



GLOBAL CCS
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BRIEF

Cross-Border CCS in Asia Pacific

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Building the framework for regional CO₂ transport and storage

Singapore, Japan and South Korea are developing pathways to store captured CO₂ in other countries. Australia, Indonesia, Malaysia, Thailand and Timor-Leste are among the potential storage destinations. The opportunity is significant, but cross-border value chains will only become investable when legal, accounting, liability and commercial arrangements are clear.

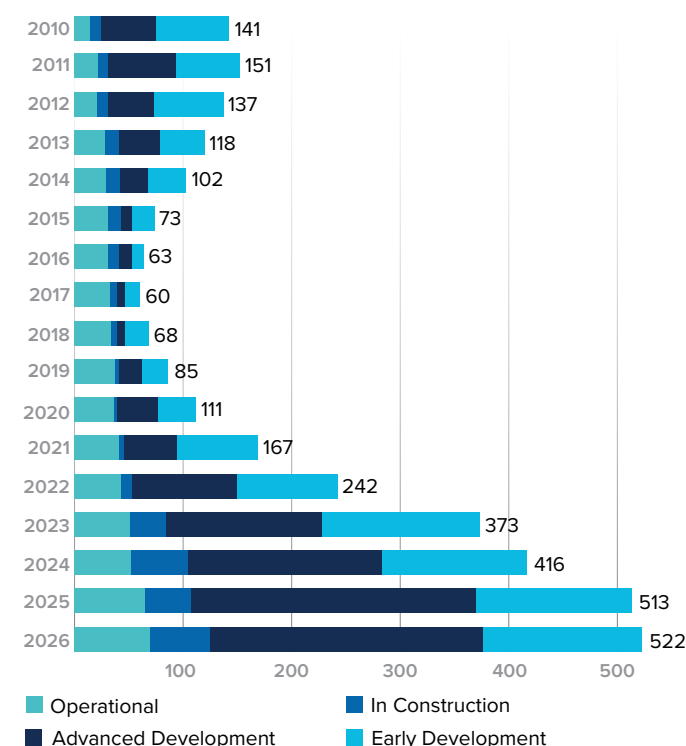
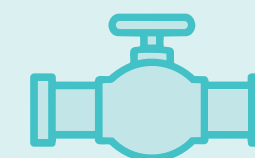
Why cross-border CCS matters for industrial decarbonisation

Asia Pacific contains a large share of the world's industrial production and some of its fastest-growing energy demand. Many industrial and power assets in the region are relatively young and are expected to remain in operation for decades. For sectors such as cement, steel, refining, chemicals, fertilisers and gas processing, carbon capture and storage (CCS) can provide a practical route to reduce emissions that are difficult or impossible to eliminate through fuel switching or efficiency alone.

The global CCS market is also changing shape. The Global Status of CCS 2026 identifies 522 Mtpa of capture capacity across the project pipeline and 266 dedicated CO₂ transport and storage projects, around 32 per cent of the total project count. This shift towards shared transport and storage matters because it can allow multiple emitters to use common infrastructure rather than develop complete value chains independently.

In Asia Pacific, that network model has an additional role. Geological storage resources, subsurface data and regulatory readiness are unevenly distributed. Some countries have substantial prospective storage resources, while others need access to storage outside their borders. Cross-border CCS can connect those sources and sinks, provided the legal and commercial architecture is in place.

CO₂ Capture Capacity - (Mtpa)



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Storage access shapes the regional opportunity

