



Biography:

Joel Turnbull

Joel Turnbull is one of the Founder Members of the European Chapter of the SPEE. Joel has worked in the oil industry for 30 years, the majority of that time with oil companies big and small.

Joel's background is in Reservoir Engineering, but more recently has been working as a Development Manager for Nexen and currently for Sasol.

Joel had the good fortune to be the Area Development Manager for the Buzzard oilfield, and was in charge for the first 500mmbbl of production.

Joel's interest is in the practical application of the Reserves and Resources guidelines and trying to make the complexities of the guidelines easier to understand and apply.

Contingent Resources – Not All Created Equal

Abstract: Thanks to the efforts of many industry bodies, not least the SPEE, Reserves in general, and Proved Reserves in particular, are better understood both inside and outside of the industry. There remain issues, of course, but we have come a long way from the dark days of the Ormen Lange controversy.

In my opinion, this clarity does not extend through to Contingent Resource, which often feels like the unloved cousin of the Resources family. This category works – more or less – for those trained in Reserves and Resources, but for the outside investor it is completely opaque.

This paper takes a quick tour of the treatment of Contingent Resources by PRMS and COGEH and tries to understand the thinking behind the classification and sub-classifications. The confusion appears to lie with the dual nature of Contingent Resources (maturity, problems) and a high level solution is proposed.

Contingent Resources

Not all created equal?

Joel Turnbull

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Disclaimer

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This presentation forms the personal view of Joel Turnbull and does not necessarily reflect the opinions or policy of any company that I have worked for in the past, or current work for.



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%, unrisksd”

Company v

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



PRMS 2007

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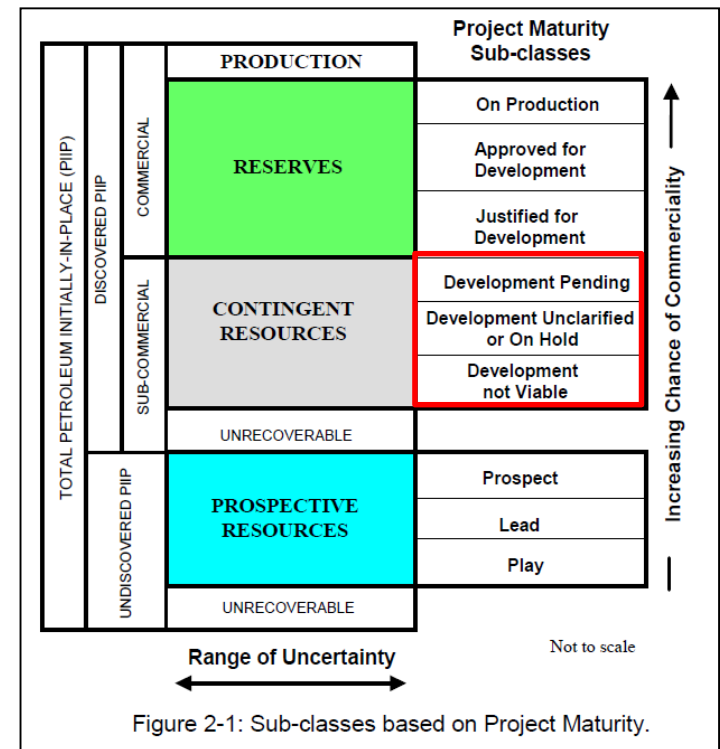
- Subclasses

1. Development pending
2. Development unclarified or on hold
3. Development not viable
4. (Unrecoverable)



So let's be clear, here.

A contingent resource that is in category “Development not viable” is still classed as a contingent resource




PRMS 2007 Table 1

Development pending

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- 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)

PRMS 2007 Table 1

Development unclarified or on hold

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- The project is seen to have potential for eventual commercial development, but further appraisal/evaluation activities are on hold pending the removal of significant contingencies external to the project, or substantial further appraisal/evaluation activities are required to clarify the potential for eventual commercial development.



So now we've got a roadblock. A big roadblock moves it out of "On hold" into "Not viable". We still have a maturity aspect for confusion.....

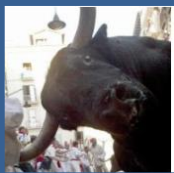


PRMS 2007 Table 1

Development not viable

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- 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.

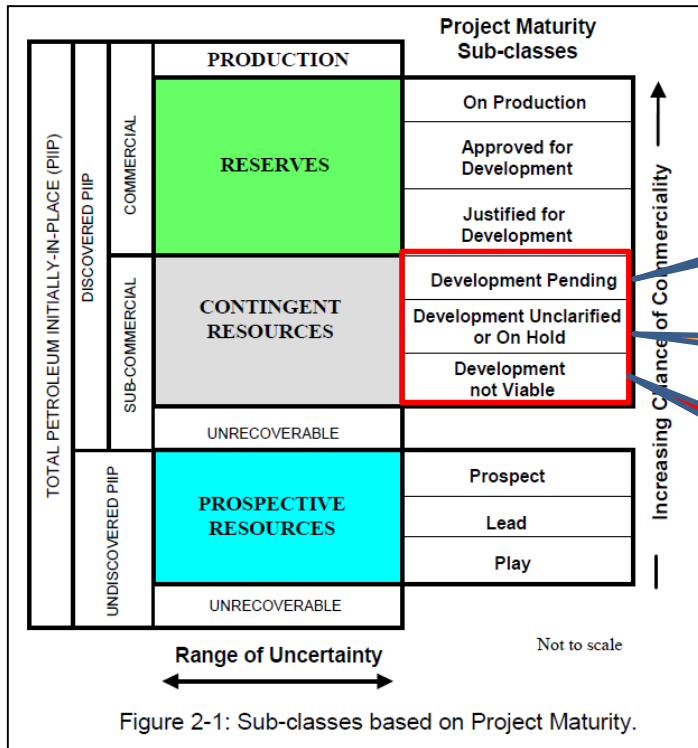
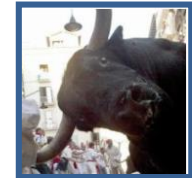


