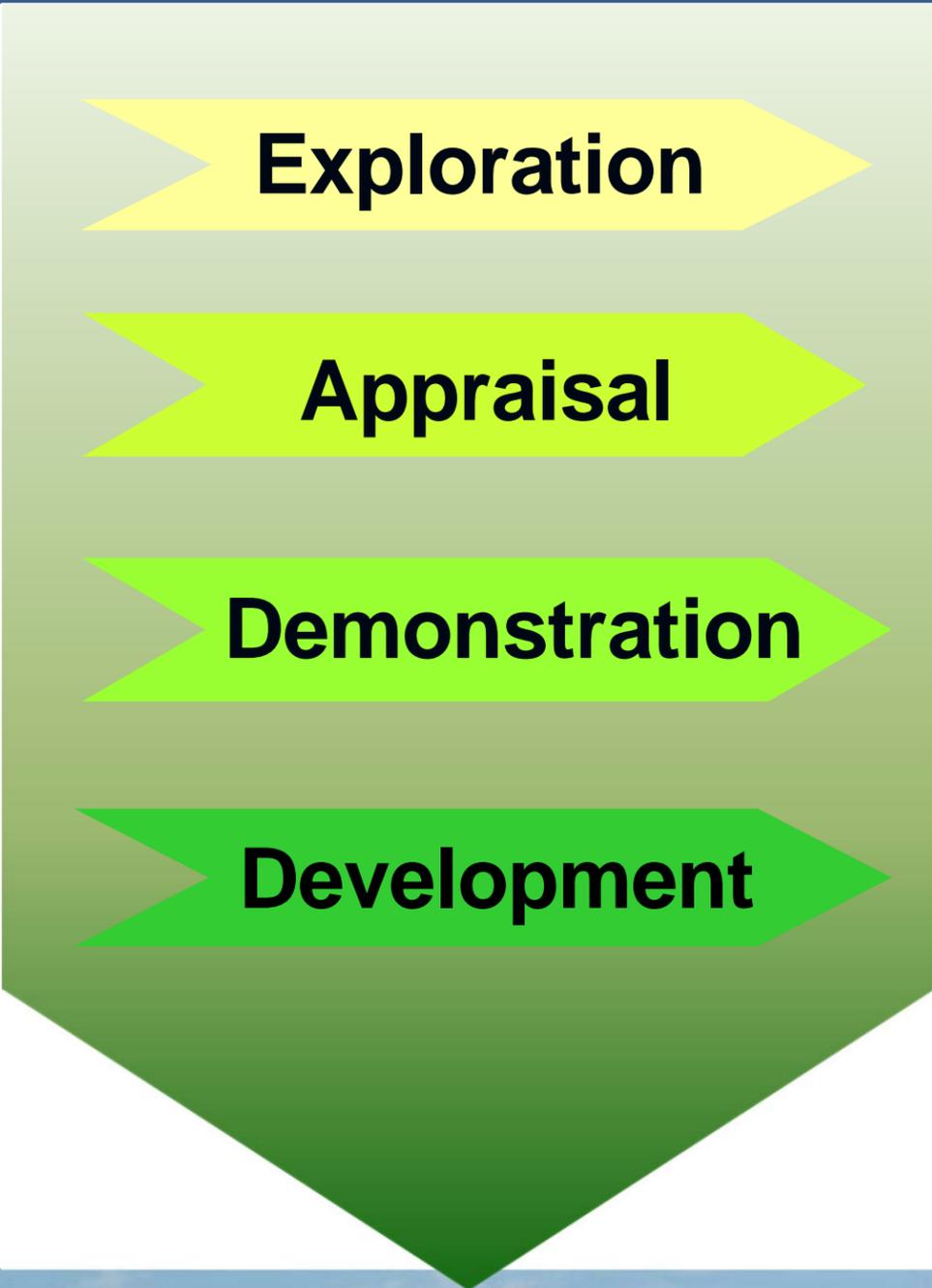


# Contingent Resources are product of a “Decision Gate”

## - Example Stage Gate Process



# Example “Decision Gate” Process - Unconventional



**Exploration**

**Appraisal**

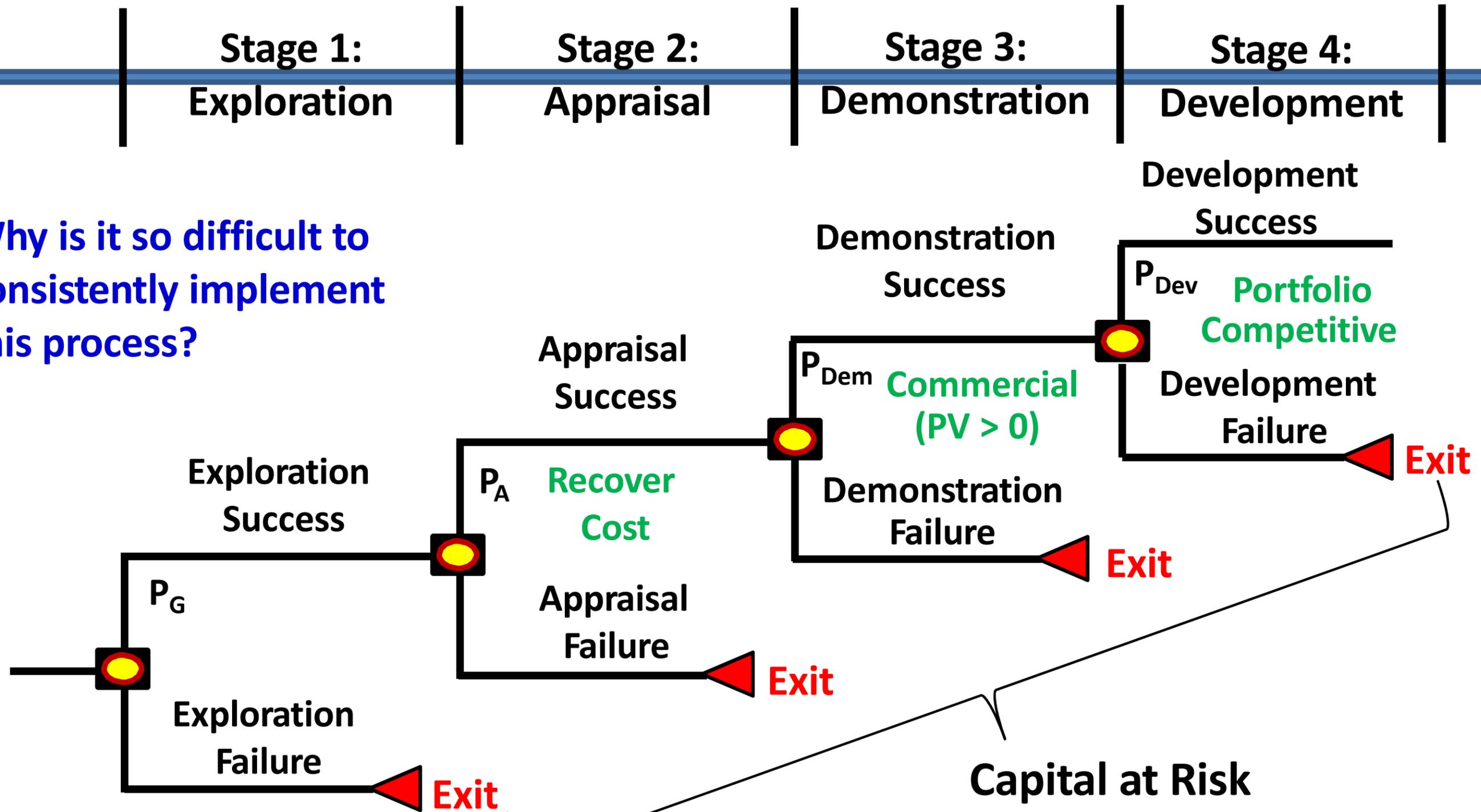
**Demonstration**

**Development**

- Identify the stage the project is in
- Assess the key uncertainties and risks in that stage
- Define the data and analyses required to make a good decision whether to proceed to the next stage or exit
- Design a work plan, timeline and budget to acquire this information

# The Staged Approach

Why is it so difficult to consistently implement this process?



