

# **Towards Modalities and Procedures that Address Long-term Risks**



## CCS GUIDELINES



Guidelines for  
Carbon Dioxide Capture, Transport, and Storage

## CCS AND COMMUNITY ENGAGEMENT

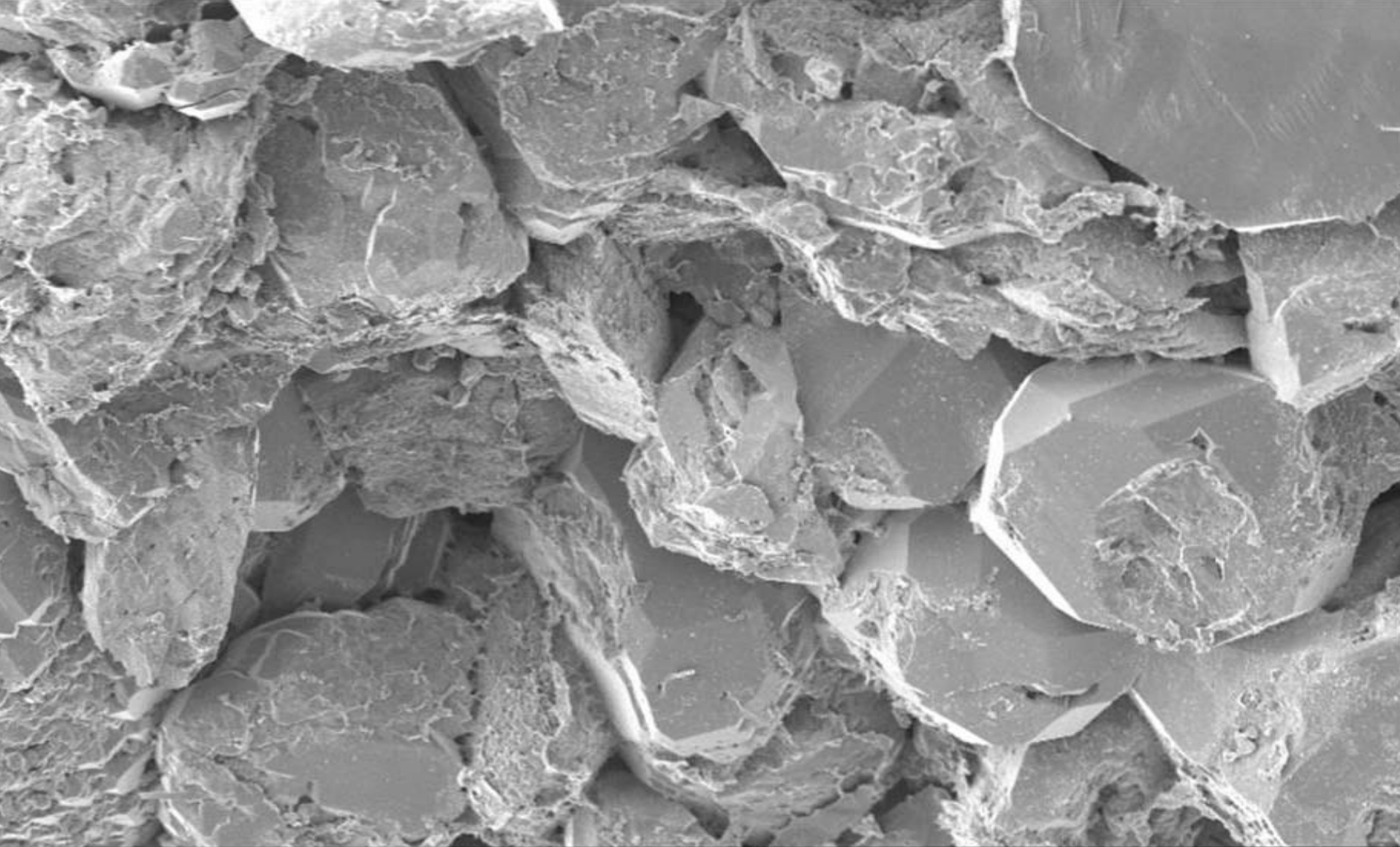


Guidelines for Community Engagement  
in Carbon Dioxide Capture, Transport,  
and Storage Projects

