Evolution of Liability Management

March 23, 2023

Presented by:

Mike Newton
Director of Business Operations

Iridium Risk Speaker Series

Agenda

Who We Are

Regulatory Framework

- History of liability management
- What is happening with the Regulators?
- How are transfers working?

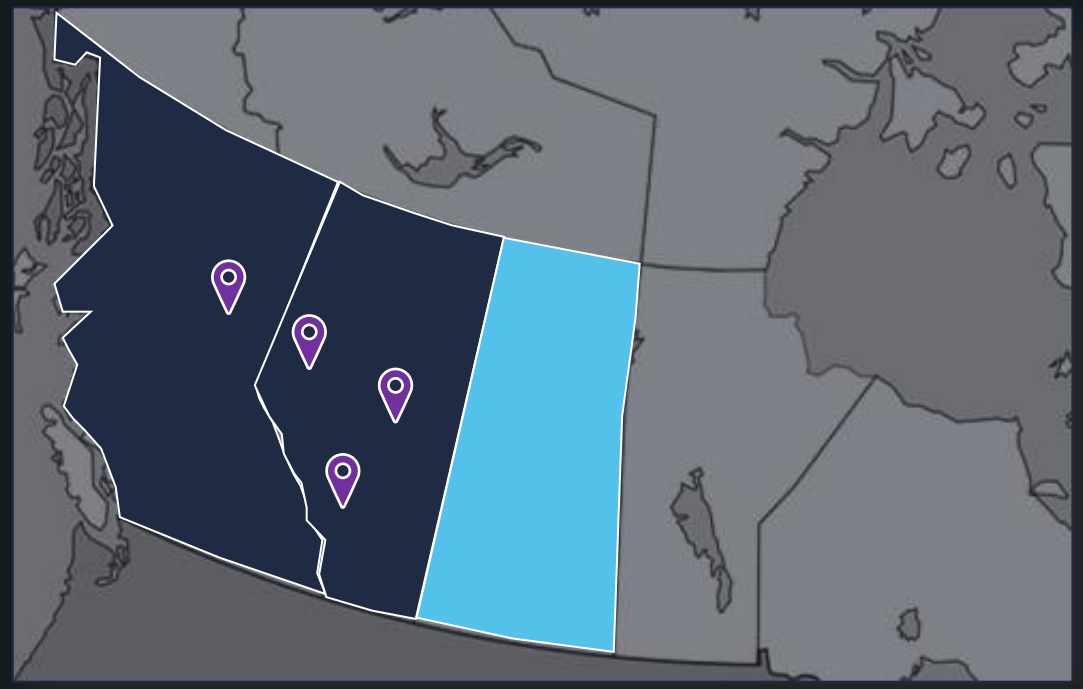
ARO vs. LLR

- How are they different and who cares?
- Why are companies transitioning now?

Who We Are – 360

Mission: Make Closure Simple

Purpose: Closure Makes a Difference



Employee Count: 141 Employees

Headquarters: Calgary, AB

Engineering & Environmental Consulting

- Decommissioning & Abandonment
- Environmental Services
- Emissions Monitoring
- Liability Management

Liability Management Team

Logan Riexinger

- Joined 360 in 2021
- Petroleum Engineering, U of A
- Favourite project was West Lake 2021
- Hobbies include fishing, snowboarding, and hockey

Graeme Hawkins

- Joined 360 in 2022
- Sold a cannabis retail chain in 2021
- Favourite project was Aspenleaf Audit
- Hobbies include golfing and snowboarding
- Father of 3 (only 2 pictured)

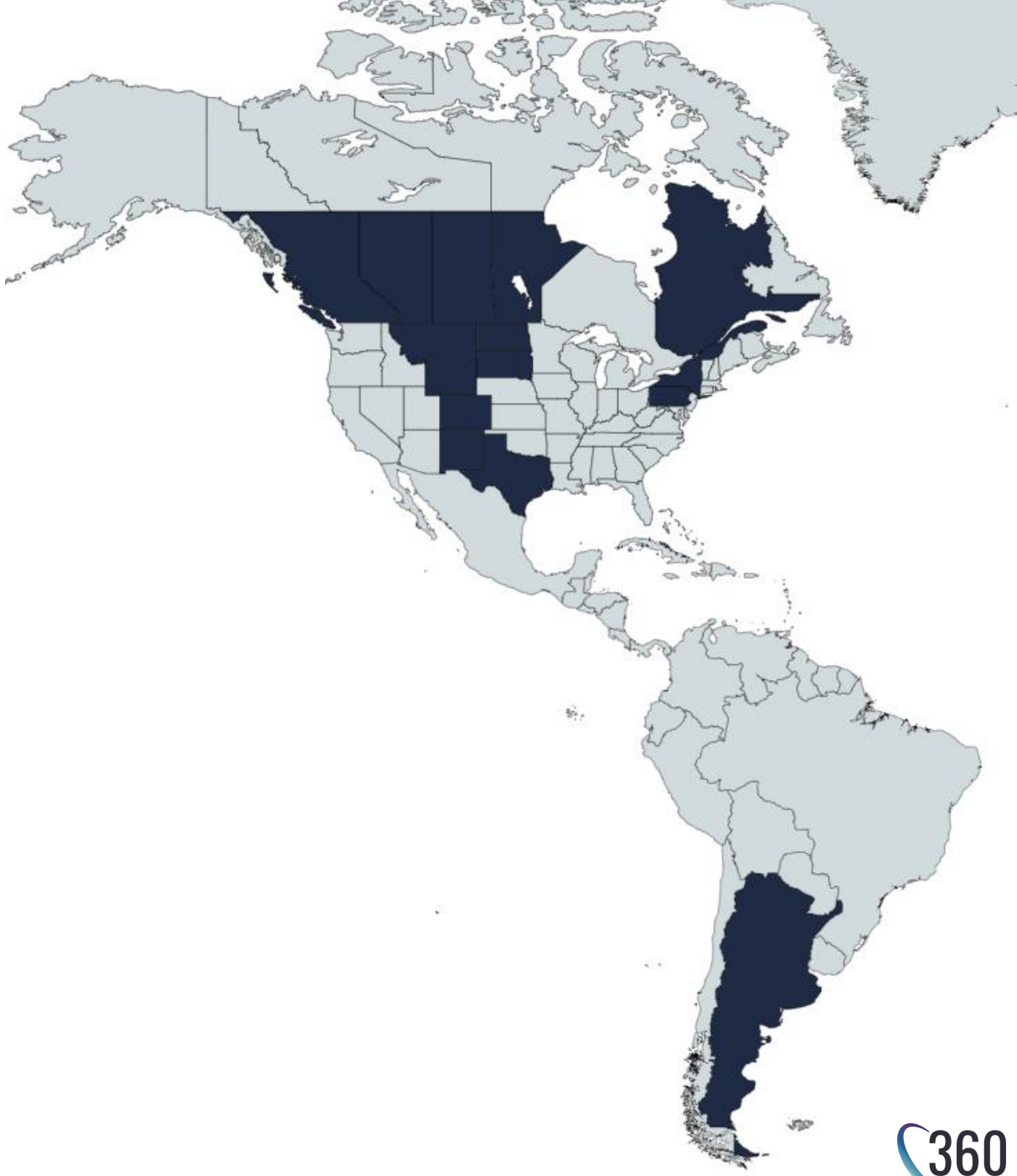
Mike Newton

- Joined 360 in 2017
- Bachelor of Commerce, U of A
- Favourite project was Shell 2019
- Hobbies include hanging with fiancé/dogs and golfing