Now we've got a really big roadblock. Even unreasonable oil prices (\$200/bbl) breakevens can go in here. **Remember – resources in this category are still valid contingent resources**



PRMS Guidelines 2011

- Joel's interpretation of PRMS



Roadblock free, we are progressing, but not necessarily mature

Significant roadblock and we're not progressing

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

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

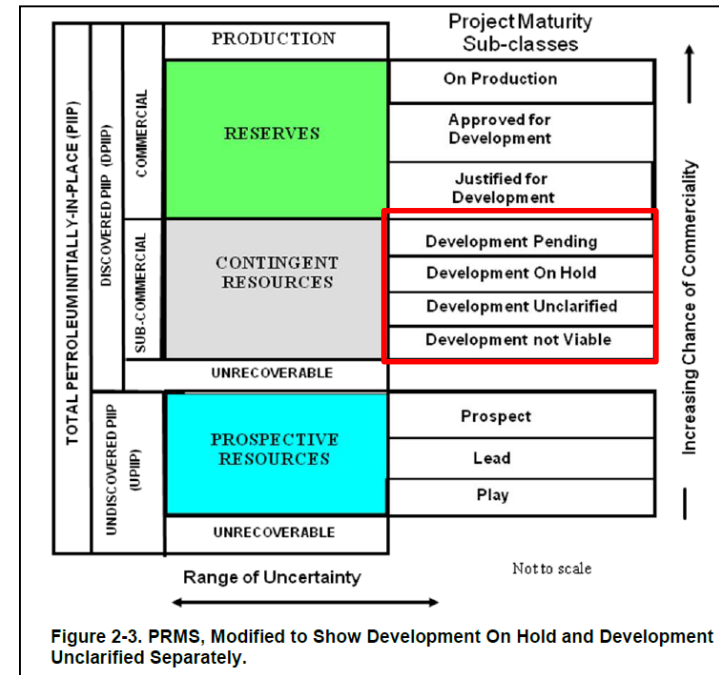
Did I mention.....all three categories are valid Contingent Resources?



COGEH

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- COGEH 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*