# Sub-categories : Will “Not Viable” ever be recognized?

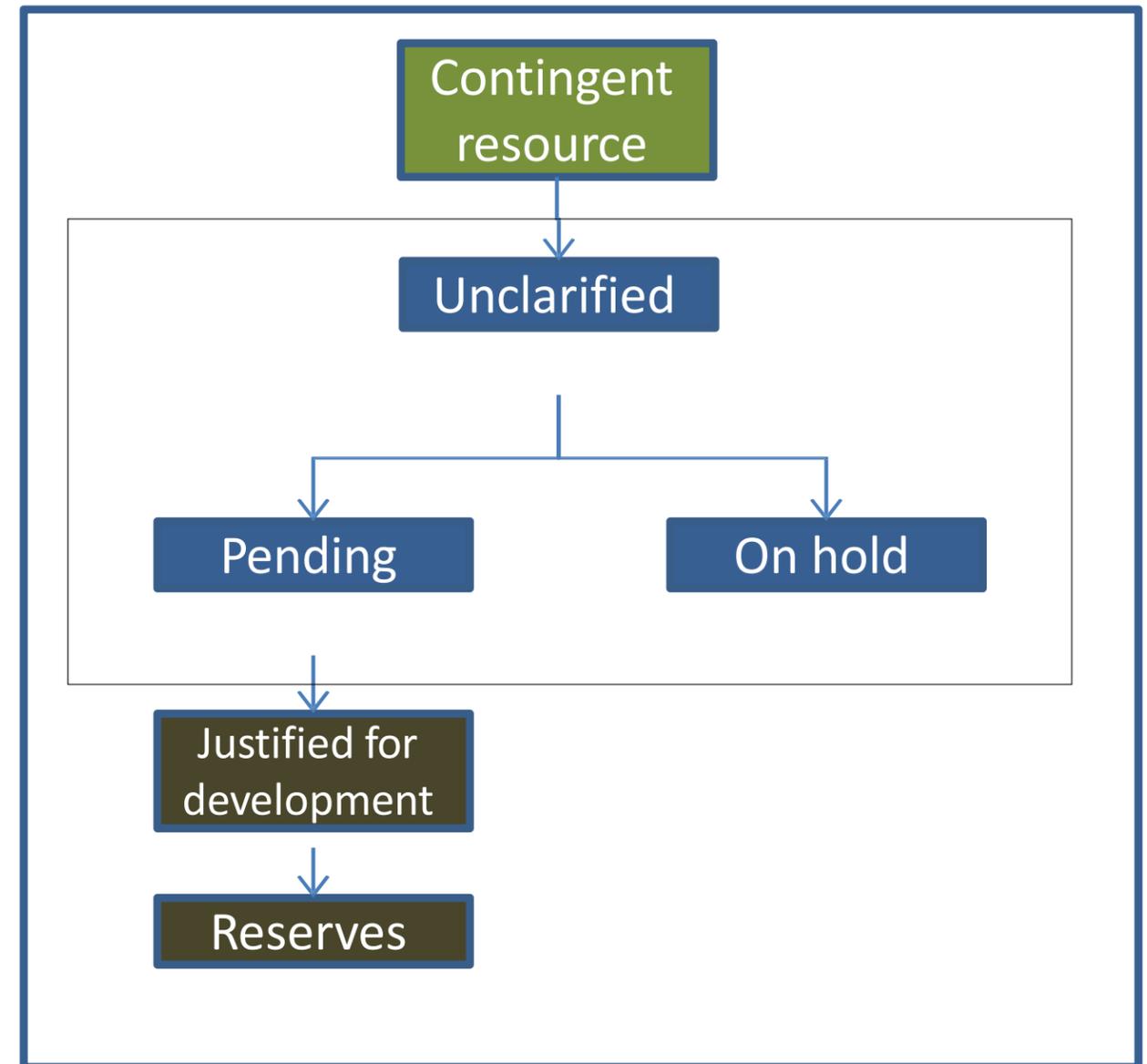