What We've Done

Highlights

- 150,000 wells assessed
- $20B of ARO
- AB, BC, SK, MB, QB, MT, ND, SD, WY, CO, NM, TX, ARG

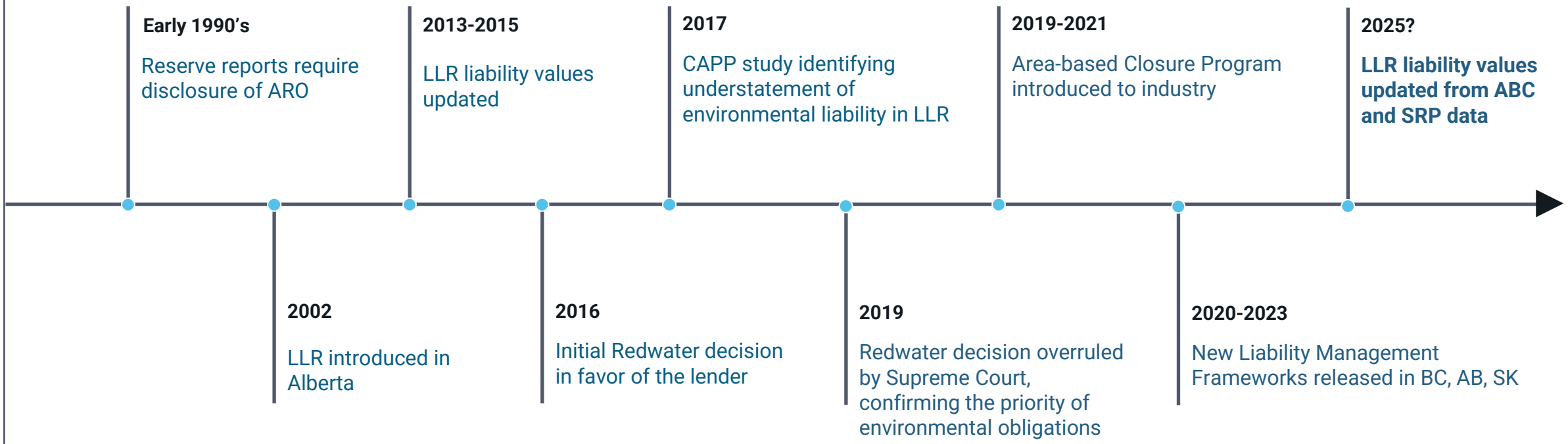


Regulatory Framework

Definitions & Terms

- **Liability Management Rating (LMR)** – overarching liability management program
- **Licensee Liability Rating (LLR)** – component of LMR encompassing 99.99% of assets
- **Asset Retirement Obligation (ARO) –** a constructive or legal obligation to retire a tangible asset

History of Liability Management



Liability Management Frameworks

Alberta Energy Regulator

- Directive 088
- Licensee Capability Assessment
- Inventory Reduction Program

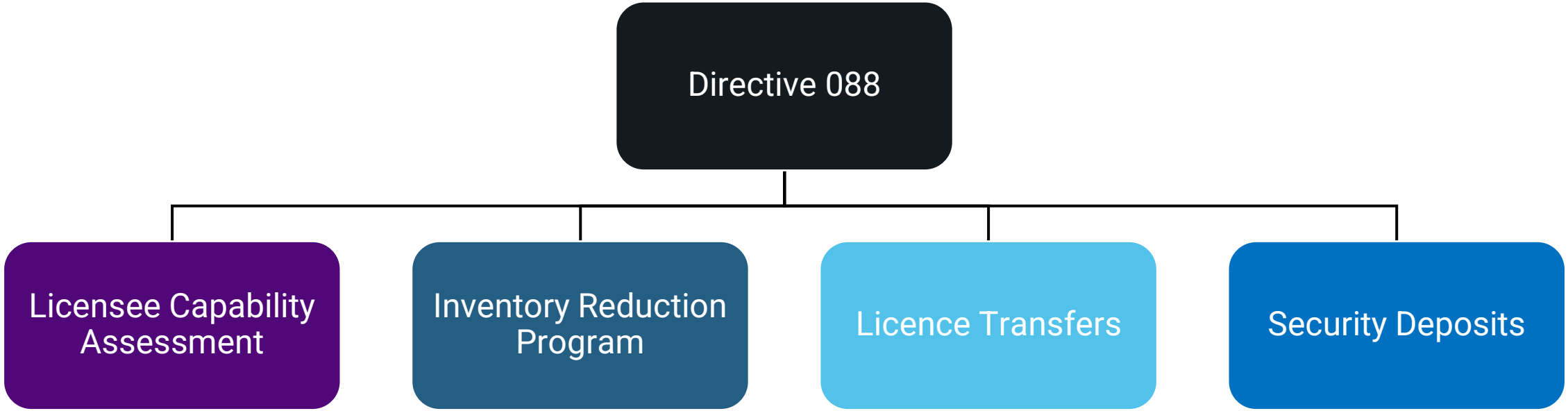
Saskatchewan Ministry of Energy and Resources

- LLR
- Inactive Liability Reduction Program

BCER BRITISH COLUMBIA ENERGY REGULATOR

- Comprehensive Liability Management Plan
- Permittee Capability Assessment
- Dormant Site Program

Alberta Energy Regulator



Holistic scorecard assessing financial risk, operating history, and regulatory compliance

Annual closure threshold
- 6.7% of inactive deemed liability in 2023
- Increases forecasted YoY

Review of both acquiring and divesting company pre & post transfer

Currently triggered by transfers and missing closure threshold but may expand to high risk operating companies

Licensee Capability Assessments

Special Notification	Peer Group	Eligibility
None	Producer - Large/Major - Oil or Mixed	Facility, Well or Pipeline

Licensee Assessment Profile

Risk Group		Performance Group			
Financial Distress Medium	Liability Magnitude Medium	Resources Lifespan Tier 2	Operations Tier 1	Closure Tier 2	Administration Tier 2

Absolute measures based on specific thresholds

Relative to peer group

LCA Risk Group

Table 2. Level of financial distress: parameters, definitions, risk ranges, and associated weightings

Parameter	Definition	Low	Medium	High	Relative Weight
Net profit margin (three-year average)	Ratio of net profit over revenues, or the percentage of income kept as profit. This is averaged over three years to smooth unusual gains/losses in a single year.	>0%	<0% and >−25%	<−25%	30%
Current ratio	Ratio of current assets over current liabilities to measure whether a company can pay their obligations as they come due.	>90%	<90% and >70%	<70%	30%
Debt to equity	A ratio of debt over equity to measure financial leverage, indicating the degree to which a company has financed its operations with borrowed money versus wholly owned funds.	<1.33 and >0	>1.33 and <1.67	>1.67 or <0	10%
Interest coverage ratio	A ratio of earnings over interest expense, used to determine how easily a company can pay interest on its outstanding debt.	>3.0	>2.0 and <3.0	<2.0	20%
Cash flow from operations to debt	A ratio of cash flows from operations over debt, which indicates how easily a company can repay its debt.	>35%	>20% and <35%	<20%	10%

