



Navigating the Changing World of Reserves and Resources in the Context of the PRMS

20 - 21 AUGUST 2024 | BRISBANE, AUSTRALIA

Pd via “Progress x Chance” Method

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The presentation material is the view of the collaborators in general, but not necessarily in detail, and not necessarily the view of their employer or SPE. The material is provided to promote discussion amongst the workshop attendees on better understanding of PRMS.

***Some of the extracts from the spreadsheet have small font
Overcome by presenting the material in the spreadsheet
itself***

Topics

- Basis of Methodology - Pg v Pd
- Methodology Stages
- Stage 1 – use CC_A “Technical” as example
- Stage 1 – “Progress”: Horizontal Axis all CC’s
- Stage 1 – “Chance”: Vertical Axis all CC’s
- Stage 2 – Example A: Matrix Assessment
- Stage 3 – Example A: Combine -> Results
- Monitor over time -> Insightful
- Take aways



Basis of Methodology – Pg v Pd



Pg typically based on multiplication of geological-oriented chance factors such as:

- Reservoir
- Source
- Trap
- Seal
- Charge or Migration

Frequently independent and not influenced by decisions or actions

Well established industry practice exists

Pd does not have industry wide practice

- Pd often has been based on achieving acceptable “economics” only
- PRMS 2018 has made it “somewhat clear” that this is inadequate and all CC’s must be taken into account
- AG22 does not reinforce this requirement
- Methods for Pg unlikely appropriate for Pd
- *Achievement of CC’s likely to have interdependence and be influenced by decisions or action*

“Progress” x “Chance” Method based on all CC’s and Commitment



Methodology Stages



Entity or Evaluator has decided to have a systematic process for evaluating Pd (PRMS guidance and best practice):

Stage 1: Establish the descriptions for the “Progress” (horizontal) and “Chance” (vertical) Axes of the matrices for each Commerciality Criteria

Stage 2: Determine the chance factors for each CC for the specific project.

Stage 3: Determine the appropriateness of approaches to combine the results

Calculate candidate $fn(CC's)$

Select a final $fn(CC's)$

Assess Commitment

Estimate a Pd for the project at the Effective Date

Project Maturity Sub-class can also be selected



Stage 1 – use CC_A “Technical” as example



Stage 1 – use CC_A “Technical” as example (1/4)



CC _A	Technical	A. Evidence of a technically mature, feasible development plan.
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Stage 1a: Determine Progress Level for “Horizontal axis of “Progress x Chance” matrix

Select “Considerations” for “Progress”

PRMS 2018 2.1.2 Commerciality Criteria requirements	Simplified Description	Considerations
A. Evidence of a technically mature, feasible development plan	A. Technical	Sub-surface PIIP characterisation
		Technology(s) applied to achieve production
		Development Plan



Stage 1 – use CC_A “Technical” as example (2/4)



Highlighted boxes are for Example A – “No” emissions issues etc

CC _A	Technical	A. Evidence of a technically mature, feasible development plan.
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Stage 1a: Determine Progress Level for “Horizontal axis of “Progress x Chance” matrix

Develop “Progress” descriptors from “Low Progress” to “Ready for OR Approved for Development”

Considerations	Low Progress	Medium Progress	High Progress	Minimum Progress for Reserves	Ready for OR Appr'd for Dev
Sub-surface PIIP characterisation	Significant geological and reservoir engineering technical data, uncertainties and implications for development to be resolved. In this context uncertainty does not necessarily mean "bad", it means "uncertainty that may need to be addressed" (such as structural uncertainty from the seismic interpretation that may need an appraisal well to calibrate the depth conversion).	If required to address technical subsurface uncertainties, work program underway to gather technical data and resolve sub-surface uncertainties, including appraisal activities such as seismic, appraisal wells, field and lab testing	No significant technical subsurface uncertainties, or sufficient data obtained to remove major uncertainties and incorporated into sub-surface models to finalise development plan and assessment of commerciality.	Incorporated into development plan.	Ready for Appr'd for Dev or project already Appr'd for Development
Technology(s) applied to achieve production	Uncertainty with respect to recovery technology to be applied (from a number of options which are Established Technology for the Project).	Concept selection process narrowing down recovery technology options.	Concept selection finalised.	Incorporated into development plan.	Ready for Appr'd for Dev or project already Appr'd for Development
	Commercial development reliant on a successful technology under development (TUD) process.	If TUD process required, significant progress being made towards achieving Established Technology for the Project.	Established Technology for Project achieved	Incorporated into development plan.	Ready for Appr'd for Dev or project already Appr'd for Development
Development Plan	Conceptual or scoping level only, perhaps with several options under consideration, different scopes for Low, Best and High estimates.	Development plan maturing with preferred options being identified or Concept selected. One project scope or narrow range.	Development Plan to be finalised in foreseeable future	Development plan, including number and type of wells and associated infrastructure, sufficiently mature for financial appropriation and to initiate implementation. Any part of the project that is dependent on acquisition of future appraisal data/studies is to be considered a separate project.	Ready for Appr'd for Dev or project already Appr'd for Development



Stage 1 – use CC_A “Technical” as example (3/4)



CC _A	Technical	A. Evidence of a technically mature, feasible development plan.
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Stage 1b: Determine Chance Level for “Horizontal axis of “Progress x Chance” matrix

Develop “Chance” descriptors from “Very Low Chance” to “Very High Chance”

CHANCE: Considerations for estimating chance of moving from Current Progress to 100%
Entity to provide evidence for assessment

VERY HIGH CHANCE	<p>As per HIGH CHANCE with caution for Low - Medium Progress ...</p> <p>Need convincing evidence to be assigned a Very High Chance if Low - Medium Progress</p>
HIGH CHANCE	<p>Clear path the resolving technical issues as they apply to achieving commerciality.</p> <p>No foreseen technical issues in resolving any subsurface uncertainties.</p> <p>Established Technology for the Project.</p> <p>Routine project Field Development Plan.</p>
MEDIUM CHANCE	<p>Some technical issues to be addressed with some doubt on timely resolution.</p>
LOW CHANCE	<p>Significant technical issues to be addressed with low expectation of resolution in foreseeable future.</p>
VERY LOW CHANCE	<p>Requires a significant improvement in technology or commercial conditions to overcome the technical issues within a reasonable timeframe.</p>



Stage 1 – use CC_A “Technical” as example (4/4)



