Carbon Capture & Storage Association

Approaches to the Allocation of Liability

Dr Luke Warren
Policy Executive
Carbon Capture and Storage Association

Technical Workshop on CCS as CDM Project Activities
7 – 8 September 2011
Abu Dhabi, United Arab Emirates

CCSA Members - 75

2Co Energy
Air Liquide
Air Products
Aker Clean Carbon
Allen & Overy
Alstom Power
AMEC
Anthony Veder Group
Arup
BG Group
BOC
BP
Calix
Camco International
CCS TLM
Chevron
Clean Energy Group
CMS Cameron McKenna
CO2 Sense (Yorkshire)
CO2Tech Centre Mongstad
ConocoPhillips
Costain
DNV
Doosan Power
Drax Power
Durham University
EDF Energy
EON
ERM
ESB
Fluor
Gassnova
GDF Suez
GE Energy
Herbert Smith
Howden Group
Ingen
Jacobs Engineering
Linklaters
Lloyd's Register
Maersk Oil & Gas
Masdar
Mitsubishi Heavy Industries
MMI Engineering
N8
National Centre for CCS
National Grid
National Physical Laboratory
Norton Rose
Peel Energy
Perenco
Petrofac CO2DeepStore
Poyry
Progressive Energy
PWC
Rhead Group
Rio Tinto
RPS
Sasol
Schlumberger
Scottish Centre for Carbon Storage
Scottish Enterprise
Scottish European Green Energy Ctr
ScottishPower
Senergy
SGS United Kingdom
Shell
Siemens
Statoil
Tata Steel
Tees Valley Unlimited
Total
Vattenfall
Wood Group Energy
Zurich

CCS liability arrangements

CCS CDM liability arrangements should deliver the following goals

1. Promote best-practice selection and operation of CO_2 store to minimise probability of CO_2 seepage
   - Permanence of CO_2 storage assured through rigorous storage site selection, development & operation practices
   - Requires allocation of liability to entity best placed to select and manage site

2. Ensure that any CO_2 seepage event is mitigated and any damage remediated
   - Regulations should create strong incentive to address seepage
   - Requires allocation of liability to entity best placed to manage site

3. Promote private sector investment in CCS
   - Proportionate to the risk of CO_2 seepage
   - Liabilities defined and manageable; size and timing
   - CCS CDM projects should receive permanent, fully-fungible CERs

