

# Mine closure – a wicked problem?

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Queensland Mine Rehabilitation Commissioner

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# This session

1. Mine closure in Australia and globally
2. What's a wicked problem?

Some attributes of wicked problems

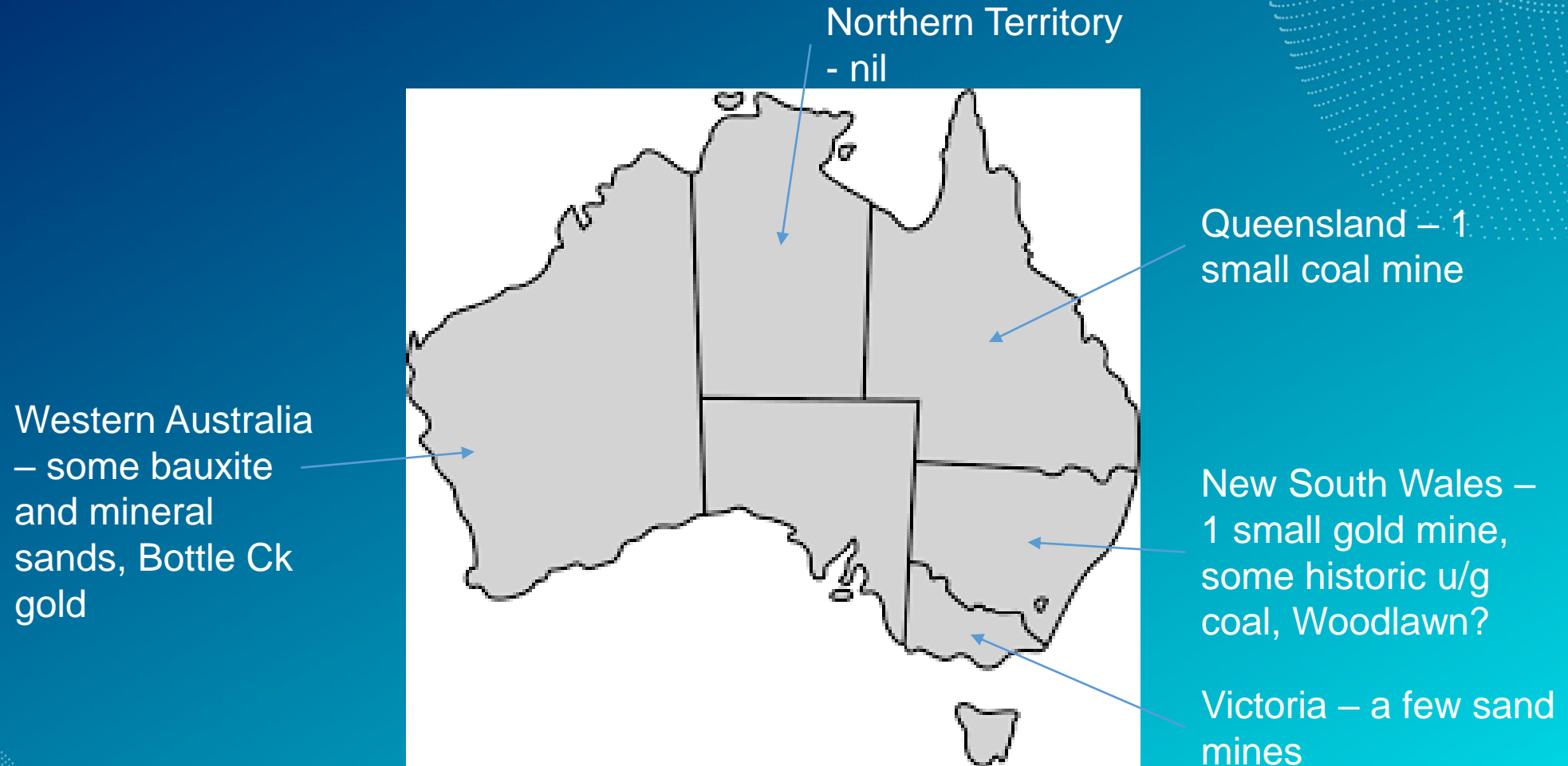
3. Options for better managing mine closure in a wicked world