TECHNICAL										
CHANCE: Considerations for estimating chance of moving from Current Progress to 100% Entity to provide evidence for assessment										
VERY HIGH CHANCE	As per HIGH CHANCE with caution for Low - Medium Progress ... Need convincing evidence to be assigned a Very High Chance if Low - Medium Progress	100%	A chance selected in this region should be carefully considered with CAUTION due to insufficient Progress for Reserves to be considered, especially when only Low - Medium Progress						Reserves may be considered for this Commerciality Criterion ~ 90 - 100%	
		95%							High High ~ 70-90% chance	
HIGH CHANCE	Clear path the resolving technical issues as they apply to achieving commerciality. No foreseen technical issues in resolving any subsurface uncertainties. Established Technology for the Project. Routine project Field Development Plan.	80%	Medium High ~ 60 - 80% chance		High Medium ~ 50 - 70% chance (Refer High Low note below ...)		Selection from Range in Matrix Chance, CCA: 70% Progress Qualitative: Low Progress Progress Numerical: 0.3			
		70%			Low High ~ 50 - 70% chance					
		60%	Medium Medium ~ 40 - 60% chance		High Low ~ 10 - 50% chance (For High Progress to be associated with a Low Chance of maturing, some unforeseen or unforeseeable Technical issue would have arisen)					
MEDIUM CHANCE	Some technical issues to be addressed with some doubt on timely resolution.	50%			Low Medium ~ 30 - 50% chance					
LOW CHANCE		Significant technical issues to be addressed with low expectation of resolution in foreseeable future.	40%	Medium Low ~ 10 - 40% chance						
	30%		Low Low ~ 10 - 30% chance							
20%	When any criteria has a very low chance of reaching the minimum requirement for Reserves, then project should be Unrecoverable. To be justified and defended by the Entity or Evaluator. ~ 0 - 10% chance									
10%			When any criteria has a very low chance of reaching the minimum requirement for Reserves, then project should be Unrecoverable. To be justified and defended by the Entity or Evaluator. ~ 0 - 10% chance							
0	When any criteria has a very low chance of reaching the minimum requirement for Reserves, then project should be Unrecoverable. To be justified and defended by the Entity or Evaluator. ~ 0 - 10% chance									
VERY LOW CHANCE			Requires a significant improvement in technology or commercial conditions to overcome the technical issues within a reasonable timeframe.	0	When any criteria has a very low chance of reaching the minimum requirement for Reserves, then project should be Unrecoverable. To be justified and defended by the Entity or Evaluator. ~ 0 - 10% chance					
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1										
PROGRESS: Current Progress of Commerciality Criterion in relation to minimum for Reserves to be considered										
field Description	Considerations	Low Progress		Medium Progress		High Progress		Minimum Progress for Reserves	Ready for OR Appr'd for Dev	
A. Technical	Sub-surface PIIP characterisation	Significant geological and reservoir engineering technical data, uncertainties and implications for development to be resolved. In this context uncertainty does not necessarily mean "bad", it means "uncertainty that may need to be addressed" (such as structural uncertainty from the seismic interpretation that may need an appraisal well to calibrate the depth conversion).		If required to address technical subsurface uncertainties, work program underway to gather technical data and resolve sub-surface uncertainties, including appraisal activities such as seismic, appraisal wells, field and lab testing		No significant technical subsurface uncertainties, or sufficient data obtained to remove major uncertainties and incorporated into sub-surface models to finalise development plan and assessment of commerciality.		Incorporated into development plan.	Ready for Appr'd for Dev or project already Appr'd for Development	
	Technology(s) applied to achieve production	Uncertainty with respect to recovery technology to be applied (from a number of options which are Established Technology for the Project).		Concept selection process narrowing down recovery technology options.		Concept selection finalised.		Incorporated into development plan.	Ready for Appr'd for Dev or project already Appr'd for Development	
	Development Plan	Commercial development reliant on a successful technology under development (TUD) process.		If TUD process required, significant progress being made towards achieving Established Technology for the Project.		Established Technology for Project achieved		Incorporated into development plan.	Ready for Appr'd for Dev or project already Appr'd for Development	
	Development Plan	Conceptual or scoping level only, perhaps with several options under consideration, different scopes for Low, Best and High estimates.		Development plan maturing with preferred options being identified or Concept selected. One project scope or narrow range.		Development Plan to be finalised in foreseeable future		Development plan, including number and type of wells and associated infrastructure, sufficiently mature for financial appropriation and to initiate implementation. Any part of the project that is dependent on acquisition of future appraisal data/studies is to be considered a separate project.	Ready for Appr'd for Dev or project already Appr'd for Development	

NOTES:
(i) Although low progress the path forward is expected to be clear from a technical perspective.
(ii)...



Stage 1 – “Progress”: Horizontal Axis all CC’s



Stage 1 – “Progress”: Horizontal Axis all CC’s (1/2)



CC's Considerations for Progress		PROGRESS: Current Progress of Commerciality Criterion in relation to minimum for Reserves to be considered (Example A selections highlighted) Page 1 of 2				
Simplified Description	Considerations	Low Progress	Medium Progress	High Progress	Minimum Progress for Reserves	Ready for OR Appr'd for Dev
A. Technical	Sub-surface P11P characterisation	Significant geological and reservoir engineering technical data, uncertainties and implications for development to be resolved. In this context uncertainty does not necessarily mean "bad", it means "uncertainty that may need to be addressed" (such as structural uncertainty from the seismic interpretation that may need an appraisal well to calibrate the depth conversion).	If required to address technical subsurface uncertainties, work program underway to gather technical data and resolve sub-surface uncertainties, including appraisal activities such as seismic, appraisal wells, field and lab testing	No significant technical subsurface uncertainties, or sufficient data obtained to remove major uncertainties and incorporated into sub-surface models to finalise development plan and assessment of commerciality.	Incorporated into development plan.	Ready for Appr'd for Dev or project already Appr'd for Development
	Technology(s) applied to achieve production	Uncertainty with respect to recovery technology to be applied (from a number of options which are Established Technology for the Project).	Concept selection process narrowing down recovery technology options.	Concept selection finalised.	Incorporated into development plan.	Ready for Appr'd for Dev or project already Appr'd for Development
		Commercial development reliant on a successful technology under development (TUD) process.	If TUD process required, significant progress being made towards achieving Established Technology for the Project.	Established Technology for Project achieved	Incorporated into development plan.	Ready for Appr'd for Dev or project already Appr'd for Development
	Development Plan	Conceptual or scoping level only, perhaps with several options under consideration, different scopes for Low, Best and High estimates.	Development plan maturing with preferred options being identified or Concept selected. One project scope or narrow range.	Development Plan to be finalised in foreseeable future	Development plan, including number and type of wells and associated infrastructure, sufficiently mature for financial appropriation and to initiate implementation. Any part of the project that is dependent on acquisition of future appraisal data/studies is to be considered a separate project.	Ready for Appr'd for Dev or project already Appr'd for Development
B. FINANCE	Financing issues	Significant financial appropriation issues to be resolved	Financial appropriation negotiations underway	No financial barriers foreseen with negotiations to date	Financial appropriations in place or reasonably expected to be for Entity and Joint Venture parties	Ready for Appr'd for Dev or project already Appr'd for Development
C. TIMEFRAME	Entity capability	Capability of Entity questionable and no plans evident to progress capability	Capability issues being addressed	Capability issues largely resolved	Capability confirmed	Ready for Appr'd for Dev or project already Appr'd for Development
	Joint Venture alignment	Misaligned with no firm plans in plans evident to align	Somewhat aligned Joint Venture	Largely aligned Joint Venture	Joint Venture aligned	Ready for Appr'd for Dev or project already Appr'd for Development
	Timing of commercialisation in a reasonable timeframe	No evidence of addressing commercialisation issues	Plans evident to progress to commercialisation in a reasonable timeframe	Progression to commercialisation well underway	Firm intent to implement development within 5 years (unless otherwise justified)	Ready for Appr'd for Dev or project already Appr'd for Development
D. ECONOMICS	Economics	Screening economics on a conceptual development plan commensurate with the maturity of the project.	Only the High Estimate scenario is economic under Defined Conditions-based on a development plan commensurate with the maturity of the project.	The Best and High Estimate scenarios are economic under Defined Conditions based on a development plan commensurate with the maturity of the project.	The Best and High Estimate scenarios are economic under Defined Conditions based on a development plan commensurate with the maturity of the project. If the Low Estimate is not economic then it would be zero on maturation to Reserves.	Ready for Appr'd for Dev or project already Appr'd for Development
	Meeting Defined Investment and Operating Criteria	Screening economics on a conceptual development plan commensurate with the maturity of the project.	Only the High Estimate scenario meets the Defined Investment and Operating criteria under Defined Conditions based on a development plan commensurate with the maturity of the project.	The Best and High Estimate scenarios meet the Defined Investment and Operating criteria under Defined Conditions based on a development plan commensurate with the maturity of the project.	The Low, Best and High Estimate scenarios meet the Defined Investment and Operating criteria under Defined Conditions based on a development plan commensurate with the maturity of the project.	Ready for Appr'd for Dev or project already Appr'd for Development



