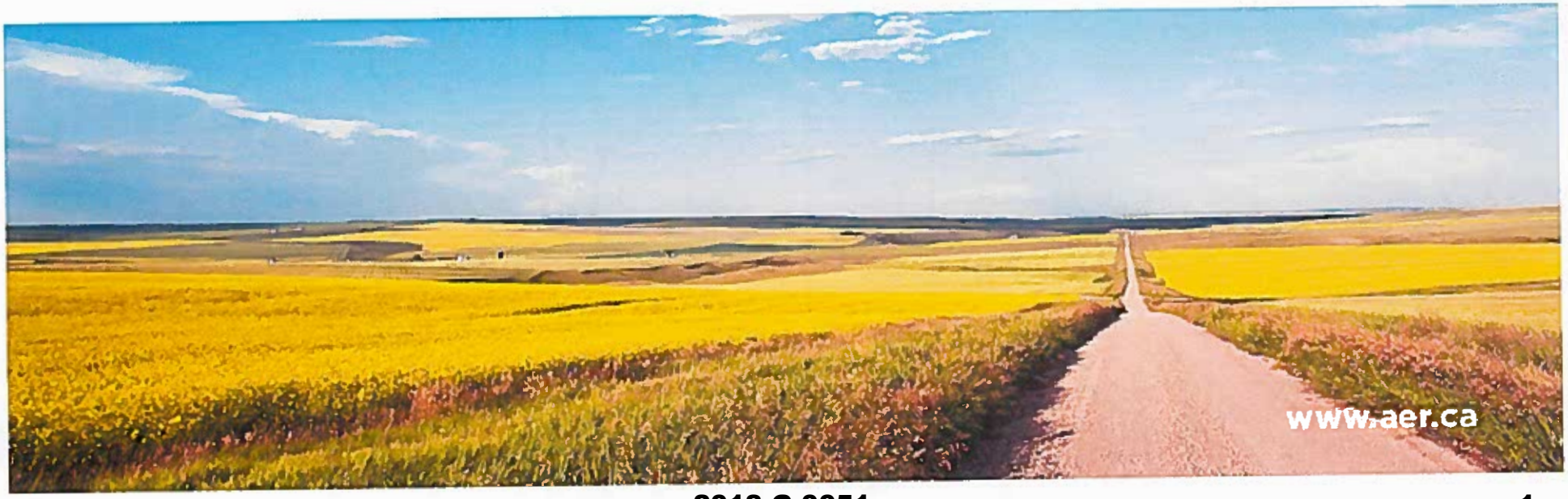
Alberta Energy Regulator

Liability Challenges

Robert Wadsworth, Vice President,
Closure & Liability

February 28, 2018



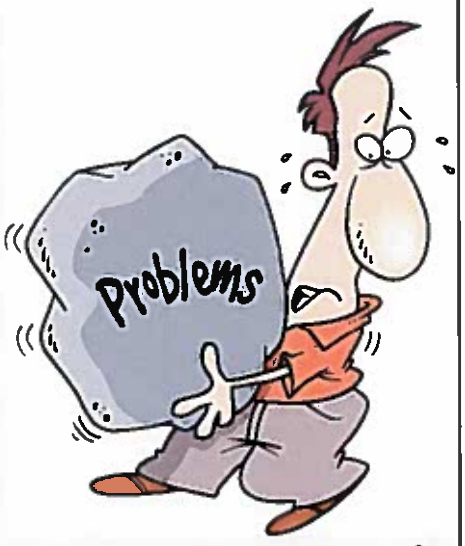
Agenda

- What is the problem
  - Accelerating factors
- Conventional Oil & Gas Financial picture
- Industry wide Liability & Security realities
- Liability Management Eco System
- Way ahead
  - s.24(1)(g)
  - AER Strategy & Operational Plan

AER 2

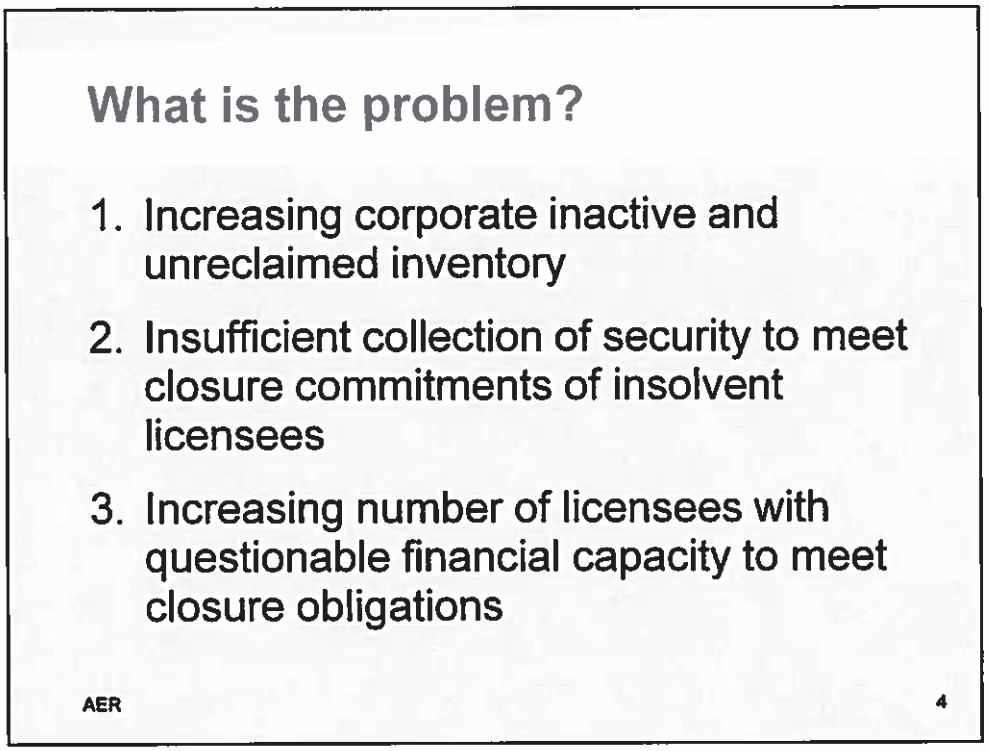
What is the problem?

