

Supporting Project Success in Australia through Approvals and Stakeholder Engagement

Presentation to the Global CCS Institute Japan membership

January 2024





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Agenda

1. Our Team
2. Overview of CCS opportunities in Australia
3. Key points of the Federal and State Governments' approval process and strategic stakeholder engagement
4. Speaker's CV





Presenting Today



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PwC Australia is dedicated to Energy Transition

PwC's Energy Transition team has more than 130 experts

with deep experience in sustainability strategy, transformational change, mergers and acquisitions, climate risk, governance and reporting, organisational design, capital raising, deals, responsible investment, climate technology, renewable energy infrastructure projects, regulatory economics, policy, tax and the law.

We work in **partnership with teams across the firm locally and globally**, and with broader alliances to shape new markets, bring renewable energy projects to life and capture untapped opportunities.

Our people have professional backgrounds in **energy, mining, utilities, technology, financial services, engineering, social impact and the public sector**.

In Western Australia, the Energy Transition team is working closely with clients on infrastructure planning and strategies to transition industrial estates to support decarbonisation, and with local companies, to develop a low carbon ammonia project, using **Carbon Capture and Storage**.

Our services align with our clients' energy transition challenges and goals.



Decarbonisation

Establishing, activating and achieving your net zero ambitions and supporting the formation and development of decarbonisation projects



Value creation and value preservation

Supporting economic value creation and preservation in transactions, projects, policy, and business operations



Social Cohesion and Engagement

Enabling a 'just' transition to include the needs of people and communities in the energy transition



Climate risk

Defining and measuring your risk exposure and reporting frameworks against regulatory requirements and stakeholder expectations

Who we're helping



Corporates and private clients to transform products, services and supply chains in light of net zero, create new sources of value, find new ways to play and evolve their disclosures



Institutional investors, family offices and other 'fast movers' to advise on impact investments, ESG in deals, green market entry and scale up



New entrants to navigate and capitalise on a complex energy market and changing environment, to grow and prove up commercial models



Energy industry and market participants to help Australia achieve an affordable, reliable, secure and low emissions energy system



Ecosystems of private sector players to shape and drive energy transition systems change and new green precincts



Key industry bodies to understand priorities and provide perspectives to accelerate the pace of energy transition



International collaboration and CCS experience in Australia

Building opportunities through experience and relationships

Japanese companies have a long history of resource and oil & gas investment and operations in Australia, delivering:

- Strong existing **relationships, collaboration** and **investment** across the resource and oil and gas sectors;
- Well established **corporate and trading relationships** with established **cross border exchange** across multiple commodities;
- A **technically proficient** and **highly skilled workforce**, with a high level of technology deployment resulting in **the most efficient** jurisdiction for extractive industries globally; and
- **Synergies** between resource extractive **technologies** that are **transferable** to the successful development of a **CCS** industry.

New collaborations for CCS project development have already started.

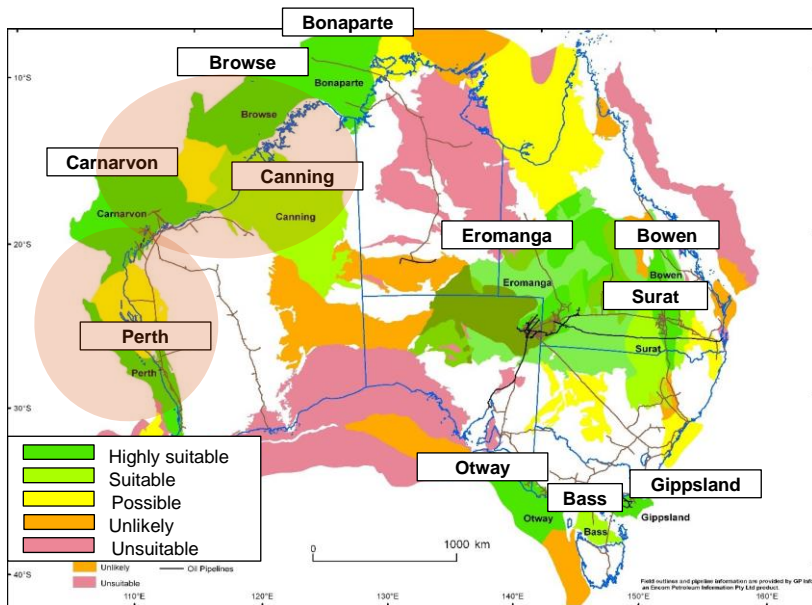




Technical storage potential

Australia has significant geological storage potential, and Western Australia accounts for more than 50% of potential storage capacity.