Stage 1 – “Progress”: Horizontal Axis all CC’s (2/2)



CC's Considerations for Progress		PROGRESS: Current Progress of Commerciality Criterion in relation to minimum for Reserves to be considered (Example A selections highlighted) Page 2 of 2				
Simplified Description	Considerations	Low Progress	Medium Progress	High Progress	Minimum Progress for Reserves	Ready for OR Appr'd for Dev
E. MARKET	Market	Potential customers unknown or no gap in the market	Potential customers identified	Market demand exists, potential customers high graded and indicating a commercial arrangement is likely	Known customers with sufficient demand profile. Heads of Agreement(s) in place for gas projects or a track record of securing sales. (Most often oil projects have 100%).	Ready for Appr'd for Dev or project already Appr'd for Development
	Disposal of all produced streams	Limited disposal options identified for other produced streams	Disposal options for other produced streams maturing	Disposal options matured and confirmed commercially viable	Appropriate disposal of all other produced streams secured	Ready for Appr'd for Dev or project already Appr'd for Development
F. INFRASTRUCTURE	Production facilities	No production facilities in place	Missing production facilities identified and included in development plans or third party production facilities potentially available	Production facilities in place and ullage potentially available	Production facilities in place and ullage confirmed	Ready for Appr'd for Dev or project already Appr'd for Development
	Transportation facilities	No transportation facilities in place	Missing transportation facilities identified and included in development plans or third party transportation facilities potentially available	Transportation facilities in place and ullage available	Transportation facilities in place and ullage confirmed	Ready for Appr'd for Dev or project already Appr'd for Development
G. EXTERNAL	Permits or Regulatory approvals	No permits or regulatory approvals in place	Permits or regulatory approvals progressing well	Permits and regulatory approvals largely obtained	All Permits and regulatory approvals in place or reasonably expected.	Ready for Appr'd for Dev or project already Appr'd for Development
	Political factors	Immature relationship	Relationship building	Relationship built	Positive relationship for project over the long term	Ready for Appr'd for Dev or project already Appr'd for Development
	Society factors	Significant (or potentially significant) opposition to project by local communities and activists with little or no mitigation plans in place	Some opposition to project by local communities and activists and mitigations plans in place or underway	Positive community support and with any opposition manageable	Community approval of project	Ready for Appr'd for Dev or project already Appr'd for Development



Stage 1 – “Chance”: Vertical Axis all CC’s



Stage 1 – “Chance”: Vertical Axis all CC’s (1/2)



CHANCE: Considerations for estimating chance of moving from Current Progress to 100% (Example A selections highlighted) Page 1 of 2				
Entity to provide evidence for assessment				
	TECHNICAL	FINANCE	TIMEFRAME	ECONOMICS
VERY HIGH CHANCE	As per HIGH CHANCE with caution for Low - Medium Progress ... Need convincing evidence to be assigned a Very High Chance if Low - Medium Progress	As per HIGH CHANCE with caution for Low - Medium Progress ... Need convincing evidence to be assigned a Very High Chance if Low - Medium Progress	As per HIGH CHANCE with caution for Low - Medium Progress ... Need convincing evidence to be assigned a Very High Chance if Low - Medium Progress	All (or most) development plan options are economic and meet defined investment and operating criteria, for all scenarios, under Defined Conditions and appropriate sensitivities. Caution for Low - Medium Maturity ... Need convincing evidence to be assigned a Very High Chance if Low - Medium Maturity
HIGH CHANCE	Clear path the resolving technical issues as they apply to achieving commerciality. No foreseen technical issues in resolving any subsurface uncertainties. Established Technology for the Project. Routine project Field Development Plan.	Clear path to securing finance. Large scale of Entity cf size of project. High maturity status of other commerciality criteria. Partner approval secured or not required.	Requisite staff and other resourcing confirmed. Evidence of aligned plans and approved budgets with JV. Evidence of development being initiated in less than 5 years.	Most development plan options are economic and meet defined investment and operating criteria, for the Medium and High scenarios, under Defined Conditions, or, have numerous realistic and viable options evident to improve economics if required. Track record of achieving such improvements evident.
MEDIUM CHANCE	Some technical issues to be addressed with some doubt on timely resolution.	Challenging path to securing finance. Medium scale of project cf Entity. Medium maturity status of other commerciality criteria.	Multiple options to address staff and other resourcing being assessed. Evidence of some alignment of plans and budgets with JV. Evidence of possibility to initiate development in less than 5 years.	Some development plan options and their scenarios are economic under Defined Conditions and have some realistic and viable options to improve the economics have been or may be identified.
LOW CHANCE	Significant technical issues to be addressed with low expectation of resolution in foreseeable future.	Limited financing options. Large scale of project cf size of Entity. Partner approval unlikely, Entity can not go it alone. Low maturity status of other commerciality criteria.	No evidence of competency of staff and other resourcing No or limited evidence of alignment of plans and budgets with JV No evidence of initiating development in less than 5 years	Limited options to improve economics, but does not require unreasonable improvements in technology or commercial conditions.
VERY LOW CHANCE	Requires a significant improvement in technology or commercial conditions to overcome the technical issues within a reasonable timeframe.	Requires a significant improvement in technology or commercial conditions to be likely to secure financing within a reasonable timeframe.	Requires a significant improvement in technology or commercial conditions to be implemented within a reasonable timeframe.	No development plan has any scenario (ie Low, Best, High) that is economic based on Defined Conditions (ie reasonable forecast conditions). Requires a significant improvement in technology or commercial conditions to become economic within a reasonable timeframe.



Stage 1 – “Chance”: Vertical Axis all CC’s (2/2)



CHANCE: Considerations for estimating chance of moving from Current Progress to 100% (Example A selections highlighted) Page 2 of 2			
Entity to provide evidence for assessment			
	MARKET	INFRASTRUCTURE	EXTERNAL
VERY HIGH CHANCE	<p>As per HIGH CHANCE with caution for Low - Medium Progress ...</p> <p>Need convincing evidence to be assigned a Very High Chance if Low - Medium Progress</p>	<p>As per HIGH CHANCE with caution for Low - Medium Progress ...</p> <p>Need convincing evidence to be assigned a Very High Chance if Low - Medium Progress</p>	<p>As per HIGH CHANCE with caution for Low - Medium Progress ...</p> <p>Need convincing evidence to be assigned a Very High Chance if Low - Medium Progress</p>
HIGH CHANCE	<p>Known customers. Sufficient demand profile. HoA in place for gas or track record for sales. Most often oil projects =100% Evidence of ability to appropriately dispose of all other produced streams.</p>	<p>Positive, documented evidence of access to existing production facilities with the required capacity and transportation facilities with the required ullage available.</p> <p>Documented plan for new facilities as appropriate.</p>	<p>Track record of required permits and regulatory approvals and community support for similar projects.</p>
MEDIUM CHANCE	<p>Potential customers identified. Sufficient demand profile Some evidence of likely ability to appropriately dispose of all other produced streams.</p>	<p>Some documentation of options and probable use thereof.</p>	<p>Mixed track record of permits or regulatory approvals and community support for similar projects. New technology to area.</p>
LOW CHANCE	<p>Potential customers unknown or no gap in market. No evidence of ability to appropriately dispose of all other produced streams.</p>	<p>Limited opportunities to address production or transportation facility shortcomings.</p>	<p>Negative response on permits or regulatory approvals and lack of community support, but not expected to be insurmountable.</p>
VERY LOW CHANCE	<p>Requires a significant improvement in technology or commercial conditions to secure a market or dispose of other produced streams within a reasonable timeframe.</p>	<p>Requires a significant improvement in technology or commercial conditions to secure production or transportation facilities within a reasonable timeframe.</p>	<p>Requires a significant improvement in technology or commercial conditions to secure all External approvals within a reasonable timeframe.</p>