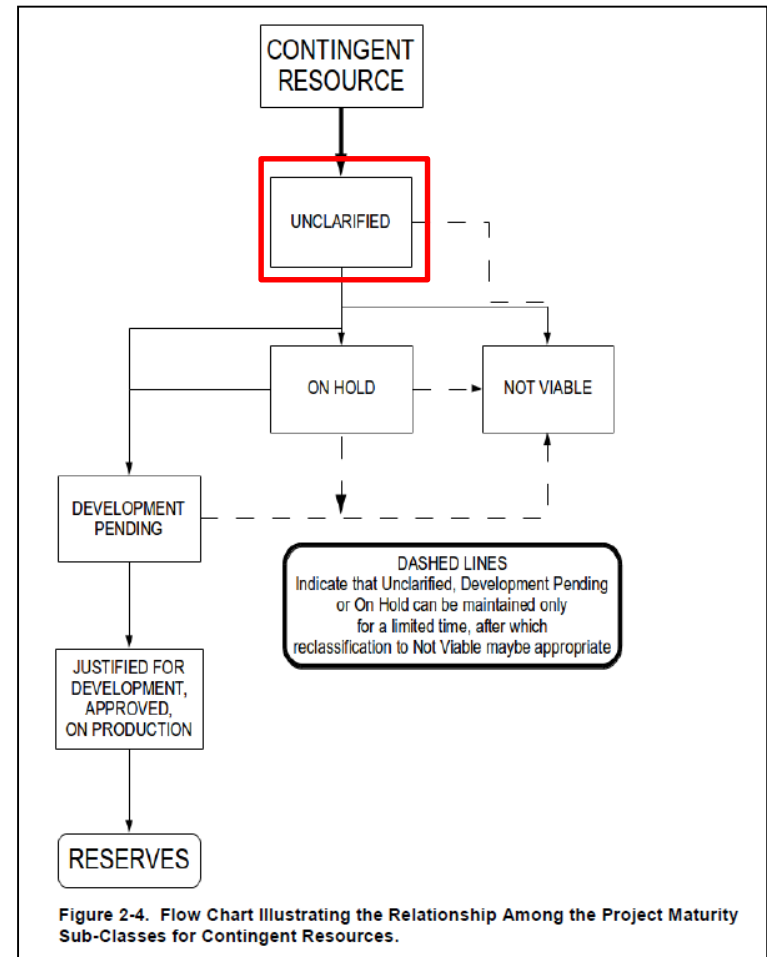


From COGEH Volume 2, section 2

COGEH

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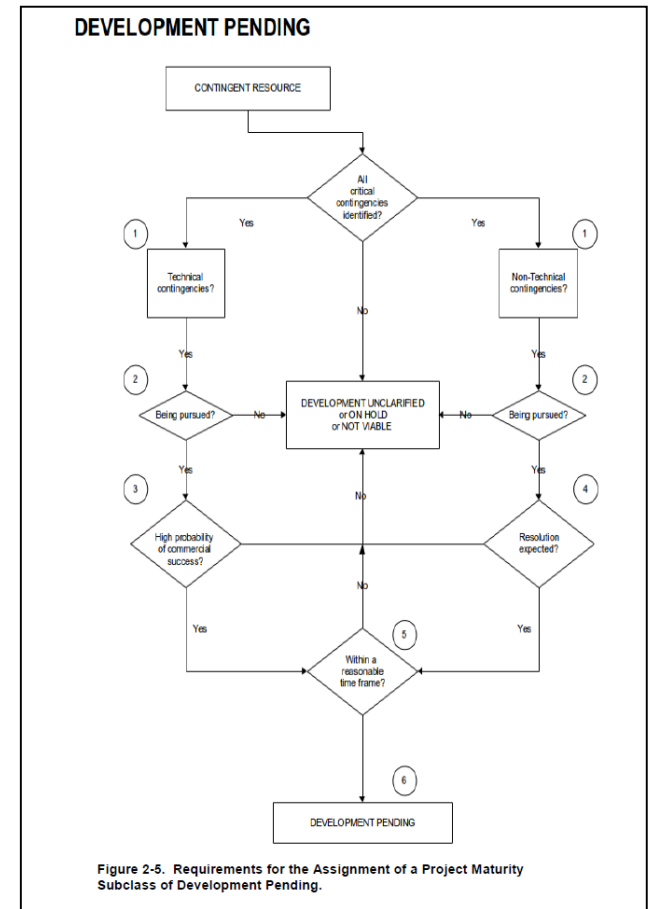
- First step is an initial assessment to determine if there is potential for development.
 - “Development Unclarified”
- Once this is done, there are four possible outcomes
 1. We still need more data to decide – Development Unclarified
 2. We confident of a development – Development Pending
 3. There 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




COGEH

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- **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



From COGEH Volume 2, section 2


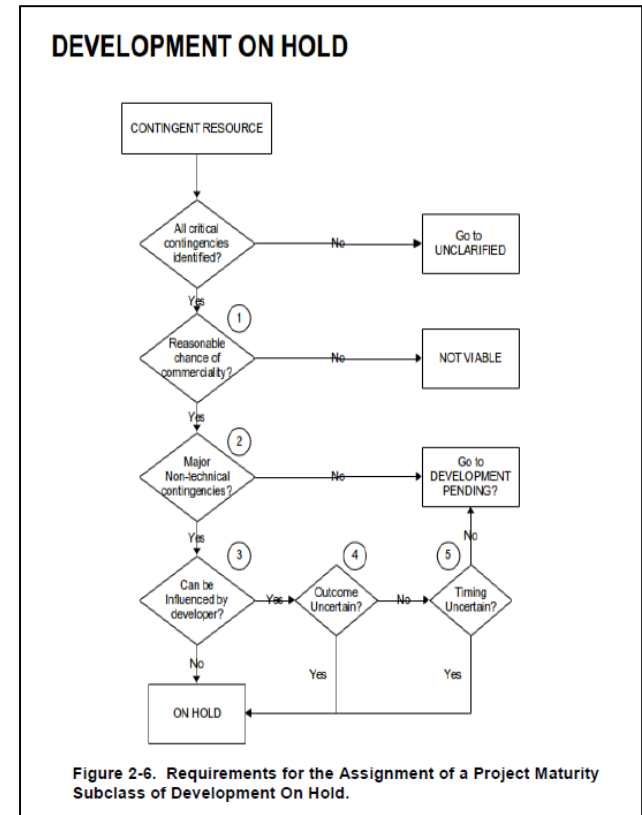


So for COGEH “Development Pending” you need an overall chance of 80% of development; a reasonable timeframe to development and no outstanding contingencies that you can’t influence.

COGEH

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- **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

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- **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”.

DEVELOPMENT UNCLARIFIED

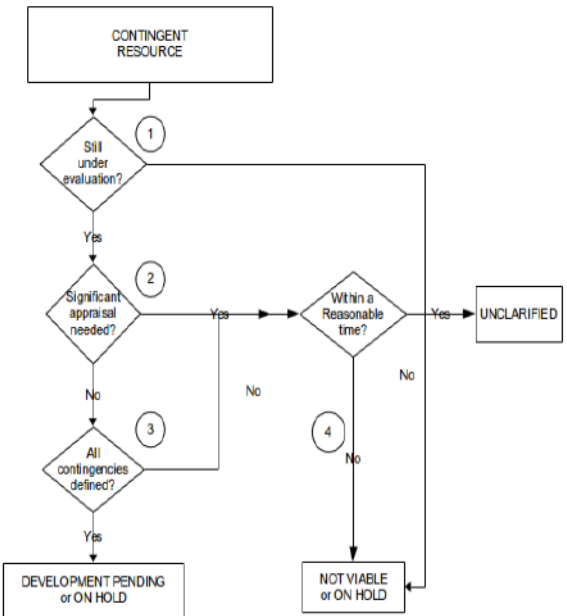



Figure 2-7. Requirements for the Assignment of a Project Maturity Subclass of Development Unclarified.