1. Lack of timely movement of inventory through the lifecycle
2. Increasing unfunded liability

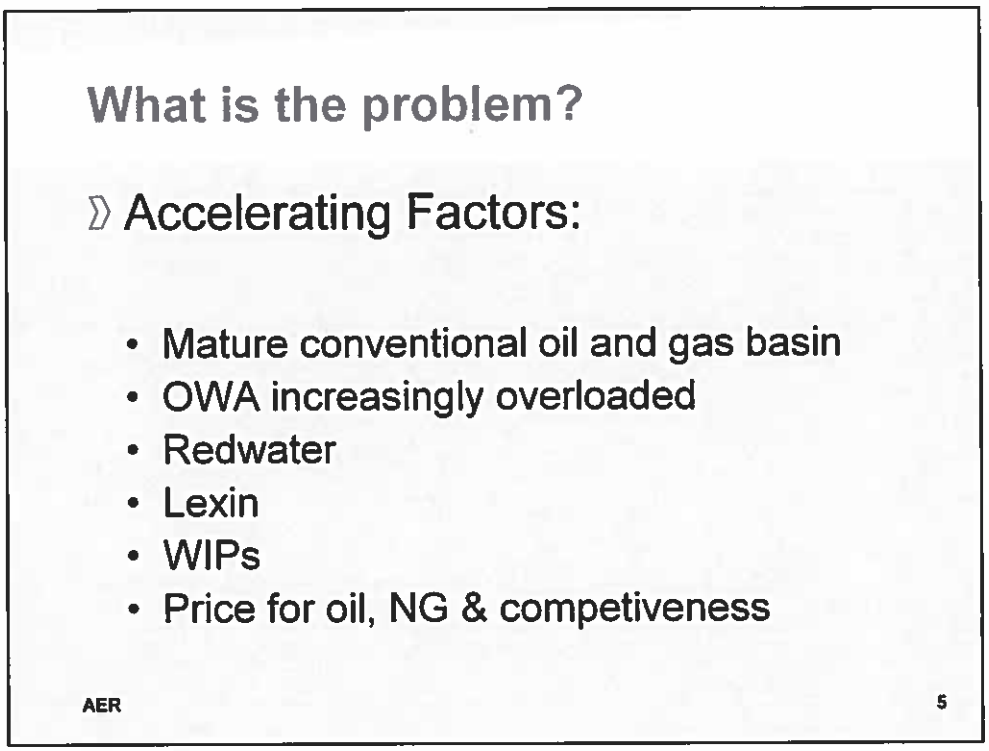


AER 3

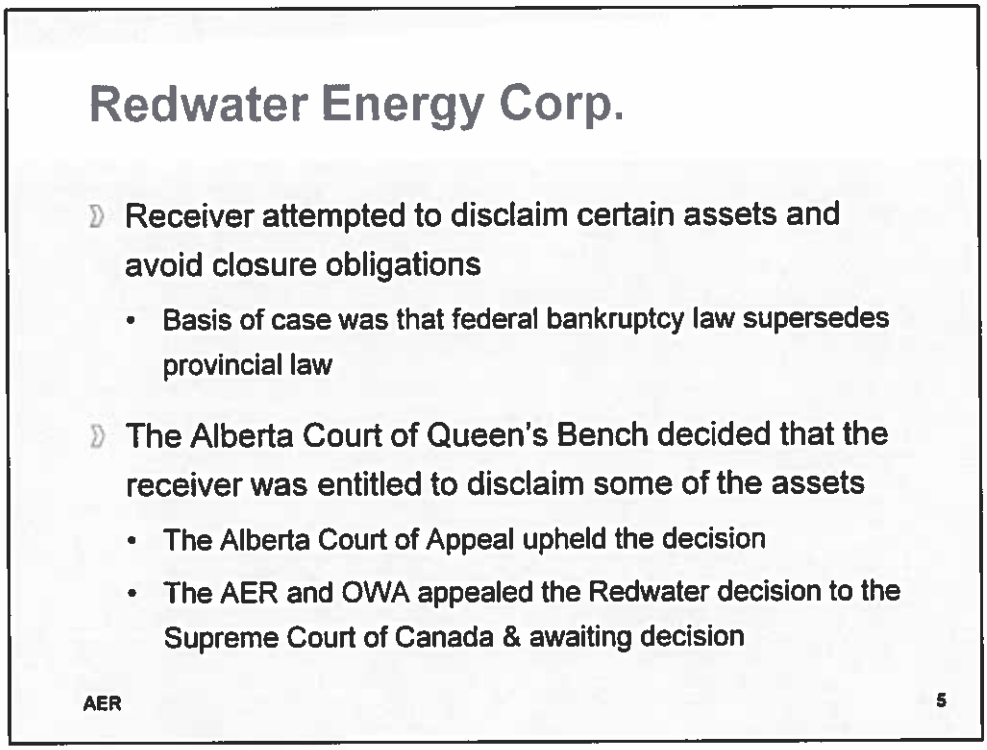
The two primary problems are…



The result of the two primary problems are additional problems…

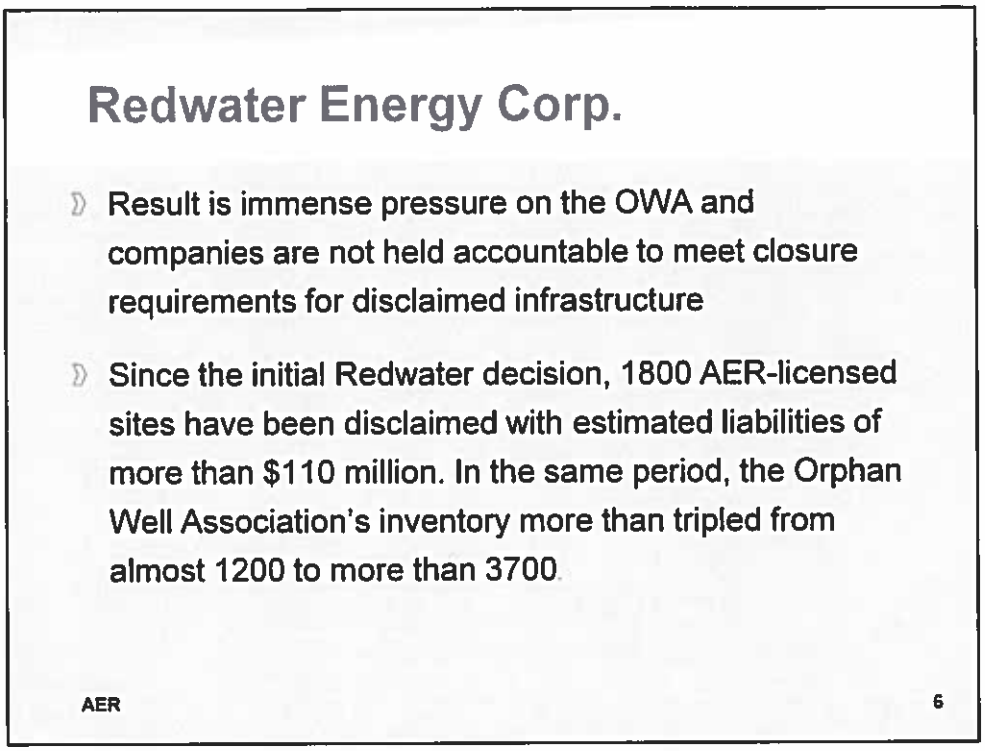


Compounding factors that are exacerbating the current situation



Legacy and post-regulatory closure sites (in English) means liabilities associated with companies that no longer exist, and liabilities that are expected to extend beyond the closure of the sector)

Since the initial Redwater decision, 1800 AER-licensed sites have been disclaimed with estimated liabilities of more than $110 million. In the same period, the Orphan Well Association's inventory more than tripled from almost 1200 to more than 3700.