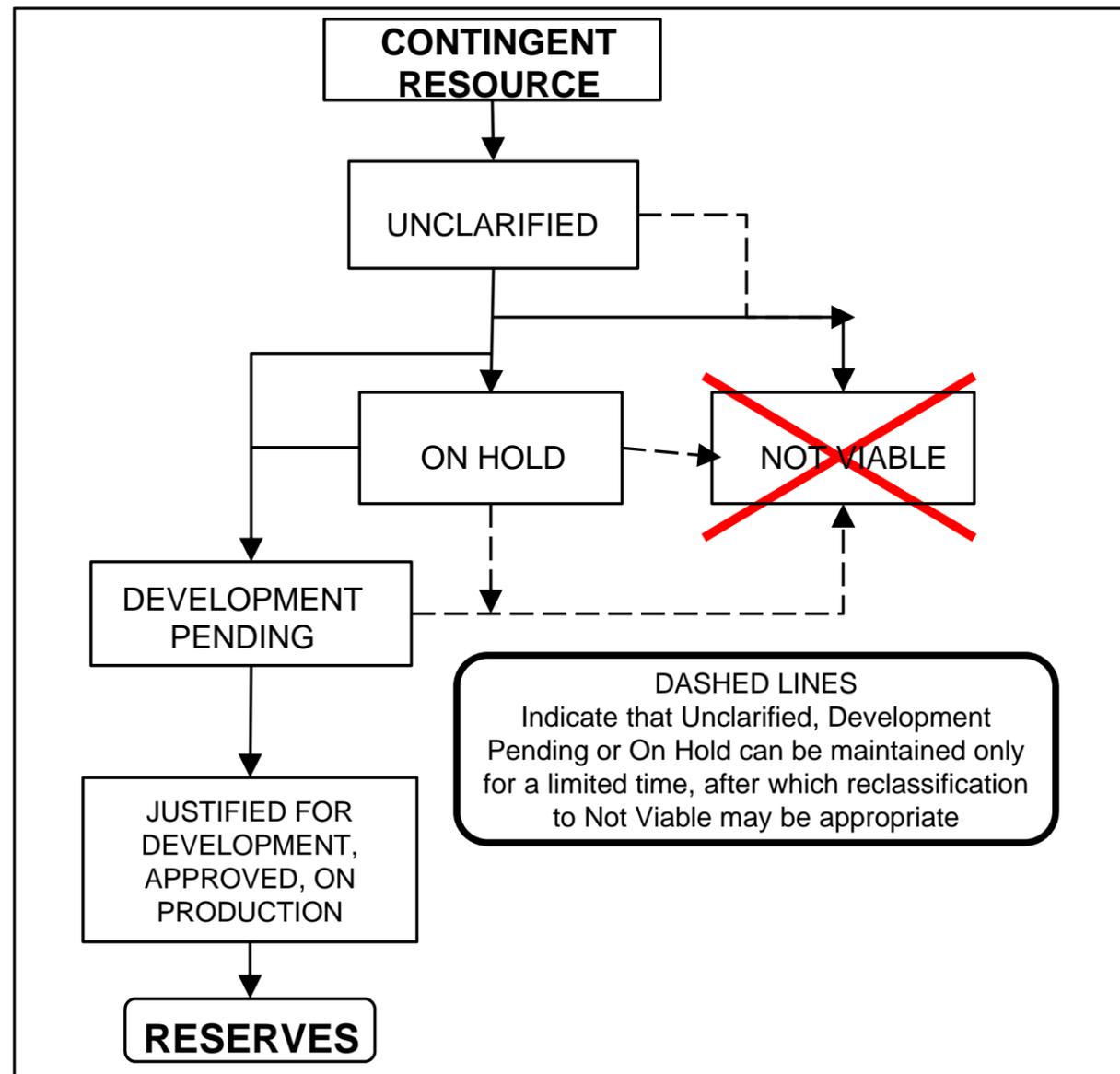
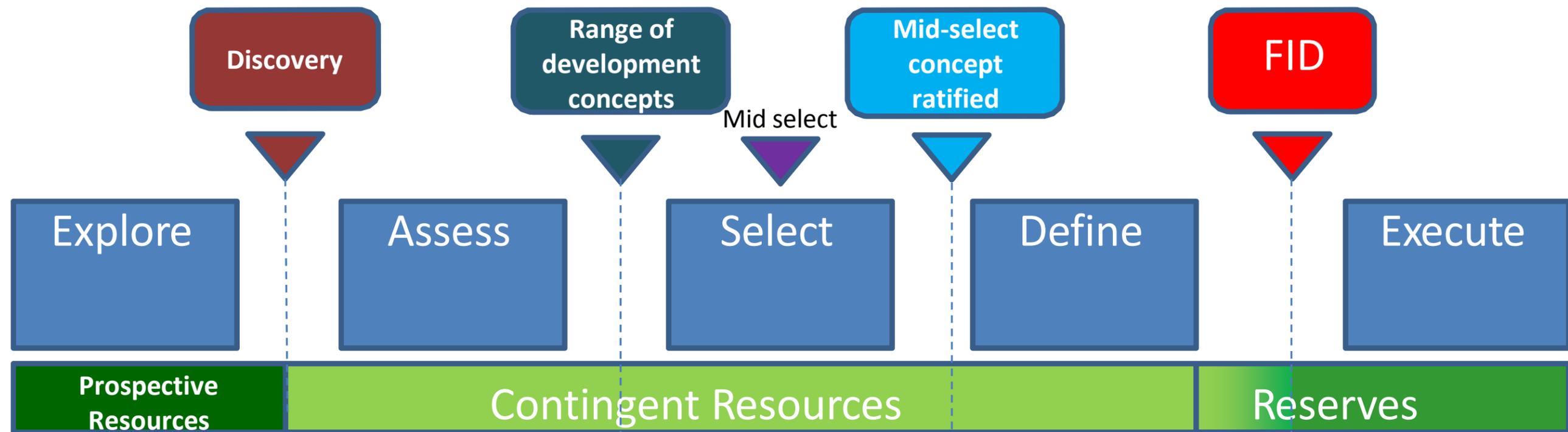


