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Department of Climate Change, Energy, the Environment and Water
GPO Box 3090
CANBERRA ACT 2601

Submission via DCCEEW consultation portal

Safeguard Mechanism Review – Consultation Paper

Woodside Energy welcomes the opportunity to comment on the Department of Climate Change, Energy, the Environment and Water's (DCCEEW) Safeguard Mechanism (SGM) Review (2026 Review) consultation paper (the Paper).

The SGM has contributed to Australia's emissions reduction objectives to date, both before and after the 2023 reforms. The 2026 Review is an important opportunity to ensure the scheme continues to support the decarbonisation of Australian industry, while advancing Australia's productivity, international competitiveness and energy security. These objectives should be pursued together so that emissions reductions are durable, investable and do not result primarily from lower production or the movement of economic activity and emissions offshore.

The 2026 Review should retain the SGM's core architecture, including a predictable, industry-wide emissions trajectory and flexibility for facilities to determine the most efficient way to meet their obligations. Material changes to these features would increase investment uncertainty and compliance costs without necessarily delivering additional emissions reductions. Targeted reforms are nevertheless needed within this framework to unlock further on-site and economy-wide abatement, strengthen carbon-market operation and ensure the scheme remains effective beyond 2030.

The central proposition of Woodside's submission is that the next phase of industrial decarbonisation will require more than progressively tighter baselines that by definition cannot take into account variables applying to the facility, technology and operating profiles of Australia's covered facility set. Many future abatement opportunities across the economy are capital-intensive, dependent on enabling infrastructure and technology, and currently not commercially investable. The SGM should therefore provide a stable market signal and compliance flexibility, while complementary policies address the practical barriers to investment in emissions reduction.

Woodside's key recommendations for the 2026 Review are that the SGM:

- preserve clear, consistent and predictable regulatory settings across Australia's industries. These settings are essential to investment, planning and confidence;
- set an achievable post-2030 emissions trajectory that reflects Australia's climate goals and is calibrated alongside competitiveness, productivity, carbon-leakage and energy-security considerations;
- retain full access to high-integrity Australian carbon credit units and Safeguard Mechanism credits, preserve banking and other temporal flexibility, and strengthen cost-containment arrangements so that investment is directed to the most efficient emissions reductions across the economy;
- commence a staged, government-led approach to recognising high-integrity international carbon credits authorised under Article 6 of the Paris Agreement, initially through procurement for the cost containment reserve, before considering broader Safeguard Mechanism access; and
- support the scheme by introducing complementary policies that remove or minimise barriers to investment in abatement, including in renewable electricity backed by batteries and gas, methane reduction, hydrogen, biomethane, carbon capture and storage (CCS) and high-integrity carbon markets.

Together, these reforms would support Australia's emissions goals while maintaining a predictable environment for long-term investment, protecting the competitiveness of Australian production and strengthening Australia's role as a reliable regional energy and trade partner.

Woodside's detailed responses to the consultation are set out in Attachment A with case studies provided in Attachment B. Woodside values ongoing engagement with DCCEE and would welcome the opportunity to discuss this submission further.

We are also a member of the following industry associations and draw your attention to their submissions: Australian Energy Producers (AEP), Australian Industry Greenhouse Network (AIGN), Australia Japan Business Co-operation Committee (AJBCC), Business Council of Australia (BCA), Chamber of Commerce and Industry of Western Australia (CCIWA), Chamber of Minerals and Energy of Western Australia (CME) and International Emissions Trading Association (IETA).

Yours sincerely,



Attached:

- Attachment A – Woodside's response to consultation questions
- Attachment B – Case Studies

Attachment A – Woodside’s response to consultation questions

Green boxes contain questions and commentary from the Paper. Woodside’s response is below each box.

1 Initial results indicate that reformed policy settings are working as intended and the Safeguard Mechanism is on track to deliver its 2030 emissions targets.

The review is interested in feedback on any perceived risks for the Safeguard Mechanism and whether it is on track to deliver its legislated outcomes.

Targeted reform of the Safeguard Mechanism (SGM) is needed for it to continue delivering on goals.

Woodside recognises that the SGM has contributed to the progress Australia has made to achieving its emissions reduction objectives to date, both before and after the 2023 reforms. Policy stability is important, and the key features of the SGM framework, its consistent trajectory across industrial sectors and use of crediting mechanisms to enable prioritisation of the most efficient emissions reductions, should be preserved.

However, within this existing framework, targeted reform is needed to enable the SGM to continue to be effective. Recent evidence suggests emissions reductions may in part reflect lower production across different Australian sectors and facility exits, which together with greater use of concessional baseline decline rates may highlight the need for future settings to be carefully calibrated to achieve decarbonisation without deindustrialisation.¹ The next phase of abatement will likely become more complex, capital-intensive and dependent on enabling infrastructure, technology readiness and market demand for lower-carbon production, at the same time the pressures on competitiveness and productivity across Australia’s industries are growing.

Woodside’s key recommendations for the SGM review are to:

- preserve clear, consistent and predictable regulatory settings across Australia’s industries. These settings are essential to investment, planning and confidence;
- set an achievable post-2030 emissions trajectory that reflects Australia’s climate goals and is calibrated alongside competitiveness, productivity, carbon-leakage and energy-security considerations;
- retain full access to high-integrity Australian carbon credit units (ACCUs) and Safeguard Mechanism credits (SMCs), preserve banking and other temporal flexibility, and strengthen cost-containment arrangements so that investment is directed to the most efficient emissions reductions across the economy;
- commence a staged, government-led approach to recognising high-integrity international carbon credits authorised under Article 6 of the Paris Agreement, initially through procurement for the cost containment reserve, before considering broader Safeguard Mechanism access; and
- support the scheme by introducing complementary policies that remove or minimise barriers to investment in abatement, including in renewable electricity backed by batteries and gas, methane reduction, hydrogen, biomethane, carbon capture and storage (CCS) and high-integrity carbon markets.

The success of the SGM depends on maintaining energy security and international competitiveness.

Efficient emissions reduction, energy security and international competitiveness are best pursued as complementary goals, not as trade-offs. Policy will be successful to the extent it progresses all three goals and is conversely at risk when it fails to do so. This is true both in the Australian economy and also internationally, because many of our trading partners depend on the products of SGM-covered facilities to meet their own energy security and emissions reduction goals.

LNG for example supports Australian jobs, investment and government revenue, while also supporting our regional partners with energy security and typically delivering materially lower lifecycle emissions than coal-fired power generation.^{2,3} This continues to be a significant investment and regional partnership opportunity. Dr Fatih Birol, Executive Director of the International Energy Agency, noted in a speech to Canberra’s National Press Club in March 2026: *“Australia has been one of the cornerstones of the regional energy security by providing a lot of LNG to the markets. And now it is more important, more vital than ever... from LNG to lithium, from lithium to copper, from copper to cobalt... I really hope that Australia make a big move based on this lot of resources, huge opportunity, geopolitical opportunity, being a trustworthy trade partner, and the predictable investment environment for the businesses. Bring this all together, Australia can well be a rising star of the global energy economy.”*⁴

1 The Paper states some gross emissions reductions are linked to “a reduction in covered facilities from 219 to 208”; production-related emissions have been “lower than assumed”; and concessional baselines have had a greater impact than expected.