Legacy and post-regulatory closure sites (in English) means liabilities associated with companies that no longer exist, and liabilities that are expected to extend beyond the closure of the sector)

The Orphan Well Association (OWA)

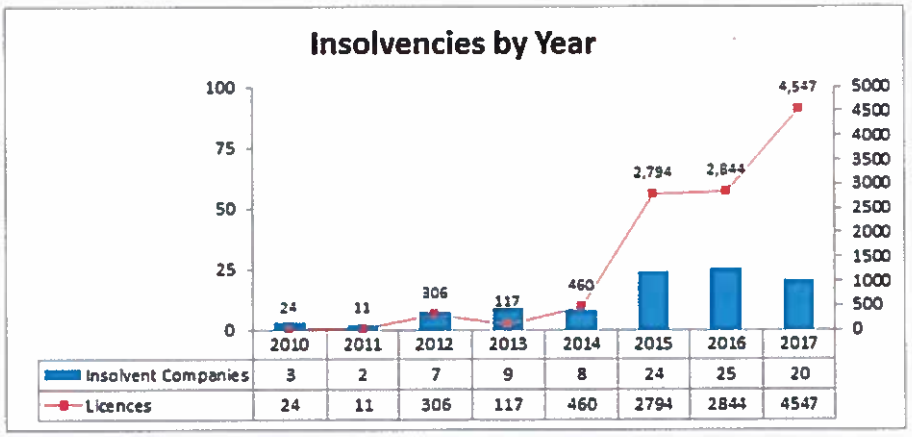
- Funded by industry through a bi-yearly levy (30 million since 2015)
- Executes closure activities for orphaned sites
- Orphan:
  - A well, facility, or associated site that has no legally responsible or financially able party to conduct abandonment and reclamation.
  - Additional information regarding the OWA can be found on their website www.orphanwell.ca

AER 7

2018 $45MM

2019 $60MM

OWA UPDATE



	2010	2011	2012	2013	2014	2015	2016	2017
Insolvent Companies	3	2	7	9	8	24	25	20
Licences	24	11	306	117	460	2794	2844	4547

NEED TO DO AN ANALYSIS OF WHAT ASSETS STILL HAVE POTENTIAL?