# OVERARCHING RECOMMENDATION

- Establish best practice criteria with input from a panel of geographically diverse independent experts in the following fields:
  - Engineering
  - Geology
  - Law
  - Social Science
  - Environment
  - Finance





Spot  
3.0

Mag  
250x

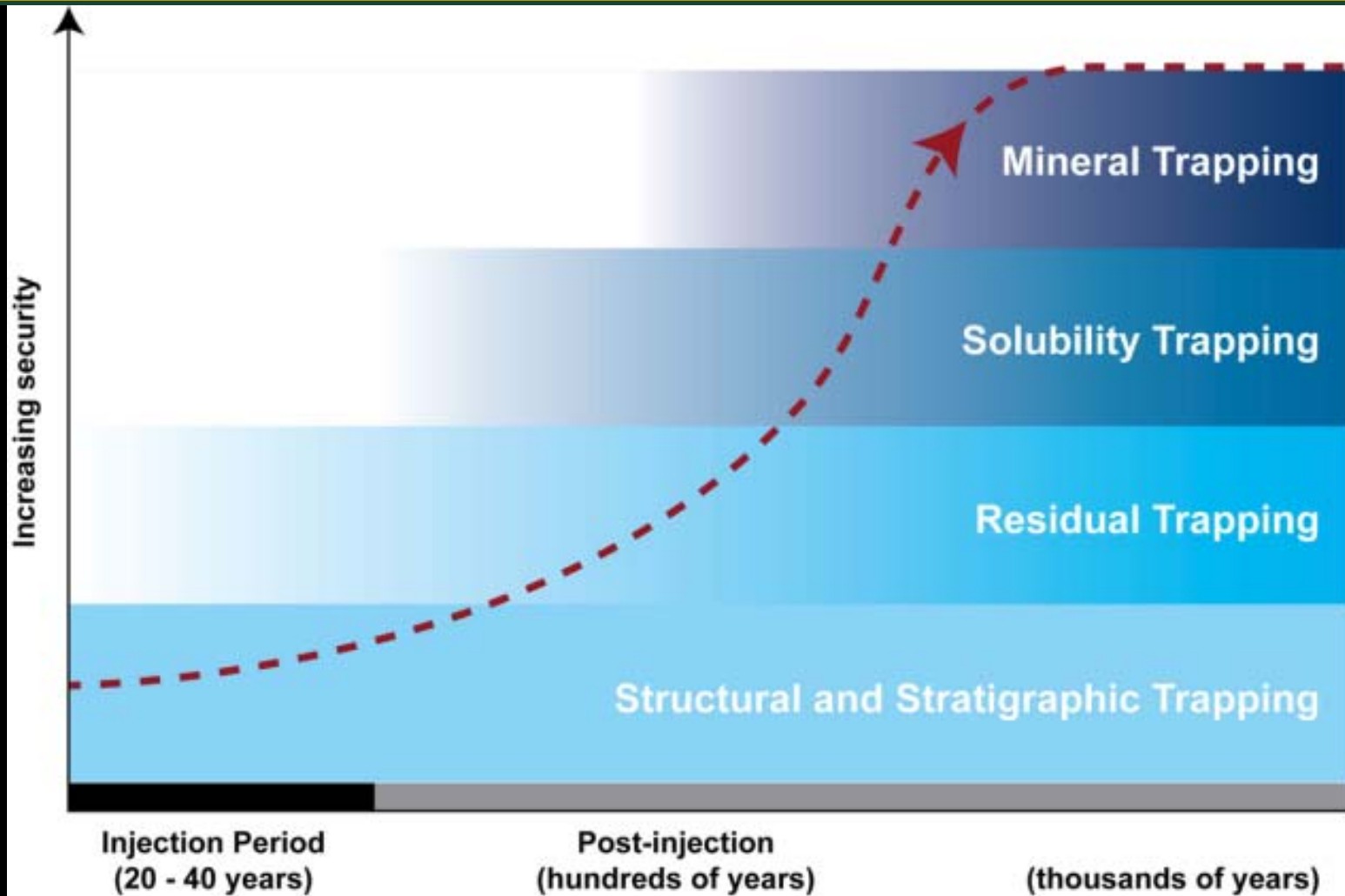
Det  
SE

WD  
5.0

—|—————|  
Mount Simon Sandstone

200μm

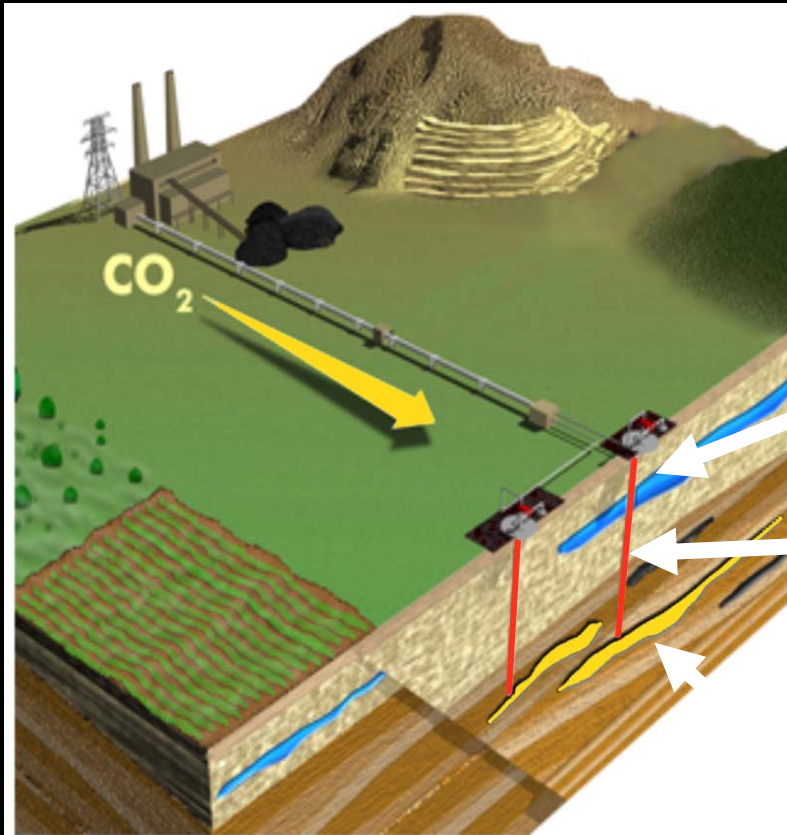
# OVER TIME, RISK DECREASES



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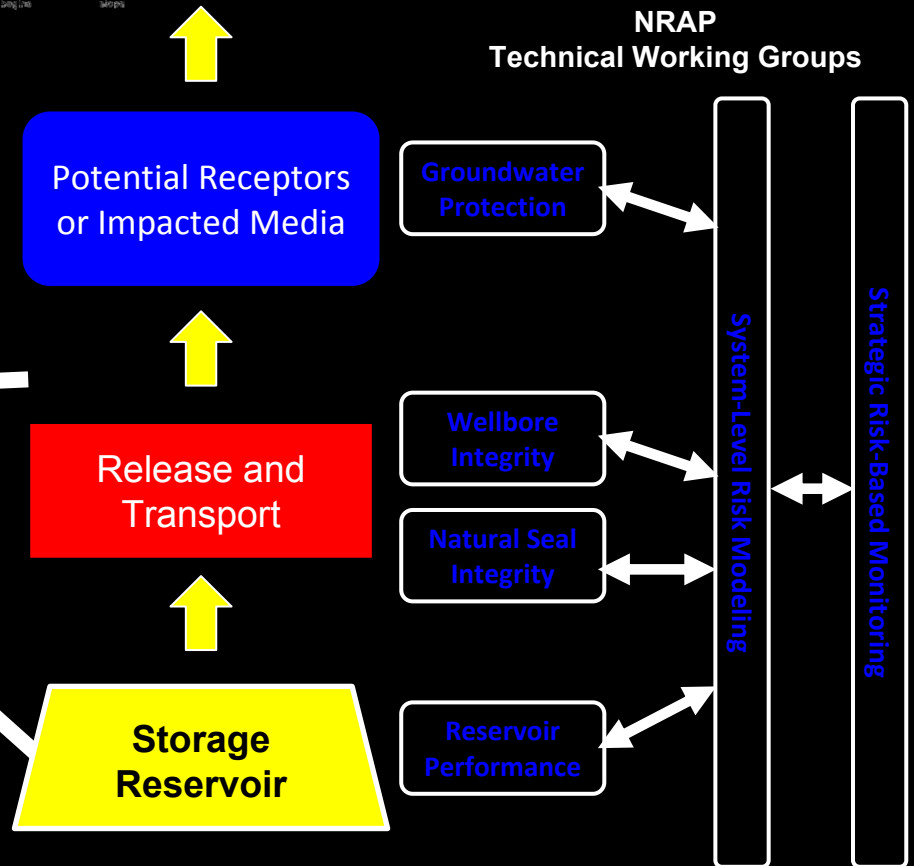
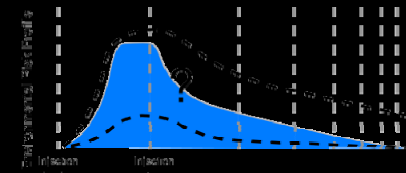


# NRAP INTEGRATED ASSESSMENT MODELLING



## Integrated Assessment Model

- Storage site described by subsystems
- Subsystem behavior can be treated in detail
- Uncertainty/heterogeneity handled by stochastic descriptions of subsystems



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# RECOMMENDATIONS TO ENSURE PERMANENCE

- Establish CCS project criteria to ensure that best practices for the following are employed.
  - Criteria for site selection based on geologic characteristics of the site
  - Operational and long-term monitoring
  - Risk assessment
- Long-term stewardship, including the availability of resources for long-term monitoring



# RECOMMENDATIONS TO ENSURE PERMANENCE VIA LONG TERM MONITORING

- Establish monitoring criteria for CCS projects that ensure a site-specific MMV plan is developed and implemented which:
  - covers the area of injected fluid and any displaced fluids
  - requires data reporting and review
  - Establishes criteria for determining when monitoring can end