2 IEA <https://iea.blob.core.windows.net/assets/cc35f20f-7a94-44dc-a750-41c117517e93/TheRoleofGas.pdf>

3 S&P Global Study: Pathways to Accelerate Power Emissions Reduction in Asia (ANGEA 2025).

4 Dr Fatih Birol’s Address to the National Press Club of Australia <https://youtu.be/VVDJMK4OjYU?si=nzaBLZqoYxkePqAb>.

The approach recommended by Woodside in this submission would, in our view, best enable the SGM to continue to contribute to Australia's national interests by supporting these complementary goals: reducing emissions efficiently while maintaining energy security, investment confidence, international competitiveness and the strength of our regional partnerships.

- 2 Are Safeguard policy settings and Government support mechanisms suitable for developing and deploying emissions reduction technologies for the industrial sectors? Are there any remaining barriers to undertaking on-site abatement, including sector-specific barriers?**
- Are there any important areas that are not covered by government policy or programs?**

Complementary policies are needed to unlock further on-site abatement inside the SGM.

The SGM provides a useful investment signal, but many emissions reduction opportunities remain challenging to deploy due to barriers such as scale, infrastructure, approvals, technology readiness, financing, regulatory barriers and market demand which in turn affects economic viability. Additional complementary policies can tackle these barriers directly.

Experience demonstrates that technical feasibility does not always translate into investable projects. In Woodside's case, the company incorporates a cost of carbon into its investment decisions and emissions reduction opportunities which is the product of rigorous analysis and observation of international carbon cost indicators, and is reviewed annually. Our current assumption on carbon cost pricing includes a long-term carbon price of US\$80/t CO₂-e of emissions (real terms 2024).^{5,6} Opportunities that are safe, technically viable and have an abatement cost below our assumption are considered for inclusion into business plans, so that they can be scheduled for implementation alongside other initiatives to enhance safe, reliable and cost competitive operations. However many larger opportunities such as electrification, hydrogen and CCS have retrofit estimates of US\$200-US\$500/t CO₂-e, well above both this carbon price and the ACCU spot price.^{7,8} Complementary policies are therefore needed to bridge the gap between technically feasible abatement and commercially investable projects. See Attachment B – Case Study 1 for further discussion of Woodside's Pluto LNG facility.

Complementary policies should be technology and sector neutral to most effectively achieve emissions goals. Restrictions on the availability of support to some sectors (including oil and gas) should be revoked. The following subsections provide examples of how to address barriers to on-site abatement related to renewable electricity generation, firming and transmission, methane reduction, CCS, hydrogen and biomethane.

2.1 Support investment in renewable electricity generation, firming and transmission.

The availability of reliable, lower-emissions electricity at scale is an important enabler of abatement under the SGM and complementary energy policy is required to deliver this outcome.

Coordinated planning, timely approvals and investment in renewable generation, firming capacity and transmission could support reliable and affordable grid decarbonisation. Under the Australian Energy Market Operator's (AEMO's) Optimal Development Pathway, flexible gas-fired generation is required to support reliability and complement variable renewable energy as coal-fired power stations retire.⁹ However, investment signals for this capacity remain challenging. Extending the SGM to electricity generation may not be the most effective lever to address this challenge. Complementary policies outside the SGM should focus on supporting investment in flexible gas-fired generation and other firming capacity needed to maintain reliability, integrate renewable energy and enable the timely retirement of coal-fired generation. Consideration should also be given to expanding the Capacity Investment Scheme to include flexible gas-fired generation.

Government-led or facilitated transmission investment and approvals reform are needed to address planning, connection and transmission constraints. The Climate Change Authority (CCA) has noted that renewable deployment "is primarily constrained by planning delays, transmission constraints and connection complexities."¹⁰ These challenges are illustrated in Attachment B – Case Study 2.

Within the SGM, baseline settings should recognise electrification and renewable power use, including through a baseline uplift where verifiable renewable electrification reduces Scope 1 emissions, but the renewable energy is supplied in front of the SGM facility's meter or by a third party. Failing to account for these reductions

⁵ Woodside continues to monitor the uncertainty around climate change risks and will revise carbon pricing assumptions accordingly.

⁶ Woodside's carbon price has been [public since July 2020](#) (p.17), prior to the 2023 reforms introducing the cost containment measure

⁷ Woodside [2025 Annual report](#) .pdf p70.

⁸ CER Quarterly Carbon Market Report – June quarter 2026 (data release) - last reported volume weighted average generic spot price ~A\$38 (~US\$27)

⁹ AEMO 2026 Integrated System Plan [2026-integrated-system-plan-isp.pdf](#) p.6

¹⁰ CCA [2026 Annual Progress Advice consultation paper](#) p. 24.

effectively penalises facilities for reducing emissions by switching to grid power, creating an artificial regulatory barrier to the very transition the policy aims to drive.

2.2 Methane is an economy-wide opportunity needing practical incentives and measurement.

Methane reduction is a material economy-wide decarbonisation opportunity, in particular in the oil and gas, coal mining, landfill waste and agriculture sectors. Woodside joined the Oil and Gas Methane Partnership (OGMP 2.0) in 2024 and was awarded “Gold Standard Pathway” status by the United Nations Environment Programme (UNEP) in 2025. Woodside’s OGMP 2.0 plan includes a target to maintain methane emissions intensity below 0.2% at operated assets.¹¹ Our experience in site-based measurement, measurement-informed reporting and methane reduction projects supports the following recommendations:

- **Create a dedicated workstream to incorporate measurement-informed methods into the National Greenhouse and Energy Reporting (NGER) Scheme.** Reported emissions should reflect measured methane emissions and reductions where appropriately assured. Woodside’s Case Studies 3 and 4 (Attachment B) show material methane reductions identified through site-based measurement, but these are not yet accurately reflected under available emissions factor-based NGER methods.¹² Flexible application within facility boundaries, without burdensome re-baselining triggers, would also support uptake of higher-order methods.
- **Build Australia’s sovereign capability in methane measurement and reduction technologies.** Support for local technologies, services and expertise would reduce reliance on overseas specialists and improve deployment in Australian operating conditions. Case Study 5 (Attachment B) illustrates both the value of advanced measurement technology and the current reliance on overseas capability. Government could support this by funding research and development, incentivising site-based studies and practitioner training, and commissioning large-scale Australian measurement surveys.
- **Develop an economy-wide, measurement-based methane dataset.** A broader inventory would help identify the most material and efficient abatement opportunities across sectors. Coupled with the SGM and ACCU system, it could help direct investment from SGM facilities to lower-cost abatement in sectors outside the SGM and support new revenue streams.

Further detail is provided in Woodside’s submission to the CCA’s “Fossil methane: A near-term abatement opportunity” consultation.

Methane policy should target the full economy-wide abatement task, including methane capture in waste, positive incentives for agricultural methane reduction, and practical deployment of cost-effective measurement, reporting and abatement technologies across sectors. Government could also extend the oil and gas sector’s methane measurement experience to other sectors through support for knowledge sharing and collaboration.