Liability Thresholds

Low – Less than $25M CAD

Medium – Between $25M and $150M CAD

High – Greater than $150M CAD

LCA Performance Group

Performance Group Assessment

Factor Name	Factor Tier	Factor Percentile	Parameter Name	Parameter Weight	Parameter Value	Peer Comparison Percentile	Peer Comparison Tier
Resources lifespan	Tier 2	48%	Production Decline Rate	25%	-0.88 %	29%	Tier 2
			Inactive Well Ratio	25%	37.44 %	48%	Tier 2
			Marginal Well Ratio	25%	7.09 %	62%	Tier 2
			Inactive Facility Ratio	15%	37.39 %	29%	Tier 2
			Crossover Timeline	10%	Far	52%	Tier 2
Operations	Tier 1	86%	Directive 013 Noncompliance Rate	25%	2.44 %	33%	Tier 2
			Inspection Noncompliance Follow-Up Rate	10%	22.02 %	76%	Tier 1
			Inspection Noncompliance Rate	15%	0.04 %	90%	Tier 1
			Pipeline Incident Rate per 10 km	25%	0.67 %	57%	Tier 2
			Release & Spill Rate	25%		95%	Tier 1
Closure	Tier 2	57%	Closure Spend Rate	20%	6.41 %	86%	Tier 1
			Inactive Liability Trend	20%	16.90 %	5%	Tier 3
			Abandonoment Rate, Produced Well	10%	24.48 %	95%	Tier 1
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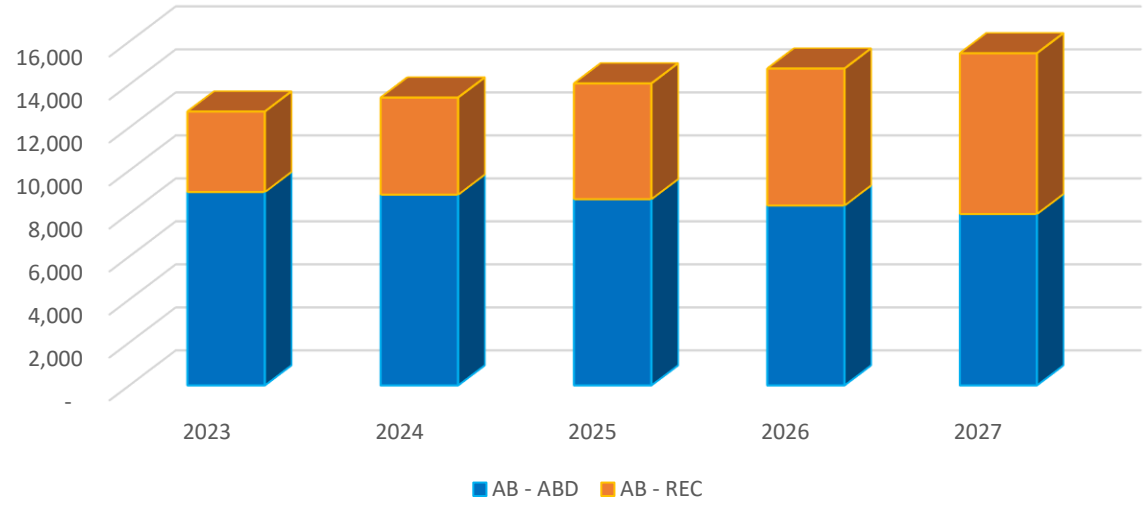
			Reclamation Rate, Produced Well	10%	3.66 %	90%	Tier 1
			Reclamation Rate, Non-produced Well	5%	1.59 %	5%	Tier 3
			Facility Abandonment Rate	10%	0.00 %	0%	Tier 3
			Facility Reclamation Rate	10%	0.00 %	0%	Tier 3
			Pipeline Abandonment Rate	10%		0%	Tier 3
Administration	Tier 2	52%	Orphan Fund Levy Compliance	33%	All Paid	100%	Tier 1
			Administration Fund Levy Compliance	33%	All Paid	100%	Tier 1
			Mineral Lease Expiries	33%	0.00 %	52%	Tier 2

Inventory Reduction Program

MANDATORY - CLOSURE SPEND TARGETS	
Year	Industry-wide mandatory target
2023 (set)	$700,000,000
2024 (forecasted)	$764,000,000
2025 (forecasted)	$833,000,000
2026 (forecasted)	$909,000,000
2027 (forecasted)	$992,000,000

Mandatory Spend Anticipated Split ABD vs. REC[1]



1 – Site count shown should be used as an approximation only

Notes

- 2023 equivalent to 6.7% of inactive deemed liability
- Forecasted increases YoY
- Threshold set in July for upcoming year
- Quotas available in OneStop

Directive 088 Update

Nomination Process

- List of nominated sites being released in Spring 2023
- Asset must be inactive for 5+ years to be nominated
- Landowner, Minister, Indigenous, Municipality
- 30 days from notification to prepare a closure plan
  - Baseline closure plan
    - Timelines for each closure stage
  - Non-baseline closure plan
    - 3+ years to remediate
    - Timelines for each closure stage
  - Deferral
    - Asset must be transitioning to alternate purpose or on an active site