National Carbon Mapping and Infrastructure Plan



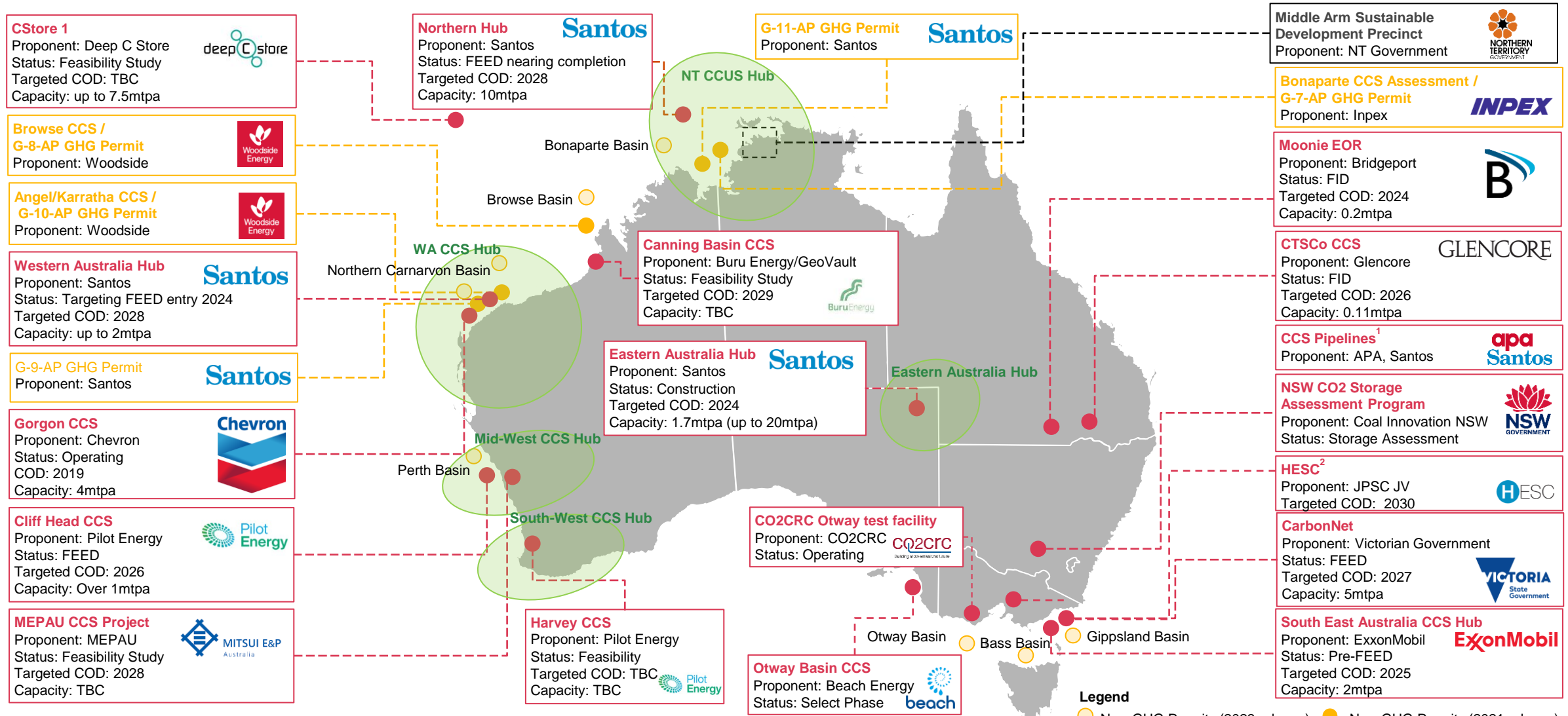
Basin	Location	Capacity (P90) - Gt	Capacity (P50) - Gt	Capacity (P10) - Gt	Suitability
Bonaparte	WA/NT	32.2	55.3	88	Highly suitable
Gippsland	VIC	30.1	51.0	80.3	Highly suitable
North Carnarvon	WA	25.5	48.5	89.3	Highly suitable
Canning – Offshore	WA	23.5	37.7	56	Highly suitable
Canning – Onshore	WA	16.5	33.3	59.8	Highly suitable
Eromanga – SA	SA	11.6	26.8	52.5	Highly suitable
North Perth – Offshore	WA	12.2	26.4	45.3	Highly suitable
South Carnarvon	WA	11.1	22.8	40.1	Highly suitable
Bass	VIC/TAS	12.7	19.1	26.1	Highly suitable
East Otway	SA	8.4	14.5	21	Highly suitable
Top 10 Basin		183.8	335.4	558.4	
Australian Basins		226.6	417.0	701.9	