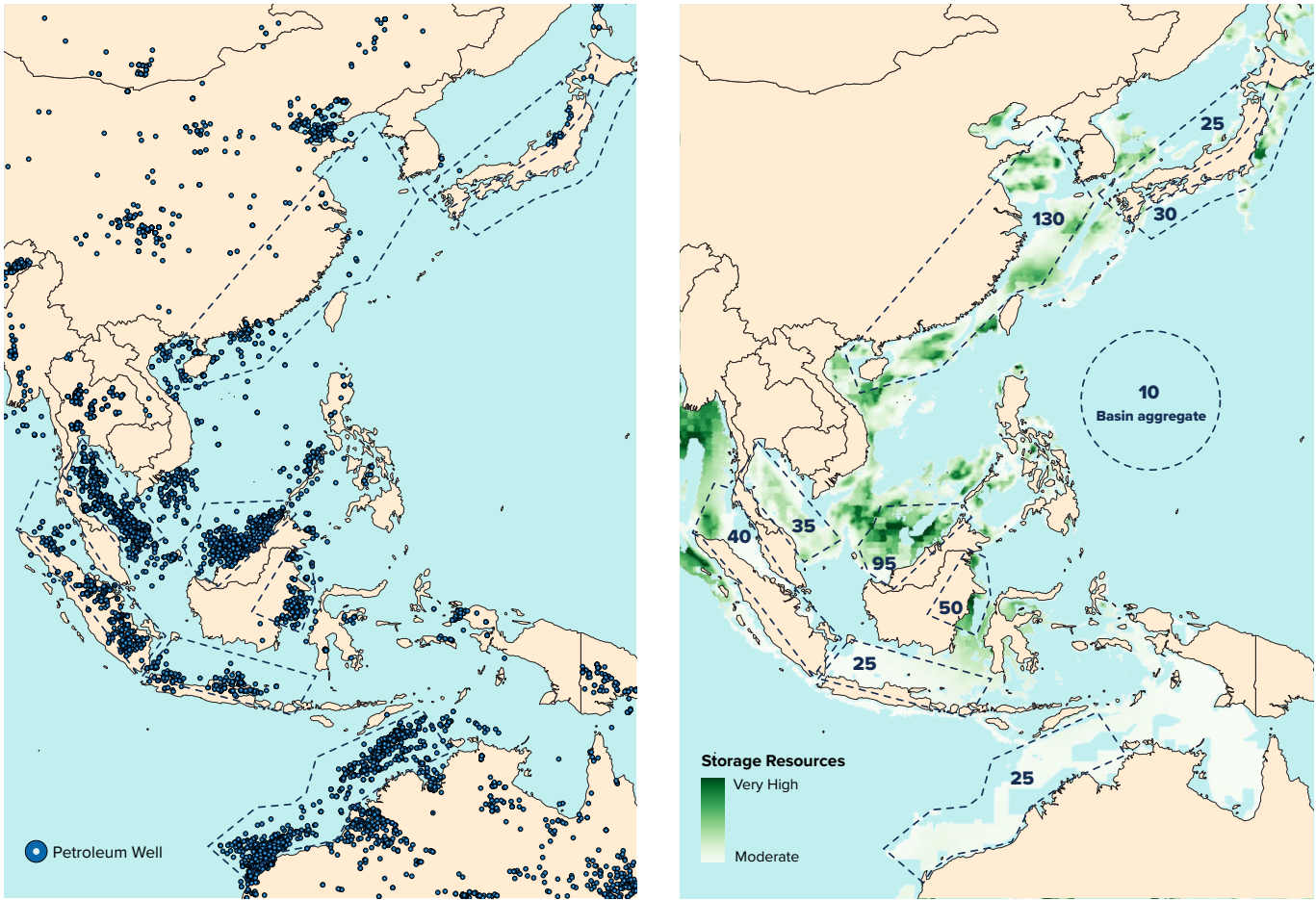
For geological storage to become a practical option, four foundations are needed:

- ✓ **Storage resources:** sufficiently large, suitable porous rock formations with the characteristics required for safe injection and permanent retention of CO₂.
- ✓ **Subsurface data:** seismic, well and other geological information that allows a potential storage resource to be characterised and appraised.
- ✓ **Regulation:** a legal basis for CO₂ storage, including licensing, property rights, monitoring obligations, liability and long-term stewardship.
- ✓ **No disqualifying constraints:** land-use, sea-use, environmental or cultural factors must not preclude storage development.

The balance of these factors differs markedly across the region. Singapore has no domestic geological storage option. Japan and South Korea have potential storage resources, but are pursuing overseas storage in parallel because domestic resources and available subsurface data may not meet their needs within the required timeframe. Australia, Indonesia and Malaysia have large prospective storage resources and extensive subsurface datasets, while Thailand and Timor-Leste are also exploring roles in regional storage value chains.

This mismatch between where CO₂ is produced and where storage can be developed is the central reason cross-border CCS is becoming a regional infrastructure question rather than simply a project-by-project choice.