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

COGEH

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- **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....



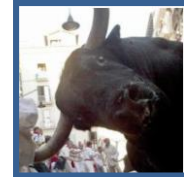
There “may be potential” still leaves the door open for a project that is never going to see the light of day, and allowing an impossible project to be classified as Contingent Resource.



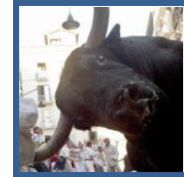
COGEH

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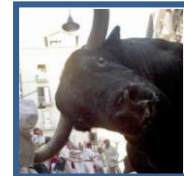
- **Unrecoverable**
- “Unrecoverable is that portion of Discovered or Undiscovered PIIP quantities which is estimated, as of a given date, **not to be recoverable by future development projects**”.
- “A portion of these quantities **may become recoverable in the future** as commercial circumstances change 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**”



OK



Uh-oh

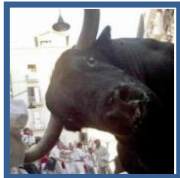


Oh dear

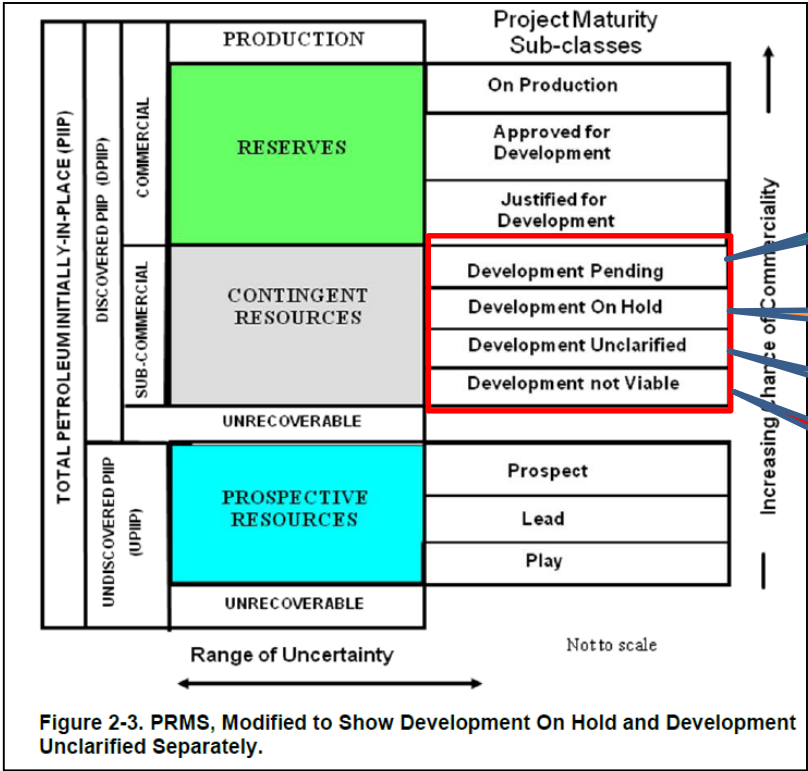


How is this materially different from “not viable”?

COGEH 2014



- Joel's interpretation of COGEH



Roadblock free, and at least 80% chance of development

Significant roadblock but reasonable chance of commerciality

We don't know yet.

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

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



SEC

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SPE 2001		SEC 1978	UK-SORP 2001	CSA 2002	RF 2005	PRO 2005	NPD 2001	USGS 1980	UNFC 2003
In-Place									
Total Petroleum Initially-In-Place	Total PIIIP			Total PIIIP	Total PIIIP	Total PIIIP	**	Total PIIIP	Total PIIIP
Discovered Petroleum Initially-In-Place	Discovered PIIIP			Discovered PIIIP	Geological Reserves	Geological Reserves	**	Discovered PIIIP	Discovered PIIIP
Undiscovered Petroleum Initially-In-Place	Undiscovered PIIIP			Undiscovered PIIIP	Geological Resources	Undiscovered PIIIP	**	Undiscovered PIIIP	Undiscovered PIIIP
Recoverable									
Discovered + Undiscovered	Resources			Resources			Recoverable Resources		Remaining Recoverable
Produced	Production	Production	Production	Production	Produced Reserves	Production	Historical Production	Cumulative Production	Produced
Discovered	Discovered	Discovered	Discovered	Discovered	Recoverable Reserves	Recoverable Reserves	**	Identified Resources	
Discovered Commercial	Reserves	Reserves	Reserves	Reserves	Economic - Normally Profitable Reserves	Economical Initially Recoverable Reserves*	Reserves	(Economic) Reserves	Reserves
Discovered Sub-commercial	Contingent Resources			Contingent Resources	Contingently Profitable & Subeconomic Reserves	*	Contingent Resources	Marginal Reserves	Contingent Resources
Discovered Unrecoverable	(Discovered) Unrecoverable			(Discovered) Unrecoverable	Unrecoverable Reserves	Residual Unrecoverable Volumes	**	Demonstrated Subeconomic Resources	Unrecoverable
Undiscovered	Prospective Resources			Prospective Resources	Recoverable Resources	Recoverable Resources	Undiscovered Resources	Undiscovered Resources	Prospective Resources
Undiscovered Unrecoverable	(Undiscovered) Unrecoverable			(Undiscovered) Unrecoverable	Unrecoverable Resources	Residual Unrecoverable Volumes	**		Unrecoverable