AER

9

Current State – LFP Challenges

- The OWA cannot fund Large Facility Program (LFP) Closure Costs.
  - LFP liability is not factored into existing Orphan Fund Levy calculations
  - Without a funding mechanism, AER incurs care & custody costs for the Lexin Mazeppa Facility
- LFP insolvencies are estimated at $40M to cleanup LFP sites

AER 10

- Directive 024 outlines steps for LFP Levy to fund Closure costs, payable only by Large Facility licensees (44 licensees in LFP holding 102 facility licences). Payable by LFP operators proportionate to their share of total LFP liability

- CNRL, working interest partner, is requesting trigger of LFP Levy to reimburse $250K incurred from surface decommissioning of the Shoreline Facility.

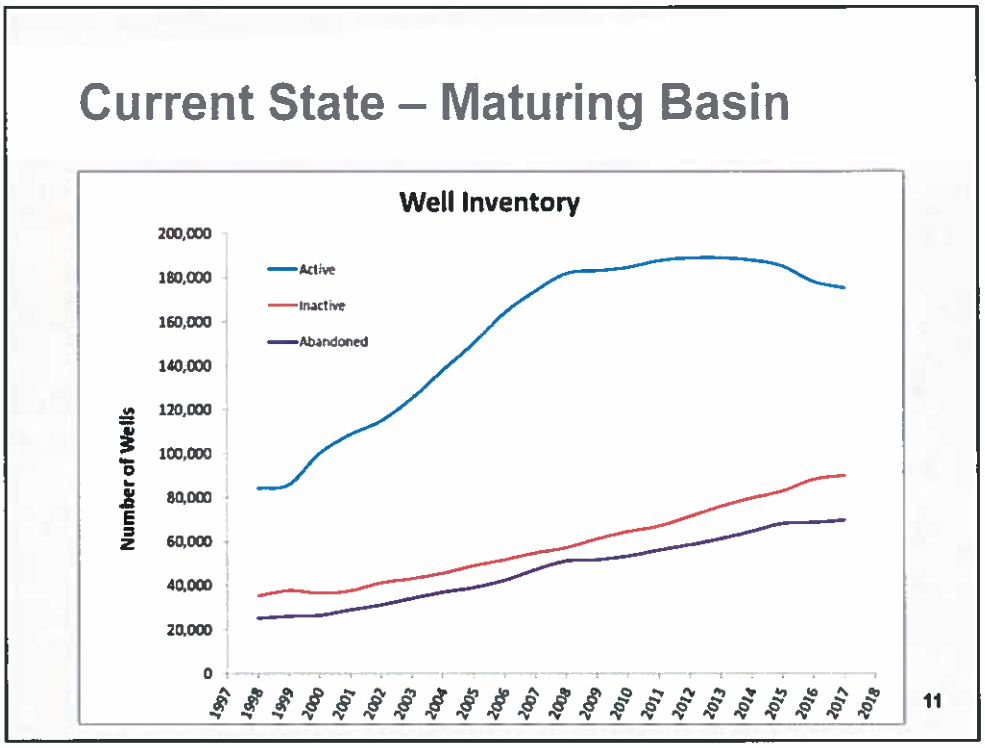
- Lexin Mazeppa Facility: No remaining working interest partners to conduct closure work

- LFP insolvent companies are Shoreline, Lexin, Canadian Oil & Gas International Inc)

- Recommendation: Spread $40M in anticipated closure costs over 7 year LFP levy (Approx $6M/year)

  Year 1 of Levy: Issue D024 Levy of $6M
  Year 2 to 7 of Levy: Orphan Fund Levy LFP Add-on of

$6M/year (Special add-on assessment for LFP licensees).



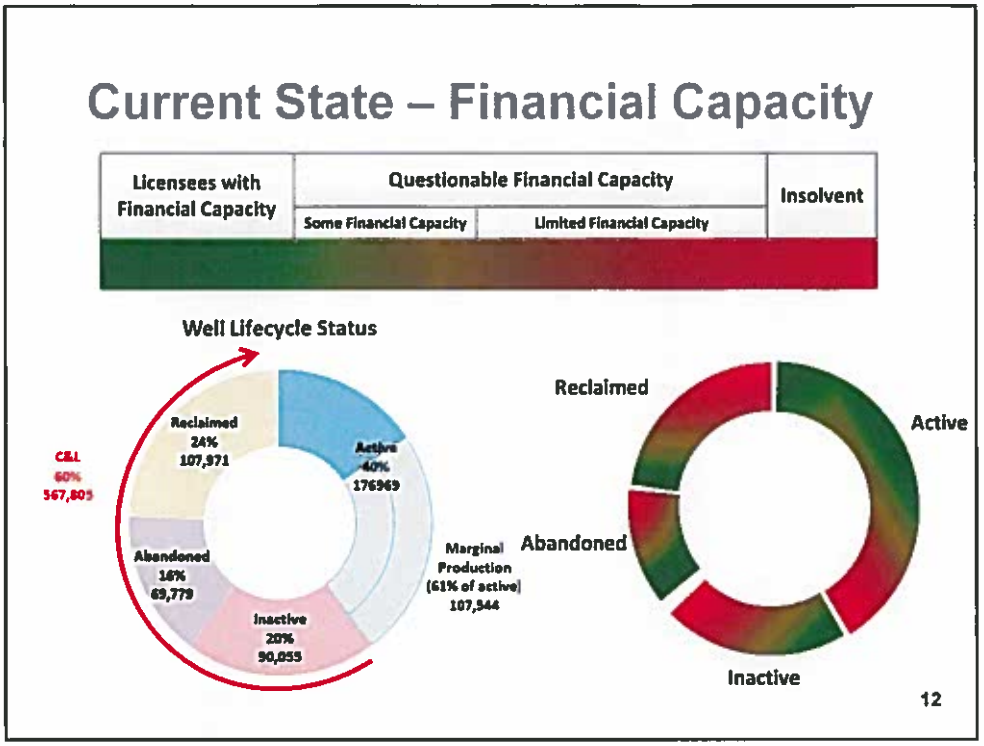
Setting context on our challenges:

While the graph I am showing you only contains well information, it is representative of what is happening in the conventional oil and gas sector. The well list contains both the oil and gas sector and insitu.