Western Australia's P90 CO₂ storage capacity is over 120Gt

The economic capacity is lower than the theoretical capacity due to factors such as cost, access to infrastructure, resource competition and social acceptance, among others.



Australia has a strong pipeline of CCS projects.



1 An assessment of CCS pipeline routes from key emission sources in Gladstone, Port Bonython, and Greater Sydney to the Moomba CCS facility

2 CO₂ storage CarbonNet or ExxonMobil's affiliate GJV SEA CCS Hub in Bass Strait

Source: CSIRO; C2CRC; GCCSI, PwC Research
PwC | Energy Transition

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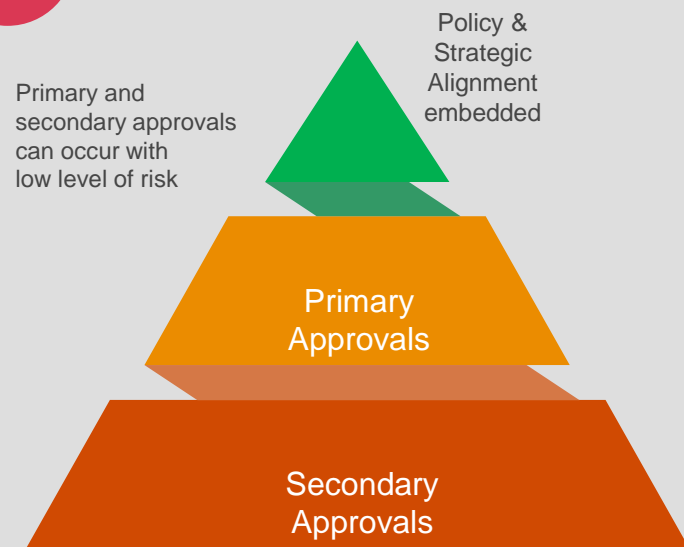
We observe three project development models in Western Australia

Each with a different likelihood of success, linked to approvals

1

Business as usual, high success

Approvals Timing ~ 2 yrs



- Established approvals pathway with an embedded legislative and policy framework and defined timing
- Success mostly linked to technical and commercial factors

