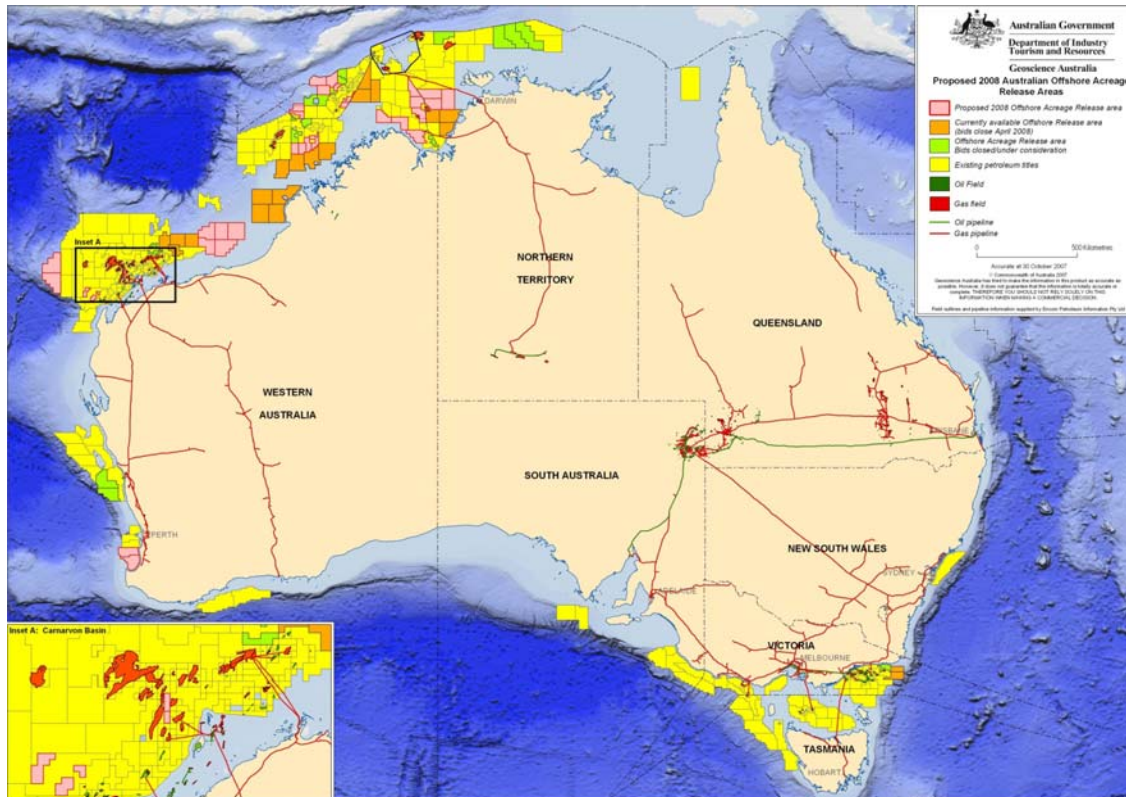




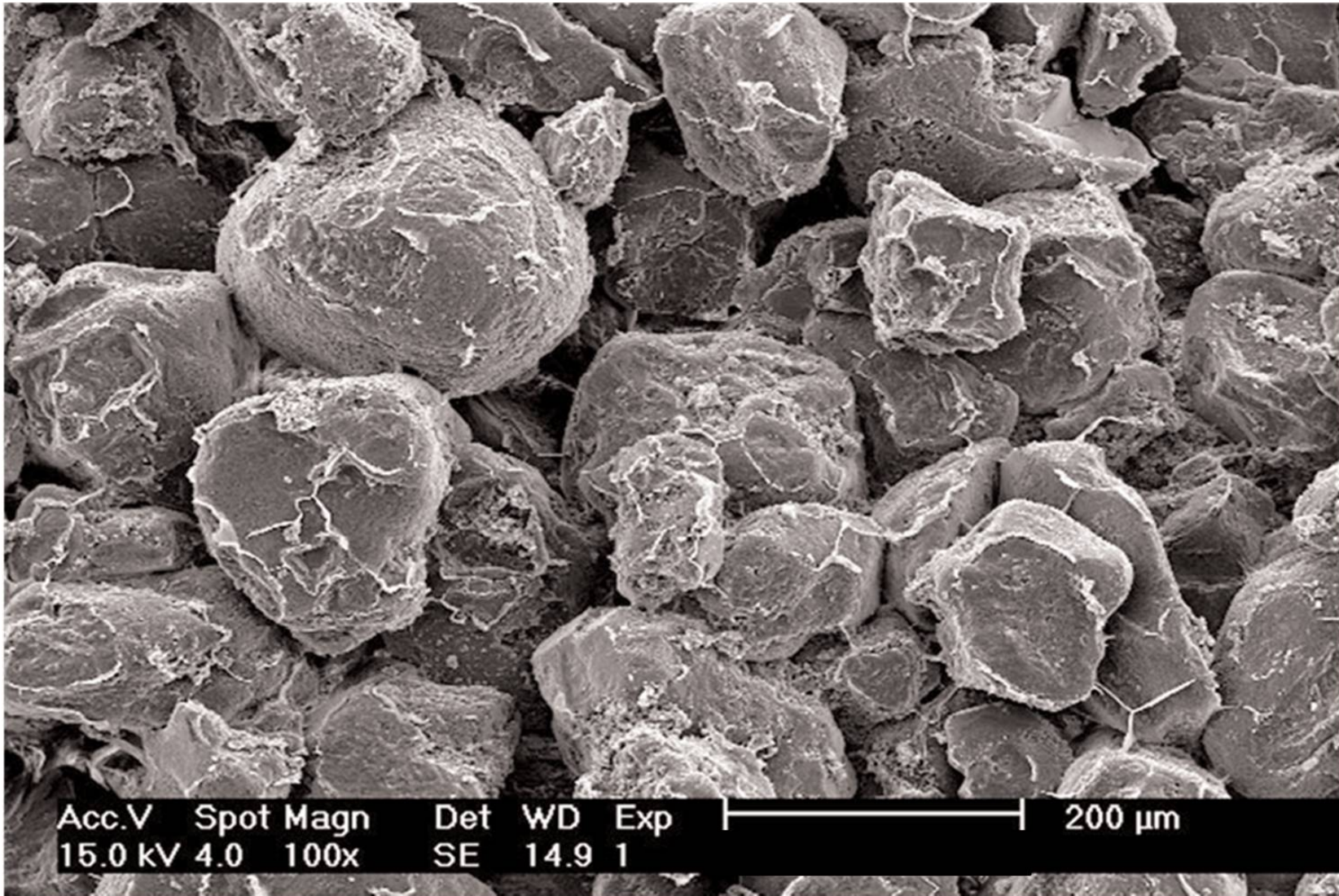
# Australia's Development of a Legal and Regulatory Framework for CCS





Australian Government

Department of Resources, Energy and Tourism





Australian Government

Department of Resources, Energy and Tourism

## Legal Frameworks to Enable CCS

- Why regulate?
- Key issues addressed in the Legislation
- Some issues *not* addressed
- A comment on process and status



Australian Government

Department of Resources, Energy and Tourism

## Why regulate?

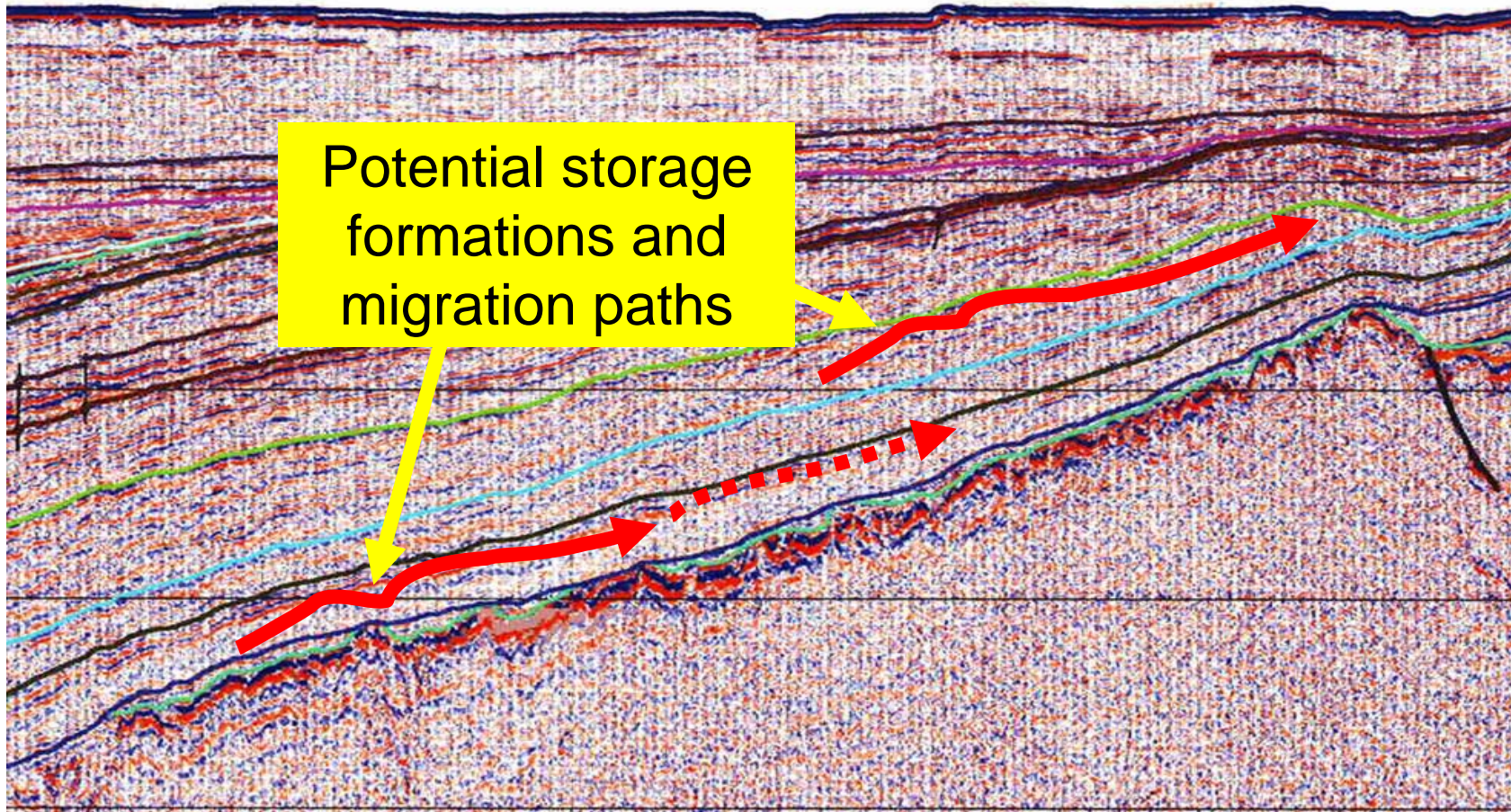
- Physical event
- Affected parties
- “Whole of basin” management



Australian Government

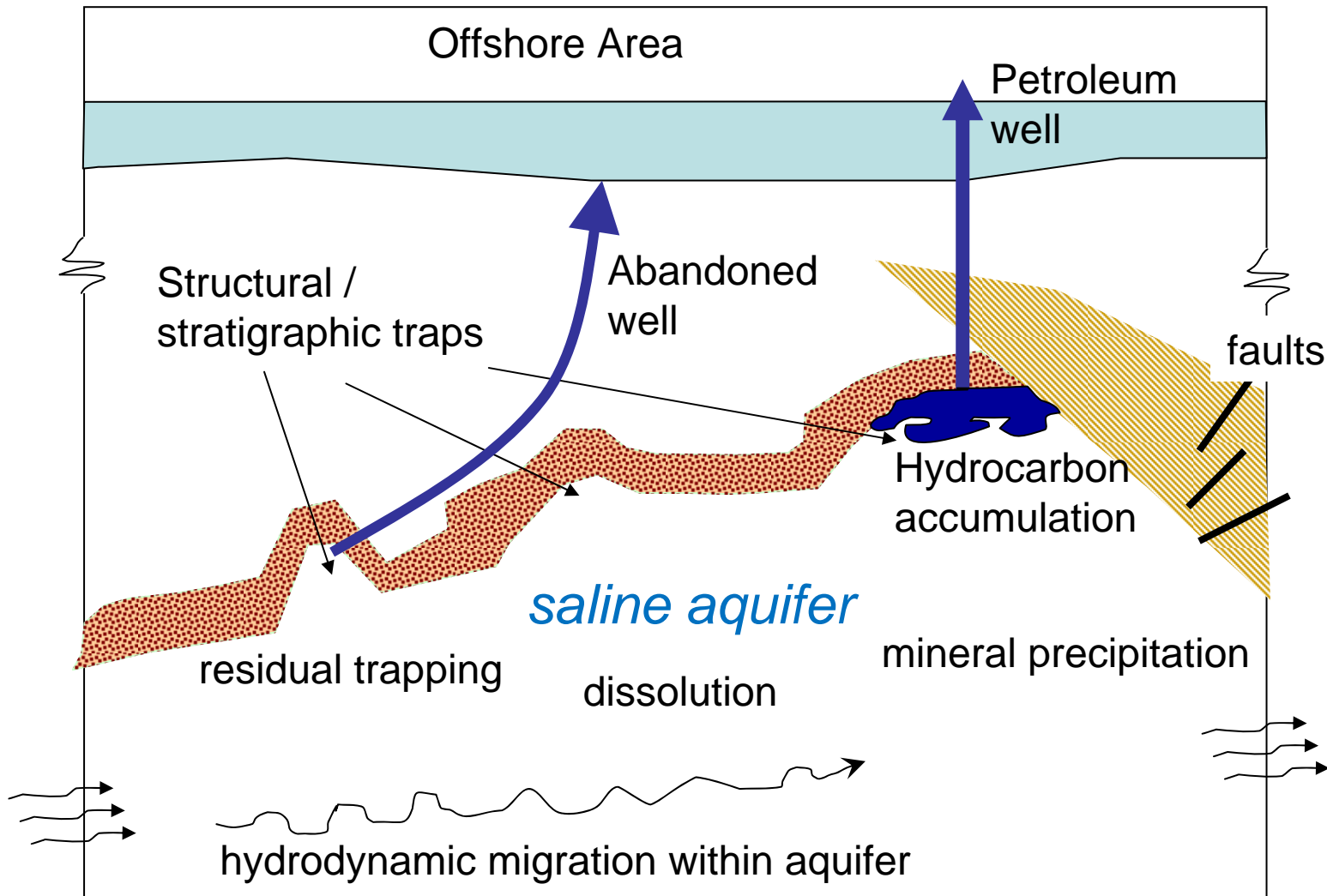
Department of Resources, Energy and Tourism