Stage 2 – Example A: Matrix Assessment



Stage 2 – Example A: Matrix Assessment (1/7)



TECHNICAL												
CHANCE: Considerations for estimating chance of moving from Current Progress to 100% Entity to provide evidence for assessment												
VERY HIGH CHANCE	As per HIGH CHANCE with caution for Low - Medium Progress ... Need convincing evidence to be assigned a Very High Chance if Low - Medium Progress	100%	A chance selected in this region should be carefully considered with CAUTION due to insufficient Progress for Reserves to be considered, especially when only Low - Medium Progress							Reserves may be considered for this Commerciality Criterion ~ 90 - 100%		
		95%								Not Applicable (since minimum Progress for Reserves met)		
HIGH CHANCE	Clear path the resolving technical issues as they apply to achieving commerciality. No foreseen technical issues in resolving any subsurface uncertainties. Established Technology for the Project. Routine project Field Development Plan.	80%	High High ~ 70-90% chance		Not Applicable (since minimum Progress for Reserves met)		Selection from Range in Matrix Chance, CCA: 70% Progress Qualitative: Low Progress Progress Numerical: 0.3					
		70%	Medium High ~ 60 - 80% chance									
		60%	High Medium ~ 50 - 70% chance (Refer High Low note below ...)									
MEDIUM CHANCE	Some technical issues to be addressed with some doubt on timely resolution.	50%	Low High ~ 50 - 70% chance		Not Applicable (since minimum Progress for Reserves met)		Selection from Range in Matrix Chance, CCA: 70% Progress Qualitative: Low Progress Progress Numerical: 0.3					
		40%	Medium Medium ~ 40 - 60% chance									
LOW CHANCE	Significant technical issues to be addressed with low expectation of resolution in foreseeable future.	30%	Low Medium ~ 30 - 50% chance		Not Applicable (since minimum Progress for Reserves met)		Selection from Range in Matrix Chance, CCA: 70% Progress Qualitative: Low Progress Progress Numerical: 0.3					
		20%	Medium Low ~ 10 - 40% chance									
VERY LOW CHANCE	Requires a significant improvement in technology or commercial conditions to overcome the technical issues within a reasonable timeframe.	10%	When any criteria has a very low chance of reaching the minimum requirement for Reserves, then project should be Unrecoverable. To be justified and defended by the Entity or Evaluator. ~ 0 - 10% chance							Not Applicable (since minimum Progress for Reserves met)		
		0										
		0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
PROGRESS: Current Progress of Commerciality Criterion in relation to minimum for Reserves to be considered												
ified Description	Considerations		Low Progress		Medium Progress		High Progress		Minimum Progress for Reserves		Ready for OR Appr'd for Dev	
A. Technical	Sub-surface PIP characterisation		Significant geological and reservoir engineering technical data, uncertainties and implications for development to be resolved. In this context uncertainty does not necessarily mean "bad", it means "uncertainty that may need to be addressed" (such as structural uncertainty from the seismic interpretation that may need an appraisal well to calibrate the depth conversion).		If required to address technical subsurface uncertainties, work program underway to gather technical data and resolve sub-surface uncertainties, including appraisal activities such as seismic, appraisal wells, field and lab testing		No significant technical subsurface uncertainties, or sufficient data obtained to remove major uncertainties and incorporated into sub-surface models to finalise development plan and assessment of commerciality.		Incorporated into development plan.		Ready for Appr'd for Dev or project already Appr'd for Development	
	Technology(s) applied to achieve production		Uncertainty with respect to recovery technology to be applied (from a number of options which are Established Technology for the Project).		Concept selection process narrowing down recovery technology options.		Concept selection finalised.		Incorporated into development plan.		Ready for Appr'd for Dev or project already Appr'd for Development	
			Commercial development reliant on a successful technology under development (TUD) process.		If TUD process required, significant progress being made towards achieving Established Technology for the Project.		Established Technology for Project achieved		Incorporated into development plan.		Ready for Appr'd for Dev or project already Appr'd for Development	
	Development Plan		Conceptual or scoping level only, perhaps with several options under consideration, different scopes for Low, Best and High estimates.		Development plan maturing with preferred options being identified or Concept selected. One project scope or narrow range.		Development Plan to be finalised in foreseeable future		Development plan, including number and type of wells and associated infrastructure, sufficiently mature for financial appropriation and to initiate implementation. Any part of the project that is dependent on acquisition of future appraisal data/studies is to be considered a separate project.		Ready for Appr'd for Dev or project already Appr'd for Development	



Stage 2 – Example A: Matrix Assessment (2/7)



		FINANCE										
CHANCE: Considerations for estimating chance of moving from Current Progress to 100% Entity to provide evidence for assessment												
VERY HIGH CHANCE	As per HIGH CHANCE with caution for Low - Medium Progress ... Need convincing evidence to be assigned a Very High Chance if Low - Medium Progress	100%	A chance selected in this region should be carefully considered with CAUTION due to insufficient Progress for Reserves to be considered, especially when only Low - Medium Progress							Reserves may be considered for this Commerciality Criterion ~ 90 - 100%		
		95%										
HIGH CHANCE	Clear path to securing finance. Large scale of Entity of size of project. High maturity status of other commerciality criteria. Partner approval secured or not required.	80%	Low High ~ 50 - 70% chance			Medium High ~ 60 - 80% chance		High High ~ 70-90% chance		Not Applicable (since minimum Progress for Reserves met)		
		70%				High Medium ~ 50 - 70% chance (Refer High Low note below ...)						
		60%	Medium Medium ~ 40 - 60% chance									
MEDIUM CHANCE	Challenging path to securing finance. Medium scale of project of Entity. Medium maturity status of other commerciality criteria.	50%	Low Medium ~30 - 50% chance			Medium Low ~ 10 - 40% chance		High Low ~ 10 - 50% chance (For High Progress to be associated with a Low Chance of maturing, some unforeseen or unforeseeable Finance issue would have arisen)				
		40%										
LOW CHANCE	Limited financing options. Large scale of project of size of Entity. Partner approval unlikely, Entity can not go it alone. Low maturity status of other commerciality criteria.	30%	Low Low ~ 10 - 30% chance			Medium Low ~ 10 - 40% chance		High Low ~ 10 - 50% chance (For High Progress to be associated with a Low Chance of maturing, some unforeseen or unforeseeable Finance issue would have arisen)				
		20%										
VERY LOW CHANCE	Requires a significant improvement in technology or commercial conditions to be likely to secure financing within a reasonable timeframe.	10%	When any criteria has a very low chance of reaching the minimum requirement for Reserves, then project should be Unrecoverable. To be justified and defended by the Entity or Evaluator. ~ 0 - 10% chance									
		0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
		PROGRESS: Current Progress of Commerciality Criterion in relation to minimum for Reserves to be considered										
ified Description	Considerations	Low Progress			Medium Progress			High Progress		Minimum Progress for Reserves		Ready for OR Appr'd for Dev
IANCE	Financing Issues	Significant financial appropriation issues to be resolved			Financial appropriation negotiations underway			No financial barriers foreseen with negotiations to date		Financial appropriations in place or reasonably expected to be for Entity and Joint Venture parties		Ready for Appr'd for Dev or project already Appr'd for Development

Selection from Range in Matrix

Chance, CCs: 100%

Progress Qualitative: Ready for OR Appr'd for Dev

Progress Numerical: 1

NOTES:
(i) ...
(ii) ...