Estimated CO₂ Storage Potential (billions of tonnes) & Location of Petroleum Wells



Sources: Storage Resource Estimate by Mojtaba Seyeddi & Christopher Consoli (2026), GCCSI. Petroleum Well data from GlobalData (2026)

Cross-border value chains are taking shape

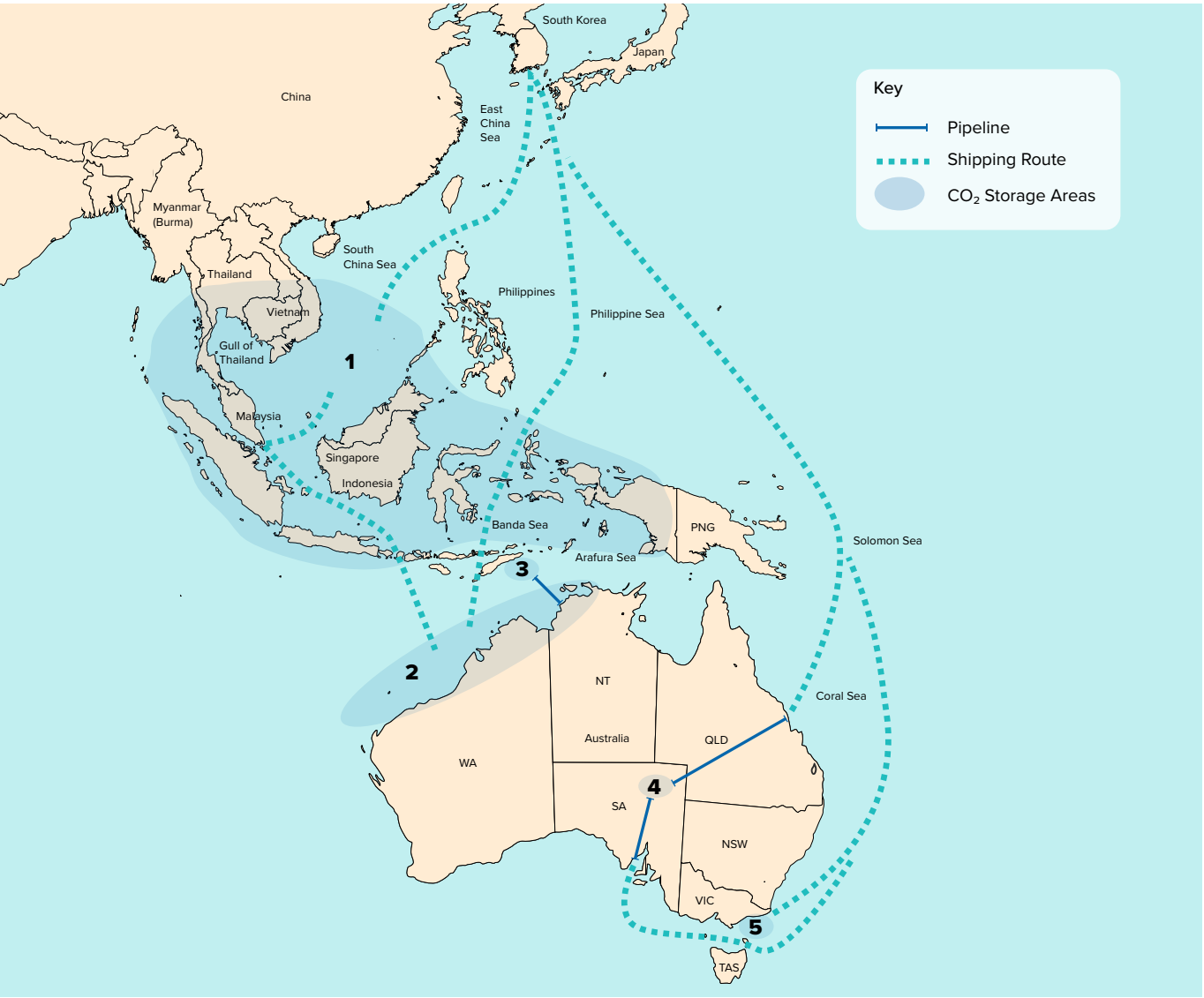
The groundwork for international CCS value chains is already being laid across Asia Pacific:

- ✓ Australia, Indonesia and Malaysia have enacted legal frameworks that enable or support the import of CO₂ for geological storage.
- ✓ Thailand is developing legislation for geological CO₂ storage and cross-border CO₂ transport and has signalled an intention to offer storage services to international customers.
- ✓ Japan is supporting nine Advanced CCS Projects, including projects that rely on storage outside Japan.
- ✓ Singapore is negotiating bilateral arrangements with potential storage partners.
- ✓ South Korea is pursuing partnerships with Australia and Southeast Asian countries that can provide storage solutions.