# Post-injection behaviour



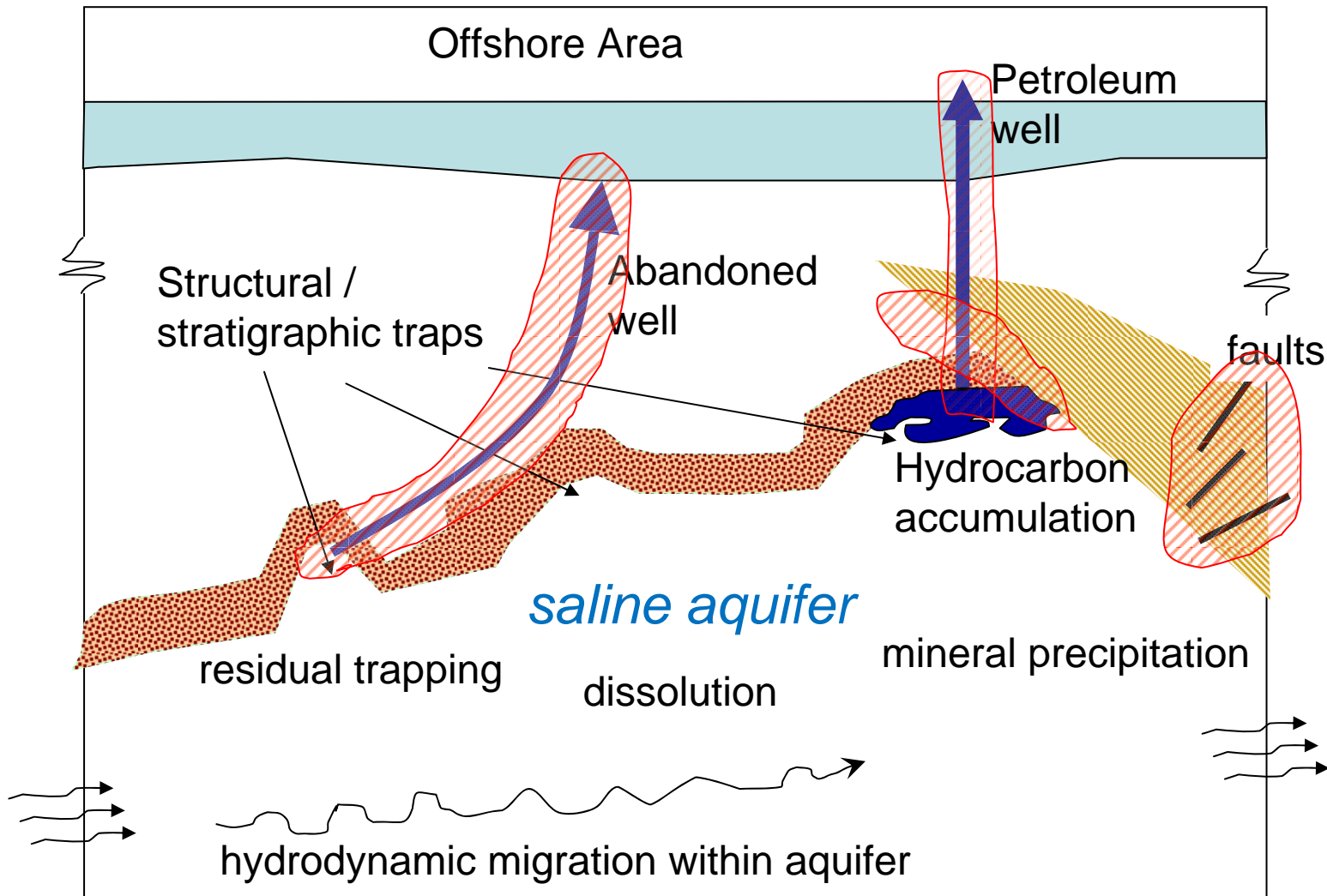


# Trapping Opportunities



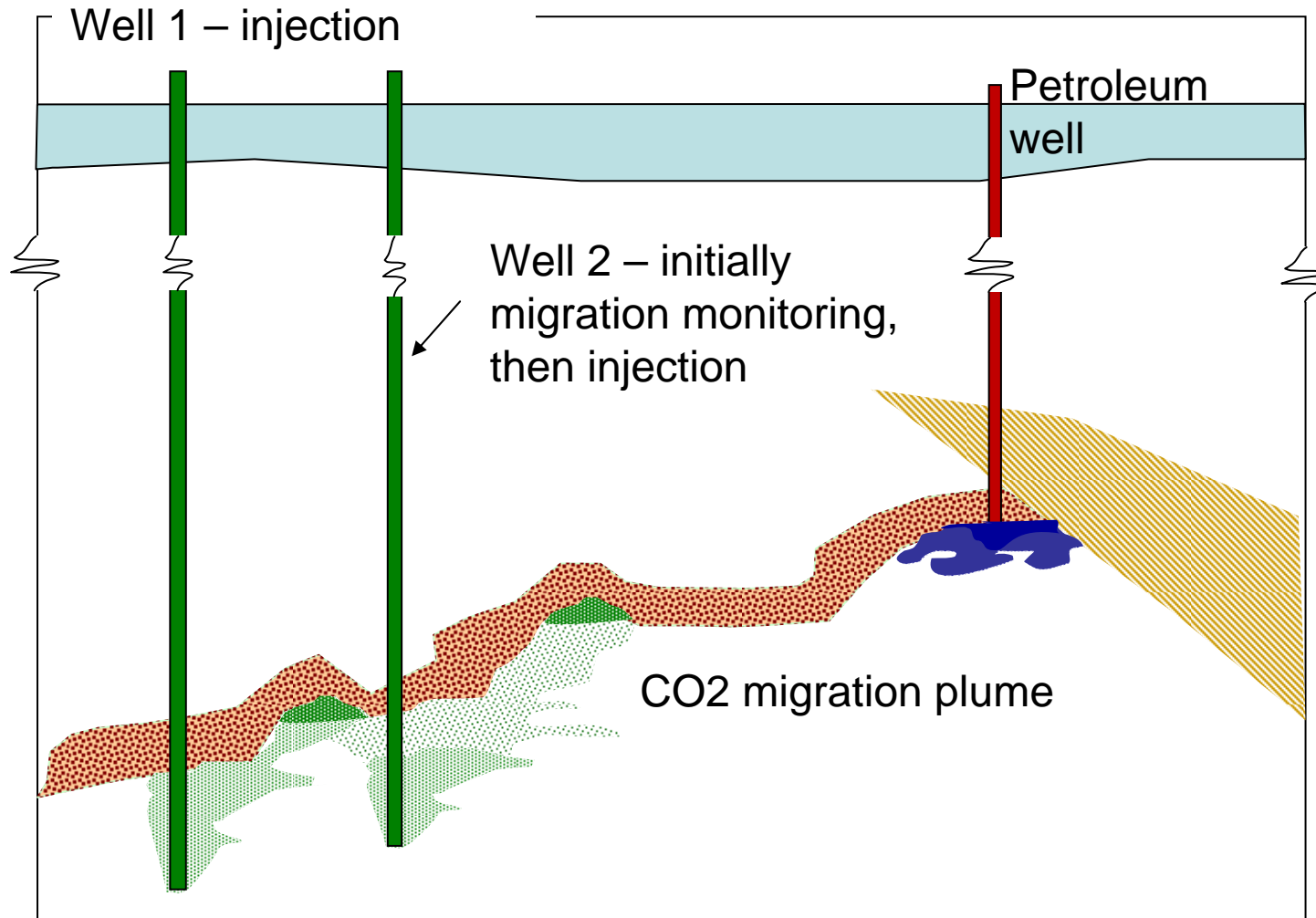


# Potential Threats to Storage



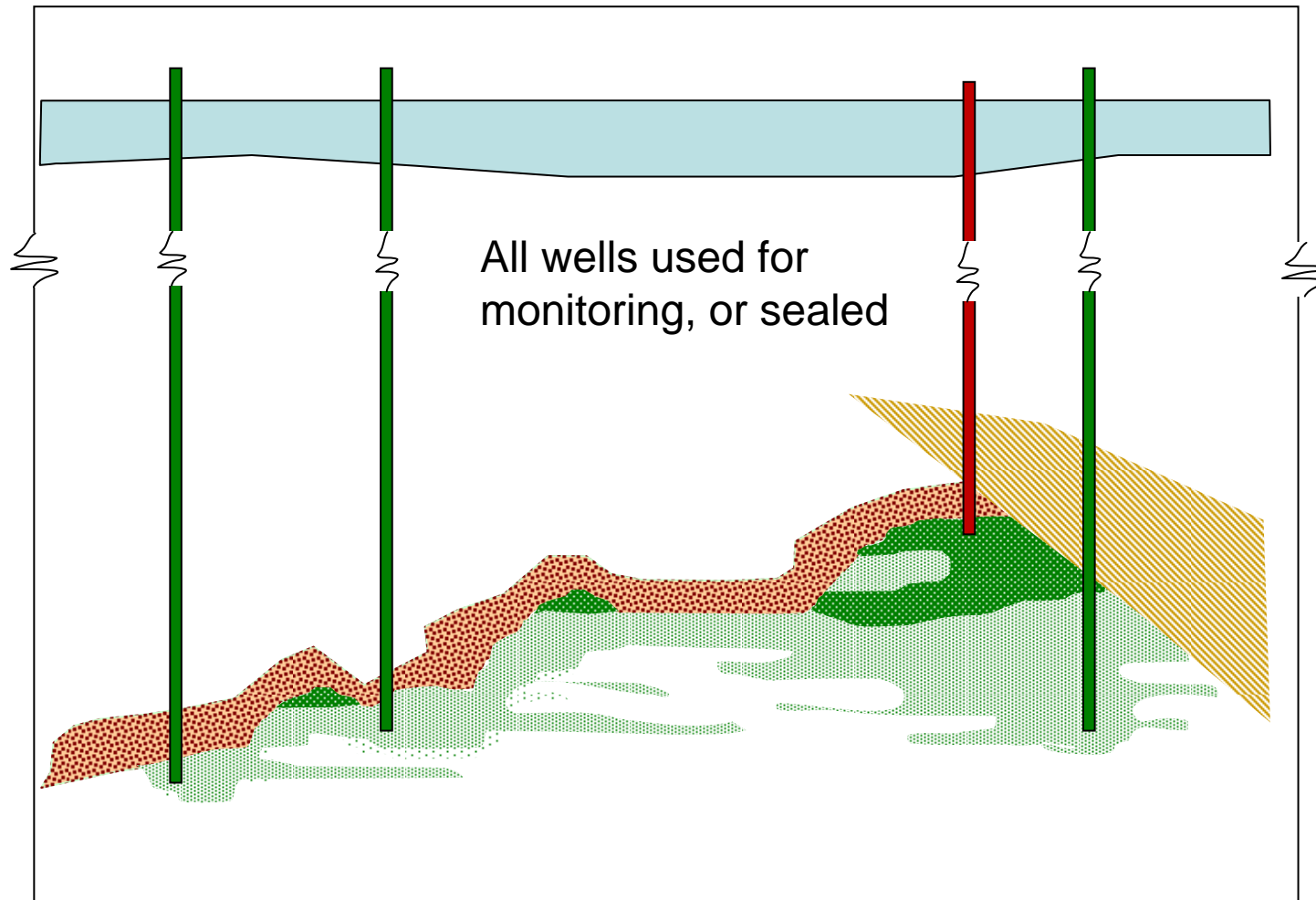


# Injection





# Site Closure – End of Project

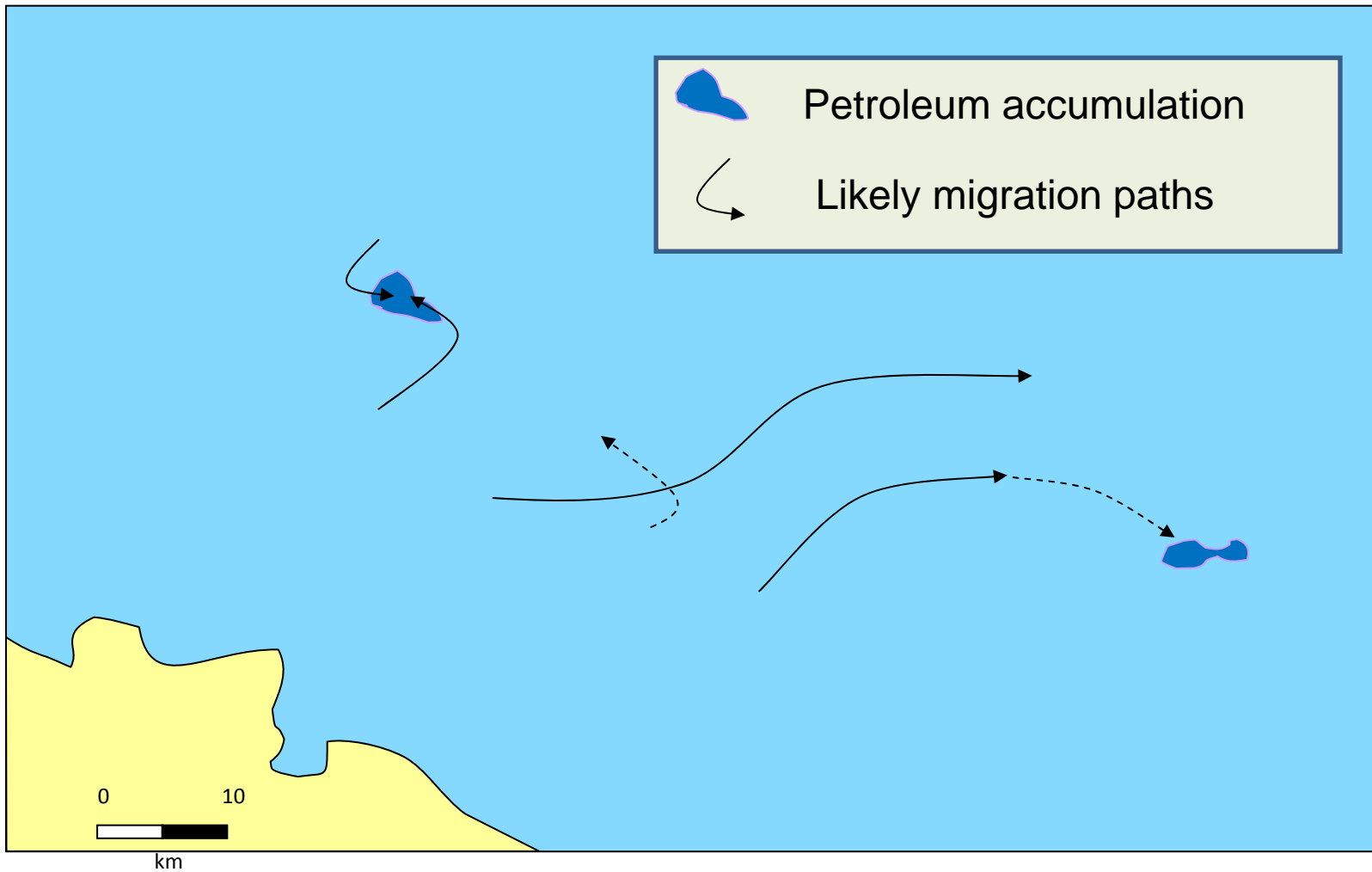




Australian Government

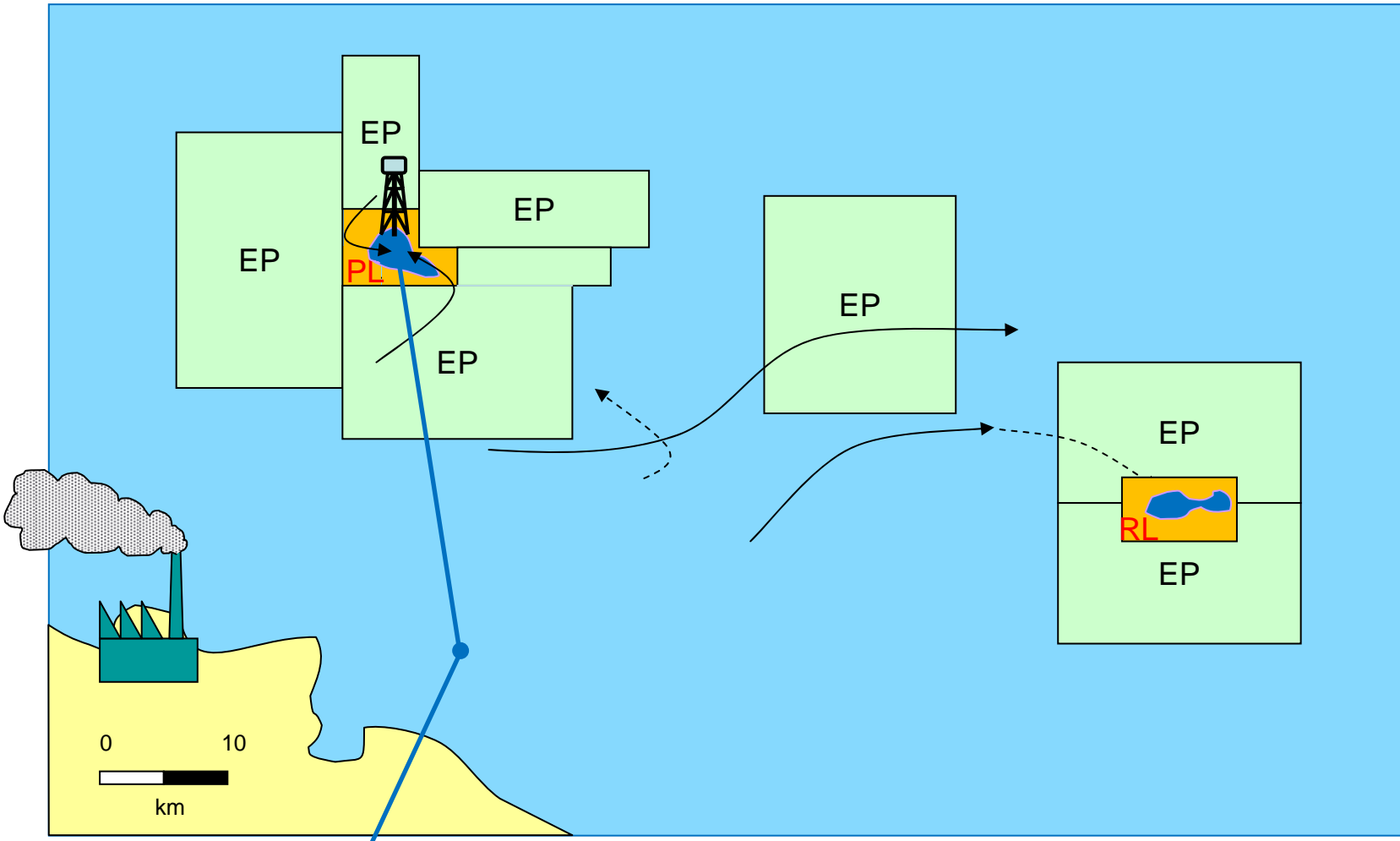
Department of Resources, Energy and Tourism