Table 1. Timelines for baseline closure plan closure activity

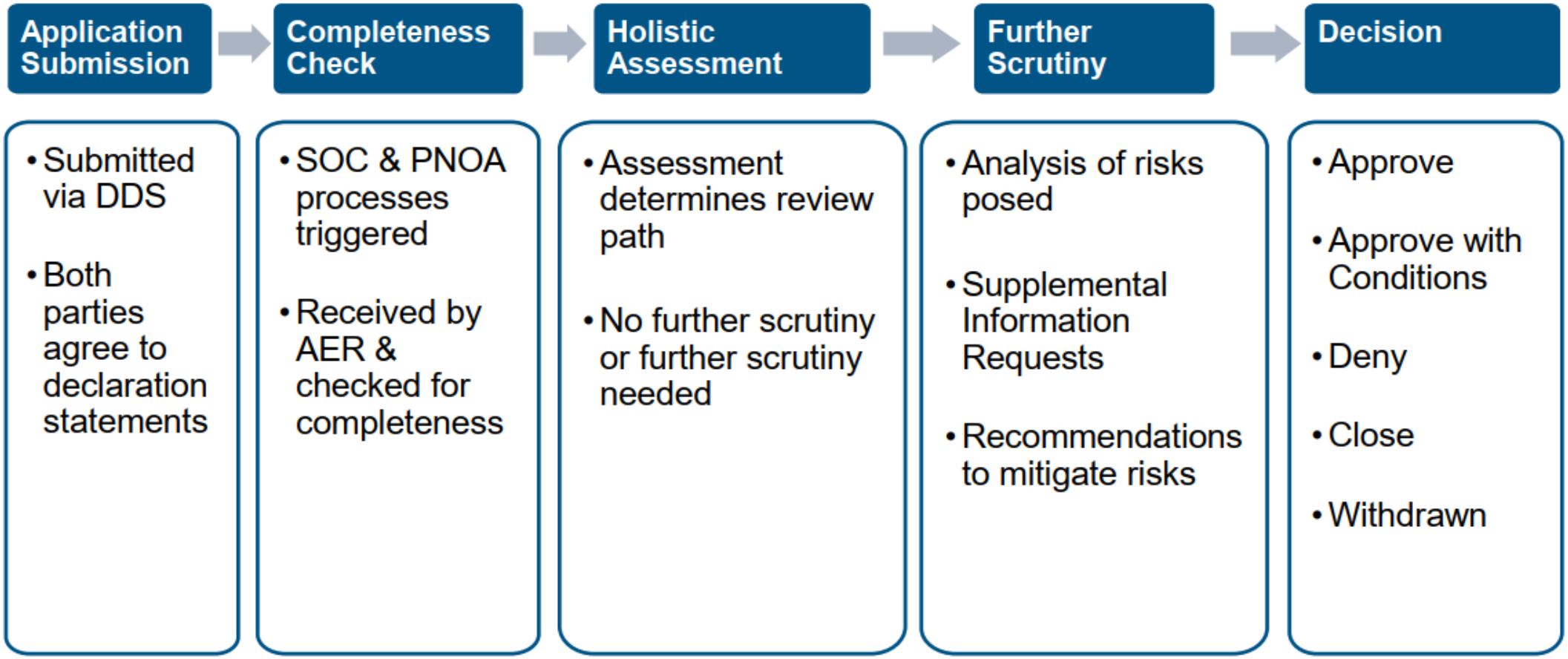
Closure activity	Description	Maximum time to complete[1,2] (years)
Total well or facility abandonment	Well abandonment is completed per *Directive 020: Well Abandonment*. Facility abandonment is complete.	3
Phase 1 environmental site assessment[3]	Completion of a Phase 1 environmental site assessment that satisfies the *Remediation Regulation*.	
Phase 2 environmental site assessment (if required)[3]	Completion of a Phase 2 environmental site assessment that satisfies the *Remediation Regulation*.	1 (if required)
Remediation (if required)	Complete remediation activities and submit a report that satisfies the *Remediation Regulation*.[3]	2 (if required)
Revegetation Initiated	All reclamation activities prior to revegetation have been completed as required, including pre-reclamation assessments, replacement of soils, and recontouring. The revegetation (e.g., seeding, tree planting) of the site has been started. The first seed application or planting cycle is complete, as required.	2
Reclamation certificate or letter of closure	A reclamation certificate application has been submitted to the AER, or a letter of closure has been provided.	5
Total time (from date of closure plan approval)		10-13[1]

1 Total time may vary based on the results of environmental site assessment and the status of the licence when nominated.

2 The maximum time to complete each closure activity will be used to calculate a licence-specific date for completion of that activity based on the date a baseline closure plan is selected by the licensee.

3 If contamination is identified, a remedial action plan may be required under section 2.2(2) of the *Remediation Regulation*.

Licence Transfer Process

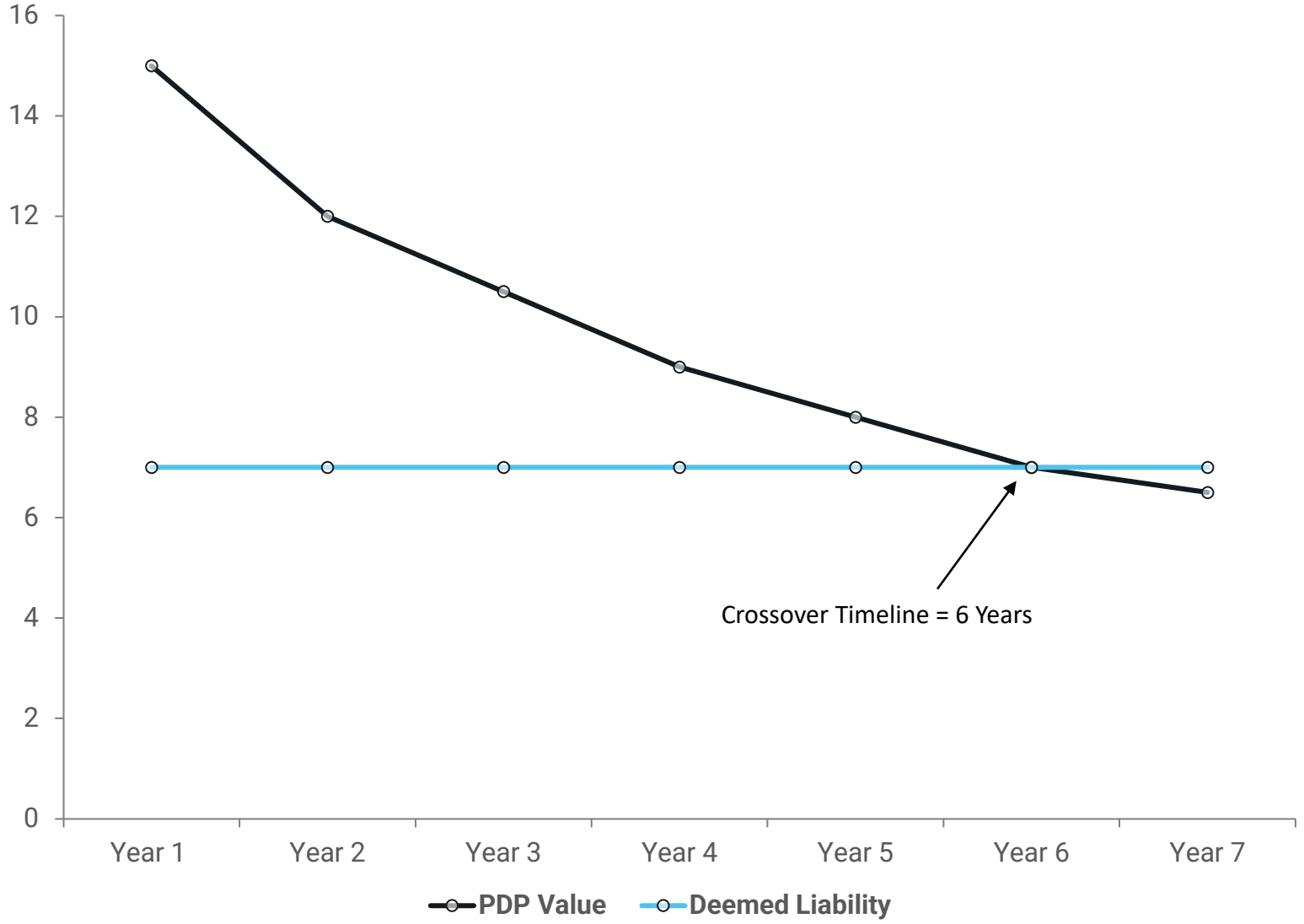


Security Calculation

Security Ranges							
Crossover Timeline		**Level of Financial Distress**					
		Low		Medium		High	
Far	> 7 years	-	-	-	-	26%	62%
Medium	3-6 years	-	-	26%	62%	74%	84%
High	0-2 years	26%	62%	74%	84%	95%	100%