Between 2008 and 2013, first time in the province, we saw the number of active well levelling out. Meaning less wells were being drilled and more wells moving into an inactive state.

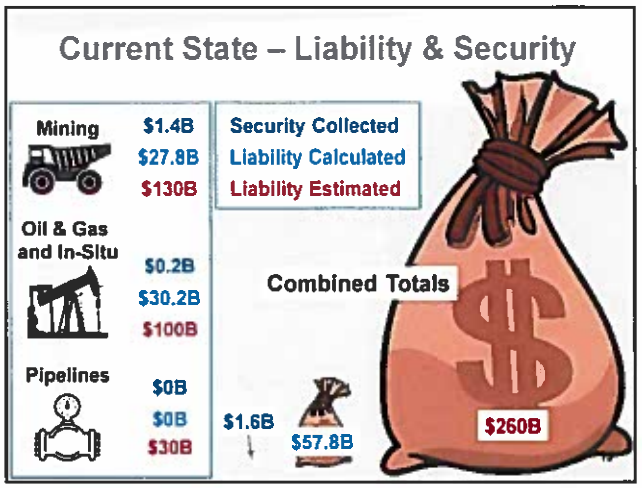
Since 2013 the trend has changed to a decrease in active wells but with an ever increasing number of inactive wells. While this graph only shows the statistics of wells, with the increasing number of inactive wells comes associated inactive pipelines and facilities.

In addition, to this we are seeing increasing number of abandoned infrastructure sites which are not reclaimed.



Currently, there is a broad spectrum of licensees and their financial capacity to meet their closure obligations. Licensees with potentially questionable financial capacity have infrastructure in all stages of the lifecycle.

In addition, looking a little closer at the inventory (graphic on the left). Out of our active well populations 61% of them are marginal producers which means they are producing 10 or less barrels of oil or oil equivalent a day. The active wells accounts for 40% of the well populations. The remaining wells (60%) inactive, abandoned and reclaimed fall under the oversight of the C&L. While we do not know the specific numbers for the rest of the infrastructure (facilities and pipelines), it is likely we will see similar trends.



- 2 Key Messages:
    - **The money bags are to scale. There is a bag for security, it is just very hard to see.**
    - **Estimating liability values is very difficult with huge error bars. Even the Estimated Liability displayed is likely less than the actual cost.**

- On the left side of the slide, 3 values are displayed for each sector:
    - Security Collected;
    - Liability Calculated; and
    - Liability Estimated.
- The Security Collected data is accurate.
- The Liability Calculated data is based on what is reported to the AER by Industry. It is calculated from LMR and MFSP.
- The Liability Estimated data has been calculated internally by SMEs based on best available data for certain pieces of the overall puzzle. This is a rough estimate that needs to be refined over time. This number is expected to grow as more data becomes available.
    - The Mining estimate takes an average $/m3 for tailings closure and

adds that to the liability value, as this is not covered fully under MFSP. It does not assess other potentially under-reported liabilities in the sector. This is a very broad assessment that needs to be refined.

- The Oil & Gas estimate uses average Remediation and Reclamation costs for well sites and multiplies that across wells on the landscape. This is still considered to be a low value, as few heavily contaminated well sites have been reclaimed. Additionally, the Liability Estimated data does not include any adjustments for under-reported liabilities at large facilities such as gas plants and In-Situ central processing facilities.
- The Pipelines estimate uses NEB cost estimates as a proxy for our pipelines data.

- On the right side of the slide, the combined totals of security and liability are displayed.

Current State – Liability & Security

- Other areas where liabilities are expected to be under-estimated:
  - Large Facility Program
  - SSLAs for O&G and In-Situ
    - Nexen Balzac Gas Plant calculated liability was $52 Million (2014 SSLA)
    - Costs to date estimated >$150 Million for just abandonment. Not including anticipated future remediation and reclamation costs.