# Basin



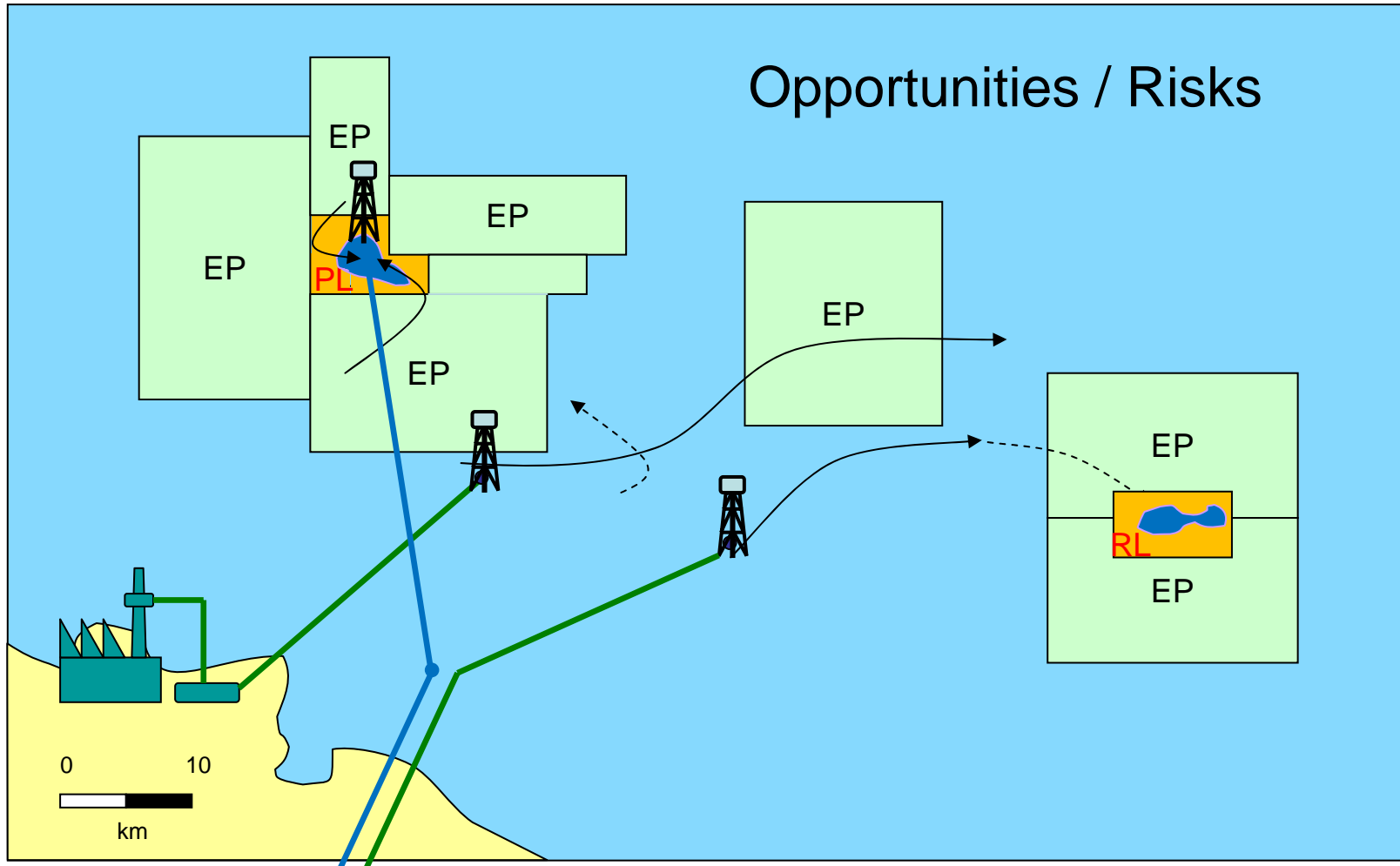


# Basin Existing Activities



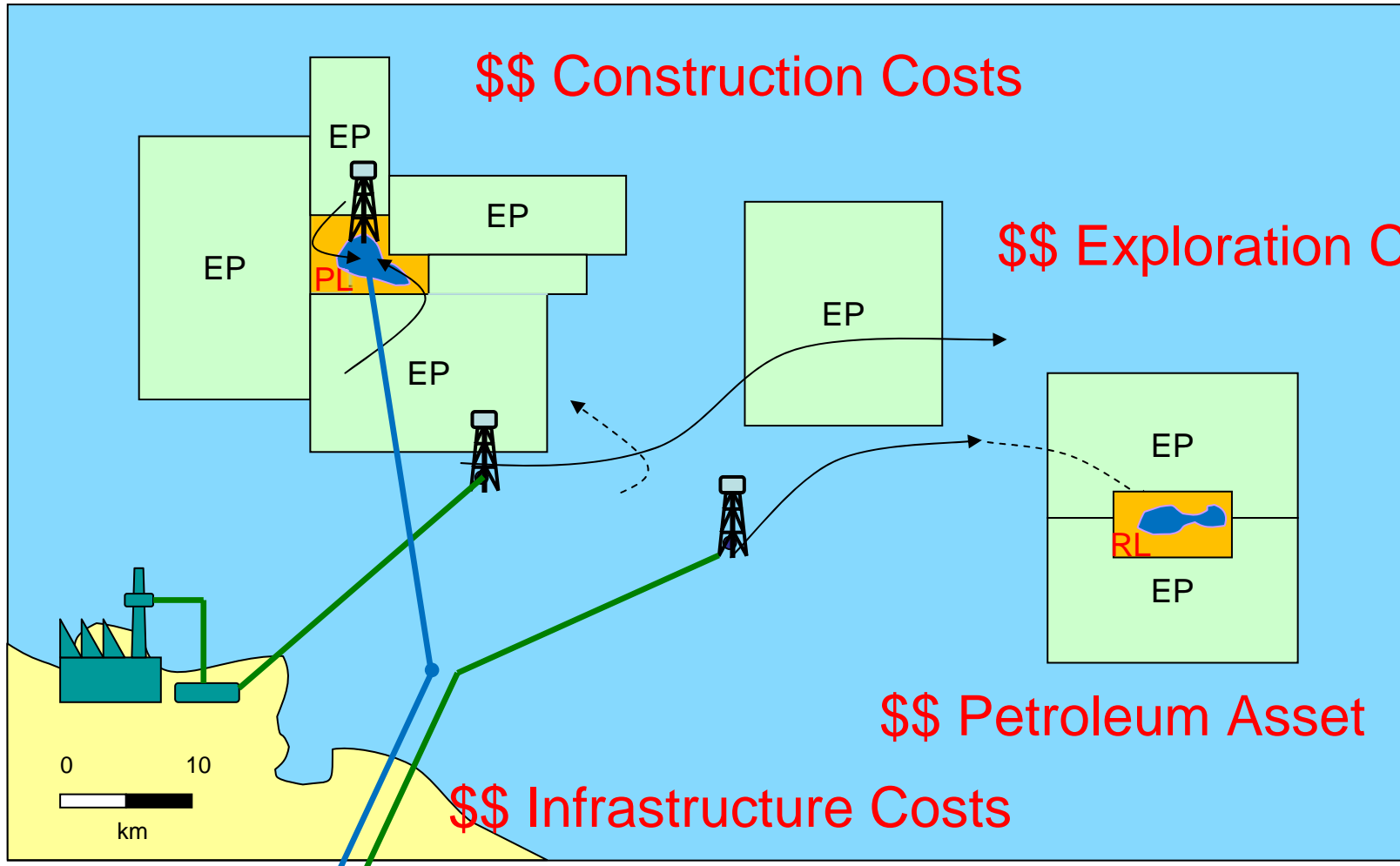


# CCS Introduced



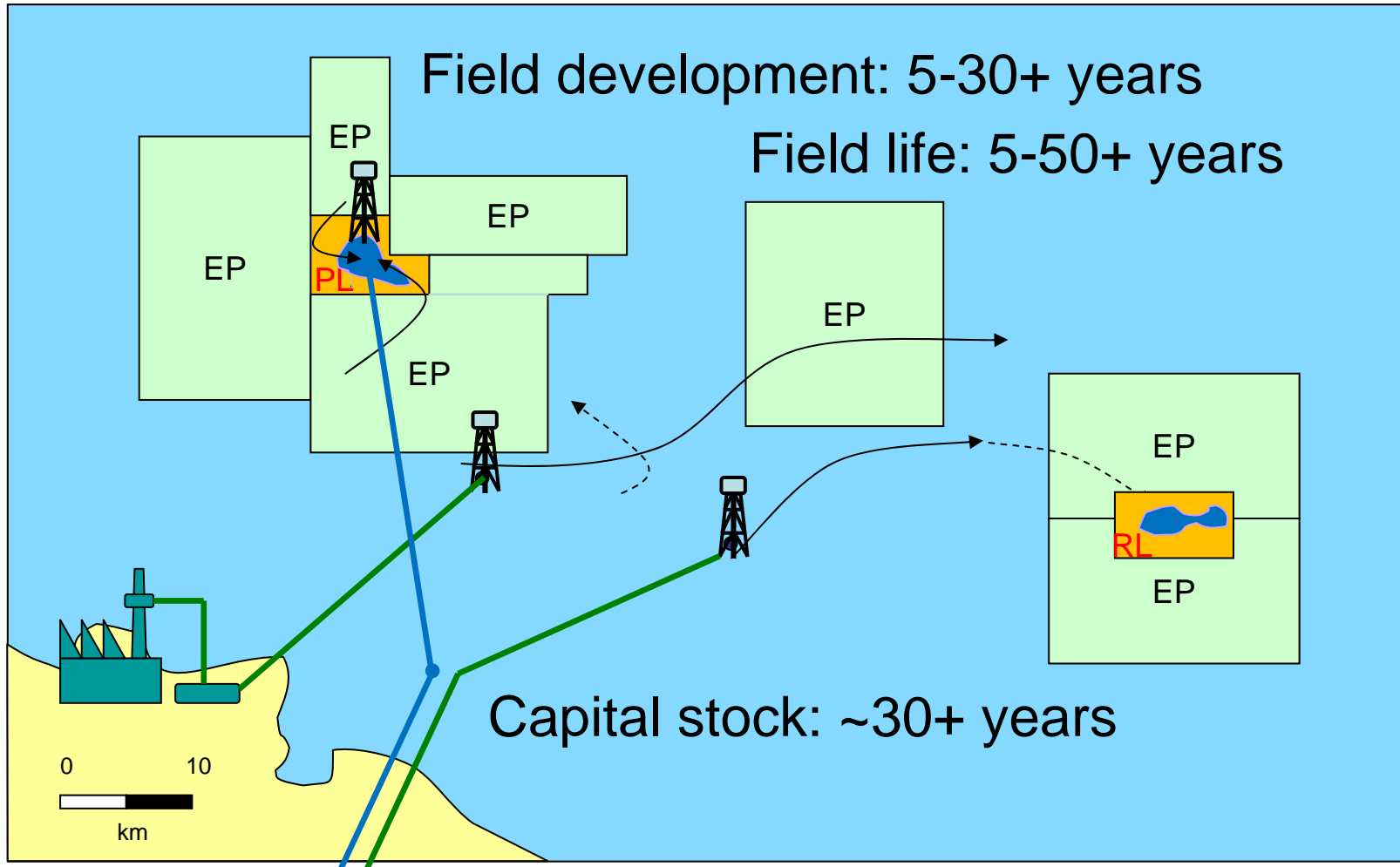


# Economic Impact



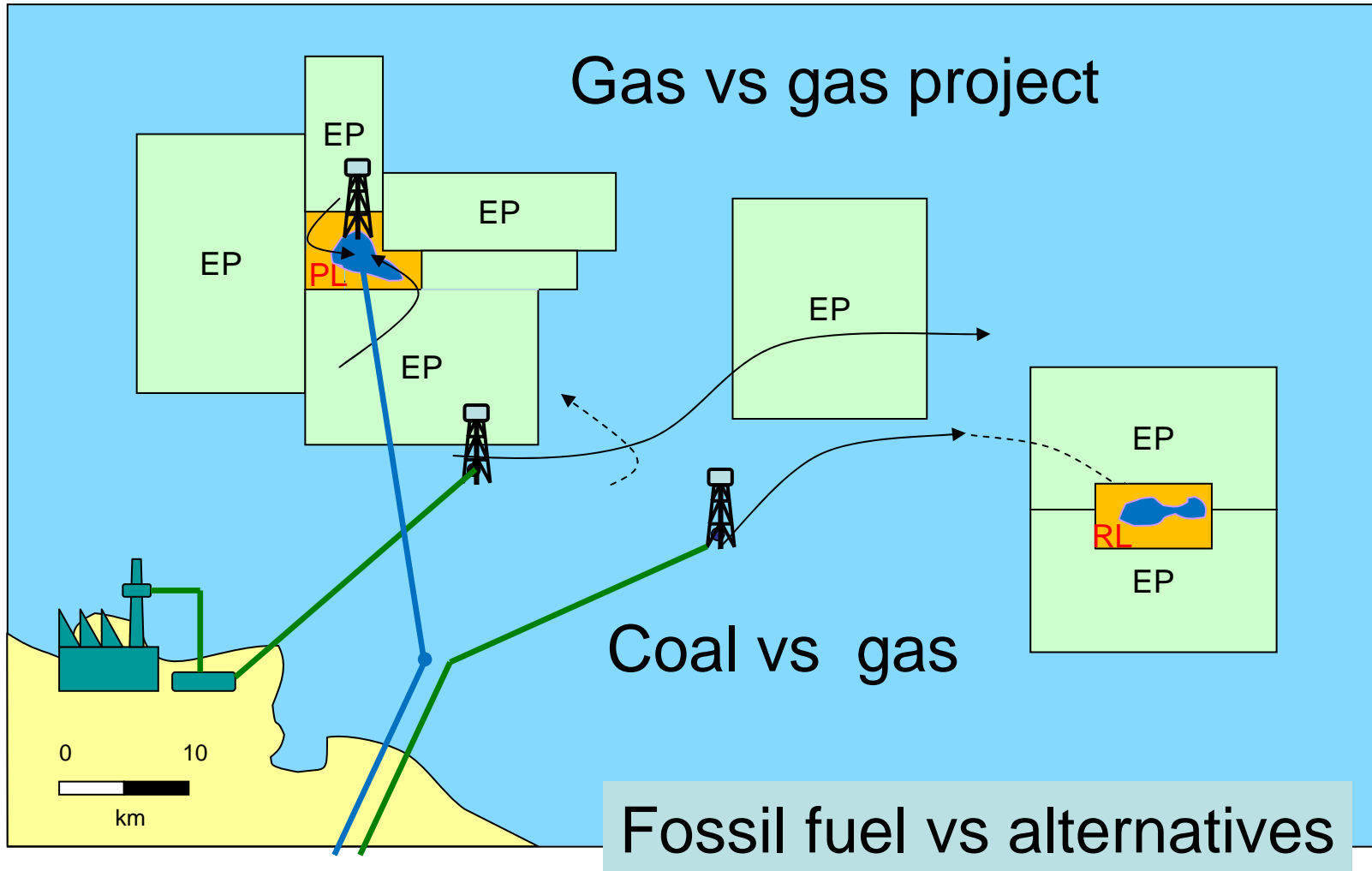


# Timing and Investment Certainty





# Competitive Environment





## Key Issues

- Safe and secure storage
- Control of injection and storage activities
  - Access rights, injection and storage rights and responsibilities
  - Liability
- “Whole of Basin” Management
  - Optimising multiple resource use
  - Resolving conflict
- Investment risk / certainty



Australian Government

Department of Resources, Energy and Tourism

## Objectives

The legislation has three principal objectives:

- ensure that storage is ‘safe and secure’;
- provide a system of access and tenure to storage sites to provide industry with certainty needed for investment;
- provide a system for managing potential interactions with the petroleum industry.



Australian Government

Department of Resources, Energy and Tourism

# Safe, Controlled and Optimised

Extensive site  
characterisation

Requires access for  
exploration / assessment  
activities

Injection  
control

Behaviour and impact  
requires tight  
management and control

Monitoring

Remediation /  
Mitigation

Adverse impact  
requires rapid  
and appropriate  
response

System of titles providing access and defining rights and responsibilities

Single title holder responsible for management of injected substance

Title holder is liable for impacts resulting from its activities