Residual risk

How miners are moving ahead apace

4. Conclusions – taming the wicked problem

# If it was easy, wouldn't there be more examples?



# Successful mine relinquishment is a global challenge

Activity status	Number of cases
Abandoned	1
Active	1
Care and maintenance	21
Inactive	1719
No info	2
Rehabilitation	49
Relinquished	1
Temporarily on hold	2
Under litigation	2
(Not specified)	6
<b>Total</b>	<b>1804</b>

# Expectations for mine closure are high

- Safe
- Stable
- Non-polluting
- Sustainable



# What *is* a Wicked Problem?

Wicked problems are problems with many interdependent factors making them *seem* impossible to solve. Because the factors are often incomplete, in flux, and difficult to define, solving wicked problems requires a deep understanding of the stakeholders involved, and an innovative approach provided by design thinking

# Is the mine rehabilitation & closure task a wicked problem?

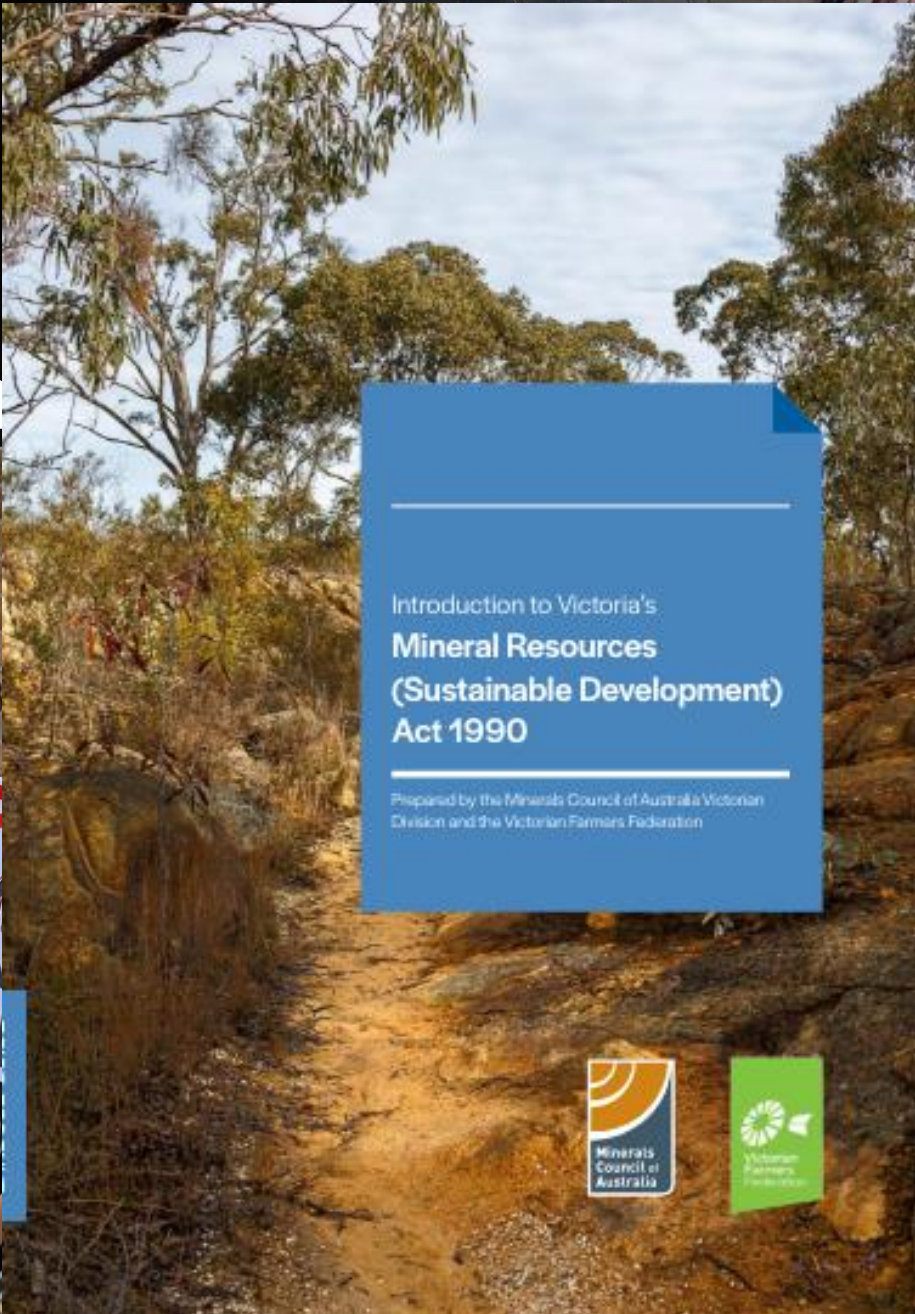
- Many stakeholders, conflicting priorities
- Difficult to define
- No stopping rule
- “Solutions” may be irreversible
- Every problem may be the symptom of another problem
- No right or wrong – only better or worse
- Regulators have no “right to be wrong”