Stage 2 – Example A: Matrix Assessment (3/7)



		TIMEFRAME											
CHANCE: Considerations for estimating chance of moving from Current Progress to 100% Entity to provide evidence for assessment													
VERY HIGH CHANCE As per HIGH CHANCE with caution for Low - Medium Progress ... Need convincing evidence to be assigned a Very High Chance if Low - Medium Progress	100%	A chance selected in this region should be carefully considered with CAUTION due to insufficient Progress for Reserves to be considered, especially when only Low - Medium Progress							Reserves may be considered for this Commerciality Criterion ~ 90 - 100%				
	95%												
	90%	High High ~ 70-90% chance							Not Applicable (since minimum Progress for Reserves met)				
	80%												
	HIGH CHANCE Requisite staff and other resourcing confirmed. Evidence of aligned plans and approved budgets with JV. Evidence of development being initiated in less than 5 years.	70%	Low High ~ 50 - 70% chance			Medium High ~ 60 - 80% chance		High Medium ~ 50 - 70% chance (Refer High Low note below ...)					
60%		Low Medium ~30 - 50% chance			Medium Medium ~ 40 - 60% chance		High Low ~ 10 - 50% chance (For High Progress to be associated with a Low Chance of maturing, some unforeseen or unforeseeable Timeframe issue would have arisen)						
MEDIUM CHANCE Multiple options to address staff and other resourcing being assessed. Evidence of some alignment of plans and budgets with JV. Evidence of possibility to initiate development in less than 5 years.	50%	Low Low ~ 10 - 30% chance			Medium Low ~ 10 - 40% chance		High Low ~ 10 - 50% chance (For High Progress to be associated with a Low Chance of maturing, some unforeseen or unforeseeable Timeframe issue would have arisen)						
	40%	Low Low ~ 10 - 30% chance			Medium Low ~ 10 - 40% chance		High Low ~ 10 - 50% chance (For High Progress to be associated with a Low Chance of maturing, some unforeseen or unforeseeable Timeframe issue would have arisen)						
LOW CHANCE No evidence of competency of staff and other resourcing. No or limited evidence of alignment of plans and budgets with JV. No evidence of initiating development in less than 5 years.	30%	Low Low ~ 10 - 30% chance			Medium Low ~ 10 - 40% chance		High Low ~ 10 - 50% chance (For High Progress to be associated with a Low Chance of maturing, some unforeseen or unforeseeable Timeframe issue would have arisen)						
	20%	Low Low ~ 10 - 30% chance			Medium Low ~ 10 - 40% chance		High Low ~ 10 - 50% chance (For High Progress to be associated with a Low Chance of maturing, some unforeseen or unforeseeable Timeframe issue would have arisen)						
VERY LOW CHANCE Requires a significant improvement in technology or commercial conditions to be implemented within a reasonable timeframe.	10%	When any criteria has a very low chance of reaching the minimum requirement for Reserves, then project should be Unrecoverable. To be justified and defended by the Entity or Evaluator. ~ 0 - 10% chance							Not Applicable (since minimum Progress for Reserves met)				
	0%												
		0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1	
		PROGRESS: Current Progress of Commerciality Criterion in relation to minimum for Reserves to be considered											
Simplified Description	Considerations	Low Progress			Medium Progress			High Progress		Minimum Progress for Reserves		Ready for OR Appr'd for Dev	
C. TIMEFRAME	Entity capability	Capability of Entity questionable and no plans evident to progress capability			Capability issues being addressed			Capability issues largely resolved		Capability confirmed		Ready for Appr'd for Dev or project already Appr'd for Development	
	Joint Venture alignment	Misaligned with no firm plans in plans evident to align			Somewhat aligned Joint Venture			Largely aligned Joint Venture		Joint Venture aligned		Ready for Appr'd for Dev or project already Appr'd for Development	
	Timing of commercialisation in a reasonable timeframe	No evidence of addressing commercialisation issues			Plans evident to progress to commercialisation in a reasonable timeframe			Progression to commercialisation well underway		Firm intent to implement development within 5 years (unless otherwise justified)		Ready for Appr'd for Dev or project already Appr'd for Development	

Selection from Range in Matrix

Chance, CC: **70%**

Progress Qualitative: **Medium Progress**

Progress Numerical: **0.6**

NOTES:
 (i) All indications are that the JV are working together to get project approved and ready to implement in <5 years.
 (ii)...



Stage 2 – Example A: Matrix Assessment (4/7)



		ECONOMICS											
CHANCE: Considerations for estimating chance of moving from Current Progress to 100%													
Entity to provide evidence for assessment													
VERY HIGH CHANCE	<p>All (or most) development plan options are economic and meet defined investment and operating criteria, for all scenarios, under Defined Conditions and appropriate sensitivities. Caution for Low - Medium Maturity ...</p> <p>Need convincing evidence to be assigned a Very High Chance if Low - Medium Maturity</p>	100%	<p>A chance selected in this region should be carefully considered with CAUTION due to insufficient Progress for Reserves to be considered, especially when only Low - Medium Progress</p>							<p>Reserves may be considered for this Commerciality Criterion ~ 90 - 100%</p>			
		95%											
HIGH CHANCE	<p>Most development plan options are economic and meet defined investment and operating criteria, for the Medium and High scenarios, under Defined Conditions, or, have numerous realistic and viable options evident to improve economics if required.</p> <p>Track record of achieving such improvements evident.</p>	80%	<p>Low High ~ 50 - 70% chance</p>			<p>Medium High ~ 60 - 80% chance</p>		<p>High High ~ 70-90% chance</p>			<p>Not Applicable (since minimum Progress for Reserves met)</p>		
		70%				<p>High Medium ~ 50 - 70% chance (Refer High Low note below ...)</p>							
		60%				<p>Medium Medium ~ 40 - 60% chance</p>							
MEDIUM CHANCE	<p>Some development plan options and their scenarios are economic under Defined Conditions and have some realistic and viable options to improve the economics have been or may be identified.</p>	50%	<p>Low Medium ~30 - 50% chance</p>			<p>High Low ~ 10 - 50% chance (For High Progress to be associated with a Low Chance of maturing, some unforeseen or unforeseeable Economics issue would have arisen)</p>			<p>Selection from Range in Matrix</p>				
		40%											
LOW CHANCE	<p>Limited options to improve economics, but does not require unreasonable improvements in technology or commercial conditions.</p>	30%	<p>Low Low ~ 10 - 30% chance</p>			<p>Medium Low ~ 10 - 40% chance</p>			<p>Chance, CCd: 90%</p>				
		20%							<p>Progress Qualitative: Low Progress</p>				
VERY LOW CHANCE	<p>No development plan has any scenario (ie Low, Best, High) that is economic based on Defined Conditions (ie reasonable forecast conditions). Requires a significant improvement in technology or commercial conditions to become economic within a reasonable timeframe.</p>	10%	<p>When any criteria has a very low chance of reaching the minimum requirement for Reserves, then project should be Unrecoverable. To be justified and defended by the Entity or Evaluator. ~ 0 - 10% chance</p>							<p>Progress Numerical: 0.2</p>			
		0											
		0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1	
		PROGRESS: Current Progress of Commerciality Criterion in relation to minimum for Reserves to be considered											
Simplified Description	Considerations	Low Progress			Medium Progress			High Progress		Minimum Progress for Reserves		Ready for OR Appr'd for Dev	
D. ECONOMICS	Economics	Screening economics on a conceptual development plan commensurate with the maturity of the project.			Only the High Estimate scenario is economic under Defined Conditions-based on a development plan commensurate with the maturity of the project.			The Best and High Estimate scenarios are economic under Defined Conditions based on a development plan commensurate with the maturity of the project.		The Best and High Estimate scenarios are economic under Defined Conditions based on a development plan commensurate with the maturity of the project. If the Low Estimate is not economic then it would be zero on maturation to Reserves.		Ready for Appr'd for Dev or project already Appr'd for Development	
	Meeting Defined Investment and Operating Criteria	Screening economics on a conceptual development plan commensurate with the maturity of the project.			Only the High Estimate scenario meets the Defined Investment and Operating criteria under Defined Conditions based on a development plan commensurate with the maturity of the project.			The Best and High Estimate scenarios meet the Defined Investment and Operating criteria under Defined Conditions based on a development plan commensurate with the maturity of the project.		The Low, Best and High Estimate scenarios meet the Defined Investment and Operating criteria under Defined Conditions based on a development plan commensurate with the maturity of the project.		Ready for Appr'd for Dev or project already Appr'd for Development	

NOTES:
 (i) Based on the nature of the discovery, even though immature it is obvious that it will be economic and meet the defined investment and operating criteria.
 (ii) The actual scope of the project is still to be determined, however no matter what is found with the appraisal works, the project is expected to sound economically across all criteria.