Defining CCS Liabilities

Climate liability

CO_2 seepage from store and enters atmosphere

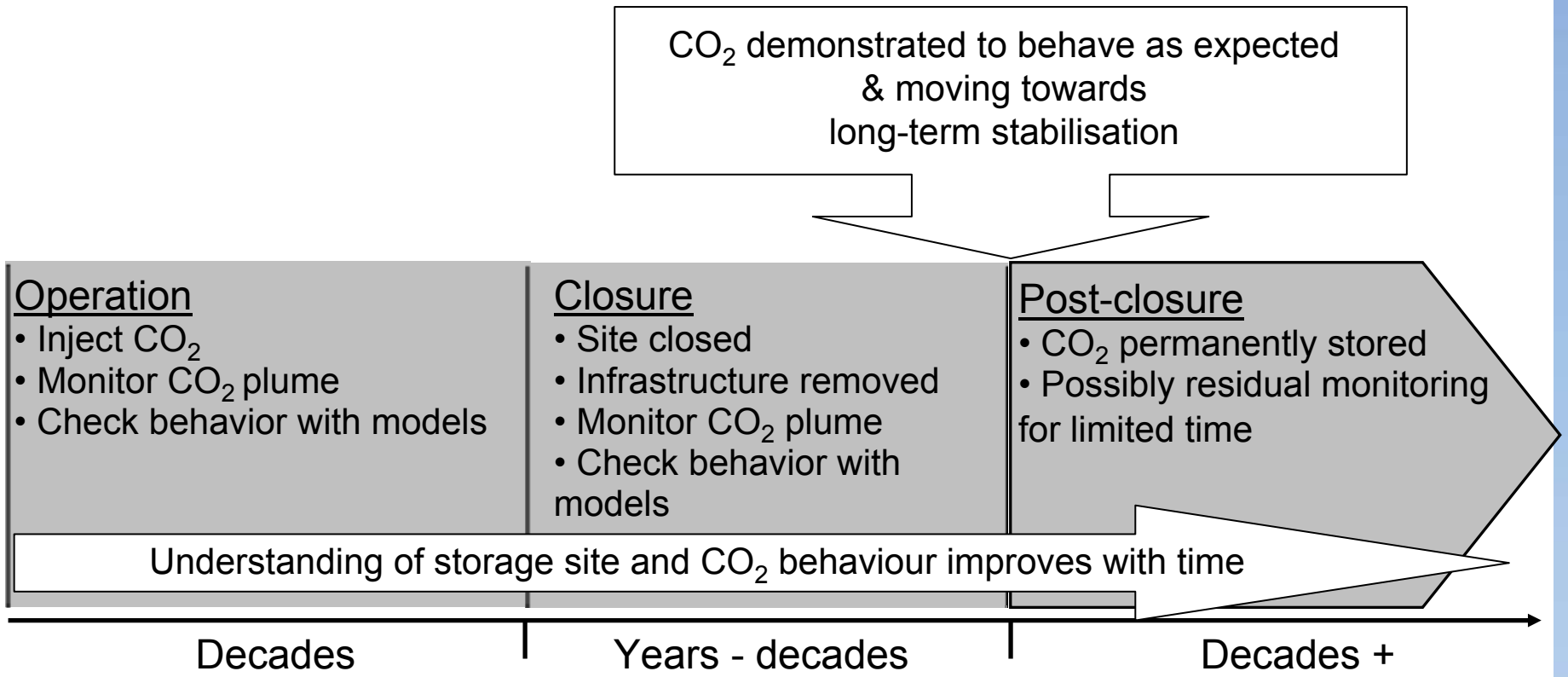
- Climate liability addressed at all stages of CCS CDM project lifecycle
- CCS Modalities & Procedures should address climate liability to ensure environmental integrity of CDM

Local liability

CO_2 seepage from store and damages local ecosystem, property, etc

- Equivalent to liabilities from existing industrial activities
- National regulations for managing local liability extended to CCS
- No need for additional guidance under CCS Modalities & Procedures