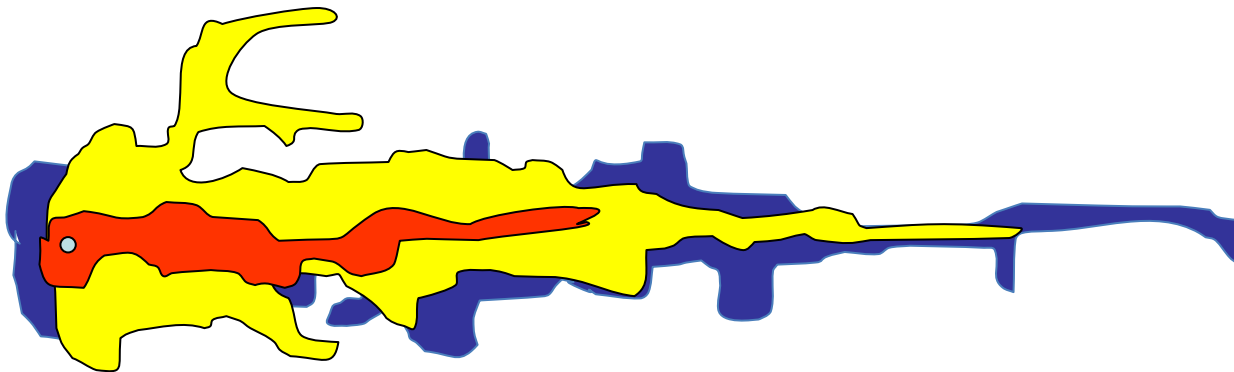
Australian Government

Department of Resources, Energy and Tourism

# Storage Formation

Defined by 'Fundamental Suitability Determinants'

- Amount (*How much?*)
- Composition (*What?*)
- Period (*Rate and duration?*)
- Injection site or sites (*Where?*)



*Expected plume for life of project,*

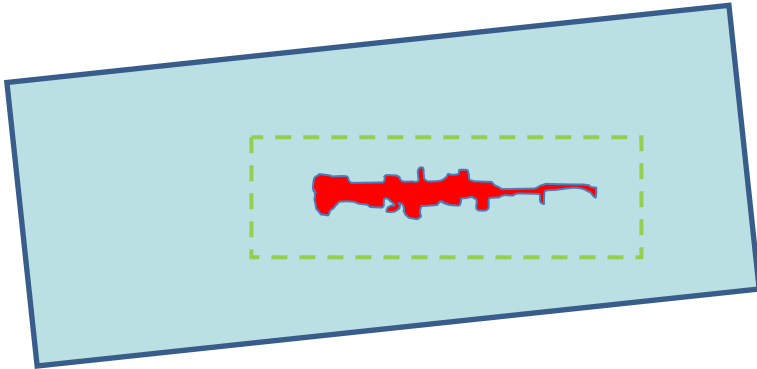
*based on site characterisation and modelling prior to injection.*



Australian Government

Department of Resources, Energy and Tourism

# Basic Title System



## Assessment Permit

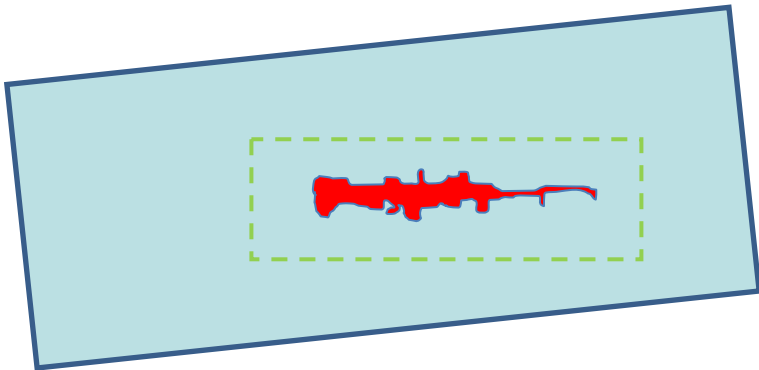
- “Prove up” potential storage formation
- Storage formation wholly within AP area
- Identified storage formation declared
- Apply for Injection Licence



Australian Government

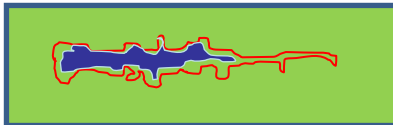
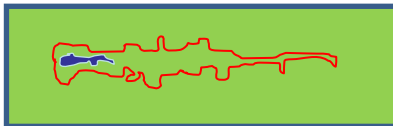
Department of Resources, Energy and Tourism

# Basic Title System



## Assessment Permit

- “Prove up” potential storage formation
- Storage formation wholly within AP area
- Identified storage formation declared
- Apply for Injection Licence



## Injection Licence

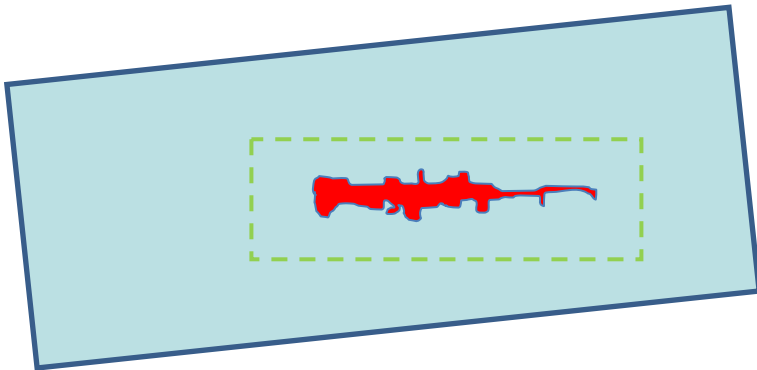
- Inject
- Monitor before, during and post-injection



Australian Government

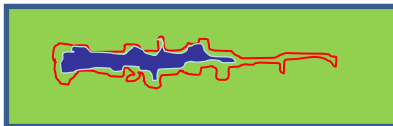
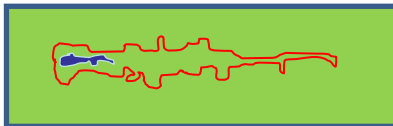
Department of Resources, Energy and Tourism

# Basic Title System



## Assessment Permit

- “Prove up” potential storage formation
- Storage formation wholly within AP area
- Identified storage formation declared
- Apply for Injection Licence