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The framing of  
any given problem  
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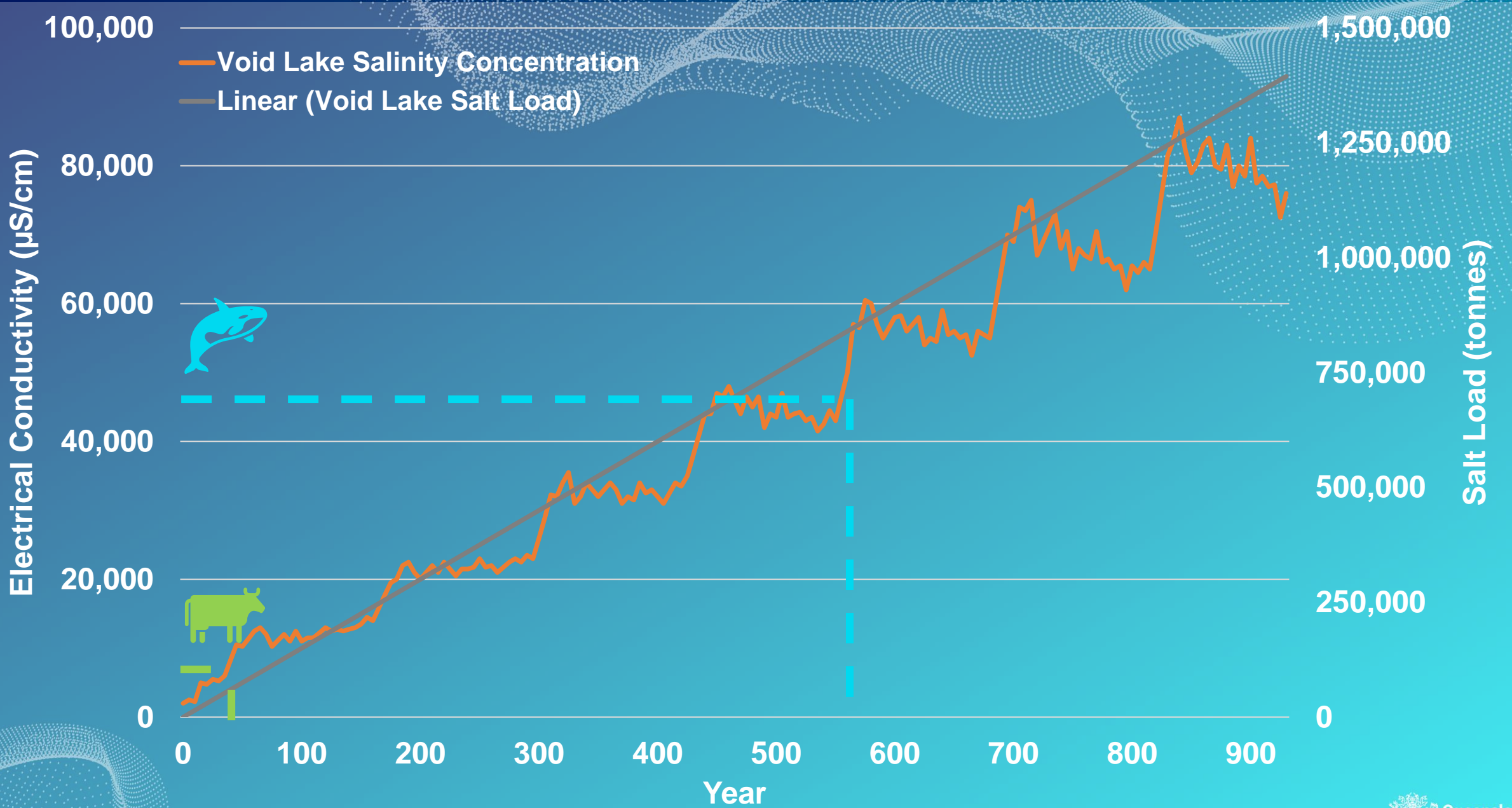
# A take on stakeholder perspectives – multiple actors have a view