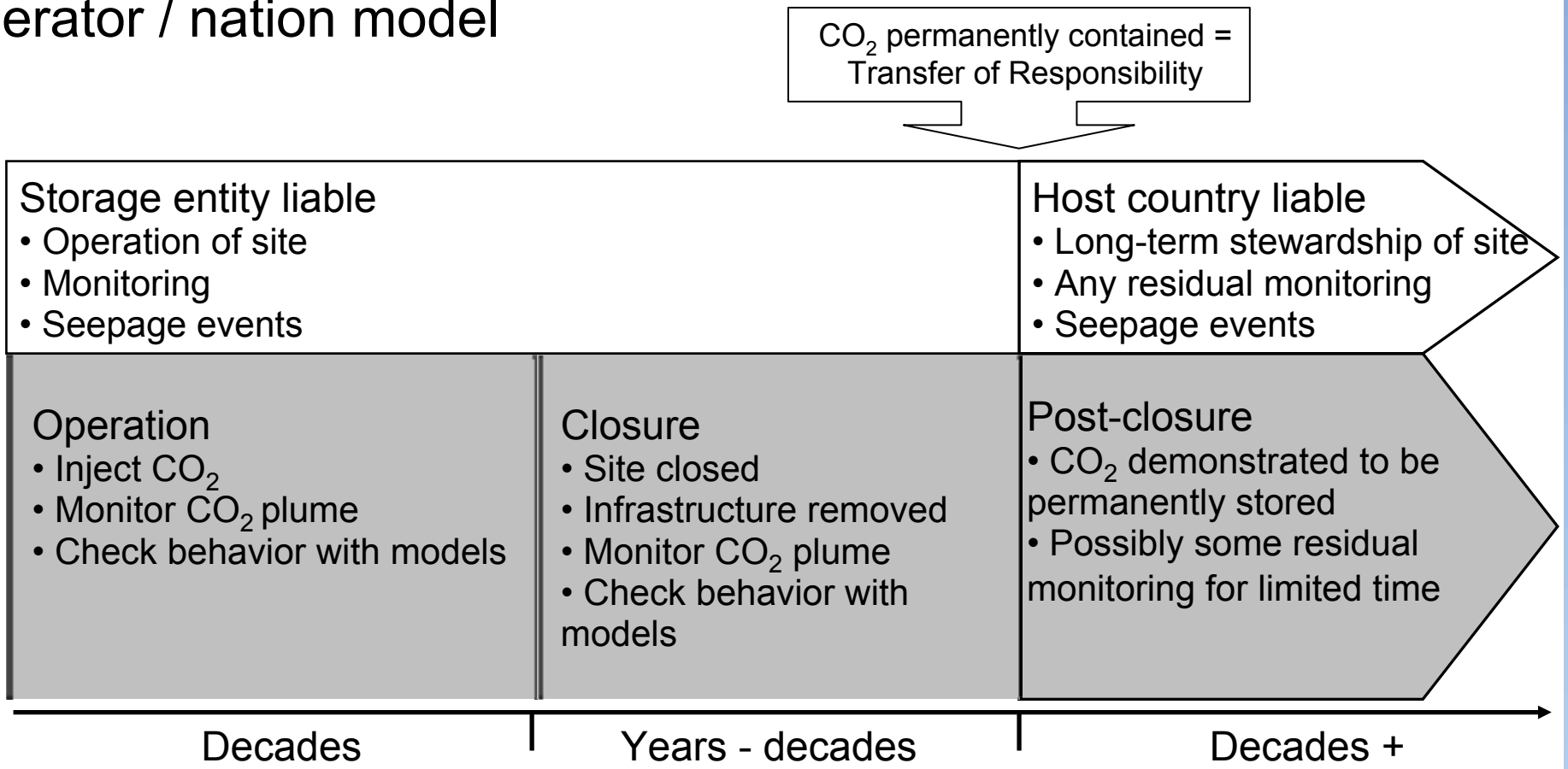
CO_2 storage site lifecycle



- CO_2 seepage risk changes; storage more secure over time
  - Highest risk in operation and closure phases
  - Lowest risk in post-closure phase
- Liable entity allocated for each CCS project phase