2.3 CCS is proven and critically important. It needs a national strategy and enabling infrastructure.

Woodside recommends the Australian Government develop a national CCS strategy to address barriers to CCS deployment and improve the ability of SGM facilities to utilise CCS in their abatement pathways. CCS is a technically proven mitigation option with a key role in reducing emissions from industry. The United Nations Intergovernmental Panel on Climate Change (IPCC) recognises CCS as a critical mitigation option, but found deployment remains well below levels needed for 1.5°C or 2°C pathways and continues to face technological, economic, institutional, environmental and social barriers. The IPCC also found that policy instruments, public support and technological innovation could help reduce these barriers.¹³

Australia’s storage potential creates an opportunity to develop CCS hubs for domestic industry and regional partners, but current SGM settings may not be sufficiently supportive. Australia hosts two of the world’s largest non-EOR (enhanced oil recovery) CCS storage projects: Chevron’s Gorgon CCS and Santos’s Moomba CCS projects.^{14,15,16} The Clean Energy Regulator (CER) found the oil and gas sector had the largest covered emissions reduction in 2024–25 and that Moomba CCS contributed to improved sector emissions intensity.¹⁷ Both the Gorgon and Moomba projects reached final investment decision before the 2023 Safeguard reforms and should not be treated as evidence that current settings alone can unlock future CCS investment.

¹¹ Woodside’s reported methane intensity is currently around 0.1%.

¹² Woodside incorporates methane into investment decision-making through the application of an internal carbon cost of US\$80/tCO₂-e (real 2024) multiplied by 84, reflecting methane’s higher near-term global warming potential, as described in [Woodside climate transition action plan and 2023 progress report](#) pg 23. This reduced the breakeven cost of carbon reported in Case Study 4 below US\$80/tCO₂-e

¹³ UN IPCC, 2022. [Working Group III Contribution to the Sixth Assessment Report | Summary for Policymakers](#), section C.4.6, p. 28.

¹⁴ [Global-Status-of-CCS-2025-report-9-October.pdf](#)

¹⁵ Gorgon CCS <https://australia.chevron.com/what-we-do/gorgon-project/carbon-capture-and-storage>

¹⁶ Santos Moomba CCS <https://www.santos.com/moombaccs/>.

¹⁷ CER [2024–25 Safeguard Mechanism data insights](#)

Additional policy support is required to extend CCS beyond reservoir CO₂ sequestration into other applications in hard-to-abate sectors such as LNG, steel and cement, and retrofitting existing facilities, given the greater technical complexity and cost of these applications. Government can help accelerate CCS deployment through a clear and timely regulatory approvals process, technology-neutral policy support, common-user infrastructure, and targeted funding for feasibility, engineering, approvals and early storage projects.

This should also include international cooperation to enable transboundary CO₂ transport and storage, allowing Australian CCS projects to achieve economies of scale and reduced costs to SGM facilities through provision of CCS as a service to international customers. International examples include the United States' 45Q tax credit, the Northern Lights CCS Project and fiscal support for a Belgian CCS project.^{18, 19, 20, 21} Attachment B – Case Study 6 and 7 discuss Woodside's Angel CCS Project and policy actions to unlock CCS investment.

2.4 Hydrogen needs technology-neutral policy support aligned to market expectations.

Although electrification is common to many industrial decarbonisation opportunities, it does not address all emissions reduction applications. High process temperature heat, for example, may be better supported by the combustion of hydrogen. This is also true in the LNG sector where turbines are used for direct mechanical compression of refrigerant gases, not only power generation, and so electrification is an incomplete decarbonisation solution.

Technology-neutral incentives should recognise any production pathway, including hydrogen from gas with CCS, where it meets robust lifecycle carbon-intensity requirements. Woodside's assessment of current and proposed hydrogen opportunities highlights the importance of government support, customer offtake and technology-neutral incentives.²² Incentives such as the Hydrogen Production Tax Incentive should recognise hydrogen from gas with CCS and align its intensity threshold with key export market expectations.

2.5 Emerging biomethane markets should be enabled by flexible certification.

A more market-based approach, including safeguarded book-and-claim arrangements and removing east-west geographic constraints for Renewable Gas Guarantee of Origin Certificates could improve flexibility and support investment in biomethane supply. Under NGER, certified biomethane may reduce Safeguard reportable Scope 1 emissions, subject to final accounting and compliance settings. Woodside is investigating biomethane to reduce natural gas use in LNG power generation, which accounts for about 25% of typical LNG emissions.²³ Over time, there may also be opportunities to extend biomethane use to other applications such as mechanical compression, which represents a further ~50% of LNG emissions.²⁴ In theory, biomethane can also offer a solution to decarbonise other industrial processes that are hard to electrify (such as high process temperature heat) and that avoids the need for substantial retrofitting of plant and equipment. However, its potential is currently challenged by lack of scale and physical delivery requirements.

See Woodside's response to the National Renewable Gas Policy Consultation Paper for further information.

3 Are new policy measures for ACCU use needed to accelerate industrial decarbonisation? If policy measures are needed, what would be the best way to reduce reliance on ACCU use without unduly disrupting the carbon market and when should any such measures start?

Are requirements to submit carbon abatement plans needed to improve transparency and help inform future supply and demand for ACCUs and SMCs? How would any such requirements complement or duplicate corporate climate disclosure requirements?

ACCUs have a critical role to play in compliance pathways and achieving net emissions goals, enabling finance to flow to the opportunities that maximise emission reductions per dollar.

ACCUs and SMCs are a core part of the SGM and not, as sometimes mischaracterised, a substitute for it. ACCU and SMC market linkages are important mechanisms that help deliver economy-wide emissions reductions efficiently. Limiting access could increase costs for Australian commodities, weaken competitiveness and raise domestic manufacturing input costs.

We believe that concerns that the availability of ACCUs creates a disincentive for on-site abatement are misplaced. Investing in on-site abatement can permanently derisk a business's exposure to escalating compliance unit demand and associated price risk, and therefore already enjoys an advantage over the use of ACCUs or SMCs. This is why the hierarchy of abatement (avoid in design, reduce during operations, and

¹⁸ <https://www.congress.gov/crs-product/IF11455>

¹⁹ <https://norlights.com/about-the-longship-project/>

²⁰ <https://norlights.com/what-we-do/>

²¹ <https://www.europesays.com/be/6019/>

²² [Hydrogen Refueller @H2Perth](#) and [H2Perth](#).

²³ Woodside [Climate Transition Action Plan \(CTAP\)](#) figure "Abatement option for typical LNG emissions sources", p. 20.

²⁴ Ibid.

then offset the residual) is industry standard and inherently preferable. Government policy to further preference on-site abatement over ACCUs is not required.

ACCUs and SMC provide necessary flexibility while on-site abatement opportunities mature.

There are real barriers to implementing on-site abatement at industrial facilities (as discussed in Section 2). In our view the appropriate policy response is to address barriers to on-site abatement directly through complementary policy, not restrict ACCU use.