Security Calculation

Crossover Timeline



PDP Reserves
Blowdown model with no development capital

Deemed Liability
Only includes:
- Inactive
- Marginal (<10 boe/d)
- SSLAs

Security Calculation

Risk Group		Performance Group			
Financial Distress Medium	Liability Magnitude Medium	Resources Lifespan Tier 2	Operations Tier 1	Closure Tier 2	Administration Tier 2

Risk Group Assessment

Financial Distress Parameters Weighting			Net Profit Margin (3-Year Average) 30%		Current Ratio 30%		Debt To Equity 10%		Interest Coverage Ratio 20%		Cash Flow From Operations To Debt 10%		
Year	Financial statement date	Period (months)	Value	Risk level	Value	Risk level	Value	Risk level	Value	Risk level	Value	Risk level	Total risk level
2021	2021-06-30	6	-24%	Medium	45.7%	High	0.48	Low	10.70	Low	32%	Medium	Medium
2020	2020-12-31	12	-24%	Medium	41.3%	High	0.54	Low	4.85	Low	8%	High	Medium
2019	2019-12-31	12	-9%	Medium	7.4%	High	0.54	Low	3.86	Low	29%	Medium	Medium

Security Calculation

Security deposit would be 26% - 62% of inactive + marginal + SSLA deemed liability

Security Ranges							
Crossover Timeline		**Level of Financial Distress**					
		Low		Medium		High	
Far	> 7 years	-	-	-	-	26%	62%
Medium	3-6 years	-	-	26%	62%	74%	84%
High	0-2 years	26%	62%	74%	84%	95%	100%

Checklist for Transfer Applications

- Pro Forma Financial Forecast
- Security Calculation
- Annual Closure Thresholds
- Development and Closure Plans
- Working Interest Partners
- Updated SSLAs

Remember AER will review both the acquiring and divesting parties

ARO vs. LLR

What is ARO?

ARO = the summation of …

Well Abandonment

Plugging, cementing, and capping the wellbore

Facility Abandonment

Purging, dismantling and removal of infrastructure

Pipeline Abandonment

Purging, disconnecting, and capping of pipelines

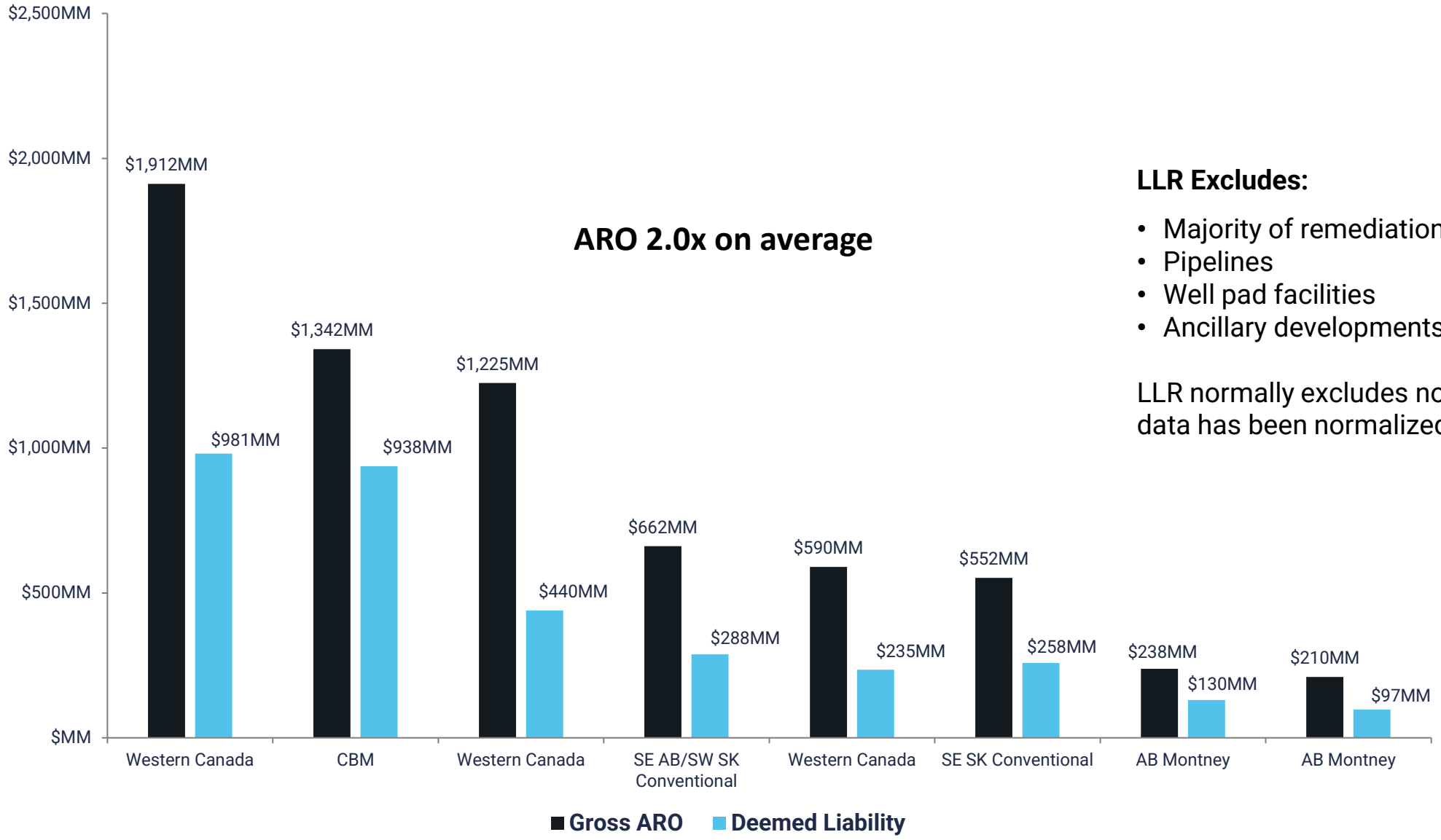
Remediation

Removal or treatment of contamination from soil and groundwater

Reclamation

Restoration of the lease to an equivalent land use capability

ARO vs. LLR



ARO 2.0x on average

LLR Excludes:

- Majority of remediation
- Pipelines
- Well pad facilities
- Ancillary developments