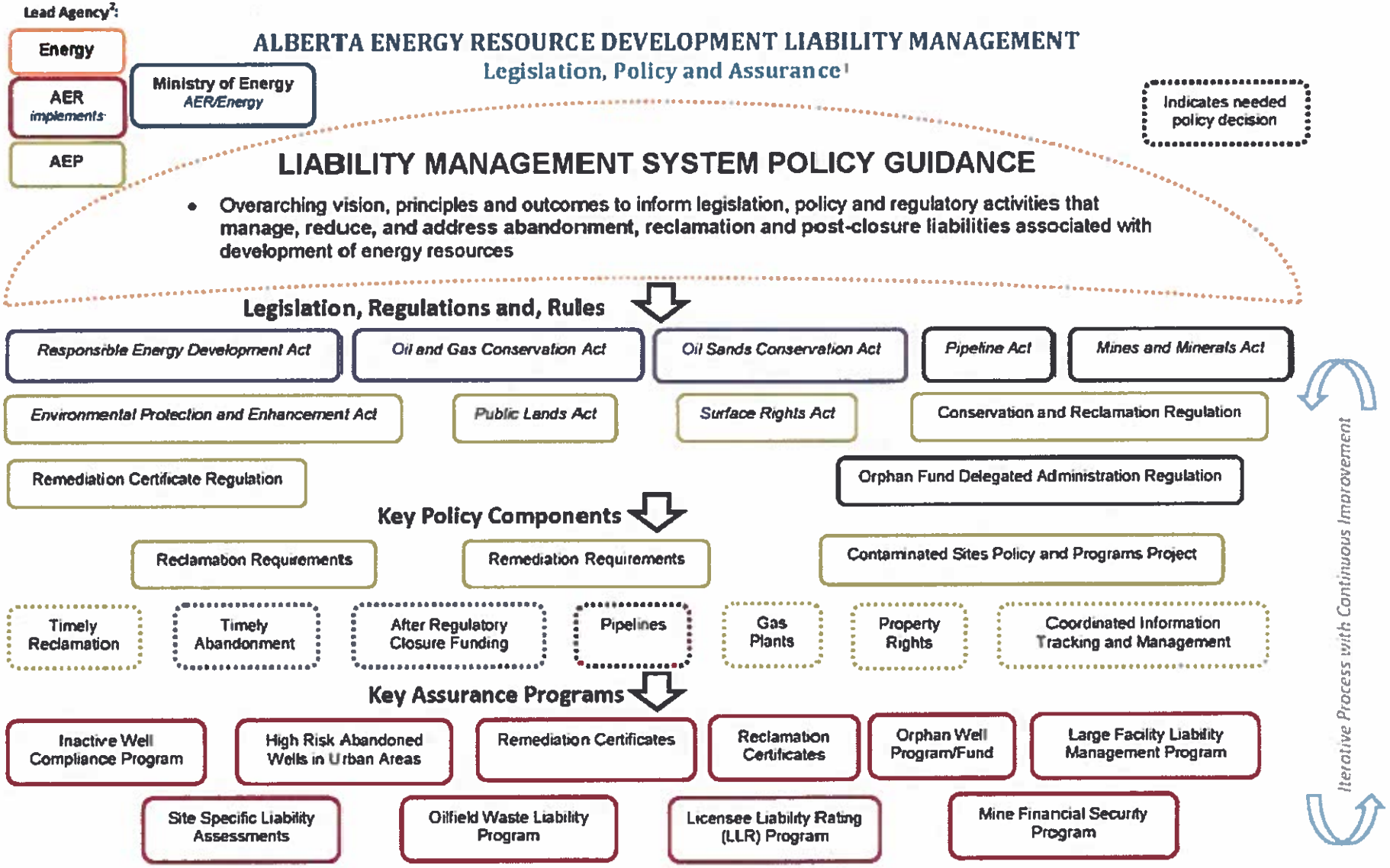
AER 14

Best Practices Assessment

Regulatory Mechanism	Alberta & British Columbia	Texas	New Mexico
Timelines for abandonment	☒	☒	☑
Well-specific security deposit	☒	☑	☑
Application for inactive / temporary abandonment status	☒	☑	☑
Trend	increasing population trend	Static population trend	Declining population trend

AER

15



[1] *Not a comprehensive list of all applicable legislation, policy and assurance programs.*

[2] *Indicates the lead agency, and does not show the necessary collaborative efforts required and shared responsibility across agencies. AER provides policy assurance through regulatory oversight, implementation, and data collection and analysis. Policy development, legislation, and regulations are the accountability of Government (AEP and Energy).*

Many Policy & Regulatory Options

- Being discussed at the highest level of GOA
- Considers Stakeholder concerns
- Decisions potentially in Spring of 2018
- Implementation planning would commence shortly afterwards

AER 15

AER Strategic Plan 2018-2021

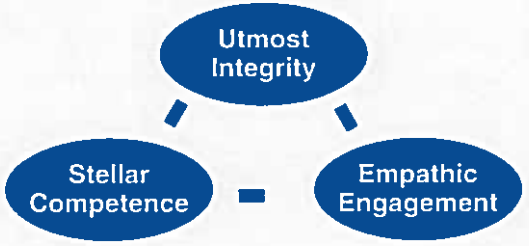
Vision

Alberta is recognized for excellence in sustainable energy development

Mission

Through regulatory excellence, the AER ensures the safe and sustainable development of Alberta's energy resources