In some instances, and for some periods, ACCUs and SMCs may be the only viable compliance mechanism available while abatement opportunities are being evaluated and pursued and barriers are overcome as far as practicable. Flexibility is critical for hard-to-abate, capital-intensive facilities. For such facilities, abatement is often site-specific, discontinuous and constrained by technology readiness, shared infrastructure availability, commercial viability and major project cycles. The Paper recognises that the industrial sector has “long-lived assets” and that many Safeguard facilities may have “only one or two investment cycles between now and 2050”.²⁵ In these circumstances, ACCU caps or prescriptive on-site abatement requirements may increase transition costs without accelerating emissions reduction. Restrictions may instead require alternative compliance mechanisms, such as penalty prices, adding complexity without addressing abatement barriers.

Woodside therefore supports maximum flexibility in ACCU and SMC use, with no caps, discounts or multipliers where units meet robust integrity, transparency and additionality standards. SMCs should also remain available indefinitely, with streamlined administration including automatic banking where appropriate.

ACCU holdings should not be treated as evidence of delayed action; they reflect responsible preparation for legislated obligations. The Paper notes that 23 facilities surrendered ACCUs totalling more than 30% of their baseline in 2024–25, around 10% of Safeguard facilities. This does not indicate systemic over-reliance. Existing explanation requirements are designed to identify why on-site abatement was not undertaken, and analysis indicates the most common barriers are technology immaturity and lack of enabling infrastructure, which in turn affects economic viability.

Woodside supports transparent supply-demand forecasting for abatement opportunities, informed by industry input and modelled on mechanisms such as AEMO’s Statements of Opportunity. AEMO’s Statements of Opportunity enable companies to provide data to the Government that is commercial in confidence and reflects their real expectations of supply and demand. For ACCU demand, aggregated forecasting would be less onerous, more technically feasible and less commercially sensitive than facility-level carbon abatement plans or compliance strategies. This approach should also assess ACCU supply. DCCEE modelling indicates ACCU demand may exceed supply from 2028, based on the current post-2030 default decline rate of 3.285%.^{26,27} Any decline rate increase could worsen the forecast shortfall.

Australia already has comprehensive mandatory climate-related financial disclosures. Additional requirements to publish a carbon abatement plan or compliance strategy should not be introduced, as they would duplicate existing disclosure obligations without clearly improving emissions reduction outcomes.

Expand SGM and ACCU market interaction.

Targeted reforms to strengthen and expand the interaction of the SGM and the ACCU system could accelerate economy-wide decarbonisation, funded by SGM facilities to meet their baseline obligations. A broader policy framework is essential because the SGM covers less than a third of Australia’s emissions, and many efficient abatement opportunities sit outside its scope.²⁸ The SGM and ACCU market work together to cover a broader share of the economy, enabling a wider range of abatement to be incentivised, in a more efficient manner, than would be possible under the SGM alone. The compliance obligation on the SGM-covered sectors creates a source of finance for emissions reduction projects beyond the scheme’s coverage, with the resulting abatement credited through ACCUs.

Government should consider accelerated expansion of ACCU supply through the development and approval of new high integrity methods, including for new economic sectors. As recognised in the Paper, the ACCU Scheme is a world-class offsets framework and an essential part of Australia’s climate policy architecture. It creates an economic opportunity to support a domestic carbon abatement industry, jobs, regional projects, research and development, and investment in uncovered sectors. The SGM “represents the main source of demand for ACCU projects” which “provide a source of revenue to other sectors—notably agriculture, land and waste”.²⁹ The Paper acknowledges this is a “mutually beneficial arrangement”, enabling industrial facilities to

25 DCCEE [Safeguard Mechanism Review consultation paper August 2026.pdf](#)

26 DCCEE [Australia’s Emissions Projections 2025](#) Figure 15

27 DCCEE [Methodology for Australia’s emissions projections 2025](#) pg 40

28 DCCEE [Safeguard Mechanism Review consultation paper August 2026.pdf](#)

29 DCCEE [Safeguard Mechanism Review consultation paper August 2026.pdf](#)

support emissions reductions outside the scheme. This complementarity is a strength of Australia's carbon market architecture and can be further expanded.

Subject to consultation, potential methods could include emissions reductions from emerging feed additives for ruminant animals and improved animal effluent management. These methods could create revenue streams for verified abatement, deepen the carbon market, diversify supply, moderate transition costs and support regional economies. This is discussed further in Attachment B – Case Study 8.

In addition to developing new methods, Government should also consider revitalising its own procurement of ACCUs to ensure reserves are sufficient to meet potential cost containment mechanism requirements. Further, Government should consider if it should preference purchasing ACCUs from methods associated with emerging technology, potentially at a higher unit cost, as a means of delivering technology policy support.

A rolling five-year ACCU issuance-date vintage limit post-2030 may warrant further consideration. While an ACCU's emissions impact is not affected by when it was created, a rolling limit could help ensure compliance units reflect current verification standards. This would be preferable to fixed-period limits, which could create unequal usable lives and uncertainty for project financing. As more than 95% of current ACCU holdings were issued in the past five years, a five-year rolling limit from 2030 may be suitable, subject to vintage definition, surrender timing, grandfathering and transition arrangements. Other qualitative limits, such as restrictions on ACCU methodologies or permanence periods would cause market segmentation and should be opposed.

Australia's policy architecture is unique, making international comparison challenging.

The Paper's comparison with California's offset limits is incomplete. California's cap-and-trade scheme relies mainly on government-issued allowances, not offsets.³⁰ Allowances are state-issued licences and do not represent discrete physical abatement. California's deep allowance market means offset limits do not materially constrain compliance. In contrast, ACCUs are the primary compliance mechanism for baseline exceedance under the SGM. SMC supply is limited by project timelines and technical feasibility. Restricting ACCUs without adequate alternatives could increase compliance costs or non-compliance risk without accelerating decarbonisation.

4 Is there any ongoing interest in using international offsets for Safeguard Mechanism compliance in the future and what is the rationale for this?

How would the market need to develop before inclusion in the Safeguard Mechanism could be considered at future review points and what considerations should be given regarding interoperability, recognition and integrity?

Woodside supports reforms to enable Australian investment in high-integrity international abatement opportunities in return for credits that can be used for Safeguard Mechanism compliance.

Article 6 of the Paris Agreement provides for cooperation that could lower transition costs, increase mitigation ambition, strengthen cost containment and support regional abatement.³¹ It can unlock additional abatement opportunities beyond Australia's borders, helping accelerate global decarbonisation while generating carbon credits that could be recognised within Australia's climate policy framework. An Australian commitment to enter into bilateral agreements under Article 6.2 could provide a tangible example of Australian leadership and regional climate action during its Presidency of the negotiations for COP31.

International carbon market cooperation is increasing, with more than 100 bilateral Article 6 agreements formalised globally.³² Australia is yet to sign an agreement, notwithstanding that it could provide a practical mechanism to strengthen climate and economic partnerships across the Indo-Pacific. Foregoing linkages risks limiting Australia's influence on market development, constraining regional partnership opportunities and falling behind international competitors.

In Woodside's view high-integrity international units would not undermine ACCU markets or incentives for on-site abatement if introduced through a staged, integrity-led approach. Early government engagement would allow Australia to shape project integrity criteria, develop trading and accounting infrastructure, and build regional partnerships. Only Article 6 authorised Internationally Transferred Mitigation Outcomes should be considered for SGM compliance, supported by corresponding adjustments, transparent accounting and ACCU-aligned integrity criteria.