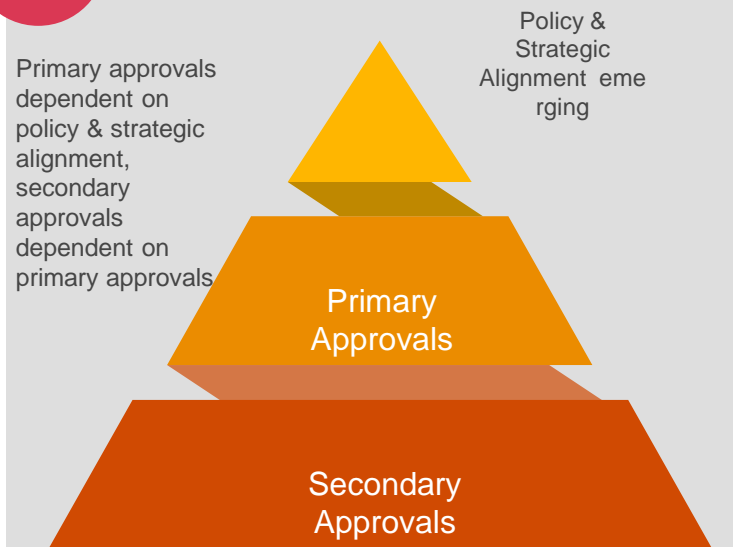
Example: typical mining project, iron ore

1 Social impact assessment

2

Somewhat unique, alignment likely, success dependent on approach

Approvals Timing ~ 3+ yrs



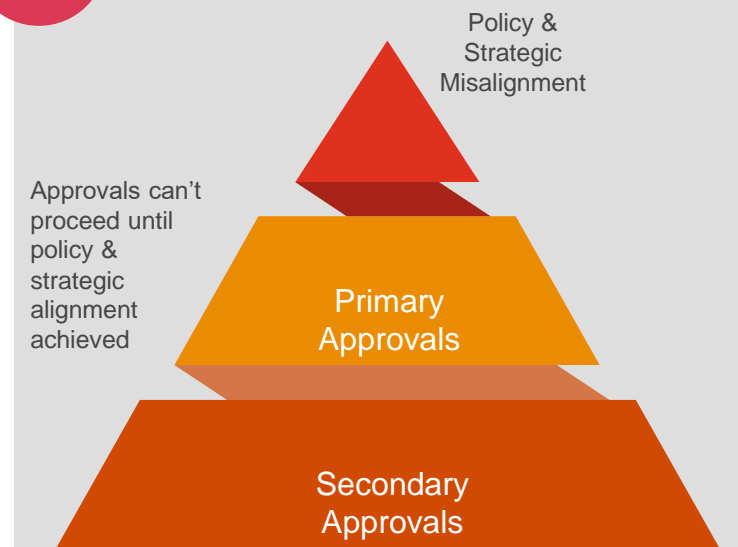
- Somewhat established approvals pathway
- Success dependent on combined policy alignment, technical and commercial factors
- Government has a favourable view of the project
- Difficult but achievable

Example: Burrup fertilizers (6 years to operation, 2 years approvals on an existing Strategic Industrial Area)

3

Somewhat unique, limited alignment, typically fail

Approvals Timing ~ unknown



- Somewhat established approvals pathway
- Success dependent on combined policy alignment, technical and commercial factors
- Government view not favourable, or becomes not favourable over time
- Typically fails

Example: Yannarie Solar Salt Project



CCS Projects are emerging as a policy priority in Australia and Western Australia

Model 2 success for CCS Projects:

- Clear understanding of the strategic and policy priorities of the Governments
- Manage unproven or relatively untested technical, commercial and policy aspects
 - Integrate technical, commercial / economics and strategic / policy critical for project success
- Build a whole approvals structure - you need to shape it, drive it and break down the barriers
- Understand the government perspective
 - Multiple projects all seeking prospective CCS storage right, port access, infrastructure corridors, etc
 - Traditional owner consent & participation
 - Landowners, community and key stakeholders
 - Industry has failed to collaborate and share infrastructure in the past, Government funding is unlikely to be substantial in overall project capex

2

Somewhat unique, alignment likely, success dependent on approach

Approvals hierarchy – CCS Project

- CCS Legislation and Regulations
- Agreement for land use / new heavy industrial area
- Agreement for port access and product unloading
- Open access and common user requirements
- Proponent funded common-user infrastructure
- Local content, economic and regional development
- Decision on other infrastructure upgrades – GTE linked (power, water, wastewater)

Policy & Strategic Alignment (Strategic approvals)

Policy and strategic alignment is a precursor to project success and is typically not clearly documented, and highly discretionary