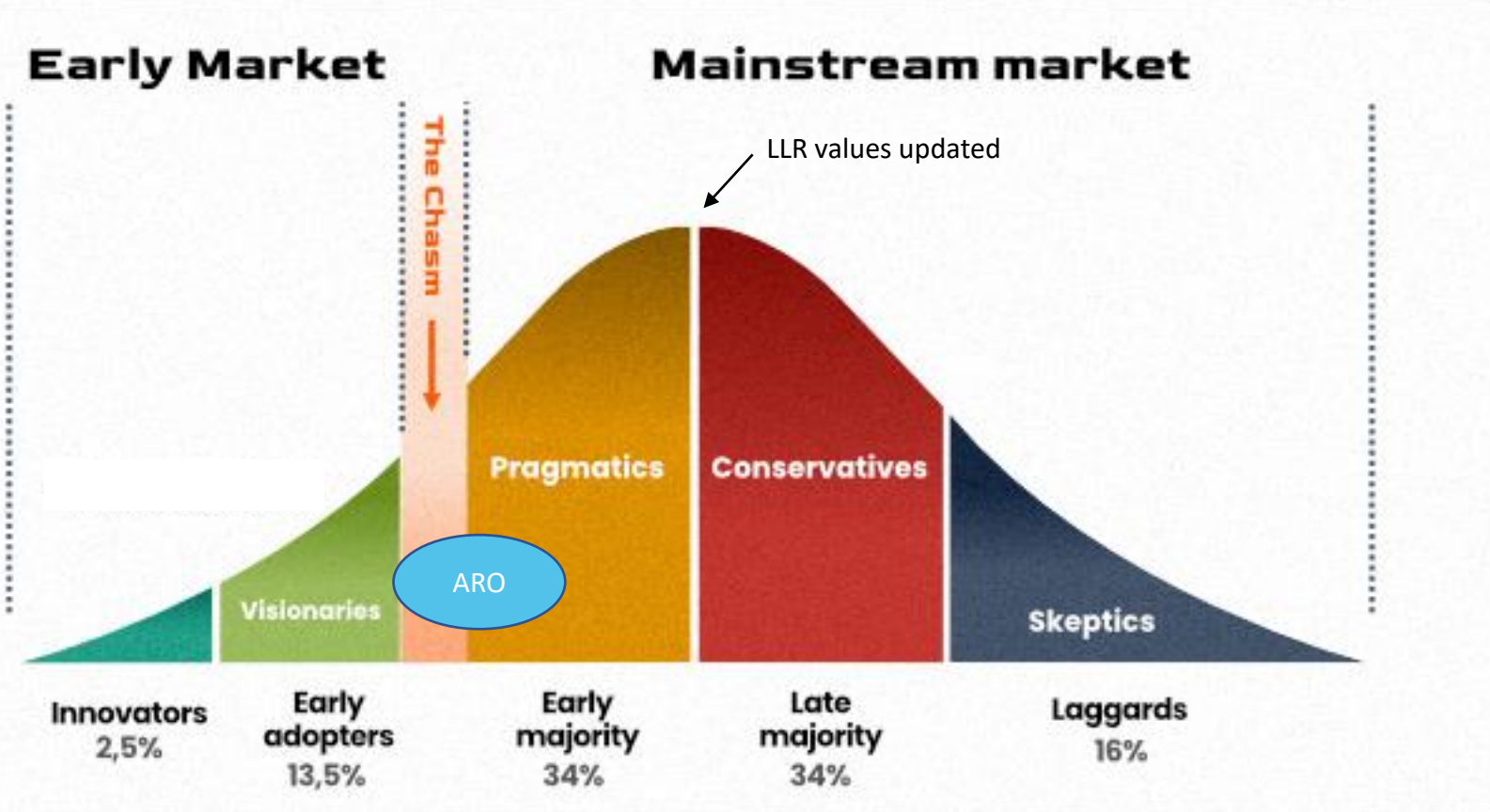
LLR normally excludes non-op but this data has been normalized to include

ARO vs. LLR Example

Parameter	Characteristic
Well Depth	2,359 m
Well Type	Tubing & Rods
Facility	Single-well Battery
Pipelines	None
Spud Date	1992
Construction	Built
Land Use	Forested
Disturbance Area	14,400 m^2
Access Road Length	20 m

	Well Abandonment	Facility Abandonment	Pipeline Abandonment	Remediation	Reclamation	Total
ARO	$40,150	$27,448	$0	$62,838	$68,352	**$198,788**
LLR	$79,343	$0	$0	$0	$29,250	**$106,593**

Why Update ARO Now?



Timing

- Conservatives will face hard questions on valuation
- ARO still undervalued by many in the market

Disclosure

- Fiduciary duty to shareholders
- Avoid future legal implications

ESG

- Acknowledgements of environmental impacts
- Real Numbers = Real Plan

Transitioning from LLR to ARO

Confirm Asset Lists

All assets with a legal or constructive obligation to bring to closure

Assign into Geographic Areas

Reflect proximity to service centers, unit rates, and distinct environmental features

Characterize Assets

Catalogue of common denominators impacting closure

Calculate ARO

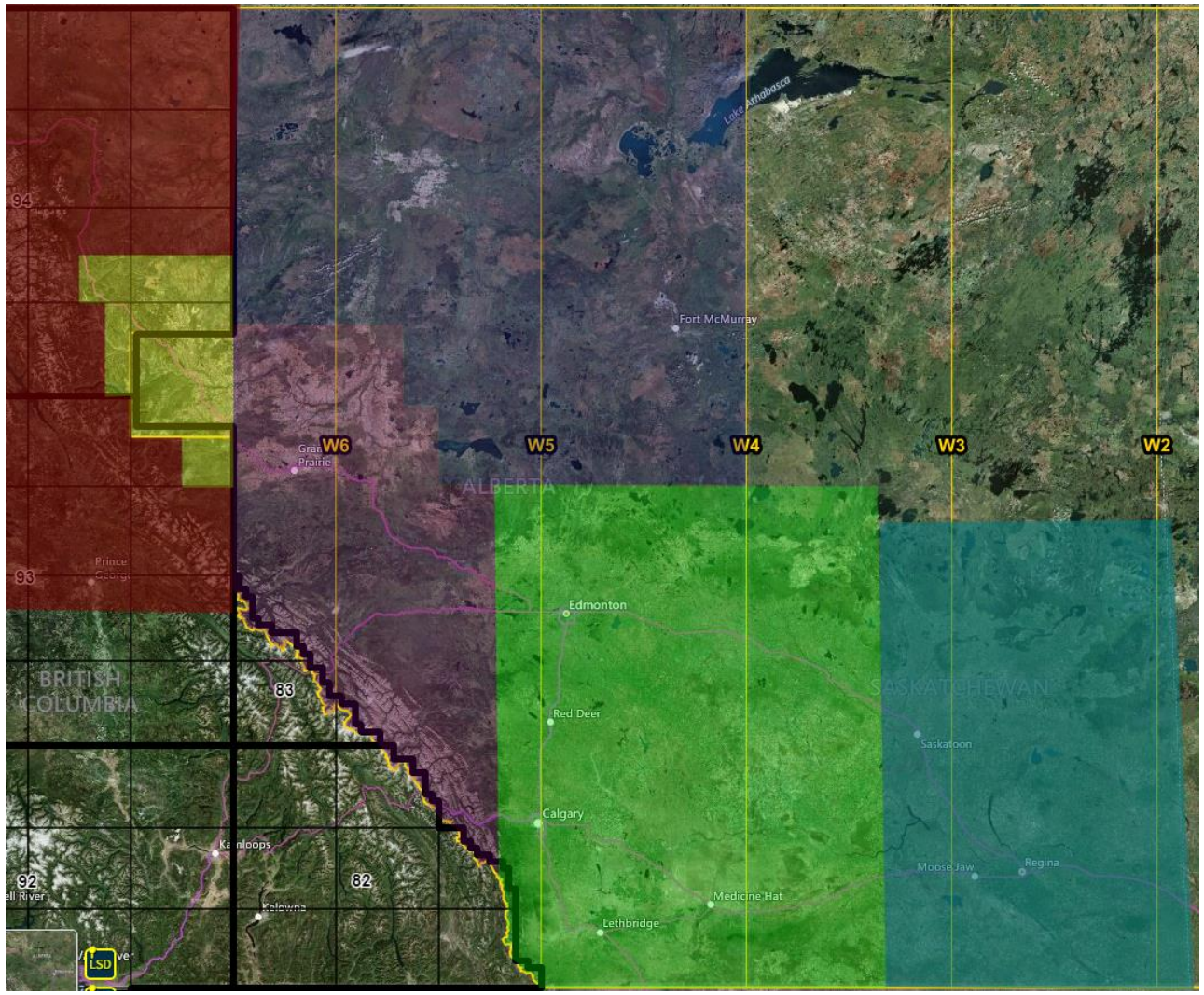
Function of time and unit rates based on the asset characterization – cost is consequential