The Government could initially operationalise high-integrity Article 6 credits through its own purchasing in order to build a credit reserve for the cost containment measure. This would provide the Government with direct

30 California's Cap-and-Trade Program Explained: [05-2025 cap and trade v-03 unpaginated lr.pdf](#)

31 IETA [IETA IWG Article-6-Discussion-Paper V2.pdf](#)

32 <https://a6partnership.org/a6-implementation-status/current-developments-in-bilateral-cooperation-and-article-6-4-mec>

control over integrity while protecting ACCU market signals and developer returns. Woodside recommends a staged approach, beginning with Government procurement for cost containment purposes and later reviewing broader SGM access. Any future access should be integrity-led, complementary to domestic ACCUs and supportive of Australia's regional climate partnerships.

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| <p>5 Is banking working to encourage businesses to reduce their emissions ahead of schedule?</p> <p>Are there any strong reasons why banking should not extend beyond 2030?</p> <p>Are current borrowing arrangements working to help businesses manage short-term exceedance?</p> <p>Should borrowing continue beyond 2030?</p> <p>Should the current policy that prevents multi-year monitoring periods from extending beyond 2030 be retained?</p> <p>Are there circumstances that could benefit from access to multi-year monitoring after 2030?</p> |
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Temporal flexibility measures should be retained.

Banking of SMCs, baseline borrowing and multi-year monitoring periods all help facilities manage operational variability, temporary compliance constraints and major abatement project timelines. While Woodside does not currently use these arrangements, they should remain available beyond 2030.

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| <p>6 Is the current design of the cost containment measure sufficient to allow businesses to manage upside price risks?</p> <p>Could the current cost containment measure price deter investments in emissions reduction activities?</p> |
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The cost containment measure is an important innovation of the 2023 reforms and is central to how Australia can retain its emissions reduction ambition alongside competitiveness and prosperity goals.

Woodside recommends strengthening the cost containment measure by reviewing its scale and replenishment arrangements, to ensure it operates as a credible and durable market stability mechanism.

The Paper notes that current holdings may cover less than one year of projected ACCU demand, with demand of 26 million ACCUs in 2030 and 35 million in 2035. The current volume of Australian Government held ACCUs available through the measure therefore appears low relative to potential supply shortfalls and future compliance demand (see Section 3).

Government purchase of ACCUs and high-integrity international units to ensure the measure has adequate reserves should provide a credible source of assurance against potential supply constraints. As indicated in Sections 3 and 4 above, Australian Government procurement can also direct support towards accelerated deployment of new technologies as well as emissions reduction overseas, meeting multiple policy objectives.

Strengthening the measure could also reduce incentives for the private sector to hold reserves of ACCUs and SMCs against future scarcity, improving liquidity and price stability while preserving incentives for on-site abatement. Because the measure is priced well above current ACCU prices, it is unlikely to affect compliance decisions except in acute market stress.

The measure's rate of escalation should also be reviewed to ensure it remains aligned with the Australian Government's assessment of the maximum emissions reduction costs that it believes should be borne by Australians and Australian businesses, particularly as climate policy ambition diverges across international jurisdictions.

7 Do current arrangements that link TEBA eligibility to scheme cost impacts create equity concerns among competing facilities or discourage uptake of on-site abatement?

Would a sectoral approach to TEBA eligibility better target carbon leakage risks and help to address any equity concerns?

Could a 'catch-up mechanism' be introduced for TEBA to better distribute the effort between TEBA recipients and other Safeguard facilities?

Feedback is sought on options for improving TEBA that would continue to effectively manage carbon leakage, and deliver Safeguard Mechanism objectives, including emissions targets and incentives for on-site abatement.

Should a border carbon adjustment be introduced for cement and clinker?

If a BCA is implemented, what elements should be included in any process for considering and consulting on the inclusion of further commodities over time?

Should TEBA provisions for a commodity be removed once a BCA is fully implemented for that commodity?

What would the appropriate timing and mechanics be for removing TEBA provisions for a commodity covered by a BCA?

Woodside does not support sectoral differentiated decline rates because they undermine the SGM's architecture and its overall emissions reduction effectiveness.

As outlined in Section 1, the SGM should support decarbonisation without driving production, investment or emissions offshore. Competitiveness protections remain important where Australian trade-exposed producers face carbon costs not faced by competitors, but these protections should not be delivered through sectoral differentiated decline rates. Support for trade exposed industries that is delivered in the form of differential baseline decline rates creates fundamental concerns of equity and, relative to the scheme wide decline rate, discourages abatement that would otherwise have been delivered either on-site or through ACCUs or SMCs.

Instead, support should be addressed consistently across all participants through the SGM's core design features, including its decline rate, ACCU and SMC market linkages and complementary measures to unlock abatement opportunities. For example, support for strategic industries, sovereign capability and decarbonisation should continue through complementary policies outside the SGM, such as Future Made in Australia, the Powering the Regions Fund, Net Zero Fund, Future Gas Strategy, Australian Renewable Energy Agency (ARENA) and Clean Energy Finance Corporation (CEFC). These policy measures should be designed on a sector-neutral basis, with sector-specific eligibility exclusions, including for oil and gas, removed.

Climate policy should enable a least-cost transition, with industry policy supporting sovereign capability and competitiveness. Conflating these objectives risks poorer outcomes for both emissions reduction and industry. If the Australian Government nevertheless determines that individual sectors or facilities merit further sector or facility specific support, this support should be provided directly and transparently by the Government, not obscured within the SGM system. It should be limited to where facility-level evidence of carbon leakage or competitiveness impacts is both evident and creating material risks to the public interest.

To the extent that facility specific Trade Exposed Baseline Adjusted (TEBA) settings are retained, there may be merit in reviewing these settings to better reflect carbon-cost impacts, including capital and shutdown costs associated with transformational abatement upgrades; abatement delivered through scope change such as Scope 2 reduction; and carbon cost pass-through from upstream inputs or intermediate products supplied by facilities subject to emissions reduction obligations or other policies that impose a carbon cost.

An import-only Border Carbon Adjustment (BCA) may address the risk of unfair advantage to importers over domestic producers, but does not address export competitiveness risks. This would be a significant omission for a country like Australia whose economy is geared to resource exports, many of them critical to the energy transition. Any BCA assessment should consider export-exposed producers and value chains, including double carbon costs, investment confidence and potential investment leakage. Woodside supports a transparent process for adding commodities to any BCA, with robust emissions measurement and verification, consultation with affected sectors and assessment of trade-exposed supply chain impacts.

8 Should baseline arrangements for coal facilities after 2030 remain unchanged or be aligned with baseline arrangements for other sectors?

Are there specific circumstances where current settings do not operate as intended to encourage coal facilities to manage and reduce their emissions?

Are current settings sufficient to allow businesses to manage shut-downs or extended periods of low production?

How could this be addressed while remaining consistent with the Safeguard's output-based architecture and retaining incentives to manage and reduce all coal mining emissions?