Stage 2 – Example A: Matrix Assessment (5/7)



MARKET												
CHANCE: Considerations for estimating chance of moving from Current Progress to 100% Entity to provide evidence for assessment												
VERY HIGH CHANCE	As per HIGH CHANCE with caution for Low - Medium Progress ... Need convincing evidence to be assigned a Very High Chance if Low - Medium Progress	100%	A chance selected in this region should be carefully considered with CAUTION due to insufficient Progress for Reserves to be considered, especially when only Low - Medium Progress						Reserves may be considered for this Commerciality Criterion ~ 90 - 100%			
		95%										
HIGH CHANCE	Known customers. Sufficient demand profile. HoA in place for gas or track record for sales. Most often oil projects =100% Evidence of ability to appropriately dispose of all other produced streams.	80%	High High ~ 70-90% chance			Medium High ~ 60 - 80% chance		Not Applicable (since minimum Progress for Reserves met)		Selection from Range in Matrix Chance, CCE: 100% Progress Qualitative: Ready for OR Appr'd for Dev Progress Numerical: 1		
		70%										Low High ~ 50 - 70% chance
		60%	Low Medium ~ 30 - 50% chance		Medium Medium ~ 40 - 60% chance							
MEDIUM CHANCE	Potential customers identified. Sufficient demand profile Some evidence of likely ability to appropriately dispose of all other produced streams.	50%	High Low ~ 10 - 50% chance (For High Progress to be associated with a Low Chance of maturing, some unforeseen or unforeseeable Market issue would have arisen)		Medium Low ~ 10 - 40% chance							
		40%									Low Low ~ 10 - 30% chance	
LOW CHANCE	Potential customers unknown or no gap in market. No evidence of ability to appropriately dispose of all other produced streams.	30%	When any criteria has a very low chance of reaching the minimum requirement for Reserves, then project should be Unrecoverable. To be justified and defended by the Entity or Evaluator. ~ 0 - 10% chance									
20%												
VERY LOW CHANCE	Requires a significant improvement in technology or commercial conditions to secure a market or dispose of other produced streams within a reasonable timeframe.	10%										
0												
		0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
PROGRESS: Current Progress of Commerciality Criterion in relation to minimum for Reserves to be considered												
ified Description	Considerations	Low Progress			Medium Progress		High Progress		Minimum Progress for Reserves		Ready for OR Appr'd for Dev	
E. MARKET	Market	Potential customers unknown or no gap in the market			Potential customers identified		Market demand exists, potential customers high graded and indicating a commercial arrangement is likely		Known customers with sufficient demand profile. Heads of Agreement(s) in place for gas projects or a track record of securing sales. (Most often oil projects have 100%).		Ready for Appr'd for Dev or project already Appr'd for Development	
	Disposal of all produced streams	Limited disposal options identified for other produced streams			Disposal options for other produced streams maturing		Disposal options matured and confirmed commercially viable		Appropriate disposal of all other produced streams secured		Ready for Appr'd for Dev or project already Appr'd for Development	



Stage 2 – Example A: Matrix Assessment (6/7)



INFRASTRUCTURE										
CHANCE: Considerations for estimating chance of moving from Current Progress to 100% Entity to provide evidence for assessment										
VERY HIGH CHANCE	As per HIGH CHANCE with caution for Low - Medium Progress ... Need convincing evidence to be assigned a Very High Chance if Low - Medium Progress	100%	A chance selected in this region should be carefully considered with CAUTION due to insufficient Progress for Reserves to be considered, especially when only Low - Medium Progress						Reserves may be considered for this Commerciality Criterion ~ 90 - 100%	
		95%							High High ~ 70-90% chance	
HIGH CHANCE	Positive, documented evidence of access to existing production facilities with the required capacity and transportation facilities with the required ullage available. Documented plan for new facilities as appropriate.	80%	Medium High ~ 60 - 80% chance		High Medium ~ 50 - 70% chance (Refer High Low note below ...)		Selection from Range in Matrix Chance, CCF: 100% Progress Qualitative: Ready for OR Appr'd for Dev Progress Numerical: 1			
		70%	Low High ~ 50 - 70% chance		High Low ~ 10 - 50% chance (For High Progress to be associated with a Low Chance of maturing, some unforeseen or unforeseeable Infrastructure issue would have arisen)					
		60%	Medium Medium ~ 40 - 60% chance							
MEDIUM CHANCE	Some documentation of options and probable use thereof.	50%	Low Medium ~ 30 - 50% chance							
		40%	Medium Low ~ 10 - 40% chance							
LOW CHANCE	Limited opportunities to address production or transportation facility shortcomings.	30%	Low Low ~ 10 - 30% chance							
		20%								
VERY LOW CHANCE	Requires a significant improvement in technology or commercial conditions to secure production or transportation facilities within a reasonable timeframe.	10%	When any criteria has a very low chance of reaching the minimum requirement for Reserves, then project should be Unrecoverable. To be justified and defended by the Entity or Evaluator. ~ 0 - 10% chance							
		0%								
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1										
PROGRESS: Current Progress of Commerciality Criterion in relation to minimum for Reserves to be considered										
Simplified Description	Considerations		Low Progress		Medium Progress		High Progress	Minimum Progress for Reserves	Ready for OR Appr'd for Dev	
F. INFRASTRUCTURE	Production facilities		No production facilities in place		Missing production facilities identified and included in development plans or third party production facilities potentially available		Production facilities in place and ullage potentially available	Production facilities in place and ullage confirmed	Ready for Appr'd for Dev or project already Appr'd for Development	
	Transportation facilities		No transportation facilities in place		Missing transportation facilities identified and included in development plans or third party transportation facilities potentially available		Transportation facilities in place and ullage available	Transportation facilities in place and ullage confirmed	Ready for Appr'd for Dev or project already Appr'd for Development	



Stage 2 – Example A: Matrix Assessment (7/7)