Determining Asset Lists

Assets with a legal or constructive obligation to bring to closure:

Asset Type	Included in LLR
Operated wells, facilities, and pipelines	Wells and facilities only
Non-operated wells, facilities, and pipelines	Must be added by operator
Reclaimed and reclamation exempt locations	Yes – no liability value
Constructed pads without development	No
Unlicensed facilities	No
Well pad surface infrastructure	No
Ancillary surface disturbances	No
Residual contamination from historical spills	Only if captured by SSLA

Assign Assets into Geographic Areas



Base areas account for general proximity to service centers, unit rates, and environmental features

Need to consider sub-regions with distinct characteristics i.e.

- Kakwa
- SAGD
- Zama
- CBM

Characterizing Assets

Define common denominators driving closure:

Wellbore Feature	Description
Depth	Depth affects the amount of time to abandon a well. All wells were stratified into one depth category due to their homogenous nature.
Completion Type	Completion type indicates the equipment in the wellbore and techniques required to abandon it. Completion type was specified as: • "Empty Not Perforated" wells were free of downhole equipment and were not perforated into a hydrocarbon-bearing zone. • "Empty Perforated" wells were free of downhole equipment and were perforated into a hydrocarbon-bearing zone. • "Tubing Only" wells were perforated and contained tubing. Plunger lifts were included in this category as they do not have an external input of energy. • "Tubing & Rods" wells were perforated and contained tubing and rods. Artificial lift systems with external energy sources were included in this category.
Injection/Disposal	Disposal/injection wells require additional time to abandon due to common issues associated with isolation packer and tubing removal.
Multiple Events	Standard operating procedures require wells with multiple zones to have each zone physically isolated by a permanent plug and cement. No allowances were made for commingled abandonments.
Horizontal Wells	Horizontal wells were assumed to require additional time and expense due to extra tubing in the build section compared to vertical wells of the same total vertical depth and issues retrieving and setting tools in high directional inclinations. These wells were also assumed to require additional cement to cap bridge plugs to accommodate the vertical depth coverage mandated by the Provincial Regulators.
Sour Wells	Wells with H_2S content were assumed to require additional safety equipment and protocols and have a higher likelihood of deteriorated wellbore integrity that increase costs.
Remedial Cementing	Wells with unprotected porous intervals were assigned remedial cementing. Wells in British Columbia and Saskatchewan were assigned one remedial job. Wells in Alberta were assumed to require a remedial job for each porous interval as per Directive 020.
Surface Casing Vent Flow or Gas Migration	Wells with a surface casing vent flow or a gas migration were assumed to require additional engineering and remedial cementing compared to wells with Integrity Issues.

Parameter	14-25	12-25
Construction	Minimal	Built
Land Use	Cultivated	Cultivated
Disturbance Area	100 m^2	7,500 m^2
Access Road Length	-	150 m
Reclamation Cost	$9,000	$40,000
LLR	$16,500	$16,500

Calculate ARO

Cost is consequential to services, unit rates, and time

Table 5: Southeast Alberta/Southwest Saskatchewan Base Well Abandonment Costs

Service	Rate	Pull Tubing	Set Bridge Plug	Total
Days	-	***0.75***	***0.25***	***1.00***
Hot Oiler	$5,500	-	-	-
Cement Services	Variable	-	$375	$375
Downhole Tools & Packers	$1,500	-	$1,500	$1,500
Wireline	$7,500	-	-	-
Pressure Truck/Vacuum Truck	$2,500	-	-	-
Cut And Cap	$2,000	-	$2,000	$2,000
Fluids And Chemicals Disposal	$1,500	$1,500	-	$1,500
Project Management & Engineering	$500	$375	$125	$500
Service Rig	$9,500	$7,125	$2,375	$9,500
Rentals	$500	$375	-	$375
Trucking	$750	$563	-	$563
Supervision	$1,500	$1,125	$375	$1,500
Administration & Reporting	$200	$150	$50	$200
Total	-	**$11,213**	**$6,800**	**$18,013**

Southeast Alberta/Saskatchewan	Forested	Native	Pasture	Cultivated
Disturbance Area Reclaimed per Day (m^2)	3,000	3,000	3,000	3,000
Access Reclaimed per Day (m)	200	200	200	200
Dozer: Excavator Ratio	1:1	1:1	1:1	1:1
Average Pad Size	13,139	8,472	9,200	9,035
Average Access Road Length	450	333	298	294

Table 32: Reclamation Activity Costs for Southeast Alberta/Southwest Saskatchewan

Construction Type	Land Use	Earthworks (m^2)	Vegetation Management	Assessment
Built	Forested	$2.79	$12,859	$4,250
	Native	$3.39	$12,378	$3,750
	Pasture	$3.54	$9,878	$3,750
	Cultivated	$3.56	$2,910	$3,750
	Winter-SK	$3.74	$12,996	$3,750
Minimal	Forested	$0.00	$12,859	$4,250
	Native	$25.00	$12,378	$3,750
	Pasture	$25.00	$9,878	$3,750
	Cultivated	$25.00	$2,910	$3,750
	Winter-SK	$25.00	$12,996	$3,750