Could removing optionality about state and territory versus national reporting for transport facilities help to improve land transport sector coverage?

Would a mandatory national facility definition for transport sectors create any unintended consequences for land transport or other sectors, such as aviation or shipping?

Are there particular freight corridors where there is high freight contestability? Can stakeholders provide information about potential overlap and competitive distortions?

Are there other changes to Safeguard Mechanism design that could address potential distortions consistent with Safeguard Mechanism objectives?

In principle, SGM settings should apply consistently across sectors to support the emissions reduction goal, equity and scheme integrity. This includes production-linked baselines that transition to industry average over time, with regard to available technologies. For transport, consistent application of the national facility definition would support this objective.

9 Should the Safeguard Mechanism cover a larger portion of national emissions?

Should the Safeguard Mechanism threshold be lowered and, if so, when?

How should baselines be set for facilities that would enter the Safeguard Mechanism as a result of a lower threshold?

What new production variables would be needed for facilities below the current 100,000 tonne CO₂-e threshold?

The timing and degree of any lowering of the SGM threshold is a matter for Government to determine, and Woodside recommends it should be subject to careful analysis of advantages and disadvantages.

Facilities below the 100kt CO₂-e threshold will need to contribute to Australia's net zero by 2050 objective. The question is whether the SGM or some other policy is the most effective mechanism for these facilities, taking into account cost, competitiveness, equity and administrative burden. These trade-offs should inform the design of any staged reduction of the threshold, including the level and the timing of the reduction on the pathway to 2050.

There are benefits in maintaining one consistent regulatory framework rather than creating overlapping policies and reporting requirements. As facilities decarbonise, some may fall below the current 100kt CO₂-e threshold, reducing scheme coverage. A gradual reduction could maintain coverage of existing facilities and encourage larger NGER reporters to reduce emissions to avoid entering the SGM.

However, lowering the threshold to cover entirely new sectors or reporters could increase administrative burden for the Australian Government and participants, including the need for new production variables and emissions factors. It is recommended that Government provide advance notice and consult affected industries on production variables, reporting requirements and transitional arrangements. Newly covered facilities would need to have baselines set on the same basis as existing facilities to preserve competitive neutrality and avoid distortions between comparable activities. Adequate lead times are needed so facilities can prepare for compliance and take emissions reduction action in advance.

10 Feedback is sought regarding administrative aspects of the Safeguard Mechanism.

There are opportunities for administrative optimisation which could occur before 2030.

Woodside recommends removing the Facility Specific Emissions Intensity (FSEI) reset trigger under Safeguard Rules Section 26. A reset may currently be triggered where regulatory or reporting method changes affect covered emissions. This becomes increasingly problematic as facilities transition towards default or international best-practice emissions intensities under the SGM. Facilities may then need to undertake an FSEI

reset due to regulatory method changes, revised emissions factors or updated reporting methodologies, despite changes to the FSEI having little influence on the baseline outcome. As facility-specific variables diminish, this could create administrative burden without improving environmental integrity or compliance.

The current SGM does not fully recognise imported renewable electricity because shifting generation outside a facility boundary can reduce both reported emissions and the baseline. Baseline settings should better recognise genuine emissions reductions from electrification and renewable power, including through a baseline adjustment or uplift where verifiable renewable electrification reduces Scope 1 Greenhouse Gas emissions, whether supplied behind the meter, in front of the meter or by a third party.

Although the Paper does not intend to revisit baseline setting or emissions intensity, it notes actual production emissions are lower than assumed when reforms began. This warrants review of new facility settings to ensure international best-practice benchmarks and decline rates do not deter investment in Australia. Best practice settings for new facilities should be transparent and adapted to Australian conditions. As new facilities must meet best-practice settings, applying the default decline rate may impose obligations beyond what is practically achievable. The Australian Government should consider publishing the underlying data and assumptions underpinning benchmarks, test them with industry and explain any Australian adjustments.

11 The Safeguard Mechanism will continue to do a proportional share of the national emissions reduction task.

Should the proportional share be updated from 28.1% to 29.8% to reflect data in the two years prior to the commencement of the reforms or is there an alternative method that would retain a proportional share?

What factors should be considered in setting the Safeguard Mechanism target for 2035?

How should the reserve be set for 2035 to account for variation in production and new entrants?

What factors should be taken into account when determining an appropriate baseline decline rate to apply from 2030-31 to 2034-35, noting that it must be calibrated to meet the agreed target?

The concept that the SGM should deliver a proportional share of Australia's emissions reduction is broadly accepted across industry, including by Woodside. However, it is important to be clear that "proportional" should be understood in a broader context than simply a statistical alignment of baseline reduction with the national emissions reduction goal. It must also extend to a proportional share of the cost and competitiveness impacts of the system.

The ability of industry to deliver any given decline rate is intrinsically linked to the cost and availability of on-site abatement opportunities, the effective functioning of ACCU and SMC schemes, and the effectiveness of complementary measures to unlock additional abatement technologies. This submission has argued that the core features of the SGM should be retained, but that targeted reform within the existing framework will have benefits. Eroding the core design features, especially a single economy-wide decline rate and access to ACCUs and SMCs, or failing to progress on targeted reforms needed to reduce emissions, would undermine both support for proportionality and the effectiveness of the SGM as a whole.

If 29.8% is DCCEEW's view of the most accurate data, it should be selected, subject to review alongside any changes to SGM coverage.

The decline rate must not be considered in isolation, but alongside competitiveness impacts and deindustrialisation risks outlined in Section 1. It must be assessed alongside SGM coverage, access to ACCUs and SMCs, cost-containment, carbon leakage, complementary policies that support abatement and industrial policy support. The Australian Government should model these settings as an integrated package and consider the economic cost and any loss of industry due to carbon and investment leakage before finalising the post-2030 trajectory. As a starting point, the post-2030 decline rate should be no higher than the current 4.9% rate, with any increase supported by clear evidence that least-cost abatement measures, compliance flexibility and enabling policies will be introduced concurrently. At 4.9%, the current decline rate already sits within the 2035 NDC target range while imposing a more ambitious obligation on heavy industry than other countries.^{33,34,35}

33 DCCEEW 2023 [Statement of reasons under s 22XS\(1B\) of the National Greenhouse and Energy Reporting Act 2007 \(NGER Act\) - How the National Greenhouse and Energy Reporting \(Safeguard Mechanism\) Rule 2015 as amended delivers the legislated safeguard outcomes](#)

34 DCCEEW 2026 [Safeguard Mechanism Review consultation paper August 2026.pdf](#)

35 EY Australian Carbon Market Outlook 2026 [ey-nzc-au-carbon-market-outlook-2026.pdf](#)

Attachment B – Case Studies

The case studies in this attachment draw on practical emissions reduction opportunities that Woodside has implemented, assessed or is actively considering. They include both facility-level examples and broader policy comparisons that highlight the realities of industrial decarbonisation. Collectively, they demonstrate that technical feasibility does not necessarily translate into commercial investability, and illustrate the role that targeted Safeguard Mechanism reforms, complementary policy support, enabling infrastructure, improved emissions measurement and access to high-integrity carbon markets can play in unlocking additional abatement.