Allocating liable entities

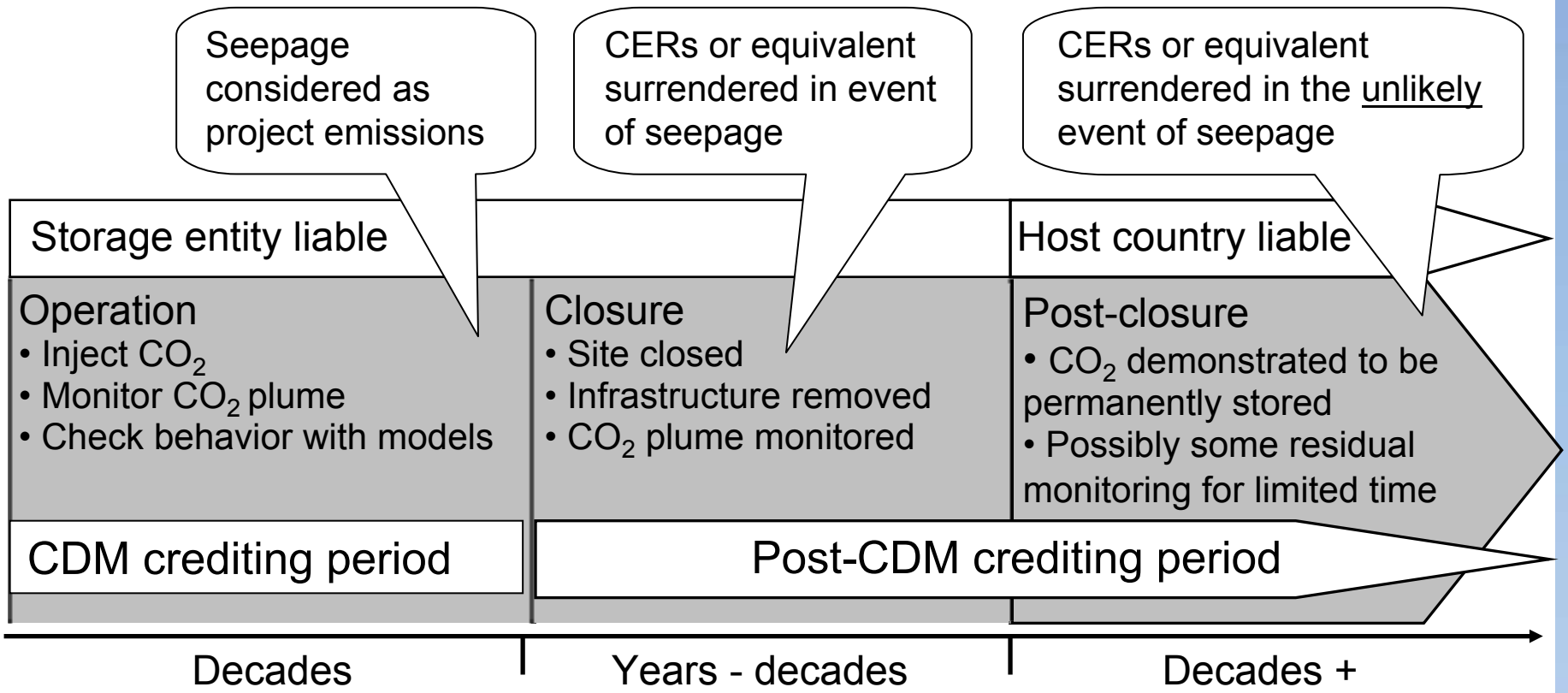
Operator / nation model



- Most common approach to address liability in various jurisdictions
- Liability with entity best placed to manage storage site
- Liability transferred to host country once CO_2 demonstrated to be permanently stored – residual risks very low

Allocating liable entities – CDM

Operator / nation model



- Strongly incentivises the liable entity to minimise risk of, and address, CO_2 seepage
- All seepage emissions replaced
  - Ensures the environmental integrity of the CDM
  - Enables CCS projects to receive permanent, fully-fungible CERs

Alternative approaches to allocating liable entities

Storage entity liable (Liable for all project phases)

- Storage entity will not exist indefinitely; cannot manage post-closure phase
- The potential size of liability (even if a large seepage is unlikely to occur) creates barrier to investment

Host country liable (Liable for all project phases)

- Disincentive for storage entity to manage operation & closure phases effectively

User liable (buyer replaces CERs if seepage)

- Generate low-value, non-fungible CERs
- No incentive for storage entity / host country ensure effective management of store

Discount CER issuance (%CERs retained to cover future seepage)

- No scientific basis to calculate discount rate
- Caps liability and no incentive for host country and storage entity to ensure storage security
- Decreases available revenue to support CCS project

Provisions to meet liabilities

- Host country and storage entity have a number of liabilities over life of project
  - ‘Known liabilities’ e.g. monitoring costs, decommissioning costs, etc
  - ‘Contingent liabilities’ e.g. remediation of seepage, surrender of CERs, etc

- A number of provisions can be used to meet these liabilities
  - Insurance, pooling, self-assurance, financial contribution, other guarantees etc
  - Each provision has its own merits and drawbacks

- Provisions can be designed to enable host country / storage entity risk-sharing for meeting liabilities
  - E.g. future CER price unquantifiable and private entities unable to bear this risk, post-closure monitoring costs.

- During project development phase host country should decide;
  - Which liabilities and contingent liabilities require provisions
  - The most effective instrument to be deployed to meet that liability
  - Arrangements will be highly project specific

Proposed approach under CDM

Host country up-front
- Agrees liability arrangements with project developer
- Agrees provision arrangements with project developer

Project Design Document
- Allocates entity liable for stored CO_2 over entire life of project

Designated National Authority
- Confirms in project approval document that it has established approach to addressing climate liability
- Confirms in the event of CO_2 seepage, that cannot be accounted as project emissions, there will be surrender of CERs, or equivalent, equal to volume of CO_2 seepage

Designated Operational Entity
- During CDM crediting period accounts for any seepage as project emissions