* Chinese classification is EUR-based - includes production. Contingent Resources equivalent is technically recoverable minus economically recoverable

** The NPD classification is for recoverable quantities only based on development projects.

Table 1: Correlation of Status Categories

From SPE ORGC
Mapping Final
Report Dec 2005



No contingent
resources in SEC

So what are the problems?

1. Contingent Resources is a very broad church
 - They vary between 90% 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 developing
 - 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)

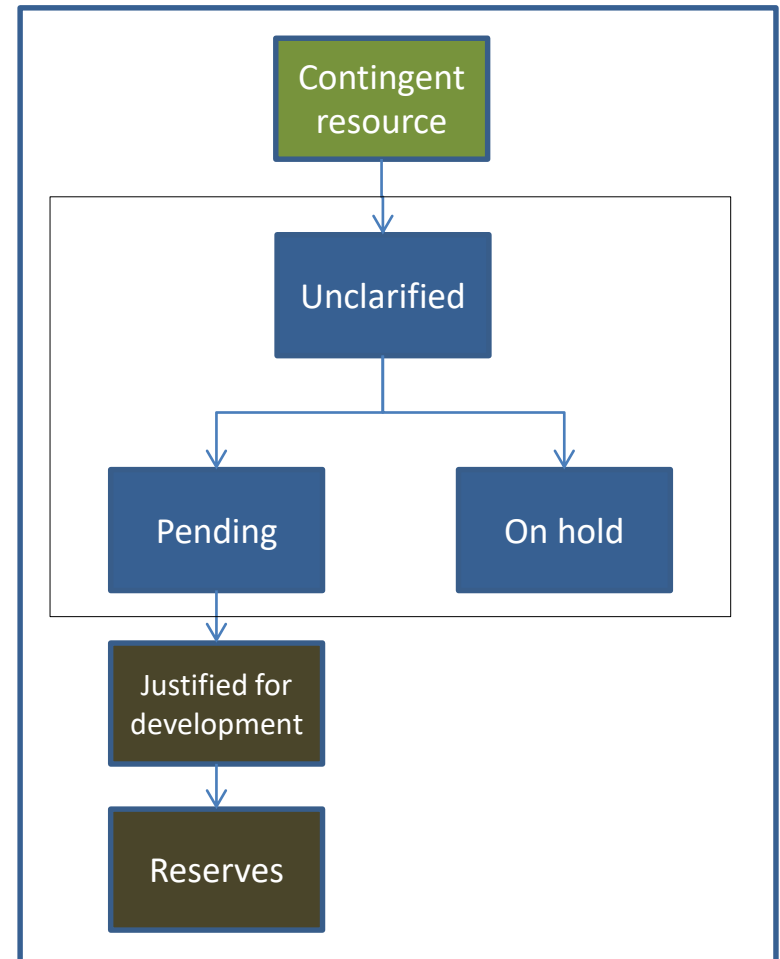
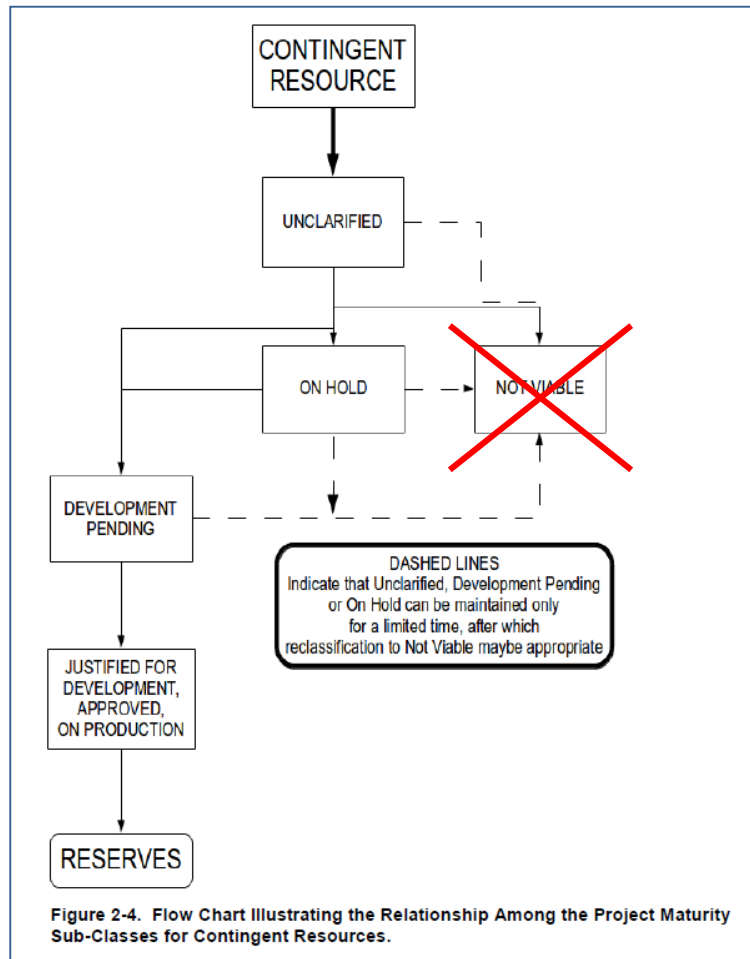