Case Study 1: Pluto turbine decarbonisation assessment shows hard-to-abate emissions require technology-neutral support and least-cost policy design.

Woodside has undertaken assessment of abatement opportunities at its Pluto LNG facility. Electrification, hydrogen fuelling and CCUS have all been assessed as potential methods for reducing greenhouse gas emissions from electrical drives and mechanical turbines, which account for a range of 75–85% of greenhouse gas emissions at a typical LNG facility. These opportunities are expensive to retrofit onto existing plant and equipment, with estimates in the range of US\$200–US\$500/t CO₂-e. Hydrogen fuelling of turbines has emerged as a leading option, using hydrogen produced from natural gas steam methane reforming with CCS. Engineering studies confirmed that unit abatement costs remain several times higher than Woodside's US\$80/t CO₂-e carbon price.¹

This example demonstrates that technical feasibility is not the same as practical deployability and policies that may seek to mandate such projects may not represent a responsible use of capital in a least-cost transition pathway. Reducing industrial emissions efficiently requires an economy-wide approach that directs effort toward least-cost abatement, while providing technology-neutral policy support and investment settings that help bridge the gap between technical feasibility and commercial deployment.

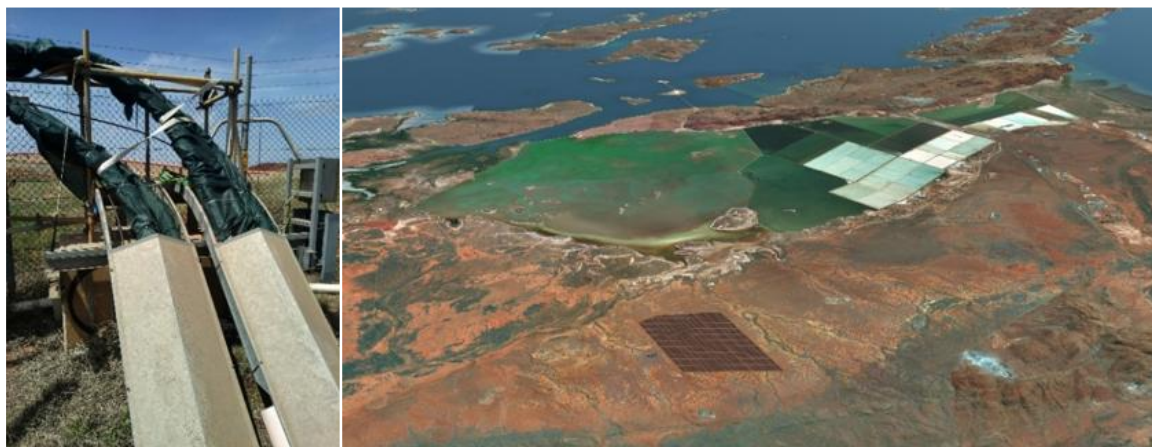
¹ Woodside's assumption on carbon cost pricing include a long-term carbon price of US\$80/t CO₂-e of emissions (real terms 2024). Woodside continues to monitor the uncertainty around climate change risks and will revise carbon pricing assumptions accordingly.

Case Study 2: Woodside Solar Project shows complementary policies enabling transmission are needed to unlock abatement

The Woodside Solar Project near Karratha in Western Australia is a proposed solar photovoltaic farm supported by a battery energy storage system. The project aims to reduce gross Scope 1 greenhouse gas emissions at the Pluto LNG facility by importing renewable electricity from an initial 50 MW solar farm. By 2023, Woodside had secured key development enablers for the solar farm, including environmental and planning approvals and agreements with the Ngarluma Aboriginal Corporation. However, the final investment decision and first solar import depend on securing access to new and existing sections of common-user transmission infrastructure and finalising associated commercial agreements. The Western Australian Government and APA Group are leading development of this infrastructure.

The images below show (left) electrical infrastructure installed at Pluto LNG to support future grid connection and (right) the proposed solar farm at the Maitland Strategic Industrial Area.

This example demonstrates that facility decarbonisation projects often depend on enabling infrastructure, approvals and commercial arrangements outside the direct control of facility operators. It supports policy settings that combine credible baselines with compliance flexibility and complementary policies including an accelerated roll out of lower-carbon power generation and transmission.



Case Study 3: Pluto Flare Upgrade Project

- As a vital safety feature, the flare system safely disposes of hydrocarbons during routine operations and rapidly depressurises the facility should an emergency occur.
- It also plays an important part in Pluto's emissions and environmental performance.
- As flaring turns methane and other hydrocarbons into carbon dioxide and water, any incomplete combustion can allow methane to slip into the atmosphere.
- A flare tip replacement project created an opportunity to introduce new technology that would enhance Pluto's flare system by strengthening its combustion and emissions performance including:
 - Reconfiguring the air assist system to maximise combustion performance.
 - Replacing the remaining flare tip, including thermocouples and pilots, and swapping out the staging valves to sharpen flare pressure control and combustion performance.
- There were also two notable monitoring technologies supporting this initiative.
 - The first involves installing a new gas chromatograph system that accurately measures individual gas components such as methane and nitrogen. This data enables operations personnel to fine-tune flare performance, which serves to strengthen combustion and emissions management.
 - The second is the deployment of advanced Video Imaging Spectro-Radiometry (VISR) cameras. Fitted with a multi-spectral imager, these sophisticated cameras deliver live, continuous monitoring of the new flare system's combustion performance.
- Collectively, the cost associated with these four scopes is estimated to have exceeded A\$20 million.
- These activities reflect a focus on technology-enabled emissions management and are consistent with a OGMP 2.0 approach to methane measurement, monitoring and reduction. They are expected to support stronger emission performance, including methane.

Case Study 4: Boil Off Gas Compressor Dry Gas Seal Retrofit

- The project upgrades wet seals on BOG compressors to dry gas seals, reducing methane vented through compressor seals by an estimated ~860 tpa, or ~24 ktCO₂-e per annum on a GWP100 basis.
- It is technically complex, requiring equipment, piping, controls, electrical and civil works to safely install and integrate the dry gas seal system.
- The project is underway, scheduled for completion in 2027, and has taken approximately four to five years to progress through engineering planning and site implementation to date.
- The estimated breakeven cost of carbon is more than US\$150/tCO₂-e under GWP100.

Case Study 5: LiDAR mapping in Karratha

- In a first for Woodside, a Heliwest-operated helicopter fitted with Bridger Photonics' Gas Mapping light detection and ranging (LiDAR) technology surveyed the Karratha Gas Plant, Pluto LNG Plant and the Pluto-KGP Interconnector to detect and measure methane emissions. The cutting edge technology was mobilised from the United States.
- Flying at 120 km/h in a grid-like "mow-the-lawn" pattern, the aircraft scanned facilities from above and captured real-time data on methane plumes invisible to the human eye.
- The technology provides speed, accuracy, reduced cost and improved safety. The data will help validate Woodside's emissions tracking, guide inspections and support future methane management and reduction efforts.
- Teams are already acting on survey results, including addressing some detected emissions.
- The campaign supports Woodside's OGMP 2.0 commitment and goal of Gold Standard reporting, complementing its methane management plan to measure, reduce and report emissions.