Primary Approvals

Primary approvals are those that are typically lengthy & uncertain

- Environmental Approvals State and Federal Government
- CO₂ importation / disposal licences
- Crown Land Access / Tenure (if required)
- Traditional Owner agreements (Tenure / Heritage)
- GHG Storage and Injection Licences

Secondary Approvals

Secondary approvals are typically a Yes/no process, box checking, easy but large number

- Zoning / Planning Approvals
- Various permits and licences
- Infrastructure / safety / operating licences



Our view: A comprehensive approvals strategy is critical to managing strategic alignment, and must link to stakeholder engagement

Strategic and primary approvals

Approvals, such as Native Title Act Agreements and environmental approvals must be obtained prior to the grant of other approvals and Government support should always be tested to understand regional development or other strategic priorities.

Project approvals success requires a strategic approach. Approvals are not just a 'tick-box' exercise and approval delays cost time, money and can imperil project delivery.

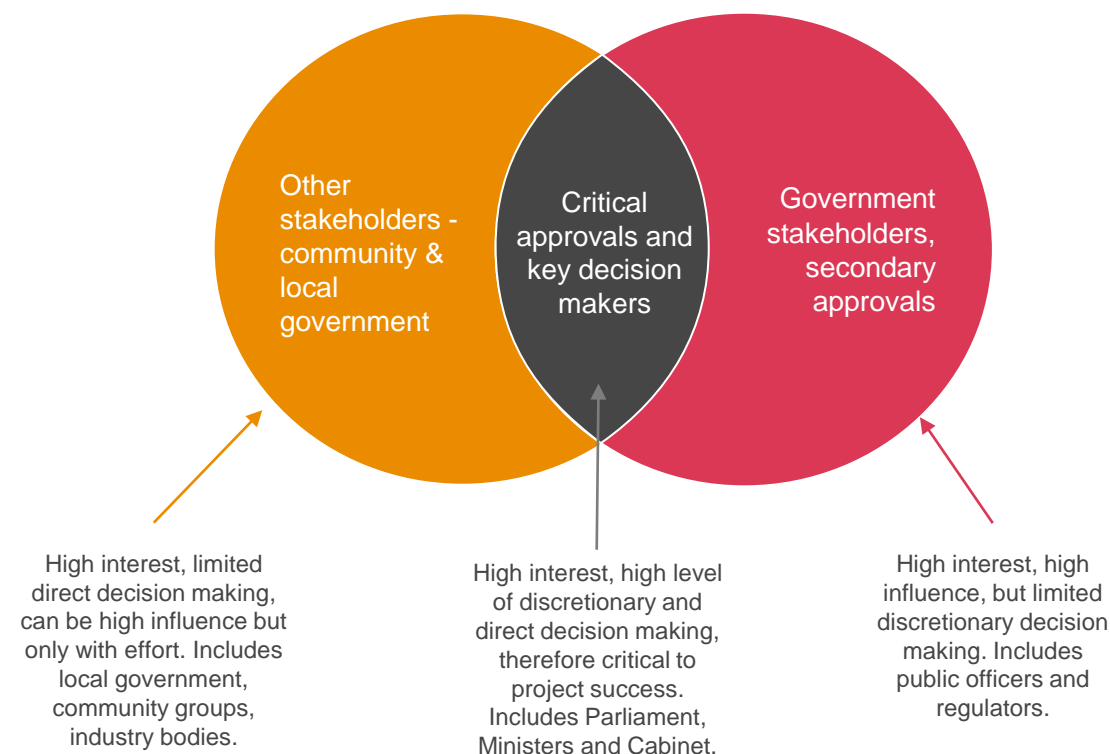
Other critical approvals may include: GHG Reservoir and Injection licences, access and tenure (including obtaining the consent of underlying land interests) and port access.

These will necessitate negotiations on access, funding, workers accommodation and other infrastructure requirements.

Interface with stakeholder engagement

We recommend aligning Stakeholder Engagement with an Approvals Strategy and Plan to ensure you have fully accounted for the interface between stakeholders with direct discretionary power over the strategic and primary approvals for your project.