*“it’s the social complexity of wicked problems as much as their technical difficulties that make them tough to manage”*

Camillus 2008

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# Relinquishment is “forever”





*“Tackling wicked problems is an evolving art. They require thinking that is capable of grasping the big picture, including the interrelationships among the full range of causal factors underlying them. They often require broader, more collaborative and innovative approaches. This may result in the occasional failure or need for policy change or adjustment.”*

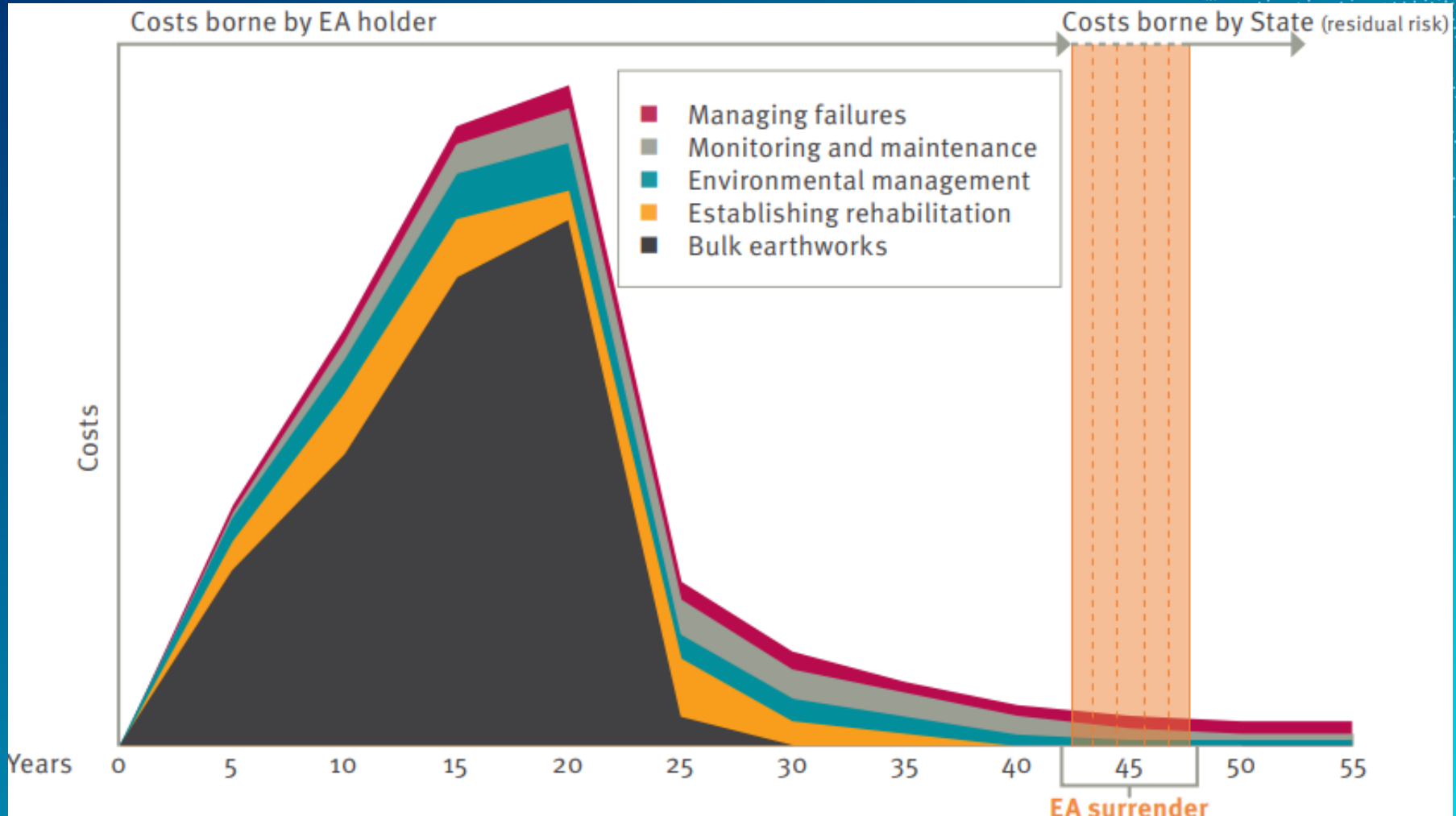
(Lynelle Briggs, then Australian Public Service Commissioner, APSC, 2018).