So what could be the solutions?

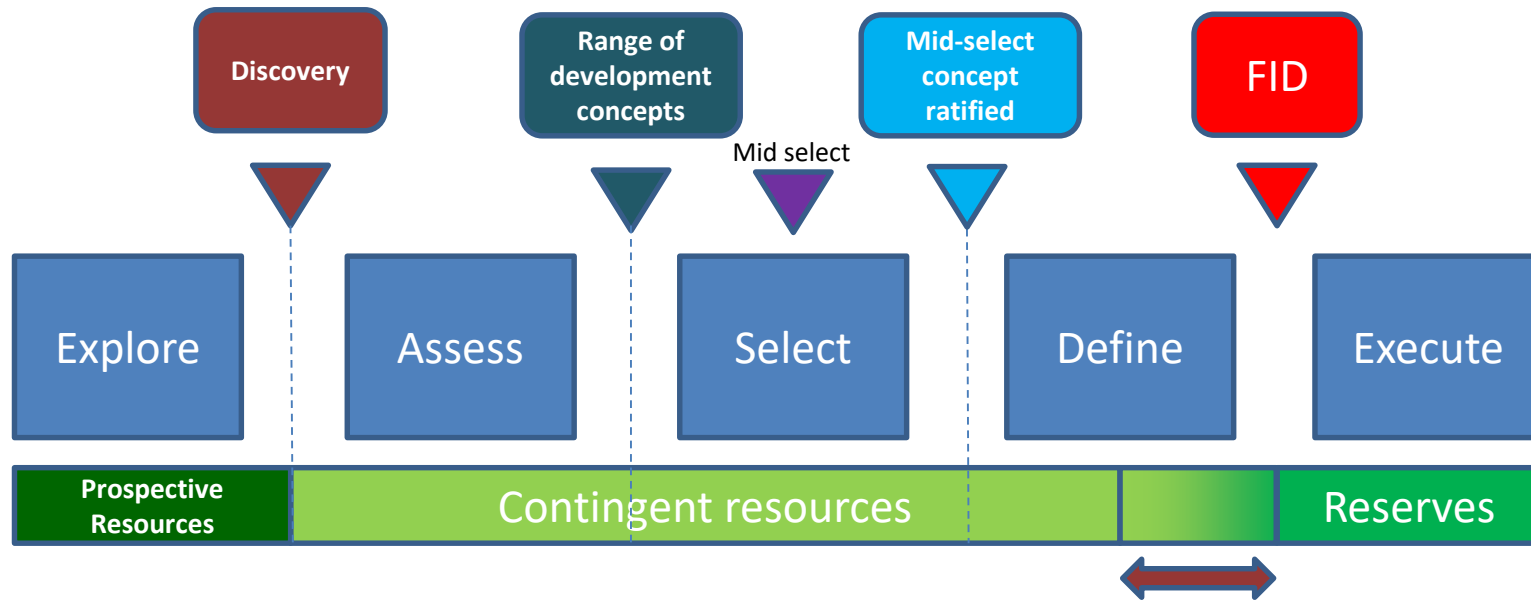
- Before answering this question, its worth reminding ourselves why we have contingent resources at all
 - Reporting
 - Most reporting jurisdictions do not require reporting of Contingent Resources
 - In fact, in the US you are not allowed to
 - Investor information
 - Typically the statements are light on technical (classification) detail
 - 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)