Principles



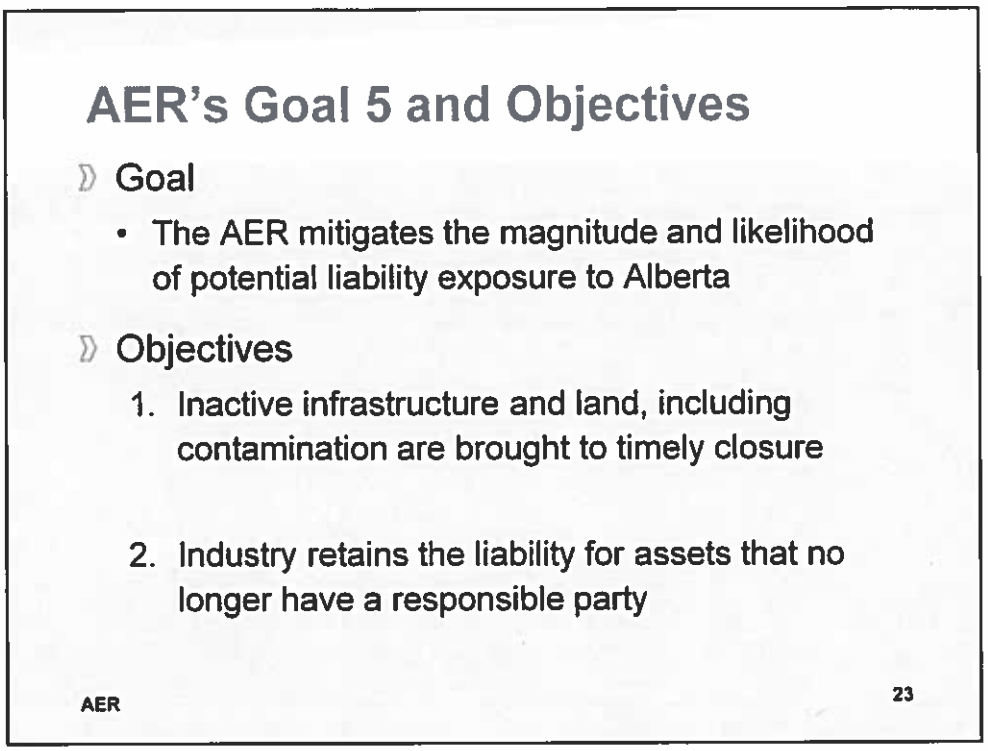
Outcomes

- The environment is protected
- The public is safe from harm
- Citizens are confident about how energy is developed within the province
- The regulatory system enables economic benefit for all Albertans
- Energy development in Alberta is well planned

Strategic goals

- The development of energy resources is managed throughout the lifecycle by integrating economic, environmental, social factors and considering industry performance
- The regulatory system enables the energy transition
- As a modern, responsive, efficient and effective regulator, the AER contributes to Alberta's competitiveness
- Regulation of Alberta's energy resources is improved by actively engaging indigenous peoples, stakeholders and the public
- The AER mitigates the magnitude and likelihood of potential liability exposure to Alberta

AER



In order to meet the AER's goal and strategies the facts about Alberta's energy development liabilities need to be are shared (Transparency)

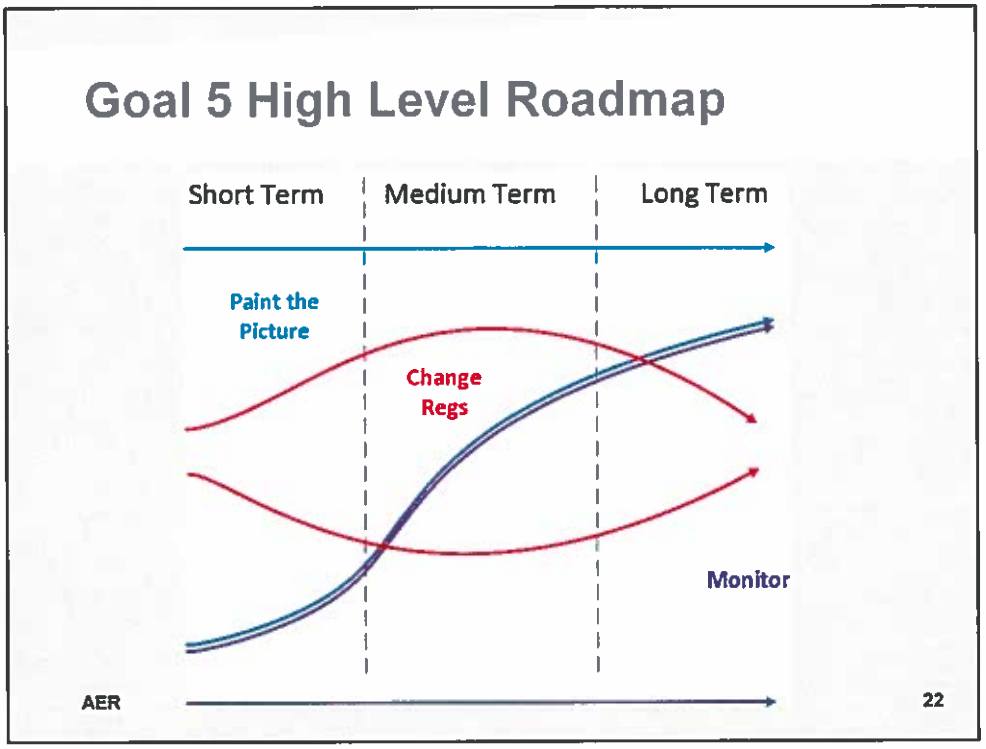
- We must understand and share information about our work as we make difficult decisions. We will be open and transparent in our liability facts; telling a compelling, accurate story of the liability across all sectors, including contamination, to Albertans that is clear, timely, and easy to understand.

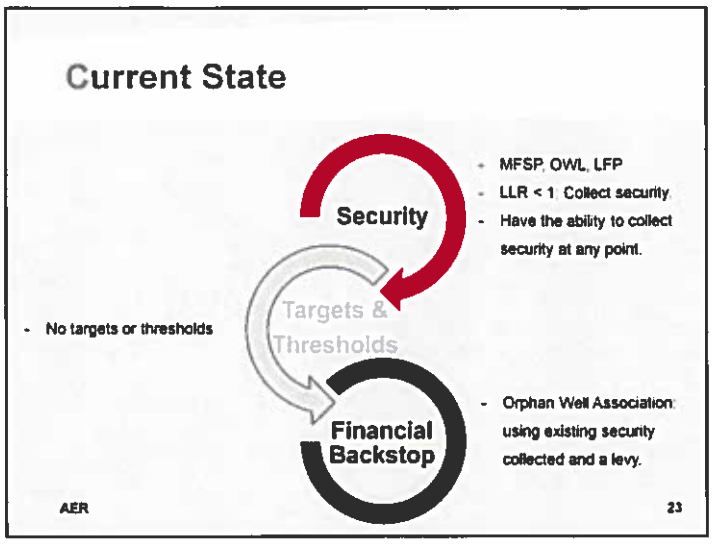
Inactive infrastructure and land, including contamination are brought to timely closure (Inventory reduction or movement)