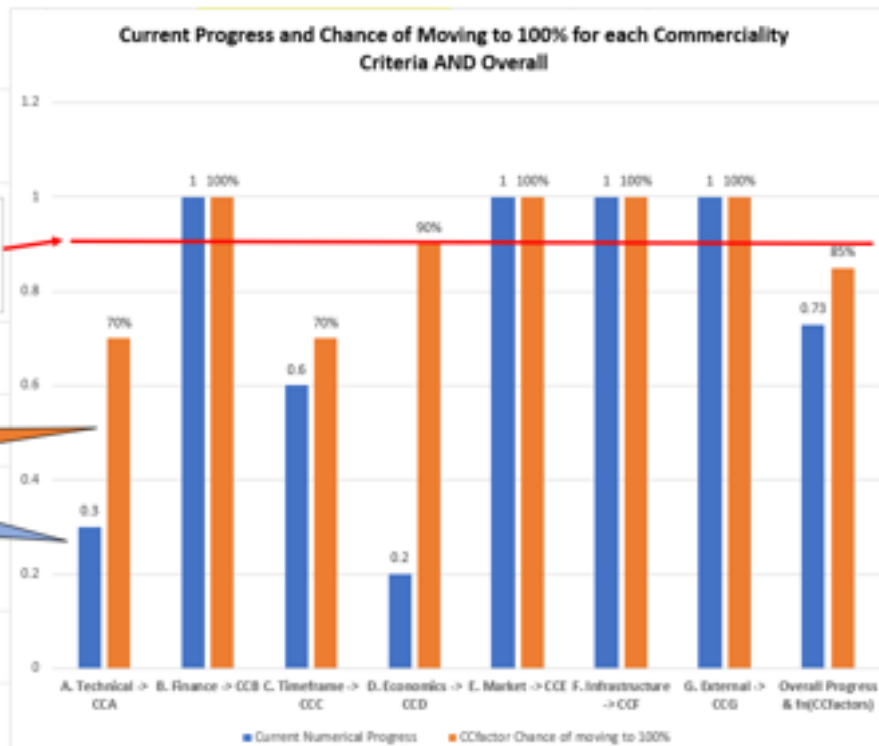


		EXTERNAL																		
CHANCE: Considerations for estimating chance of moving from Current Progress to 100% Entity to provide evidence for assessment																				
VERY HIGH CHANCE	As per HIGH CHANCE with evidence for Low - Medium Progress ... Need convincing evidence to be assigned a Very High Chance if Low - Medium Progress	100%	A chance selected in this region should be carefully considered with CAUTION due to insufficient Progress for Reserves to be considered, especially when only Low - Medium Progress							Reserves may be considered for this Commerciality Criterion ~ 90 - 100%										
		95%																		
HIGH CHANCE	Track record of required permits and regulatory approvals and community support for similar projects.	80%	Low High ~ 50 - 70% chance			Medium High ~ 60 - 80% chance		High High ~ 70-90% chance		not applicable (since minimum Progress for Reserves met)			Selection from Range in Matrix Chance, CC 100% Progress Quality Ready for OR App Progress Numeri 1							
		75%																		
		60%																		
MEDIUM CHANCE	Mixed track record of permits or regulatory approvals and community support for similar projects. New technology in area.	50%	Low Medium ~ 30 - 50% chance			Medium Medium ~ 40 - 60% chance		High Medium ~ 50 - 70% chance (Refer High Low)						not applicable (since minimum Progress for Reserves met)			Selection from Range in Matrix Chance, CC 100% Progress Quality Ready for OR App Progress Numeri 1			
		40%																		
LOW CHANCE	Regular response on permits or regulatory approvals and lack of community support, but not expected to be insurmountable.	30%	Low Low ~ 10 - 30% chance			Medium Low ~ 10 - 40% chance		High Low ~ 10 - 50% chance										not applicable (since minimum Progress for Reserves met)		
		20%																		
VERY LOW CHANCE	Requires a significant improvement in technology or commercial conditions to ensure all External approvals within a reasonable timeframe.	10%	When any criteria has a very low chance of reaching the minimum requirement for Reserves, then project should be Unrecoverable. To be justified and defended by the Entity or Evaluator. ~ 0 - 10% chance																	
		0%																		
		0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1								
		PROGRESS: Current Progress of Commerciality Criterion in relation to minimum for Reserves to be considered																		
Simplified Description	Considerations	Low Progress			Medium Progress			High Progress		Minimum Progress for Reserves		Ready for OR App'd for Development								
C. EXTERNAL	Permits or Regulatory approvals	No permits or regulatory approvals in place			Permits or regulatory approvals progressing well			Permits and regulatory approvals largely obtained		All Permits and regulatory approvals in place or reasonably expected.		Ready for App'd for Dev or project already App'd for Development								
	Political Factors	Inadequate relationship			Relationship building			Relationship built		Positive relationship for project over the long term		Ready for App'd for Dev or project already App'd for Development								
	Society Factors	Significant (or potentially significant) opposition to project by local communities and officials with little or no mitigation plans in place			Some opposition to project by local communities and officials and mitigation plans in place or underway			Positive community support and with mitigation plans in place		Community approval of project		Ready for App'd for Dev or project already App'd for Development								

NOTES:
 [i] Entity and JV has secured all approvals for type of development in absence.
 [ii]...

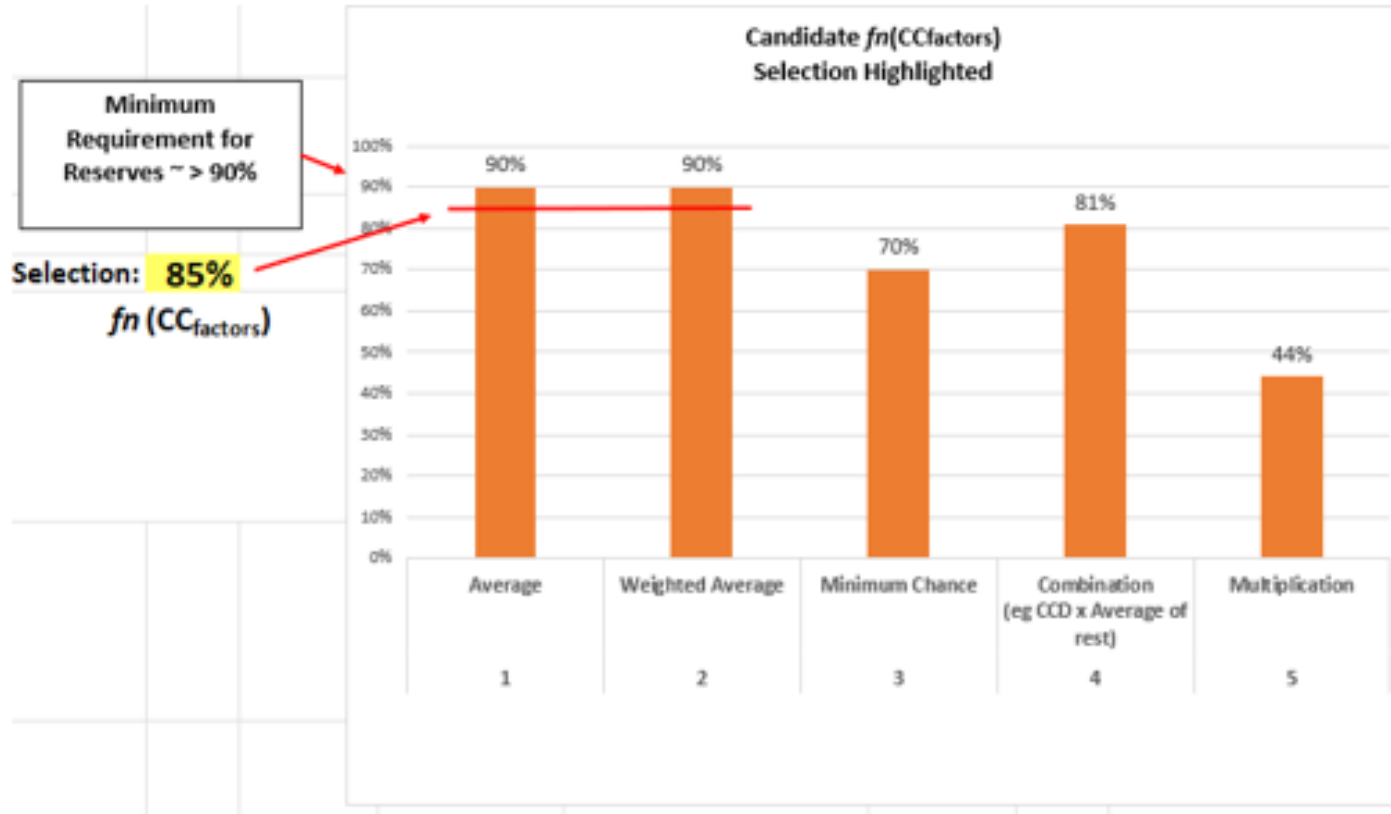


Stage 3 – Example A: Combine -> Results



From Progress x Chance Matrices for each Commerciality Criterion - see to right for selections ...