Interface between stakeholder engagement and approvals strategy, and your critical approvals





Our view: Integrate the strategic approvals / policy requirements into all aspects of the Project so that approvals conditions are in step with your commercial and technical requirements

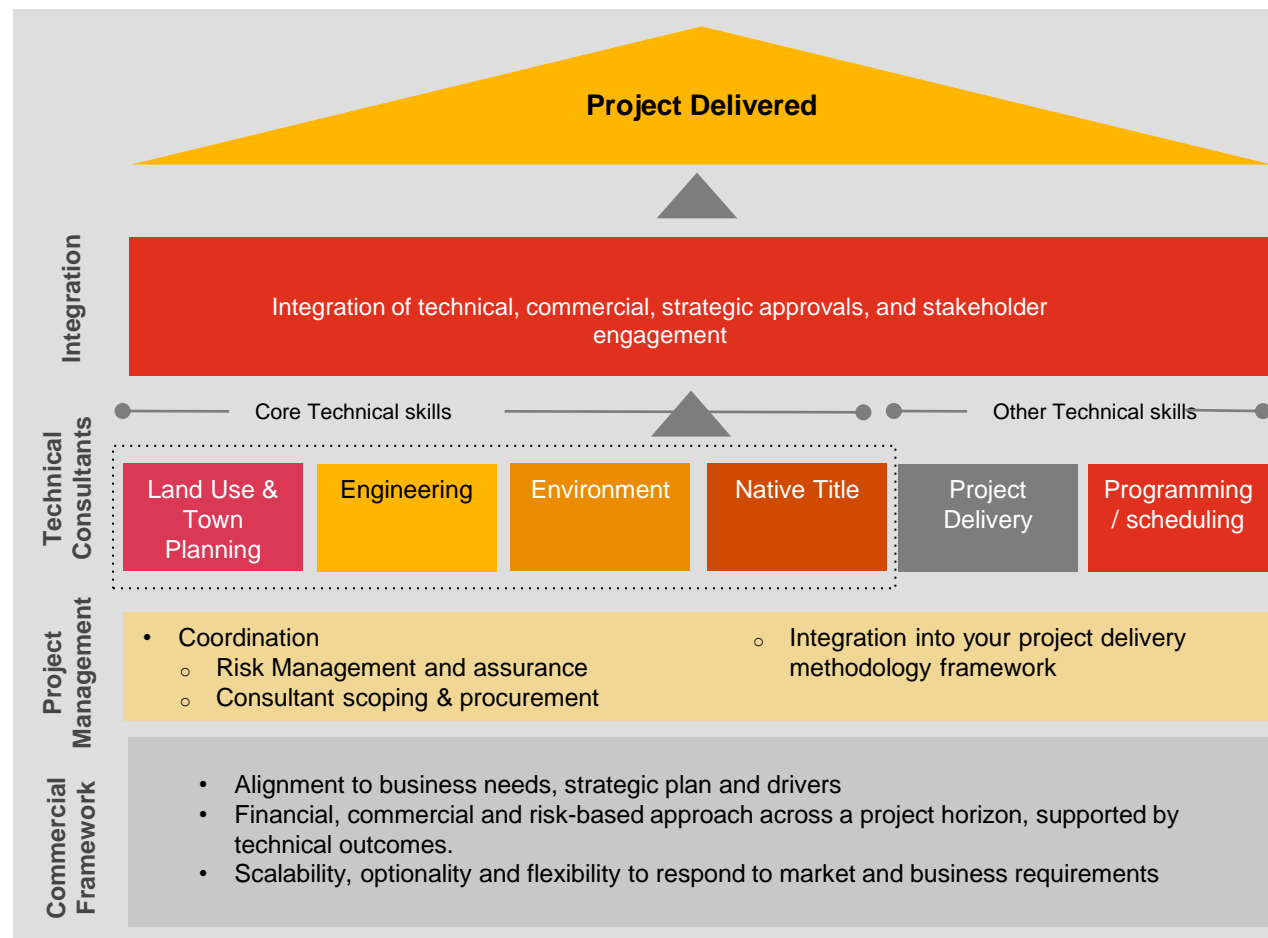
The unique aspects of CCS

CCS has a unique combination of technical, commercial and strategic uncertainty. This will create challenges for the State as it navigates its way through a new approvals pathway, and it may default to conditions that limit project viability. A high level of commercial collaboration will be required to for CCS to succeed.