## Injection Licence

- Inject
- Monitor before, during and post-injection

## Site Closure Certificate

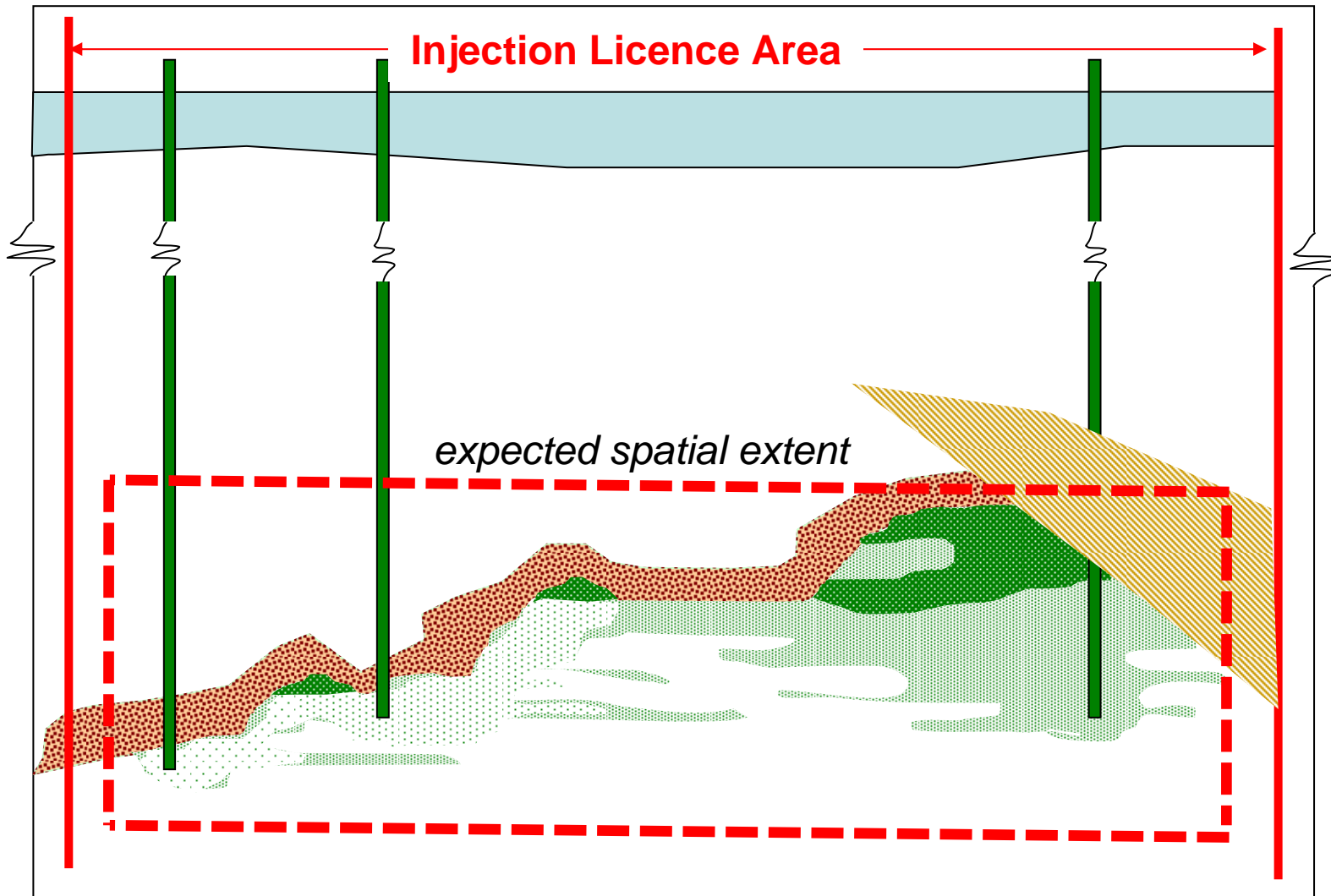
- Storage safe and secure
- Significant adverse impact unlikely
- Licence surrendered



Australian Government

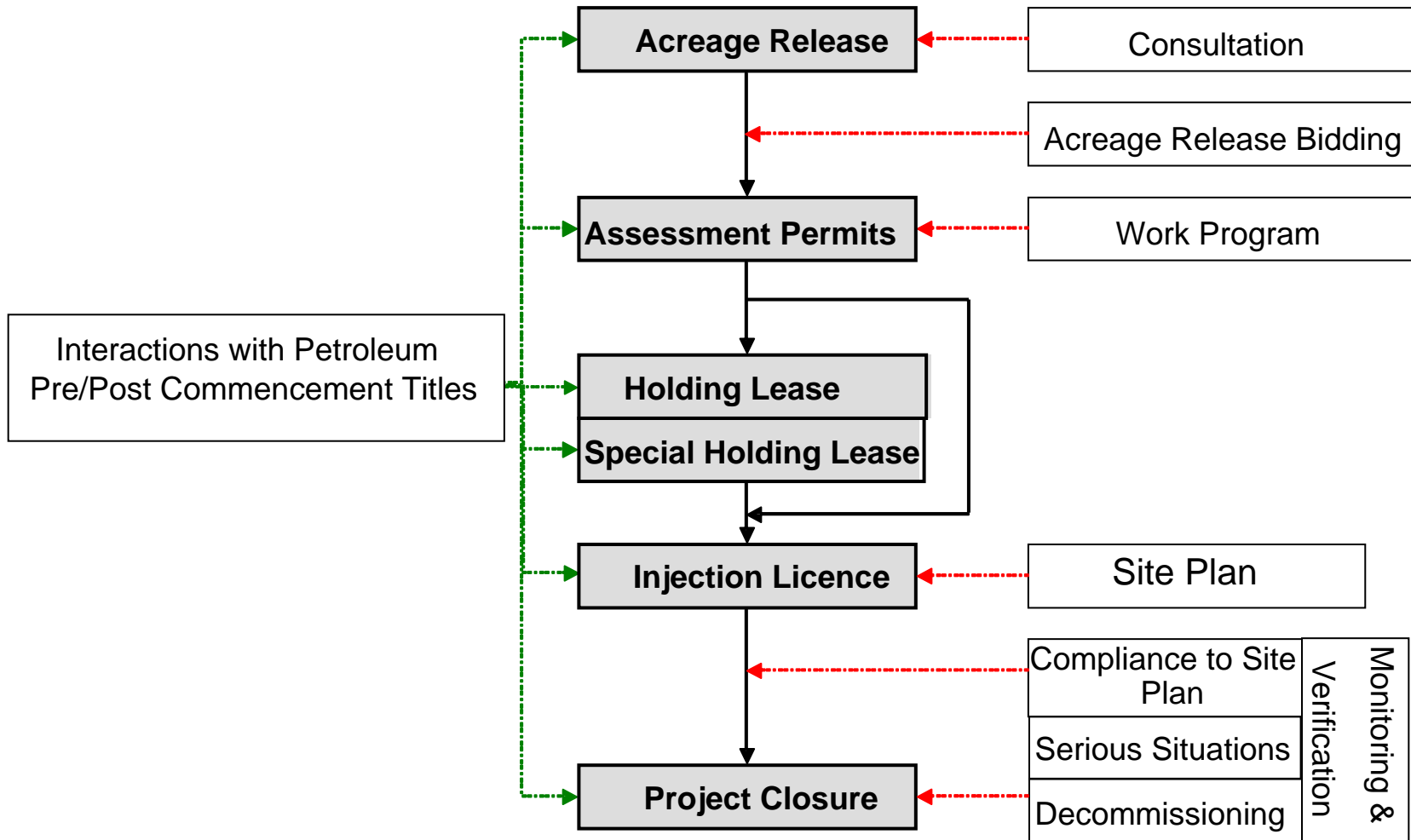
Department of Resources, Energy and Tourism

# Identified Storage Formation



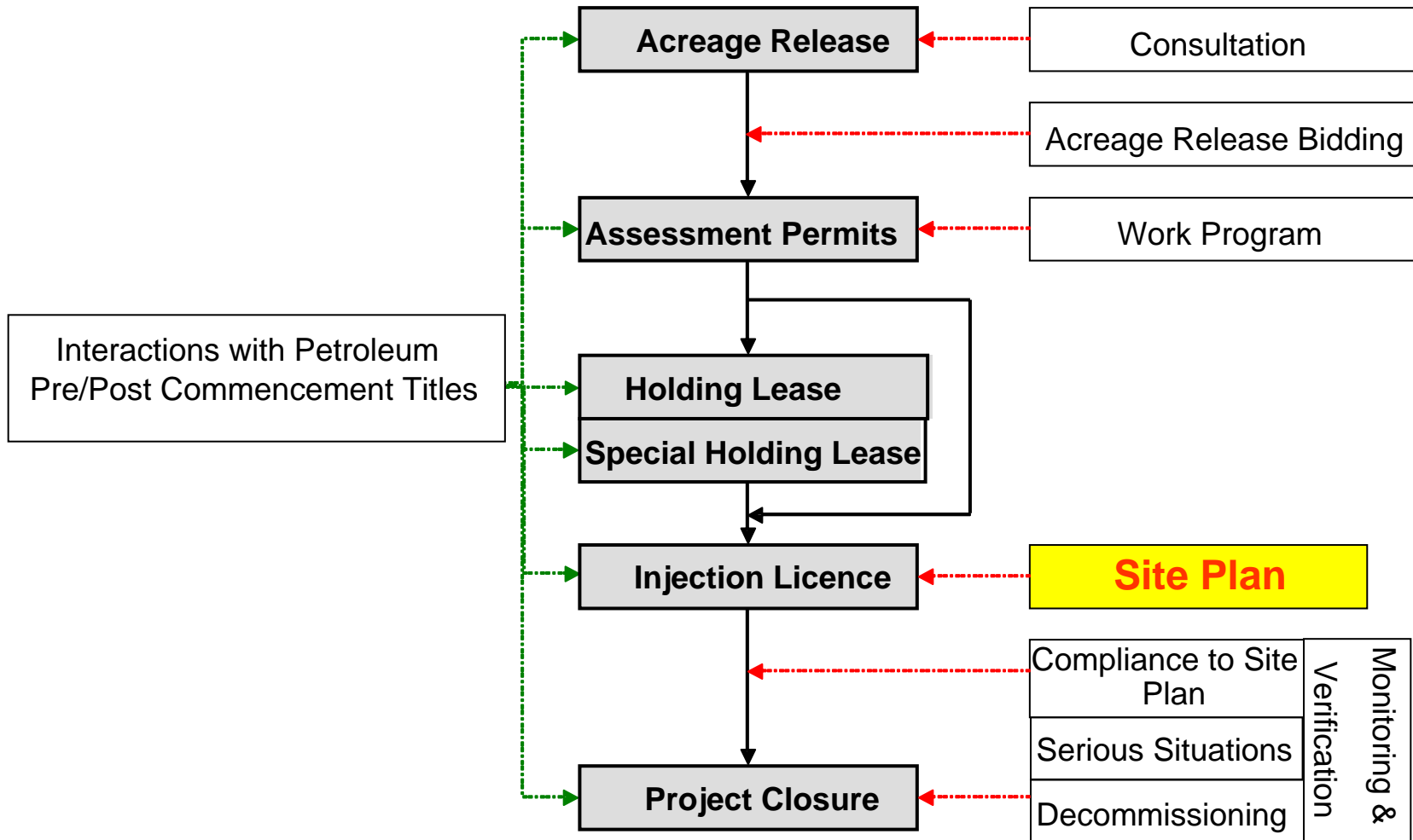


# Title System Overview





# Title System Overview





Australian Government

Department of Resources, Energy and Tourism

# Site Plan

## Main Components

- Project planning and management
- Operations overview
- Equipment integrity
- Reservoir integrity and plume migration modelling
- Risk assessment and mitigation and remediation strategies
- Reportable incidents
- Monitoring
- Reporting and verification
- Decommissioning and site closure.



## Key Issues

- Safe and secure storage
- Control of injection and storage activities
  - Access rights, injection and storage rights and responsibilities
  - **Liability**
- “Whole of Basin” Management
  - Optimising multiple resource use
  - Resolving conflict
- Investment risk / certainty



Australian Government

Department of Resources, Energy and Tourism

## Liability for injection and storage activities

<i>Who bears liability for injected CO<sub>2</sub></i>	
<b>Prior to Closure</b>	<b>Post Closure</b>
Statutory & Common Law Responsibility	
<ul style="list-style-type: none"><li>• Liability lies with the licensee</li><li>• Injection Licensee required to comply with statutory obligations</li><li>• Common law liability applies</li></ul>	



## Liability for injection and storage activities

<i>Who bears liability for injected CO<sub>2</sub></i>	
<b>Prior to Closure</b>	<b>Post Closure</b>
Statutory & Common Law Responsibility	Common Law Responsibility
<ul style="list-style-type: none"><li>• Liability lies with the licensee</li><li>• Injection Licensee required to comply with statutory obligations</li><li>• Common law liability applies</li></ul>	<ul style="list-style-type: none"><li>• Common law liability lies where it falls</li><li>• Commonwealth does not 'take over liability'.</li><li>• Longer term the risk will pass to the community when or if project participants cease to exist</li></ul>



## Key Issues

- Safe and secure storage
- Control of injection and storage
  - Access rights, injection and
  - Liability
- “Whole system management”
  - Optimising multiple resource use
  - Resolving conflict
- Investment risk / certainty

**When things don't go as forecast:  
"Serious situations"**



# What are Serious Situations

*There has been, or could be;*

- Leakage of a GHG substance from a GHG storage formation.
- Behaviour otherwise than predicted in approved site plans.
- Adverse impact on the geotechnical integrity of a geological formation, or
- The GHG storage formation is found to not be suitable for the storage of a GHG substance.



Australian Government

Department of Resources, Energy and Tourism

# Powers to Deal With Serious Situations

*Operators must take whatever action the Responsible Commonwealth Minister requires, to deal with the situation*

- Comply with any and all directions.
- To undertake activities for the purpose of eliminating, mitigating, managing or remediating the serious situation.
- Inject only at directed locations.
- Cease or suspend injection
- Formally apply for a closure certificate.