Several memoranda of understanding and bilateral discussions are in place, but the Global Status of CCS 2026 notes that no binding government-to-government agreements for cross-border storage are yet in force. The next phase is therefore less about proving the concept and more about converting proposed routes into investable value chains.

The most advanced potential routes connect industrial sources in Singapore, Japan and South Korea with storage opportunities in Southeast Asia and Australia. Potential destinations include Malaysia, Indonesia and Thailand, offshore northwest Australia, the Timor Sea, South Australia and the Gippsland Basin. These routes will not all develop in the same way. Some may rely on shipping, others on pipelines, and some on a combination of both.

The Most Advanced Potential Cross-Border CO₂ Transport and Storage Value Chains Under Consideration



What cross-border CCS can unlock

Industrial competitiveness and economic resilience

For countries with limited or less readily available storage, cross-border CCS can provide a route to lower-emission production in energy-intensive sectors. This can help protect existing industrial value chains while creating new opportunities in engineering, construction, shipping, monitoring and geological storage services. For potential storage countries, storage services could also become a new source of investment and revenue.

Low-emission industrial hubs

Revenue from international storage services can strengthen the business case for shared CO₂ transport and storage infrastructure. Once established, that infrastructure may also serve domestic emitters and attract new industrial investment to locations where a credible CO₂ management option exists. Cross-border infrastructure can therefore become an anchor around which lower-emission industrial hubs develop.

Efficient use of storage and economies of scale

Prospective storage capacity in countries including Australia, Indonesia and Malaysia is larger than their own expected near-term requirements. Cross-border CCS can allow that capacity to serve regional demand. Aggregating multiple customers can also improve infrastructure utilisation, spread fixed costs across larger volumes of CO₂ and reduce unit costs over time.

Government-to-government agreements are essential

Cross-border value chains will ultimately be delivered through commercial contracts between emitters, transport providers and storage operators. Those contracts, however, depend on compatible domestic regulation and government-to-government agreements that give investors confidence that CO₂ can move legally and reliably across borders.

These agreements need to address three areas in particular.



Environmental protection and permanence

Exporting countries need confidence that transferred CO₂ will be transported, injected, monitored and permanently stored under robust regulatory systems. For countries operating under the London Protocol and other relevant international obligations, bilateral arrangements must also support compliance with requirements for transboundary movement and sub-seabed geological storage.