# LIABILITY (DECEMBER 2010, CCS IN THE UNFCCC)

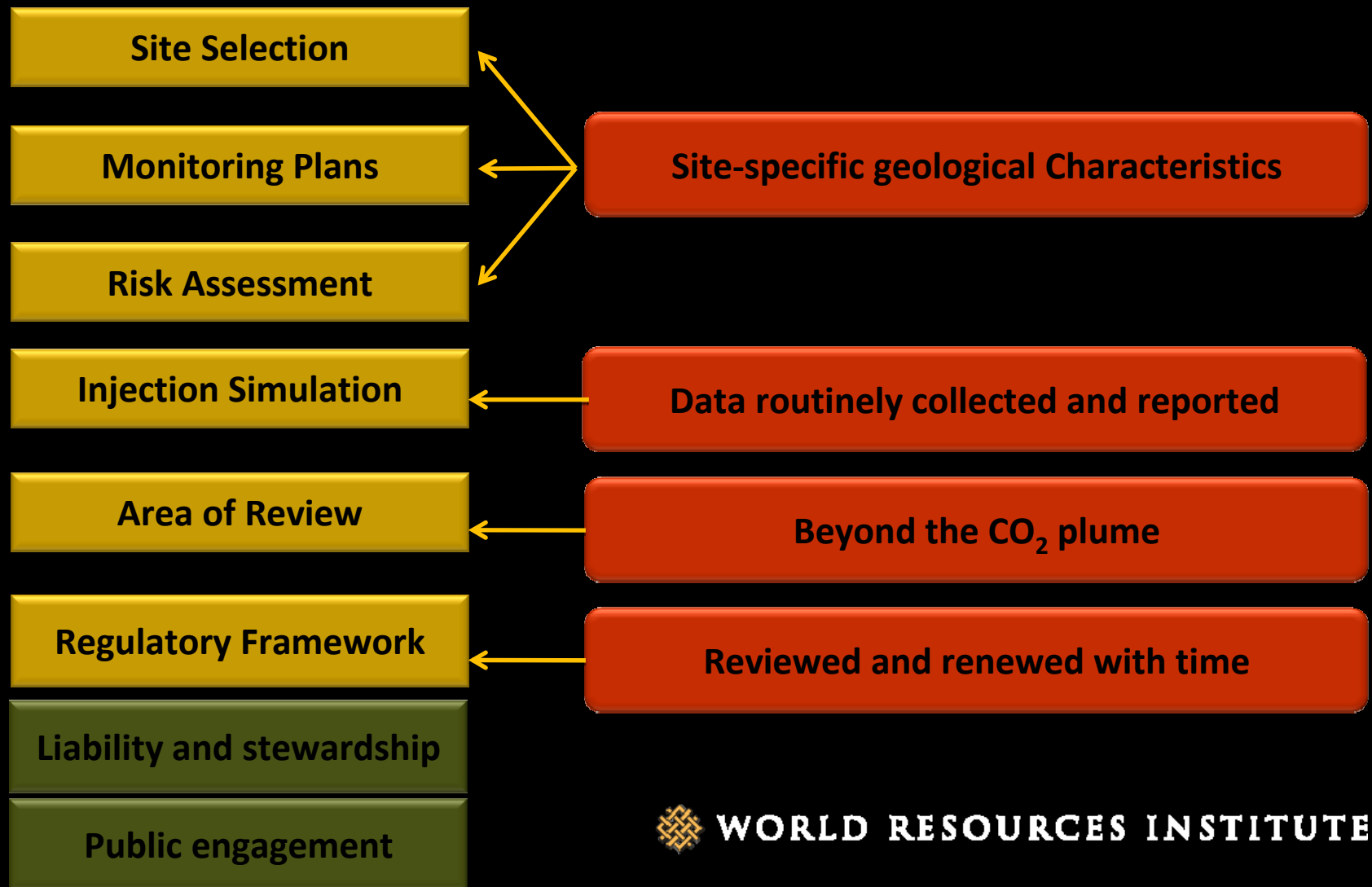
Jurisdiction	CCS Liability Framework	Application
Australia	The Australian Government accepted 80 percent, and the Western Australian Government 20 percent, of any post-closure liability for CCS in the long term	Gorgon LNG project
Canada	No unique liability for CCS, governed by same rules as oil and gas operations, although provincial rules are under consideration in Alberta and Saskatchewan	All CCS projects
European Union	Liability and responsibility for CCS is transferred to the member state's "competent authority", after operator proves that there is no risk of leakage and 20 years of post closure monitoring are complete.	All CCS projects
United States	State-level policies are in place in seven states which include a variety of policy approaches from operator retains liability to state accepts full liability/responsibility. No national framework for CCS liability exists.	All CCS projects in select states
United Kingdom	Adopted the EU directive, with the government acting as the "competent authority"	All CCS projects

# RECOMMENDATIONS FOR LIABILITY

- Develop and agree to procedures for evaluating host country post-closure stewardship mechanisms
- Support projects only where adequate management of liability is evident



# CRITERIA FOR ANY COUNTRY TO CONSIDER IN ESTABLISHING REGULATIONS FOR CCS



# CONTACT DETAILS

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