	PRMS 2018 2.1.2 Commerciality Criteria requirements -> CC _{factors}	Current Qualitative Progress	Current Numerical Progress	CC _{factor} Chance of moving to 100%	Weighting	Comment
C o m m e r c i a l i t y c r i t e r i a	A. Technical -> CCA	Low Progress	0.3	70%	1	
	B. Finance -> CC _B	Ready for OR Appr'd for Dev	1	100%	1	
	C. Timeframe -> CC _C	Medium Progress	0.6	70%	1	
	D. Economics -> CC _D	Low Progress	0.2	90%	1	
	E. Market -> CC _E	Ready for OR Appr'd for Dev	1	100%	1	
	F. Infrastructure -> CC _F	Ready for OR Appr'd for Dev	1	100%	1	
	G. External -> CC _G	Ready for OR Appr'd for Dev	1	100%	1	
	Overall Progress & $fn(CC_{factors})$	High Progress	0.73	85%		
			(Wt. Average)	(Refer graph for selection)		



Combining Approach (ie approach for combining all $CC_{factors}$ for the Project)		Candidate $fn(CC_{factors})$	*Appropriateness of Approach Highest (5) to Lowest (1)
1	Average	90%	4
2	Weighted Average	90%	5
3	Minimum Chance	70%	2
4	Combination (eg CCD x Average of rest)	81%	3
5	Multiplication	44%	1



Stage 3 – Example A: Combine -> Results (3/3)

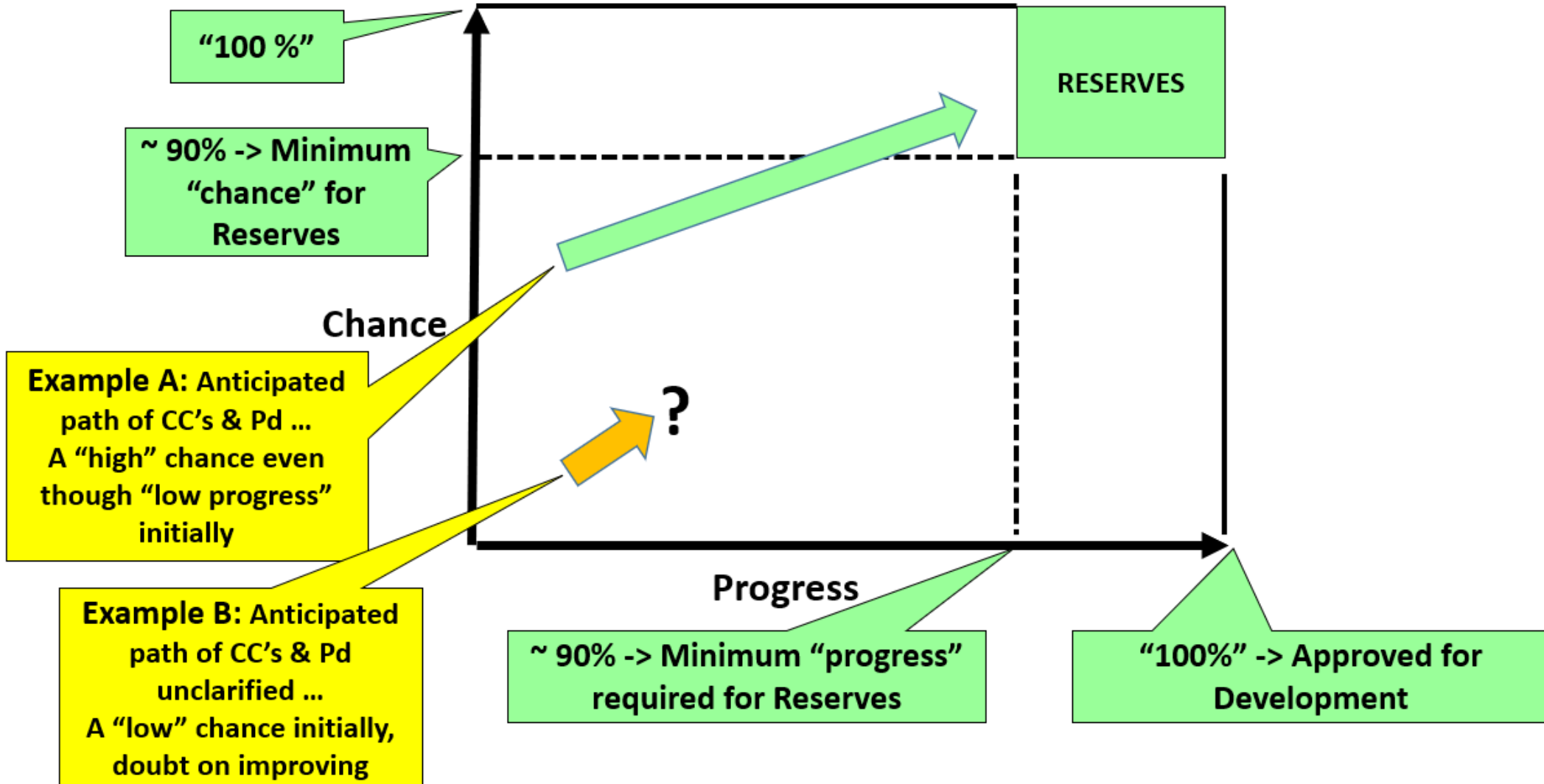


PROJECT DESCRIPTION		Example Situation: Simple Immature Discovery	
<p>Assumes a recent, immature, smallish discovery in an existing petroleum producing area. Regarding Technical, the recovery technology is Established for the Project, and in common use in the area. No issues expected as the appraisal, concept select etc routine. Finance, Market, Infrastructure, External have no issues and are "Ready for Approved for Development" so Progress =1 for them.</p>			
RESULTS SUMMARY			
Effective Date		14/03/2023	Notes
Number of Commerciality Criteria (CC) that: (Note CC_{factor} = Chance of moving to 100%)	$CC_{factor} \sim < 10\%$	0	If > 1, Project is a candidate for "Unrecoverable"
	Less than Min Progress for Reserves and $CC_{factor} \sim < 90\%$	0	Project CC's that are NOT on track to achieve Reserves
	Less than Min Progress for Reserves and $CC_{factor} \sim \geq 90\%$	3	Project CC's that are on track to achieve Reserves
	Exceed Minimum Progress for Reserves	4	Must = 7 for Reserves to be considered, and
Current Overall Progress (Qual, Num)	High Progress	0.73	> ~0.9 for Reserves, and
$fn(CC_{factors})$ (%)		85%	> ~90% for Reserves, and
Entity commitment to project (Y/N), if Y then Commitment factor is "1", if "N", then number <1 at discretion of Entity	N	0.9	Y required for Reserves, otherwise <1
$Pd = fn(CC_{factors}) \times \text{Commitment factor}$	77%		Notes:
Class	Contingent Resources		Likely to mature to reserves though is Dev Unclearified at this time while development options are being assessed.
Sub-class	Development Unclearified		



Monitor over time -> Insightful

For each Commerciality Criteria and Overall Pd
Different “Situations” at Effective Dates





Take Aways



- Methodology offers a way to estimate Pd consistently
 - Considers all CC requirements and commitment
 - Not just “economics”
- Clarifies barriers to commercialisation
 - > focuses effort to address barriers -> monitor progress
- Distinguishes between “chance” and “progress”
 - Enables a project with “low progress” to have a “high chance” of becoming commercial
 - Should prevent reserves being claimed prior to required “progress”
 - > more appropriately represented in portfolio of projects
- BUT need to beware that SPE guidance is that a “high chance” => Reserves
 - > SPE mixes up “chance” vs “progress”
 - Hopefully this will change!