Figure 2-4. Flow Chart Illustrating the Relationship Among the Project Maturity Sub-Classes for Contingent Resources.

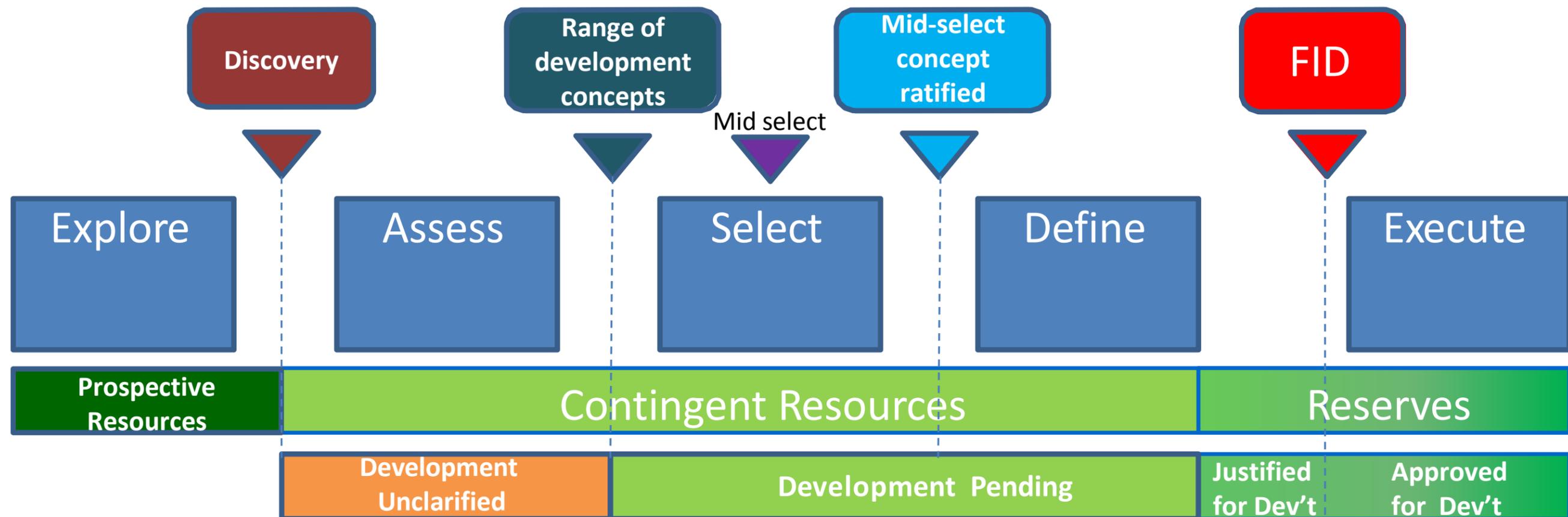
# Stage Gates and Resource Classification



Reserves are booked when firm development intent is recognized - which can be prior to FID