Project integration

Project success will be linked to the extent that Policy and Strategic Alignment is integrated into the technical and commercial aspects of project development; and the primary and secondary approvals.

	Technical	Commercial	Policy & Strategic Alignment
1 Policy & Strategic Alignment	✓	✓	✓
2 Primary Approvals	✓	✓	✓
3 Secondary Approvals	✓	✓	✓





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Qualifications, Education & Memberships

- Bachelor of Economics, (Double Major: Economics & Sustainable Development, Hons) Murdoch University (Western Australia),
- Australian Institute of Company Directors (MAICD)
- Economic Society of Australia (WA)

Areas of Expertise

- Major and complex project development
- Economic infrastructure (rail, ports, ind. Land and energy)
- Stakeholder engagement
- Strategy and strategic policy
- Economic development
- Government processes and decision making
- Competition policy and economic regulation

Summary

Amy Lomas is an economist and Partner in PwC Perth who specialises in energy, infrastructure and major project development. This includes support navigating regulatory and policy settings, strategic project approvals, business case development, decision support, project development and project management.

Amy has over 20 years' experience in various consulting and public sector roles. This includes as Executive Director Strategic Policy at the former WA Department of State Development, where she was responsible for a range of State development policies relating to LNG and domestic gas, energy security, economic infrastructure, competition, royalties, and resource development.

She held various positions over ten years in the Department of Treasury, including leading the WA Government's contribution to the design of a national emissions trading scheme; and Director of Treasury's Economic and Revenue Forecasting team.

She has held roles in Executive Government as an advisor to the former Treasurer, Minister for State Development and Deputy Premier - the Hon Eric Ripper MLA; and Chief of Staff to the Minister for Transport, Planning and Lands - the Hon Rita Saffioti MLA.

Amy is the Deputy Chair of the Pilbara Ports Authority and Chairs its Technology and Finance Committee. She is also Chair of the board of Treetops Montessori and International Baccalaureate School.

Relevant Experience

Major renewable energy projects (hydrogen, ammonia, export and domestic supply)

- Large-scale WA renewable energy, hydrogen and ammonia projects, including CCS. Mid West, Gascoyne and South West.
- Hydrogen Value Chain mapping for the WA Government (JTSI)
- Hydrogen Policy for the WA Government (JTSI)

Westport & the Western Trade Coast

- Business Cases for Kwinana Bulk Berths 2.5 and 5 (Fremantle Ports)
- Westport Landside Logistics and Opportunities Study (Westport)
- Global Advanced Industries Hub, Western Trade Coast (JTSI)
- Westport Multi-criteria Analysis Outcomes Report (site selection for Westport) (Westport)
- Western Trade Coast Infrastructure Strategy (JTSI)

Other Port Developments

- Kimberley Marine Support Base terminal lease in Broome Port - financial modelling, economic impact assessment, business plan, procurement, financing support (KMSB)



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Qualifications, Education & Memberships

- MBA, The University of Strathclyde, Glasgow in the UK
- Certificate CCSx: Climate Change: Carbon Capture and Storage a course of study offered by EdinburghX, an online learning initiative of University of Edinburgh.

Areas of Expertise

- Strategic and commercial and legal advisory
- Renewable energy
- Hydrogen
- Carbon Capture and Storage

Summary

Yuki is an Associate Director in the Energy Transition M&A Deals team. Prior to joining Australian team, she worked on energy/power industry and climate change issues within PwC Japan in Tokyo. She has two years secondment experience to Japan Bank for International Cooperation (JBIC).

She has been supporting overseas incl. Australia market research/assessment, entry strategy formulation, partnering, business/project development for Japanese companies as a strategy and commercial advisor for energy and low carbon transition.