Australian Government

Department of Resources, Energy and Tourism

## Key Issues

- Safe and secure storage
- Control of injection and storage activities
  - Access rights, injection and storage rights and responsibilities
  - **Liability**
- “Whole of Basin” Management
  - Optimising multiple resource use
  - Resolving conflict
- Investment risk / certainty



## Optimising multiple resource use

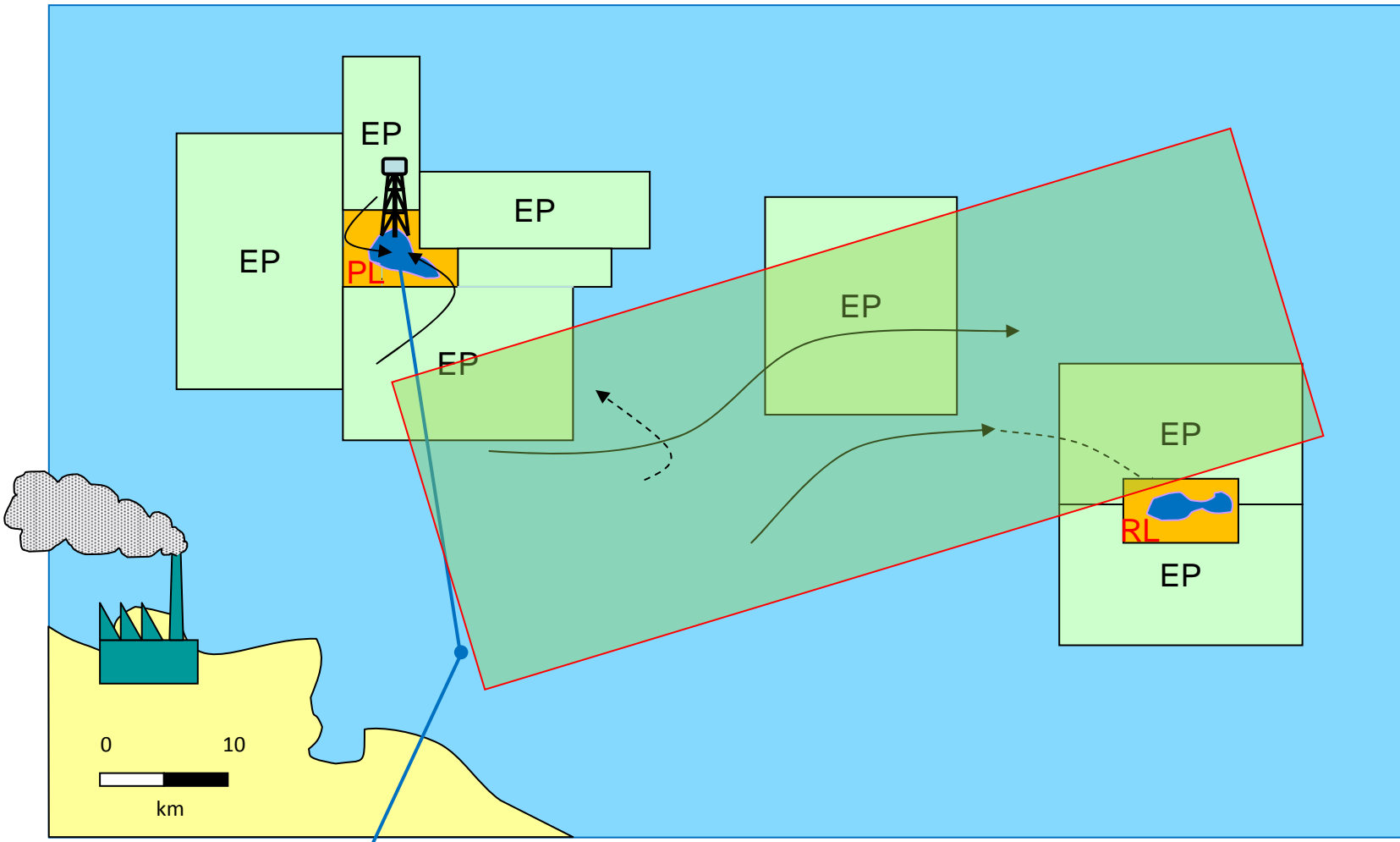
- Minimise interference, and avoid sterilisation or quarantining of other resources or uses.
  - Sub-surface
    - Oil and gas accumulations
    - GHG storage formations
    - Geothermal operations, alluvial deposits, coal, coal seam methane, oil shale, deep fresh water aquifers
  - Surface & Near Surface
    - Rural, urban.
    - Groundwater
    - Environment: Biodiversity and Heritage
    - Fishing, telecommunications, shipping, migrating whales, military, petroleum operators, GHG operators



Australian Government

Department of Resources, Energy and Tourism

# Acreeage Release – A Key Regulatory Tool

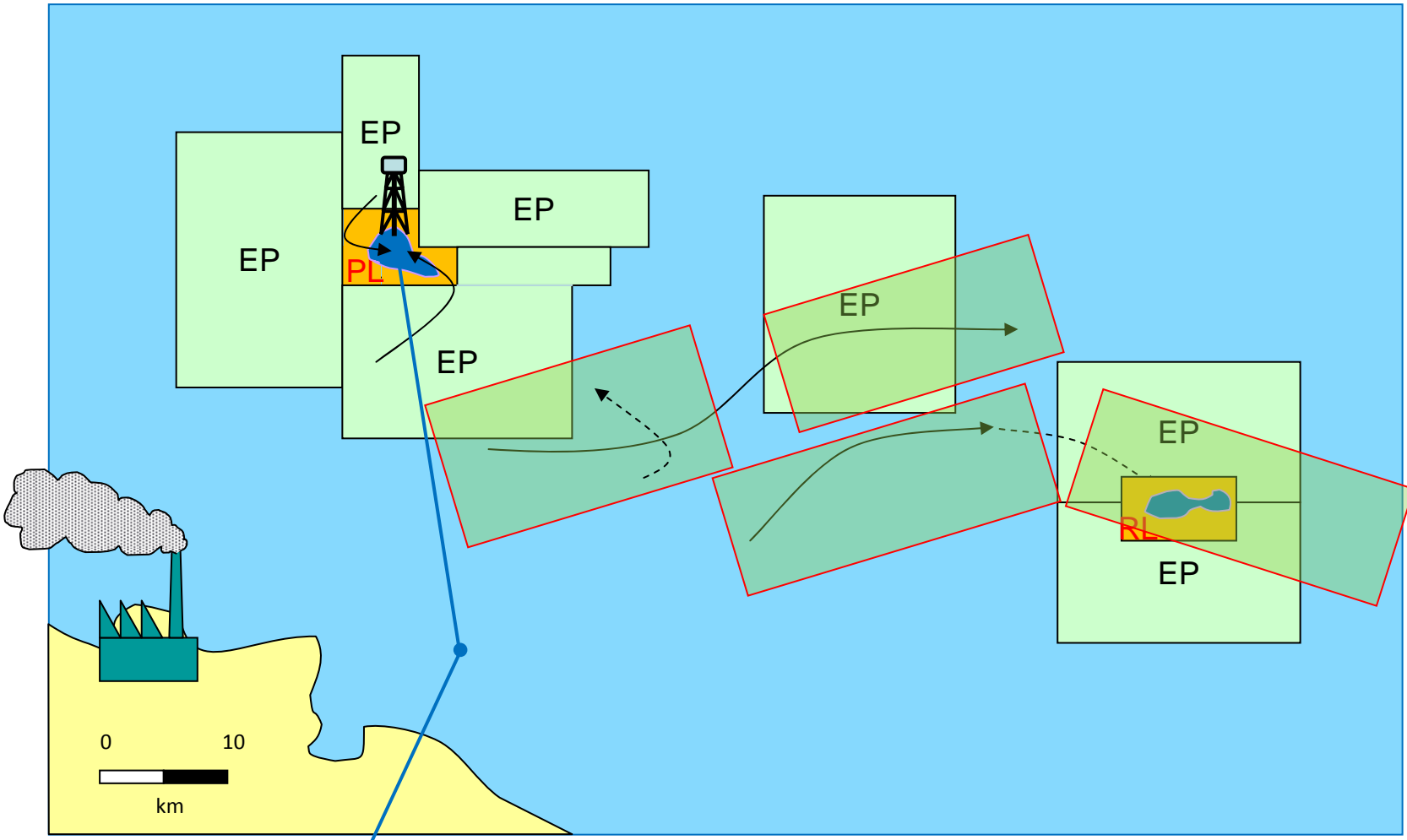




Australian Government

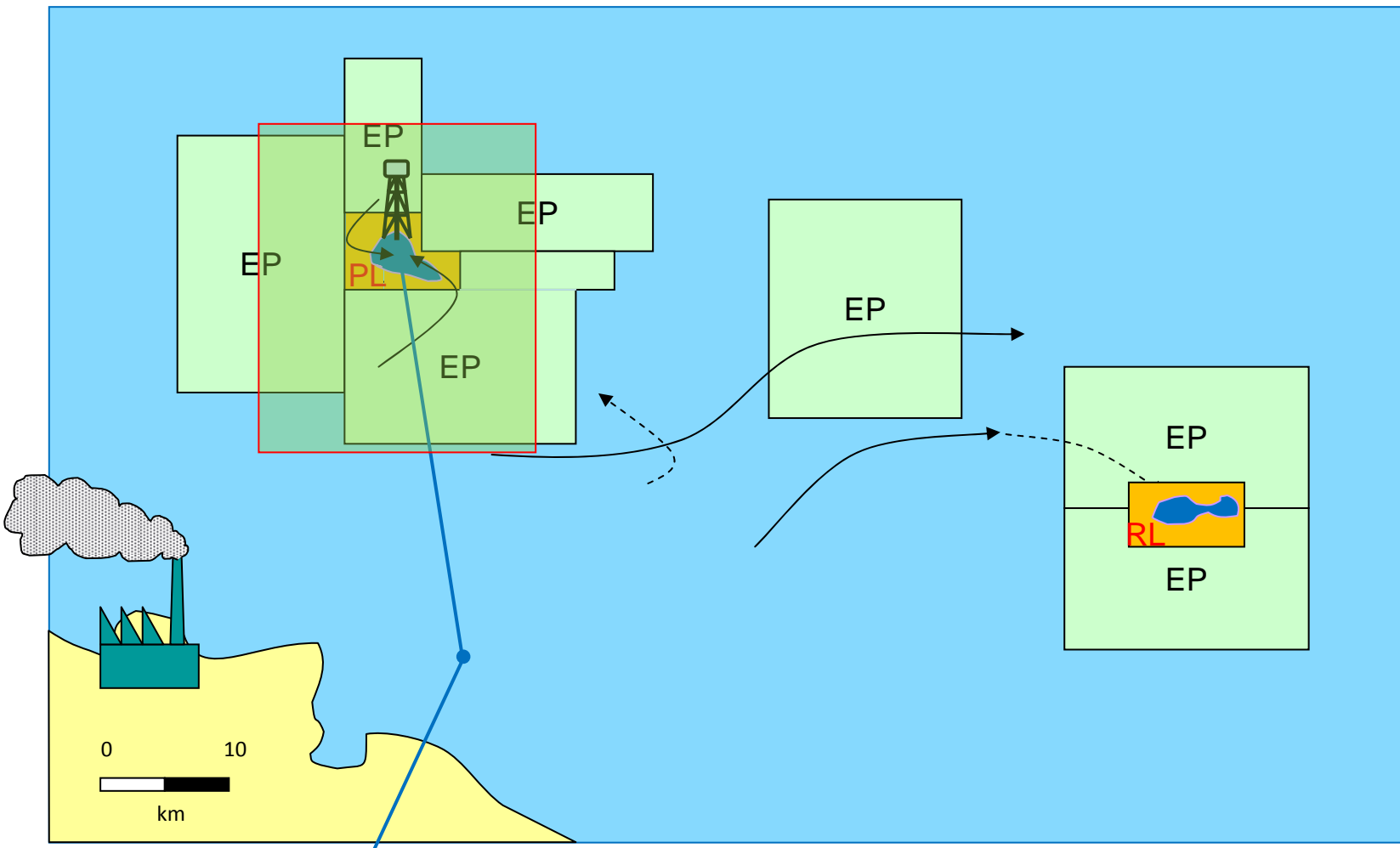
Department of Resources, Energy and Tourism

# Acresage Release and Industry Structure





# Acresage Release and Project Needs





Australian Government

Department of Resources, Energy and Tourism

# "Whole of Basin" Management

- Resolving conflict
  - Provide transparent and consistent methods for accommodating or resolving conflicting activities.
  - Determine sequence of development.
  - Recognise existing rights
    - "pre-commencement" : existing prior to the introduction of the new GHG legislation