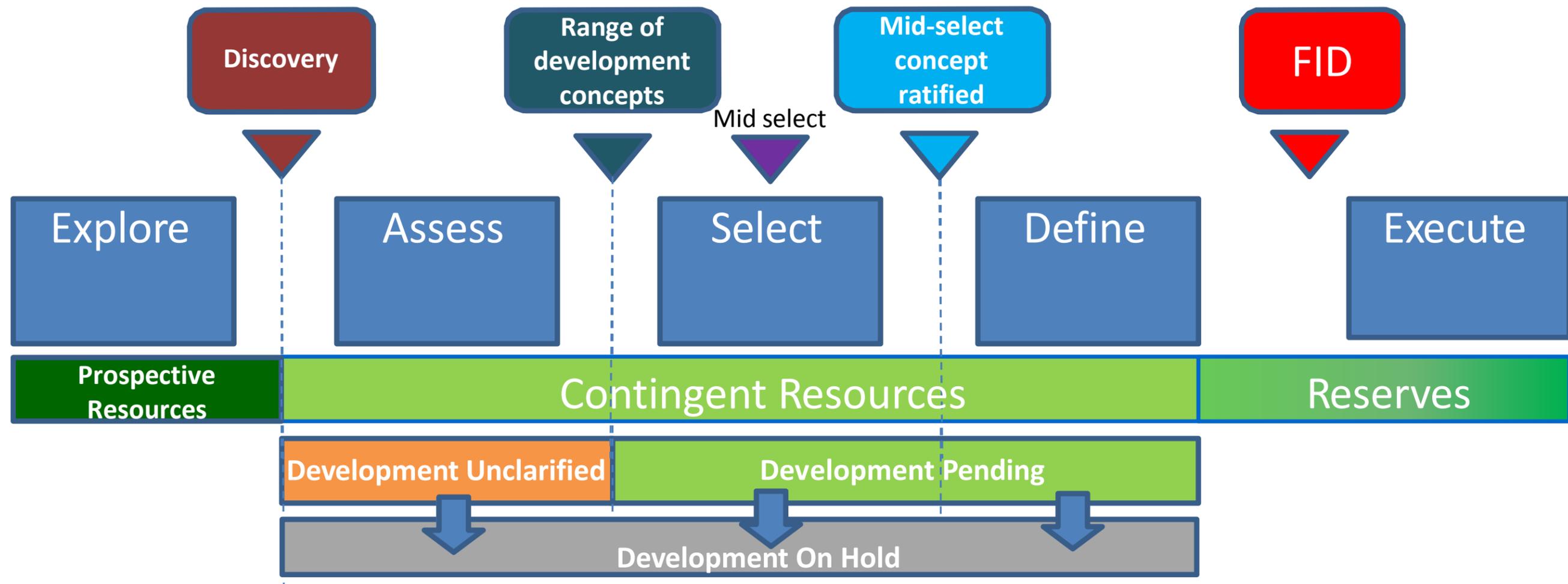
# Stage Gates and Resource Classification



1. Development is initially unclassified until it can be proven that there is at least one possible economic solution
2. Development is pending if work is progressing to remove uncertainties, but:



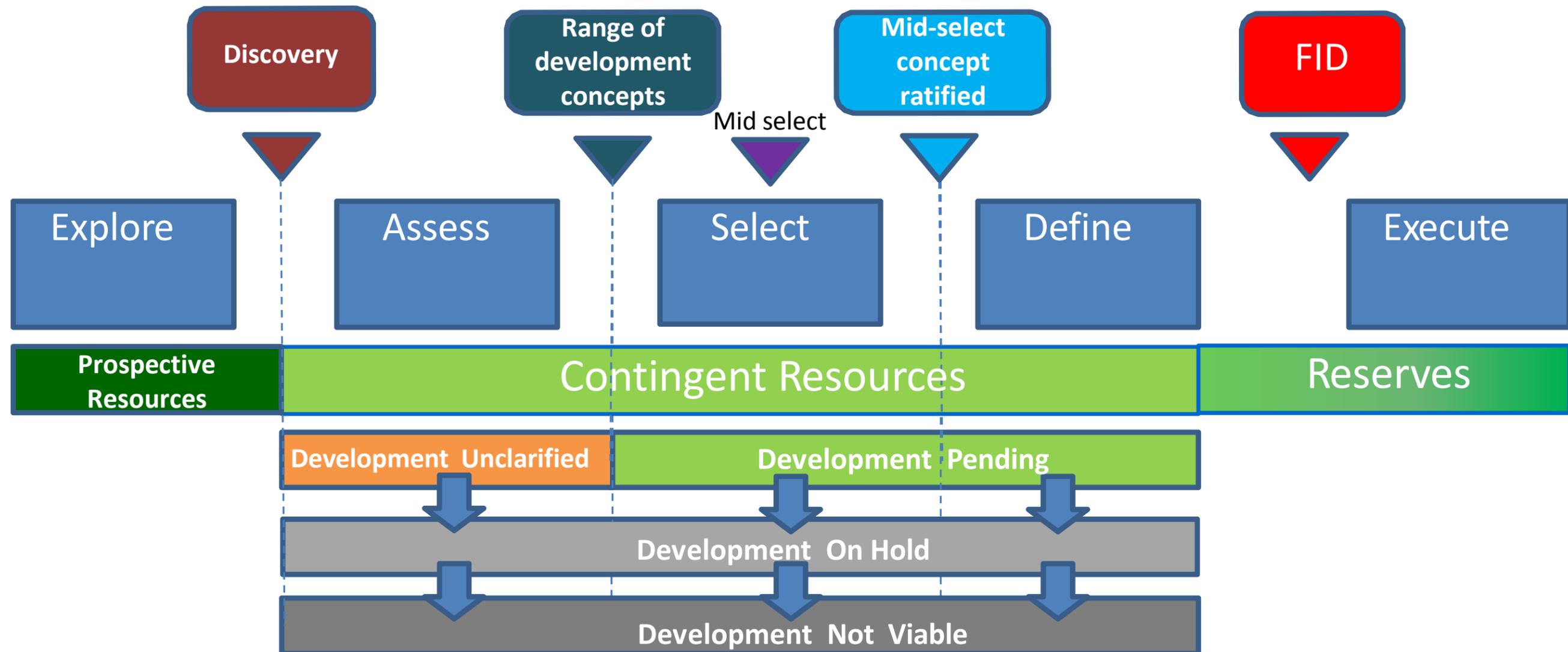
# Stage Gates and Resource Classification



3. If the project remains in a single stage longer than is appropriate, then it progresses into Development On Hold
4. Definition of how long is appropriate will not be a trivial exercise.



# Stage Gates and Resource Classification



5. If it is clear that the development risk exceeds 50%, the decision not to pursue development or undertake any further data acquisition/studies has been made....goes into "not viable".



# Investor thoughts

- Company “y” has 30mmbbl of unrisksed Contingent Resources *Pending*
  - OK, must have at least some chance of going ahead
- Company “x” has 50mmbbl of unrisksed Contingent Resources *On Hold*
  - Well I’d better understand what the contingency is before I put any money into that
- Company “z” has 100mmbbl of unrisksed Contingent Resources *Unclarified*
  - Might be interesting but perhaps I’ll wait until it becomes clearer before committing any money



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# Thanks and questions



## Biography: **Ian McDonald**

Ian McDonald, VP – Reserves, is the Internal Qualified Reserves Evaluator for Nexen Energy ULC, a wholly-owned subsidiary of CNOOC Limited. He is responsible for the management, estimation and reporting of Nexen's world-wide reserves on behalf of CNOOC.

He has worked for Nexen for more than 35 years starting as a production engineer, and has held numerous positions in the company. He is currently a member of the Alberta Securities Commission's Petroleum Advisory Committee, contributing member of a SPE PRMS sub-committee, assisted in the drafting of the unconventional resource chapter of the Canadian Oil and Gas Evaluation Handbook, and also serves as the

World Petroleum Congress delegate for the Joint Committee on Reserves Evaluator Training (JCRET). Last year Ian completed his three year term on the SPE Oil and Gas Reserves Committee.

### **Contingent Resources - Not all Created Equal**

**Abstract:** I was a member of a sub-committee who drafted the COGEH "Guidelines for the Estimation and Classification of Resources other than Reserves" (ROTR). As well I was a member of the SPE O&G Reserves Committee who was responsible for maintaining and updating the PRMS. These two guidelines provide the pre-eminent understanding for Contingent Resource estimation and classification.

In my opinion, Contingent Resources include a wide range of commercial and technical considerations which are often difficult to characterize, especially if estimates involve a number of dissimilar projects. This classification works - more or less - for those trained in Reserves and Resources, but for the outside investor it is completely opaque.

This presentation takes a quick tour of the treatment of Contingent Resources by PRMS and COGEH and tries to provide the understanding behind the classification and sub-classifications. The confusion appears to lie with the many uses of Contingent Resources where classification of discovered resource provides for all scenarios (likely and unlikely) vs. projects which are currently "viable" (maturity clarification).