# Options for better managing mine closure in a wicked world

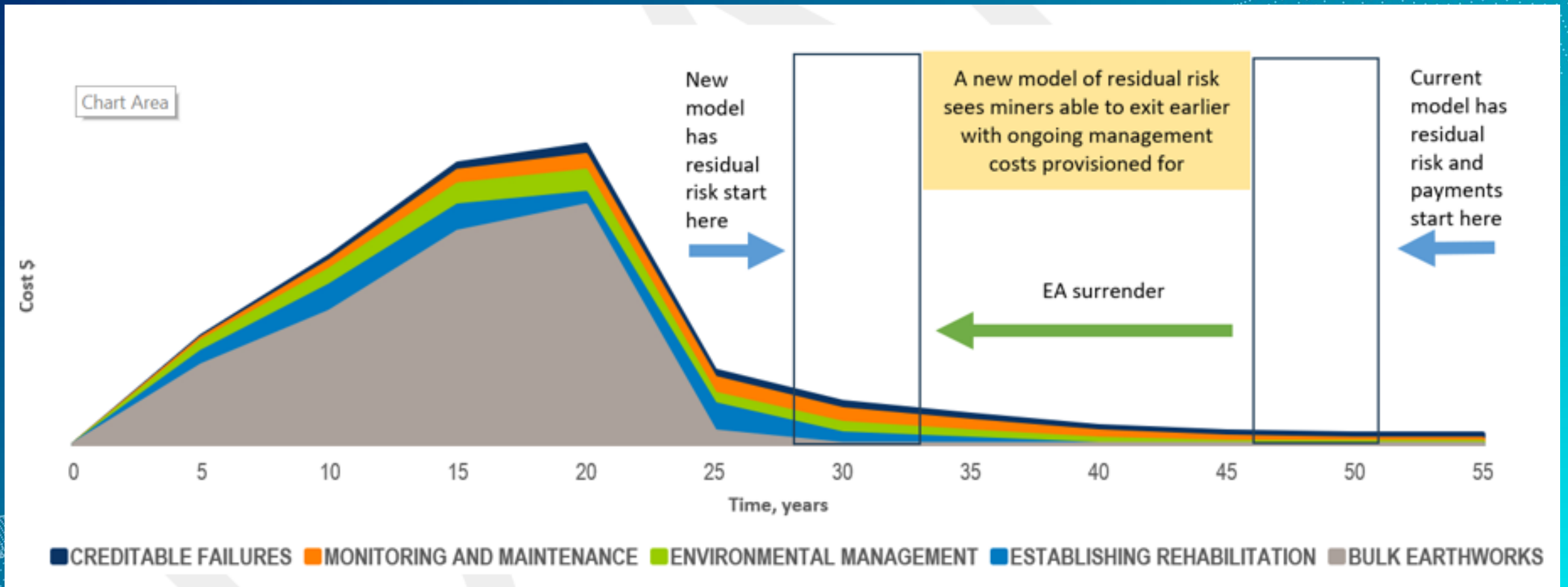
Residual risk

How miners are moving ahead apace

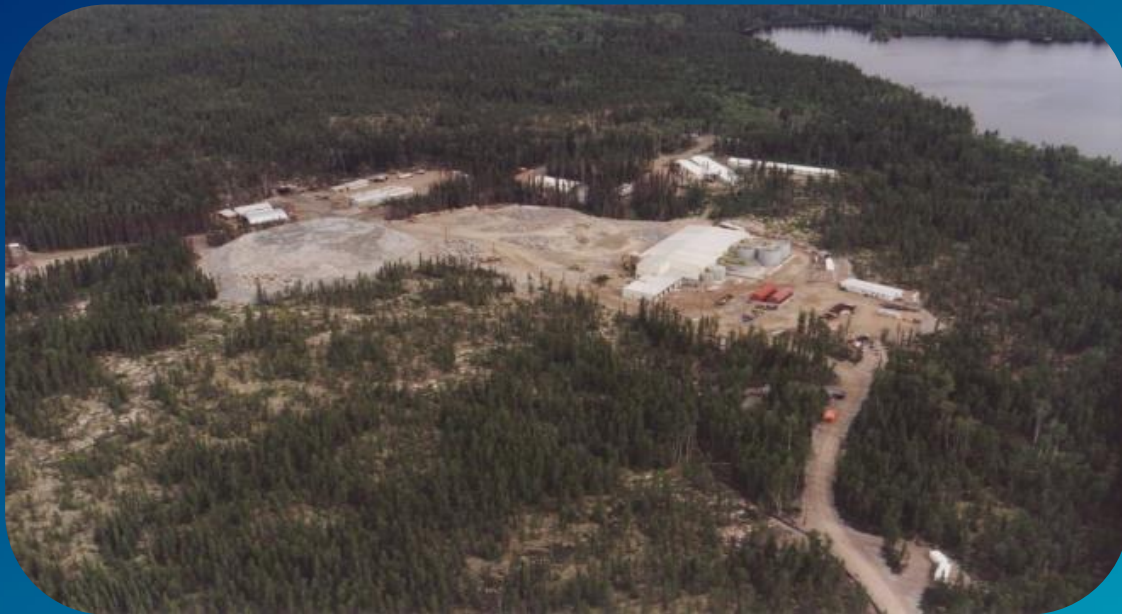
# Residual risk



# Making residual risk work



# Managing residual risk on Crown lands - Saskatchewan



# How miners are moving ahead apace

# Alcoa Anglesea



# Genex facility on Kidston gold mine

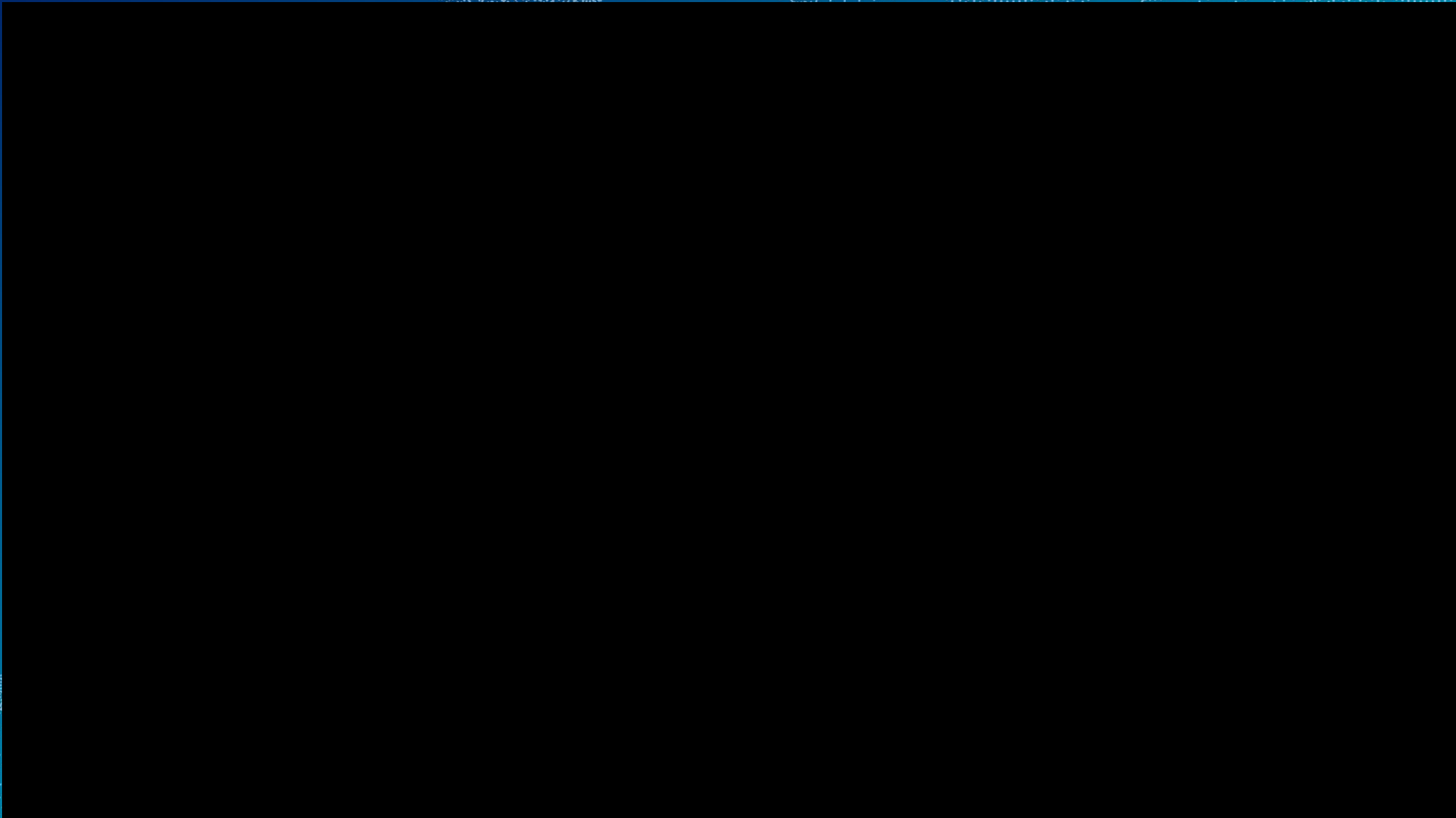




# Woodlawn Ecoprecinct



# Woodlawn Ecoprecinct



# Conclusions – taming the wicked problem

- Safe
- Stable
- Non-polluting

..are the must-haves



# Victoria recognises the need for ongoing stewardship

rehabilitated mine lands

*“...should be able to achieve a post-mining land form that requires little to no ongoing maintenance as a result of mining activities.*

*There may be some larger and more complex sites that require long term active management, monitoring and mitigation strategies to maintain a safe, stable and sustainable environment.”*

- Large, long-lived mines leave behind heavily modified landscapes.
- There may be no “walk-away” solutions.
- Viewing mine rehabilitation and closure as an ongoing stewardship task may lead to better outcomes for the environment and resource communities.
- The path forward may involve an industry-funded, government managed long-term view



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