Relevant Experience

- Japanese oil & gas company – Strategic advisor on Australian CCUS market entry
- Japanese utility – Strategic advisor on Australian CCUS market entry.
- Japanese heavy industry – Australia renewable energy market and hydrogen strategy research, strategic fit assessment, financial advisor to investment in hydrogen value chain.
- Japanese oil & gas company – Illustrative support for UK CCUS commercial framework, preliminary study and market comparison among Australia, UK, and USA.
- Japanese oil & gas company – Strategic advisor on CCUS business in the USA
- Japanese trading house – ASEAN renewable energy new business development.
- Japanese utility – Global hydro power market assessment.
- Japanese trading house – Power market analysis and power procurement scenario assessment in Africa.
- Japanese trading house – Long-term Japanese power market forecast till 2050 under the carbon neutral scenarios, and scenario development.
- Overseas renewable energy developer- Long-term Japanese power market forecast till 2050.
- Japanese heavy industry – Acting as commercial advisor for Coal and biomass gasification business development in Brazil.
- Japanese heavy industry – Green hydrogen demand and supply potential assessment across the world.
- Japanese manufacturer – Local production and local consumption of green hydrogen market entry strategy development.
- Japanese oil & gas company – Comprehensive market study of carbon credit business, particularly nature-based solutions, and initial credit screening criteria design.
- Japanese shipping company - Carbon pricing overview and preparatory support for EU-ETS extension to international maritime sector.

Key author of thought leadership and articles.

- [PwC Japan Energy Transformation Newsletter: potential and challenges of hydrogen](#)
- [CCBJ Newsletter Hydrogen in Latin America](#)



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Qualifications, Education & Memberships

- MEng Master of Engineering, University of Durham & Ecole De Mines

Areas of Expertise

- Decarbonisation
- Green hydrogen ecosystem development (including derivatives such as ammonia, fertilizer and e-fuels and renewable power)
- Program and project management
- Stakeholder Engagement
- Innovation
- Strategy

Languages

- English
- French

Summary

Dan has over 20 years capital project development and delivery experience in Europe, APAC, the Middle East and Africa.

Dan is a thought leader in the renewables sector, both as author of the popular Green Hydrogen Insight newsletter (over 4000 subscribers) and as former Special Advisor to the CEO of Fortescue Future Industries.

Dan's strengths lie in sensemaking, innovation and simplifying the complex. His entrepreneurial mindset and broad experience helps clients navigate complexity to find and unlock new value, in particular in emerging markets and industries.

Relevant Experience

Decarbonisation:

- Developing decarbonisation strategy + program optimisation for a large ASX listed minerals company.
- Led negotiations to secure an option for Africa's largest renewable PPA, with a blue-chip Japanese FDI.
- Led negotiations to secure government agreements for a 300MW green hydrogen, ammonia and fertilizer facility.
- Initiated and developed FFI's headline market strategy for green bunkering and
- Led an accelerated hydrogen offtake development initiative in the USA for FFI.
- Advised the Qatar Royal family on a new greener transport vision for Doha.

Sustainability innovation:

- Conceived and led development of digital market infrastructure innovations to support the emerging green commodities trading market for a major ASX listed minerals company.
- Design Project Director for the world's 7th largest museum, for the Sultanate of Oman, which pioneered a number of world leading energy efficiency innovations leading to Platinum LEED certification.
- Led the transformation of the Dubai Road Transport Authority's Asset Management system, to eliminate paper.

Sustainable Infrastructure

- Led the 2012 Olympic bridge decommissioning and recycling program delivery.
- Led the EPCM delivery team for Rio Tinto's \$500m Wickham township expansion, including a new tertiary water treatment plant, to reduce water consumption.
- Led development of the industry standard variable speed mobile dewatering system for mining in WA, which halved fuel consumption, emissions and maintenance.
- Supported development of a cutting edge AI stockyard dust suppression control system, that harnesses algorithmic weather pattern forecasting to eliminate water wastage.



We look forward to
welcoming you to
Perth, Western
Australia in March
2024

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