Possible solutions: sub-categories



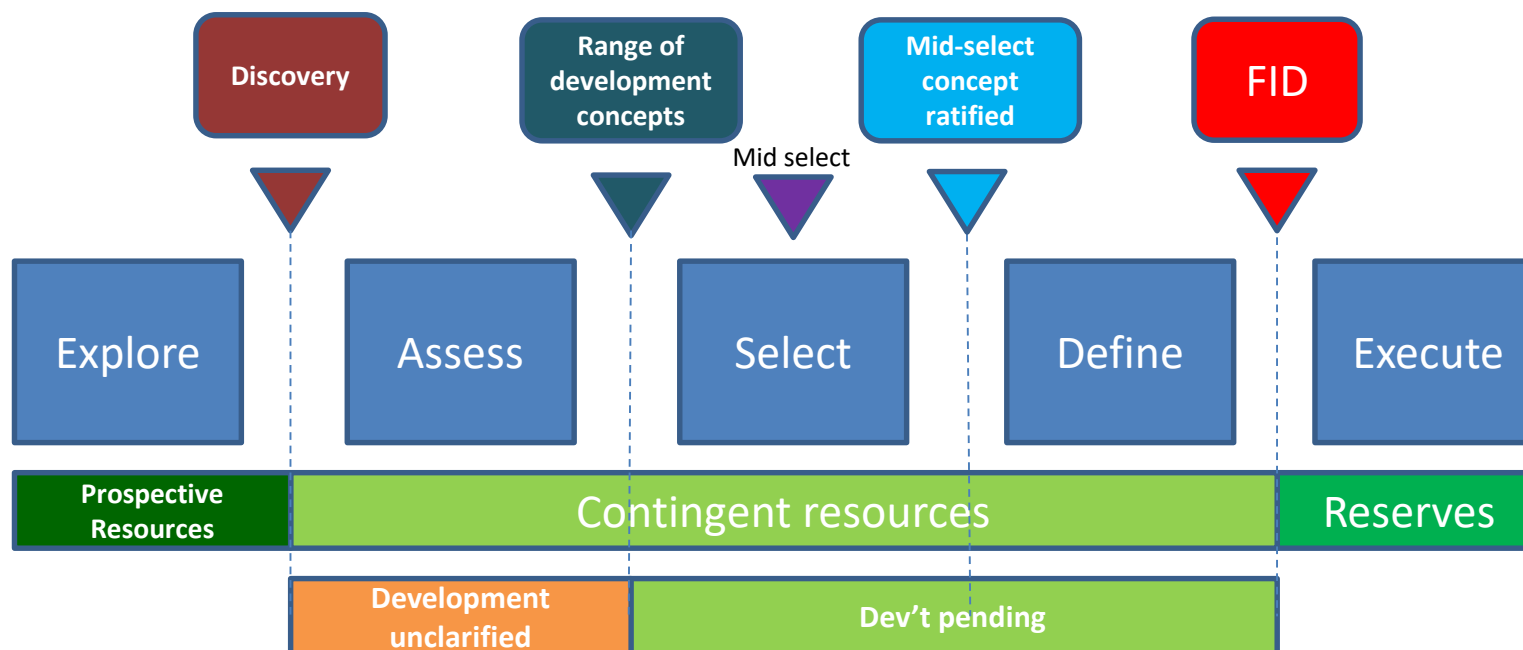
Possible solutions: Stage gates



Can be possible to book
reserves prior to FID



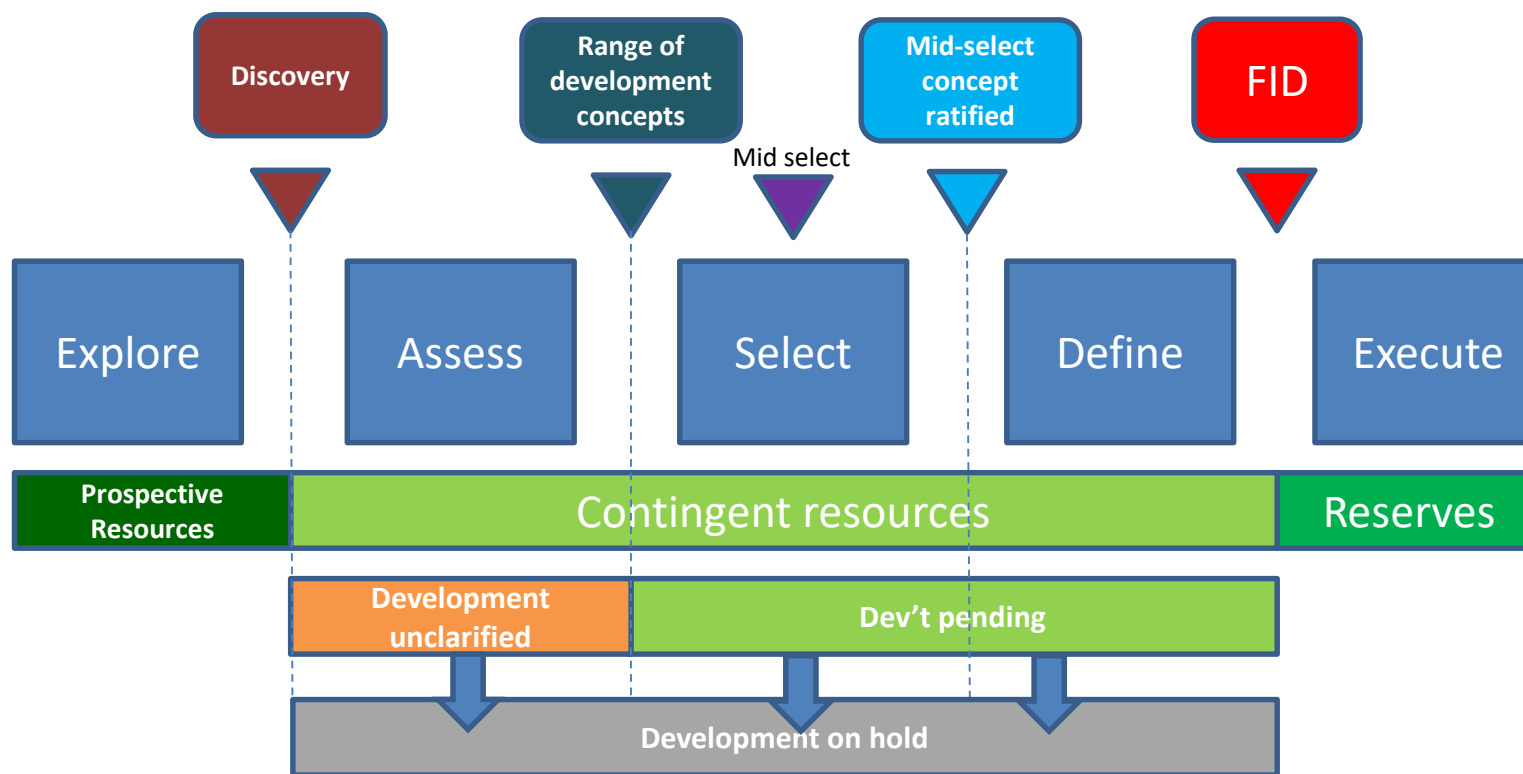
Stage gates



1. Development is initially unclarified 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:



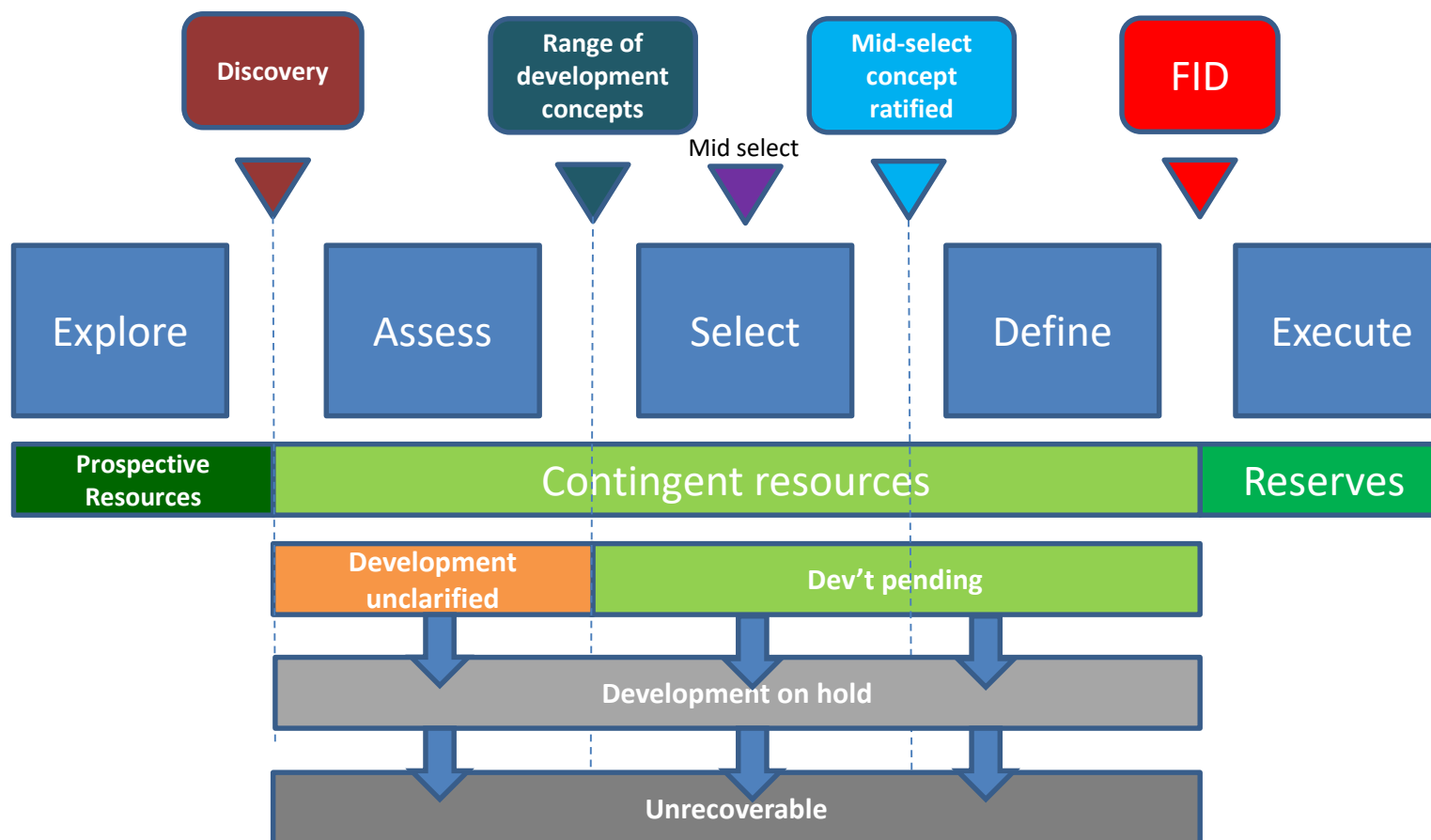
Stage gates



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



Stage gates



5. If at any point it is clear that the development has a very low chance of development then it goes into unrecoverable.



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



Thanks and questions

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