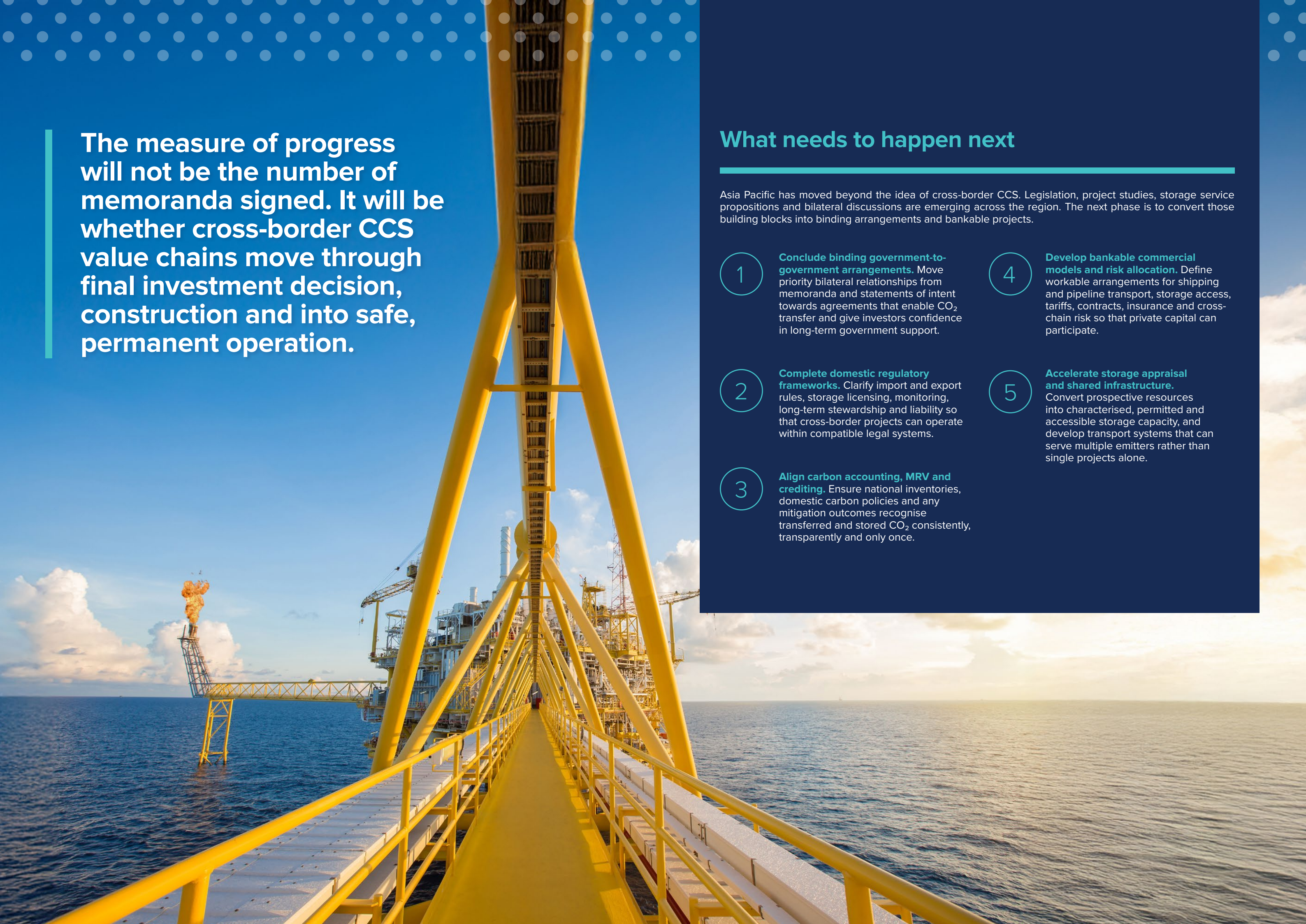
Carbon accounting and mitigation outcomes

Countries need clear and compatible rules for accounting for CO₂ transported across borders in national greenhouse gas inventories and domestic carbon frameworks. The core principle is simple: emissions and abatement must be counted accurately and only once. Agreements also need to clarify how the value of mitigation outcomes is recognised so that incentives remain aligned with the parties bearing the cost of emissions reduction and storage.



Liability and long-term stewardship

Commercial contracts can allocate financial risks between emitters, transport providers and storage operators, but governments must also clarify how statutory liabilities are managed during transport, injection, post-closure stewardship and any cross-border transit. Clear rules are essential for operators to define risk, obtain insurance and build bankable commercial agreements.



The measure of progress will not be the number of memoranda signed. It will be whether cross-border CCS value chains move through final investment decision, construction and into safe, permanent operation.

What needs to happen next

Asia Pacific has moved beyond the idea of cross-border CCS. Legislation, project studies, storage service propositions and bilateral discussions are emerging across the region. The next phase is to convert those building blocks into binding arrangements and bankable projects.

1

Conclude binding government-to-government arrangements. Move priority bilateral relationships from memoranda and statements of intent towards agreements that enable CO₂ transfer and give investors confidence in long-term government support.

4

Develop bankable commercial models and risk allocation. Define workable arrangements for shipping and pipeline transport, storage access, tariffs, contracts, insurance and cross-chain risk so that private capital can participate.

2

Complete domestic regulatory frameworks. Clarify import and export rules, storage licensing, monitoring, long-term stewardship and liability so that cross-border projects can operate within compatible legal systems.

5

Accelerate storage appraisal and shared infrastructure. Convert prospective resources into characterised, permitted and accessible storage capacity, and develop transport systems that can serve multiple emitters rather than single projects alone.

3

Align carbon accounting, MRV and crediting. Ensure national inventories, domestic carbon policies and any mitigation outcomes recognise transferred and stored CO₂ consistently, transparently and only once.



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