Appendices

Holistic Closure Approach

Focus on long-term value vs. instant gratification

CAPEX

Reclamation
$65K

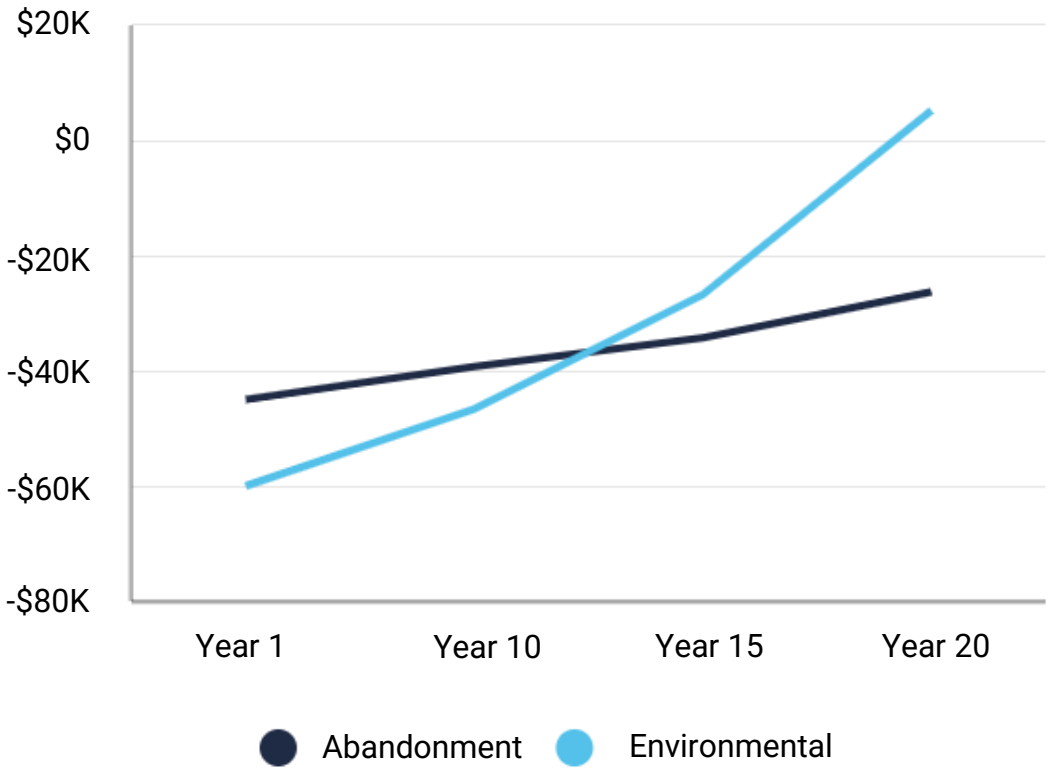
Abandonment
$45K

Annual OPEX

Rent and Veg
$5,000

Tax, Power, Inspections
$1,250

Discounted Cash Flow



Understand Your LCA

Net Profit Margin (3-Year Average) 30%		Current Ratio 30%		Debt To Equity 10%		Interest Coverage Ratio 20%		Cash Flow From Operations To Debt 10%		
Value	Risk level	Value	Risk level	Value	Risk level	Value	Risk level	Value	Risk level	Total risk level
-24%	Medium	45.7%	High	0.48	Low	10.70	Low	32%	Medium	Medium
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			Mineral Lease Expiries	33%	0.00 %	52%	Tier 2

Risk Group metrics are absolute values and controllable

Target Performance Metrics near thresholds

Licence Transfers

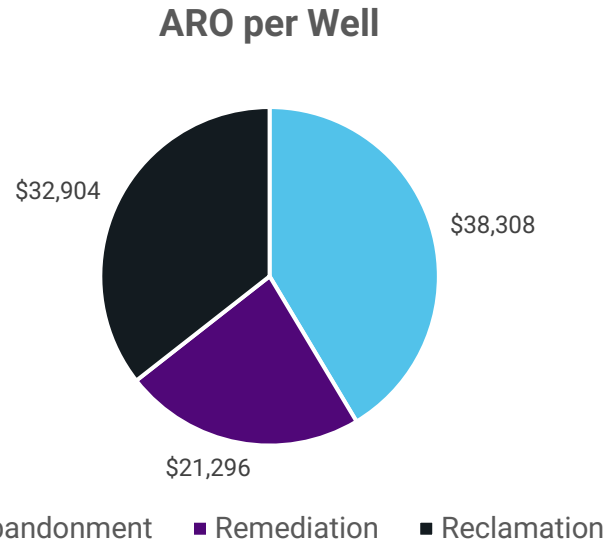
Holistic Licensee Assessment – No Further Scrutiny

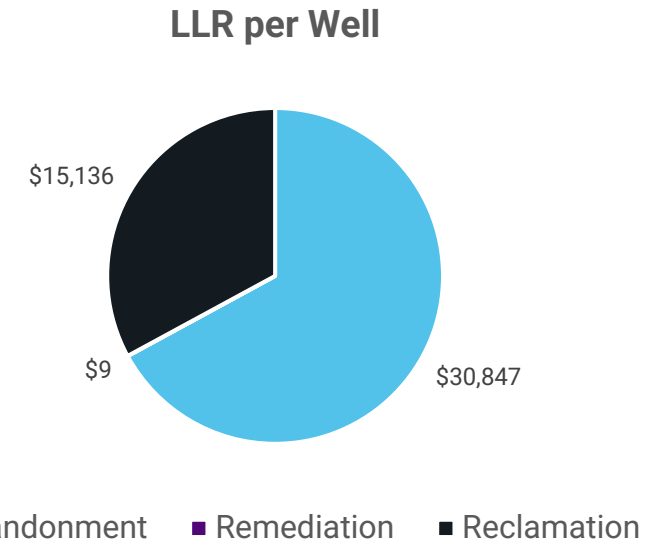
No Further Scrutiny = Routine Review Path

- Directive 067 compliant – no unreasonable risks
- Financial health – low assessed level of financial distress
- Magnitude of liability – low estimated total liability pre/post transfer
- Remaining lifespan of resource – Tier 1 assessment pre/post transfer
- Company has regulatory history – i.e. not a new licensee
- No licence-specific concerns – i.e. no problem in sites in transfer
- No other factors warrant further scrutiny – i.e. no SOCs

Example of oversight: AER request to de-link wells from multi-licenced pads prior to issuing approval

ARO vs. LLR per Well





SK - Info

Saskatchewan

Financial Security and Site Closure Regulations

Inactive Liability Reduction Program

Deposits can be requested for:

- Licence transfer
- LLR deficiency
- Failure to meet Annual Reduction Target
- Minister's discretion

Requirement to submit annual financials

Proportional risk assessment for transfers

4-2(1) For the purposes of subsection 4-1(5), regardless of whether a licensee has an LLR of 1.0 or greater following a licence transfer, if, in the opinion of the minister, a licence transfer will result in additional financial risk to the orphan fund that did not exist to the same extent before the transfer, the minister may require a licensee to submit a security deposit to offset the proportional increase in risk in accordance with the following:

$$TD = \left[\left(\frac{ILT}{PA_{te}} - \frac{ILT}{PA_{to}}\right) \times ILT\right] - TD_{ut}, \text{ where } 0 \leq TD \leq ILT$$

where:

TD is the amount of the transfer deposit required;

ILT is the total inactive liability that is to be transferred;

PA_{te} is the post-transfer prorated asset value of the transferee;

PA_{to} is the pre-transfer prorated asset value of the transferor calculated in accordance with subsection (2);

TD_{ut} is the evaluation of the expression in square brackets, obtained by setting PA_{te} equal to the prorated LLR value described in subsection (3), multiplied by the transferee's post-transfer total deemed liabilities.

(2) For the purposes of subsection (1), PA is the amount calculated in accordance with the following formula:

PA = Deemed Asset Value x AR

where:

PA is the prorated asset value, which is the LLR asset value that is attributable to active infrastructure;

Deemed Asset Value is the amount determined in accordance with subsection 4-1(2);

AR is the percentage of a licensee's total liability that is active.

(3) If the post-transfer prorated LLR, as mentioned in subsection (5), of the transferee is greater than or equal to a value specified in the rules, the minister may waive the requirement to pay a security deposit pursuant to subsection 4-2(1).

(4) A licensee may apply to the minister for a return of a security deposit submitted pursuant to subsection (1) or subsection 4-1(6) if the licensee has achieved a prorated LLR equal to or greater than the post-transfer prorated LLR mentioned in subsection (3) for a period of at least 6 consecutive months.

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