- With increasing inactive energy infrastructure, we must work to reduce this inventory and proactively move development to closure to ensure the cost burden is not left to Albertans and is still fostering competiveness.
- Low commodity prices and the economic impact has increased the risk that some companies may have financial difficulties. The economic performance of a company determines their ability to cover costs during closure. We will work with companies to manage the risk and minimize inventory sent to the Orphan Well Association

Industry retains the liability for assets that no longer have a responsible party (Industry Accountability)

- Despite our best efforts there are liabilities that are no longer owned by a company, or are not addressed by existing liability programs. We must ensure that the costs of these liabilities is retained by industry and not passed on to Albertans


Goal 5 High Level Roadmap
Short Term
Medium Term
Long Term
Paint the Picture
Change Regs
Monitor
AER
22



There have been three pillars on addressing the current liability challenges.

- Collection of security
- Setting target for reducing liability or thresholds on how much inactive inventory you may have
- Financial back stops for addressing liability

- For security, the problem is we collect or try to collect it when a licensee is already showing declining financial capacity. This is a reactive program while we have the legislation in place to be more proactive.
- We do not use any targets or thresholds. We are missing an opportunity to utilize a pillar that is essential in addressing our problem
- Financial Backstop – the current backstop is limited in ability and capacity to address the issue. There is a limited $ money that is collected by security to provide to the OWA and there is limited capacity of the industry to continue to pay an every increasing levy.

While we could have made improvements to security collection, the financial backstop mechanism and implementation of targets, why have we not done so?

Historically, even though we have known these programs were flawed, there has been no proactive changes made. Why has there as been no political will to make changes to the liability programs? Until recently, the implications of our flawed system had not been realized..... There had been little to no impact to the government or the public of the flawed system.

This is changing (ie Smoky, Redwater). We can continue down our current path until the impacts are felt by the public of Alberta or we can start to implement the numerous changes that we know need to be made.

Future Possibilities

- Targets: Threshold for inactive inventory
  - set max inactive wells %
  - Set timelines for suspension, abandonment & REC?REM
  - Abandon X % each year to reduce inventory in timely manner
  - Threshold exceed= non compliance
- Security: Collection is based on specified criteria
  - Inactive inventory exceeds thresholds
    - Collect security and/or require X number of abandonments

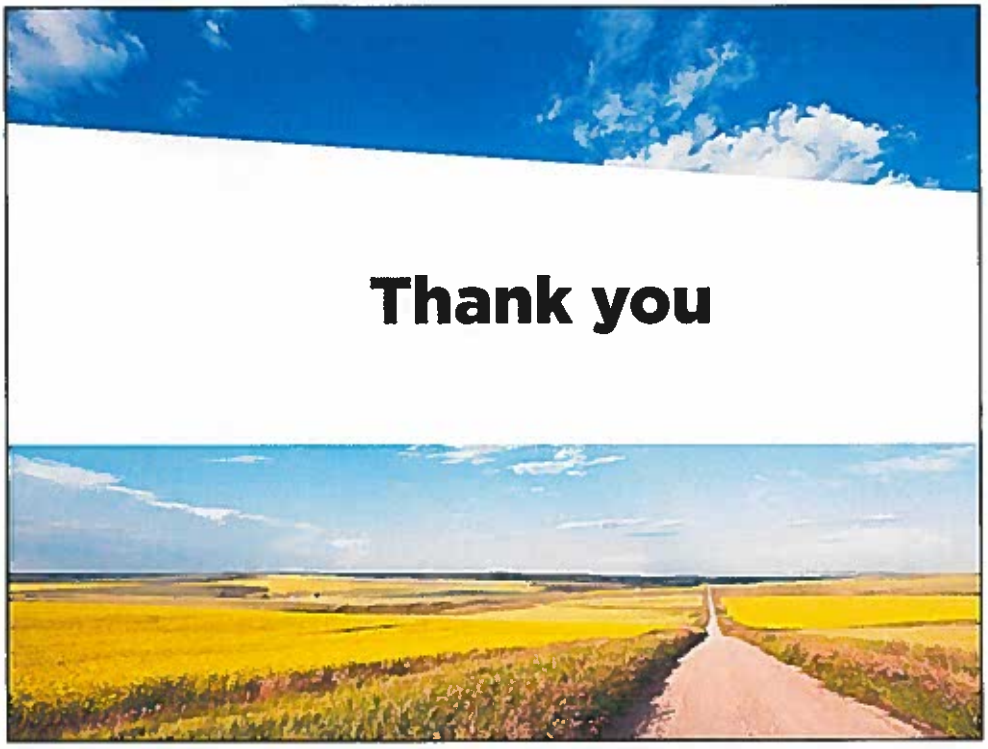
AER 25

C&L 2018/2019 Focused Activities

- s.24(1)(g)
- Data & Corporate Health (inventory, financial and behavioral)
- SCC/Redwater Decision-implementation planning
- Long Term Sector Strategies
- s.24(1)(g)
- Regulatory Efficiency projects
- Office of the Auditor General Audits
- ICORE - to gain International Best practices

AER 26


Questions


Thank you