Australian Government

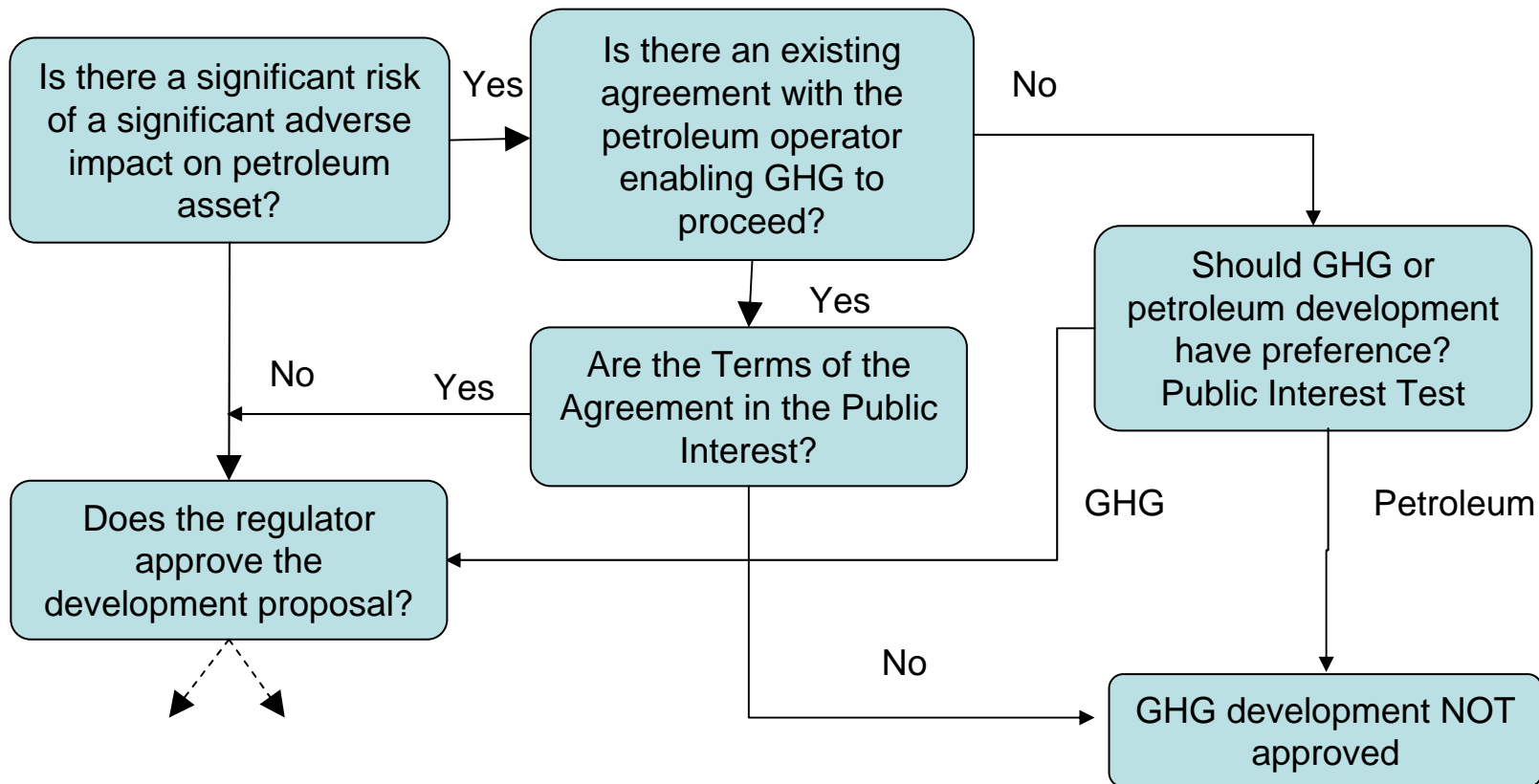
Department of Resources, Energy and Tourism

## Opportunities and Mechanisms

- Agreements between title holders
- Communication protocols
  
- Significant impact tests
- Public interest tests (National interest test)

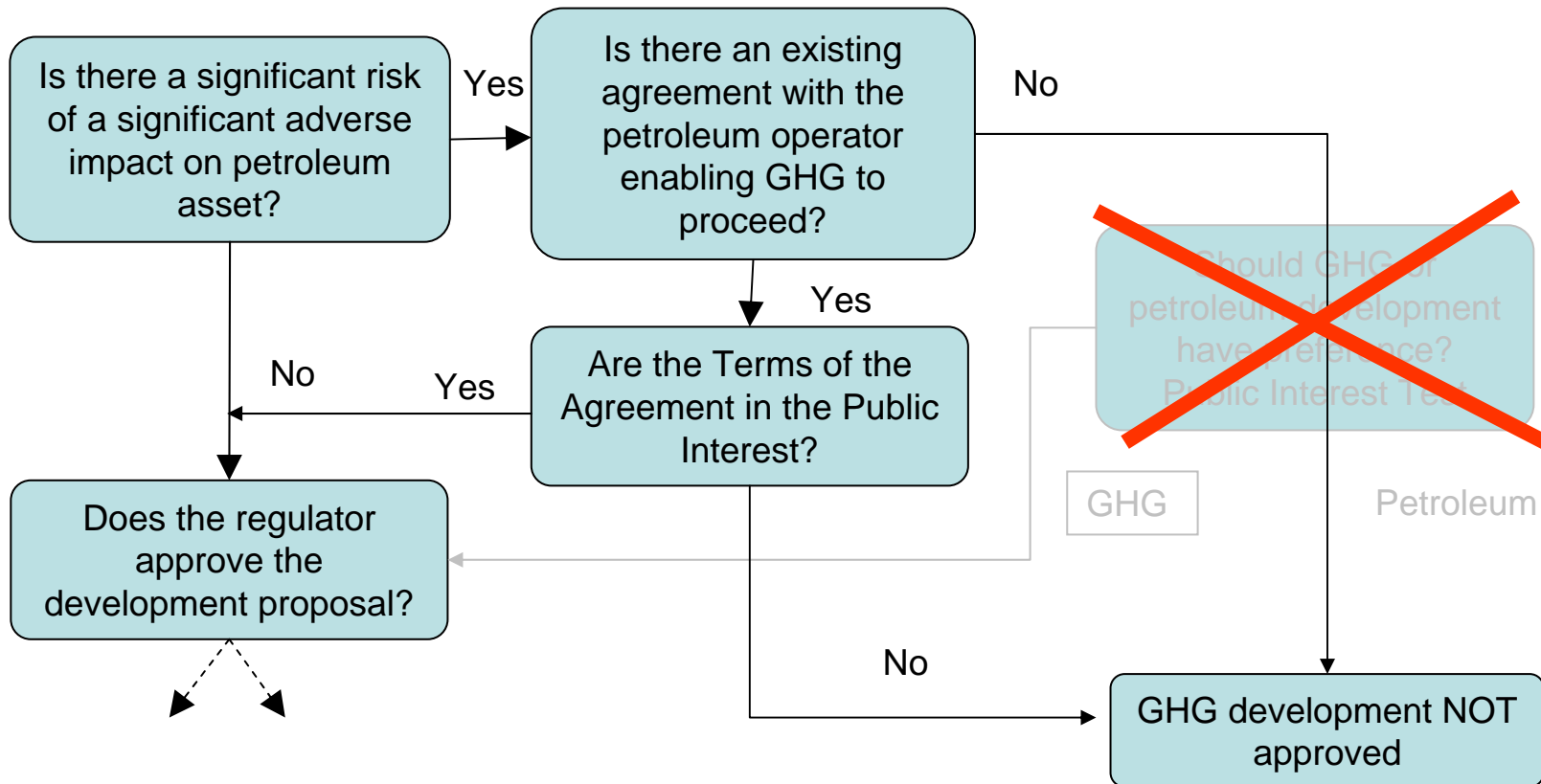


# Example: New GHG activity in existing petroleum lease



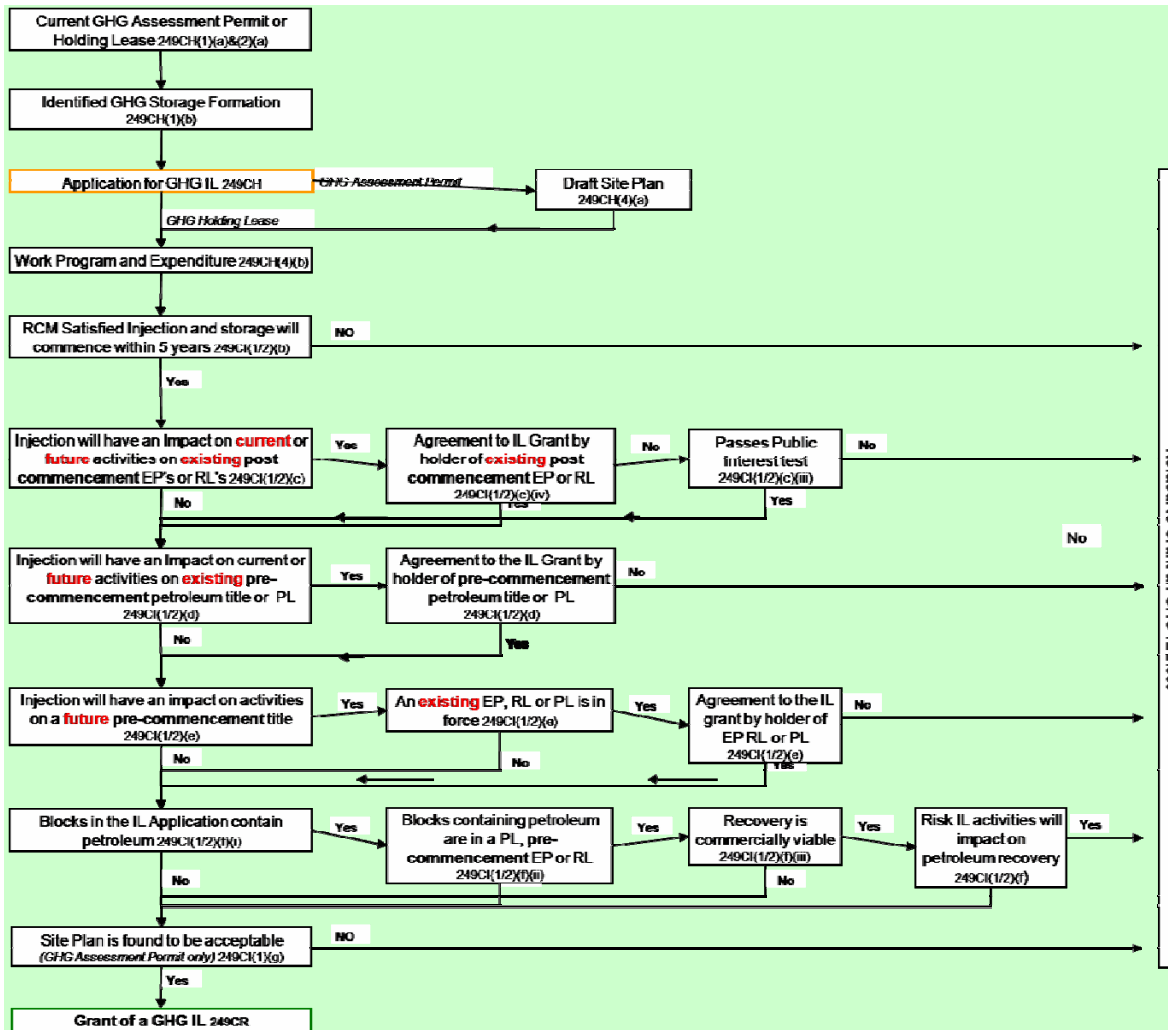


# Recognition of pre-commencement rights



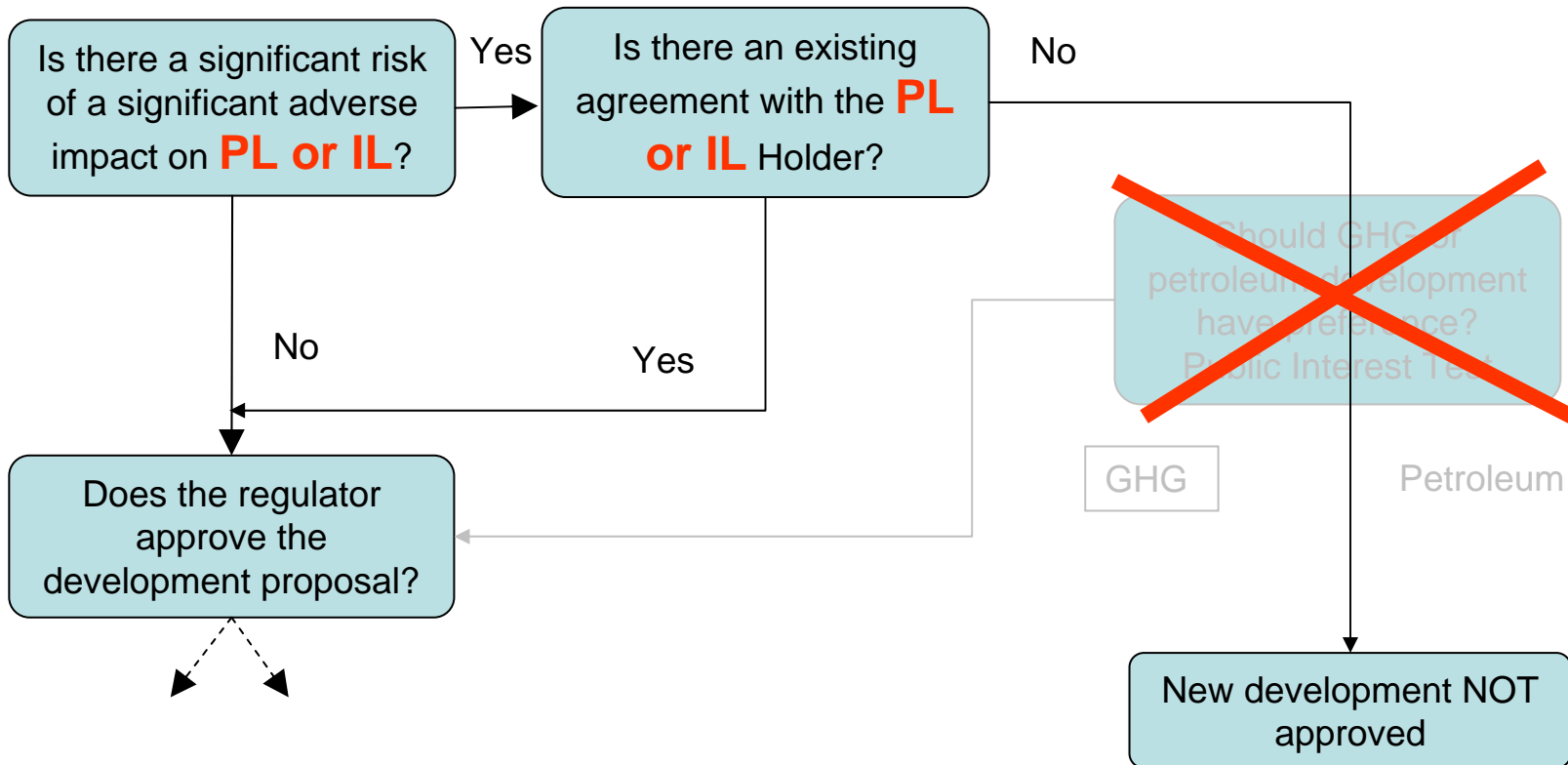


# Application for Injection Licence





# Post-commencement: recognition of level of development





Australian Government

Department of Resources, Energy and Tourism

## Declared Titles and Key Operations

- 'Declared' Petroleum or GHG Title
- Key GHG or petroleum operations require approval
- Any exploration activity that may impact on collocated title.
  - Making of a well
  - Injection and storage on an appraisal basis
  - Seismic surveys
  - Monitoring of the behaviour of a stored GHG substance