Case Study 6: Angel CCS Project shows policy and fiscal frameworks need to unlock CCS hub potential

The Angel CCS Project is a proposed large-scale, multi-user CCS hub near Karratha in Western Australia. CO₂ is proposed to be aggregated and injected into the produced Angel gas field around 125 km offshore for permanent storage. Notionally, the CCS facility will be able to inject up to 5 Mtpa at start-up once a positive final investment decision is made by the Angel CCS Joint Venture to proceed with the project and all necessary regulatory approvals and commercial arrangements are secured. There will also be the opportunity to expand to between 8 and 10 Mtpa, subject to demand.

The Angel CCS Project is proposed to be a hub that can support both domestic and international decarbonisation efforts. It can potentially take CO₂ from local hard-to-abate industrial facilities in Western Australia via new pipelines onshore or from international sources delivered via ships transporting liquified CO₂.

To unlock CCS at scale, the Australian Government should focus its efforts in five key areas:

- Developing a national CCS strategy.
- Creating clear and timely regulatory approvals processes.
- Establishing government-to-government agreements for transboundary CO₂ transport and storage with key markets at pace.
- Support for shared infrastructure and first movers.
- Continuing collaboration to build a common understanding and acceptance of CCS as a credible decarbonisation pathway.

These settings could help unlock large-scale CCS hubs, creating economic opportunities for Australia and support decarbonisation domestically and among Australia's trading partners.

Case Study 7: International CCS policy enablers

Targeted global policy support shows how stronger regulation and fiscal support can bridge the commercial gap for early CCS projects. The Global CCS Institute states that "strengthened policy commitments that recognise the mitigation potential of CCS and offer pathways for financial support, coupled with enabling legal and regulatory regimes, help to shape and sustain widespread commercial deployment".¹ Similar mechanisms could help accelerate an Australian CCS industry while capital costs and market risks remain high.

Public Co-Investment in Shared CCS Infrastructure (Norway)

Longship and Northern Lights demonstrate how government co-investment, shared infrastructure and a comprehensive regulatory framework can establish CCS where market signals are insufficient. Longship is a Norwegian Government-initiated CCS project designed to demonstrate large-scale CO₂ capture, transport and storage.²

Northern Lights, part of Longship, provides CO₂ transport and storage. Captured and liquefied CO₂ is shipped from customer sites to Øygarden, with first injection and storage achieved in August 2025.³ The Norwegian Government funded about 80% of Phase 1 costs, while Phase 2 received €131 million from the Connecting Europe Facility in June 2024.⁴ Longship also includes capture projects at Heidelberg Materials' Brevik cement plant and Hafslund Celsio's Klemetsrud waste-to-energy plant, supported through State Support Agreements.⁵ In September 2026, Northern Lights expanded its customer base, with Yara commissioning Europe's largest industrial carbon capture facility at its Sluiskil ammonia and fertiliser plant in the Netherlands.⁶ Norway's CCS regime covers the full CO₂ value chain, including transport, storage licensing, injection, monitoring, environmental protection, liability and long-term stewardship. It is aligned with the EU CCS Directive, supports cross-border CO₂ transport and storage, and is coordinated through Gassnova.

Government Support for CCS Hubs, Clusters and First-Mover Projects (Japan)

Japan's CCS framework combines near-term project funding with a proposed long-term support mechanism to close the gap between CCS costs and emitters' carbon costs. It aims to accelerate regional CCS hubs, shared infrastructure and first-mover projects. Japan's framework has two main mechanisms:

- near-term project support through METI and JOGMEC's Advanced CCS Projects program, covering feasibility studies, engineering design, appraisal drilling and storage assessment; and
- a proposed long-term support mechanism, similar to a Contract for Difference, to compensate selected projects for the gap between CCS costs and the carbon costs borne by emitters.

Case Study 7 continues over page.

Case Study 7 continued.

Since FY2023, METI and JOGMEC have supported first-mover CCS projects targeting commercial operation by 2030.⁷ The latest funding round, announced in February 2026, provides JPY 5.8 billion (US\$36 million) for feasibility studies focused on cost reduction and hub-and-cluster models.⁸ In June 2026, JOGMEC selected six regional consortia to study efficient CO₂ collection, aggregation and shared liquefaction, temporary storage and shipping facilities.⁹

Revenue Support Through Tax Credits for CCS Deployment (United States)

Section 45Q provides a technology-specific, production-based tax credit for verified carbon capture and permanent storage. By increasing credit values and expanding eligibility, the United States has improved CCS project economics and stimulated private investment.

The credit applies per tonne of captured CO₂ that is permanently stored underground, securely stored through enhanced oil recovery or used in approved applications rather than emitted.¹⁰

Introduced in 2008 and expanded through the FUTURE Act, Inflation Reduction Act and One Big Beautiful Bill Act, 45Q now supports a broader range of industrial and direct air capture projects.

1 <https://www.globalccsinstitute.com/wp-content/uploads/2025/10/Global-Status-of-CCS-2025-report-9-October.pdf>

2 <https://www.regjeringen.no/contentassets/943cb244091d4b2fb3782f395d69b05b/en-gb/pdfs/stm201920200033000engpdfs.pdf>

3 <https://www.equinor.com/news/20250825-first-co2-volumes-stored-at-northern-lights>

4 <https://ccsnorway.com/state-support-agreements-in-longship/>

5 <https://www.equinor.com/news/20250327-northern-lights-phase-2>

6 <https://www.yara.com/corporate-releases/europes-largest-carbon-capture-facility-officially-inaugurated-at-yara-sluisbil-in-the-netherlands/>

7 https://www.meti.go.jp/english/press/2024/0628_005.html

8 https://www.jogmec.go.jp/bid/bid_01661.html

9 https://www.jogmec.go.jp/english/news/release/release_00446.html

10 <https://www.congress.gov/crs-product/IF11455>

Case Study 8: Delays in ACCU method development are constraining least-cost abatement opportunities

Slow ACCU method development shows the need for adequate resourcing and parallel development to unlock broader abatement and avoid future supply gaps.

In May 2024, 39 proponent-led method proposals were submitted through an EOI process across multiple sectors. Of the four methods prioritised, only one new methodology determination has been made and no further EOI proposals have been formally prioritised.

Most proposals therefore remain unaddressed almost two years after the first and only EOI round. ■■■■■ "several high-quality EOIs were assessed but not prioritised due to resourcing constraints and there is a backlog of strong industry-led proposals".

The Integrated Farm and Land Management (IFLM) method has also taken longer than expected. An industry taskforce began work in 2019, the method was prioritised in 2021 and draft consultation ran from January to March 2026. As of August 2026, the final method has not been published.

The IFLM method was intended to replace the Human-Induced Regeneration (HIR) method and maintain regeneration-based ACCU supply. However, HIR sunset in 2023, preventing new regeneration-based projects for around three years. Given project lead times, the IFLM delay is likely to defer new ACCU supply into the next decade.

New methods can unlock abatement in uncovered sectors and support timely ACCU supply. The 2024 EOI and IFLM examples show that delays and resourcing constraints can limit future supply, constrain least-cost abatement and hinder an efficient transition.