Australian Government

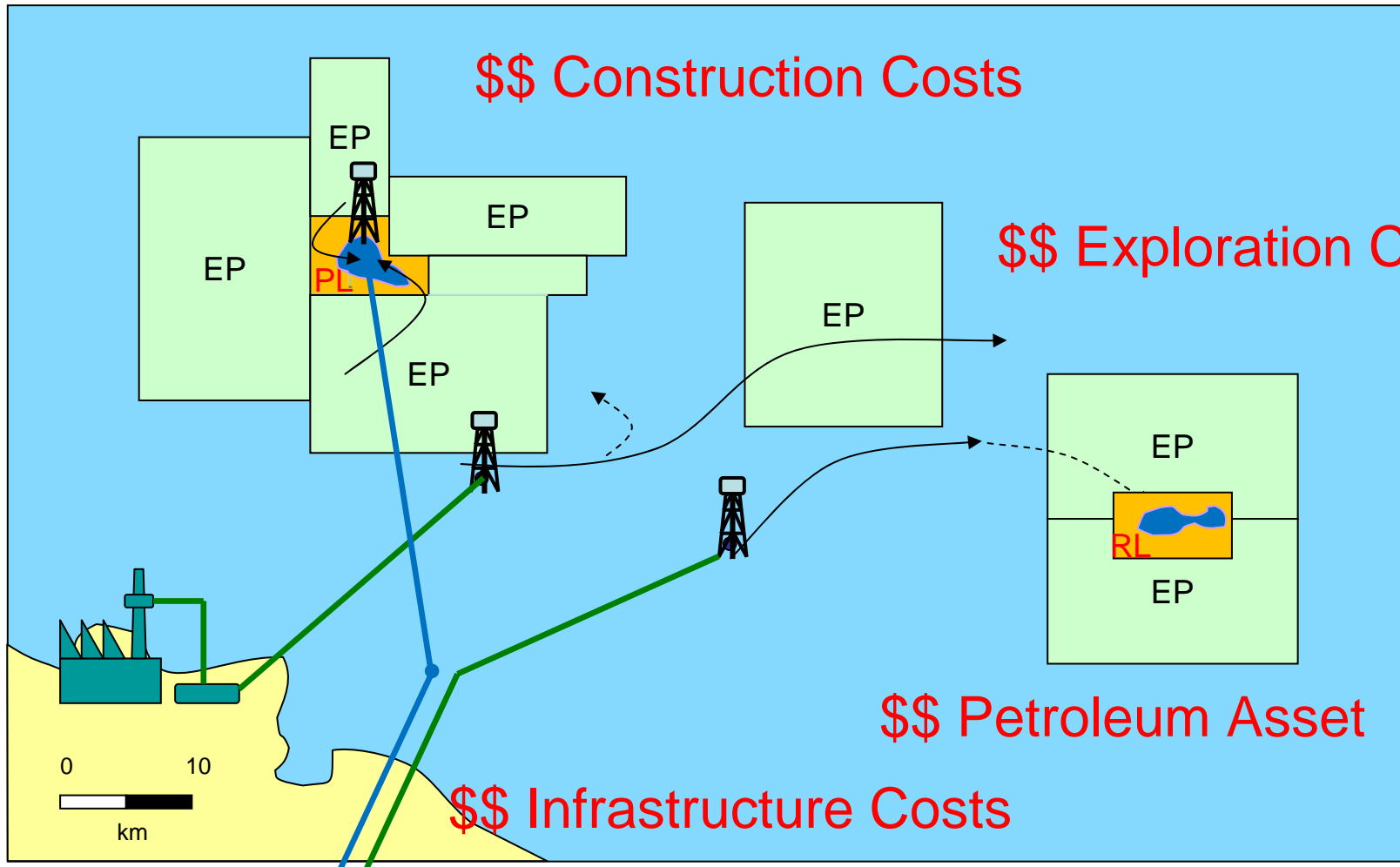
Department of Resources, Energy and Tourism

## Key Issues

- Safe and secure storage
- Control of injection and storage activities
  - Access rights, injection and storage rights and responsibilities
  - Liability
- “Whole of Basin” Management
  - Optimising multiple resource use
  - Resolving conflict
- Investment risk / certainty



# Investment Outlook





Australian Government

Department of Resources, Energy and Tourism

# Legal Frameworks to Enable CCS

- Why regulate?
- Key issues
- **Some issues not addressed**
- A comment on process and status



Australian Government

Department of Resources, Energy and Tourism

## Ownership of CO<sub>2</sub>

- Title to CO<sub>2</sub>
  - Title not considered, only responsibility for impact of injected substance
  - Title difficult to define, particularly as CO<sub>2</sub> reacts with formation water and host rock to form different substances
  - Commingling to be avoided
- Title to Pore Space (Storage Resource)
  - Problem for on-shore jurisdictions, where landholders have title to the centre of the earth
  - GHG titleholders can utilise pore space in accordance with Act and regulator's requirements.



Australian Government

Department of Resources, Energy and Tourism

# Interaction with Emissions Trading Scheme

- Avoided emission
- Generation of emissions credit

Proposed legislation provides:

- Management, monitoring and accountability = storage verification
- Site closure = confirmed storage event?



Australian Government

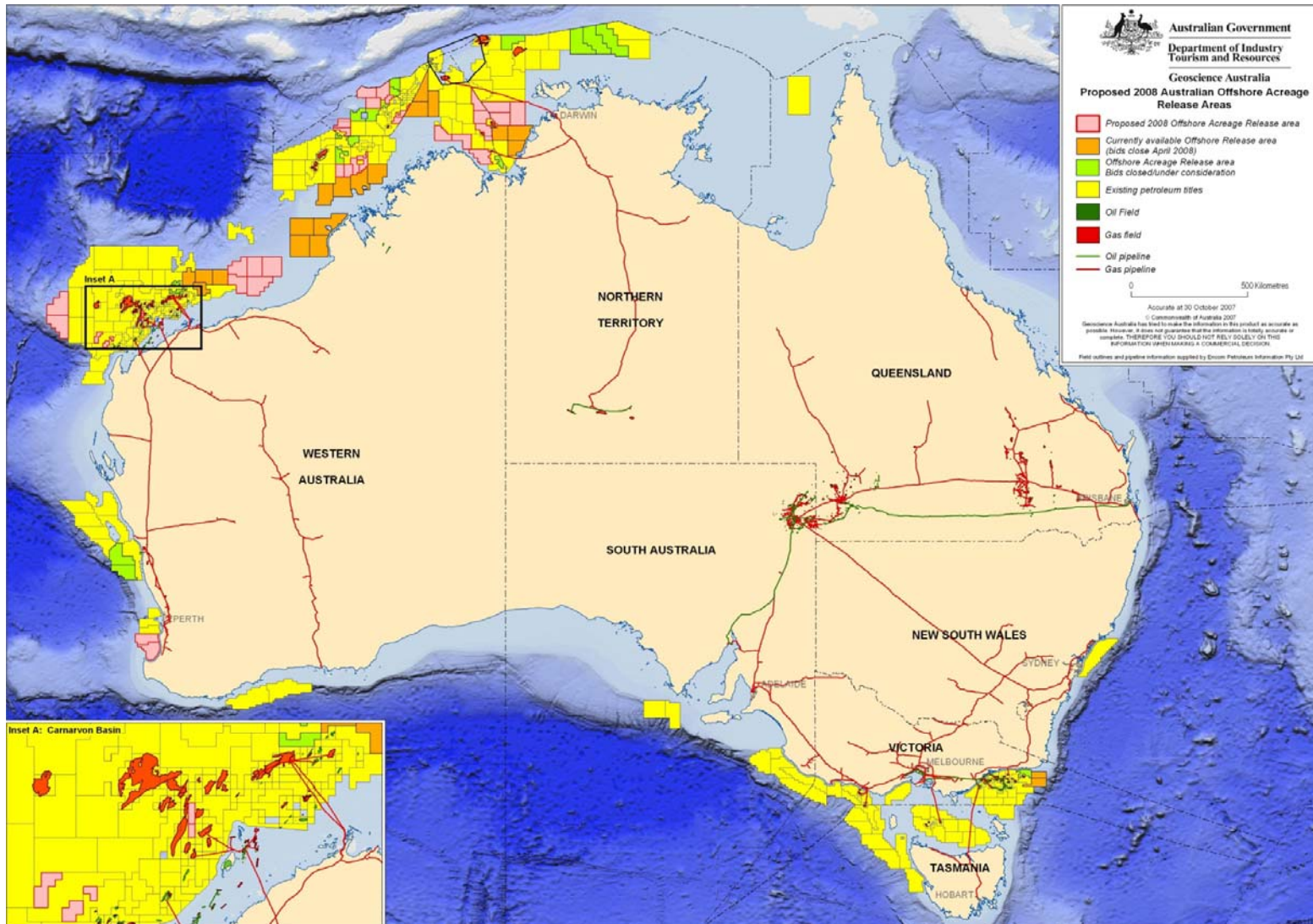
Department of Resources, Energy and Tourism

# Legal Frameworks to Enable CCS

- Why regulate?
- Key issues
- Some issues *not* addressed
- **A comment on process and status**



**Australian Government**  
**Department of Resources, Energy and Tourism**





Australian Government

Department of Resources, Energy and Tourism

## Links

- [www.ret.gov.au](http://www.ret.gov.au)
  - Search menu for CCS, including links to legislation
- [www.aph.gov.au](http://www.aph.gov.au)
  - Search menus:
    - House of Representatives
      - Current Bills
      - Standing Committees
    - Senate
      - Committees

Email: [ccs@ret.gov.au](mailto:ccs@ret.gov.au)

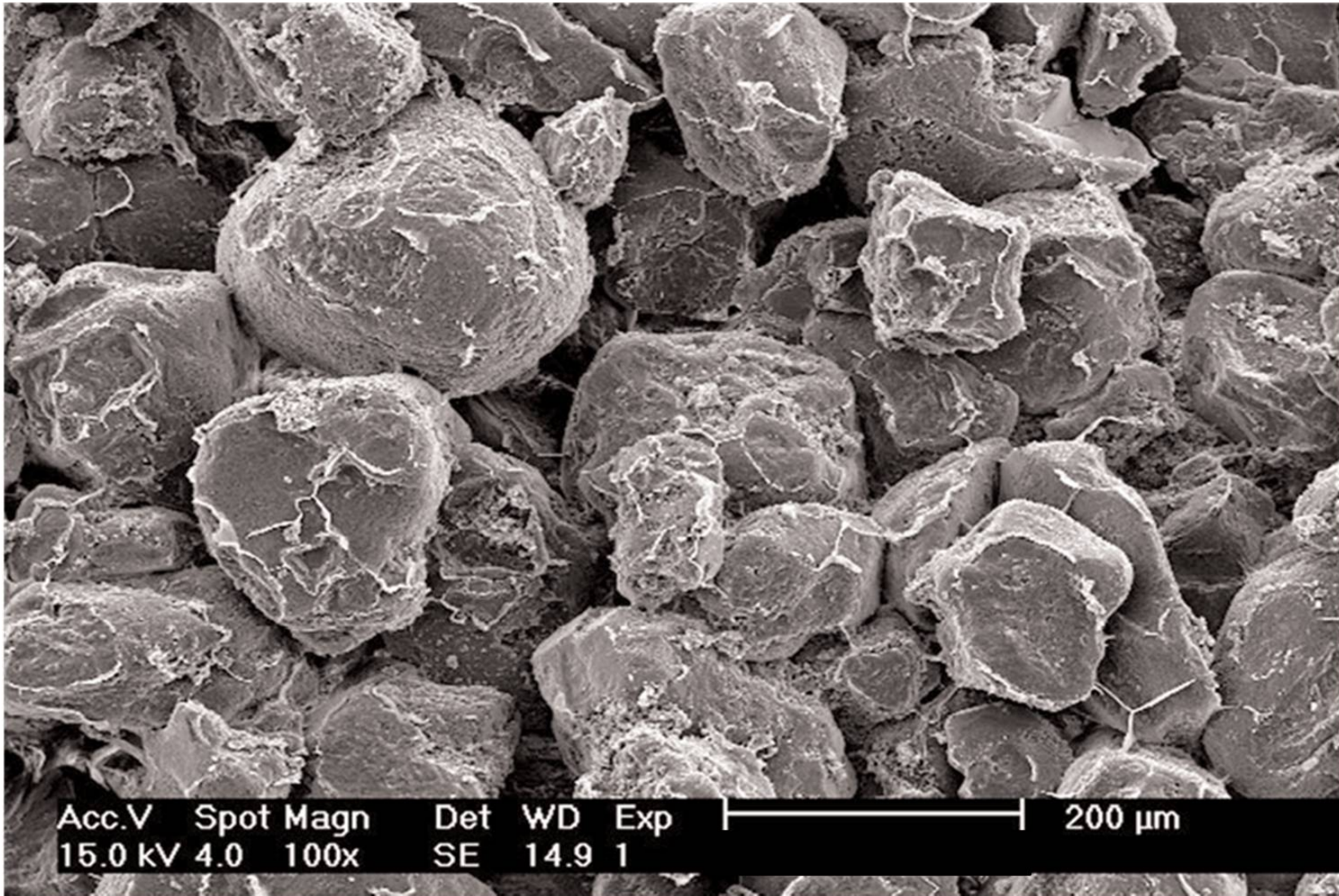
[peter.wilson@ret.gov.au](mailto:peter.wilson@ret.gov.au)

*Thank you*



Australian Government

Department of Resources, Energy and Tourism





Australian Government

Department of Resources, Energy and Tourism

# Title Terminology

Petroleum	Greenhouse Gas
Exploration Permit	Assessment Permit
Retention Lease	Holding Lease Special Holding Lease
Production Licence	Injection Licence
Special Prospecting Authority Access Authorities Scientific Investigation Consents	Search Authorities Special Authorities Research Consents
Infrastructure Licence	