

CO2Tech Capability Statement

Updated 2025

28th November 2025



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CO2Tech Statement of Competence

CO2CRC Limited (and its commercial subsidiary, **CO2Tech**) is a world leading CCUS R&D company. CO2CRC is also the operator of the Otway International Test Centre (OITC) in Victoria, Australia - a unique site where CO₂ storage and capture technologies are being trialled and demonstrated at commercially relevant scales.

In addition to operating the OITC, CO2CRC, through its fully owned commercial subsidiary, CO2Tech, offers multi-disciplinary technical and techno-economic consultation, advisory and project management services across the CCUS value chain including regional to field scale screening, field development planning, project conceptualisation, technical and commercial feasibility studies, design, project management, and competent person reporting to SPE-SRMS standards.

For nearly 20 years, CO2CRC has demonstrated CCUS expertise through the development of feasibility and FEED; execution of project plans in facility construction & drilling operations; undertaking capture, transport, injection, and monitoring operations; and closing out operational projects safely. Our services have supported projects both in Australia and internationally.

Our approach utilises in-house expertise as well as CCUS talent from international organisations around the world. We leverage this exceptional resource of knowledge and experience to tailor specifically to our customers' technical, business and collaborative requirements.

Our demonstrated expertise includes:

- CO₂ injection into depleted hydrocarbon reservoirs and saline aquifers
- Regional geological characterisation
- Storage site appraisal
- Storage monitoring and surveillance design and implementation
- MMV design and execution
- Field development and appraisal plans (including regulatory documentation)
- Capture and utilisation Process Feasibility and TechnoEconomic Studies
- Transportation Analysis
- Multidisciplinary studies for both CCS and CCUS including CO₂-EOR, EGR and ECBM
- Geochemical and Geomechanical studies
- Flow assurance studies and system design
- Pilot scale and demonstration planning
- Well integrity review, analysis and commentary
- Legislative and regulatory advice
- Community engagement / social license to operate
- Environmental impacts
- Risk assessments and uncertainty analysis
- Project management services
- Detailed techno-regulatory planning and approvals

The following list provides a non-exhaustive summary of CCUS projects completed by CO2Tech. If specific experience or competency is required, please contact us to discuss our ability to support your project.

1.1 CO2Tech Experience and Competency – Subsurface Storage

| Project Title and Project Details | Brief Scope of Services |
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| 2025 Feasibility of Storage in Basalts | Evaluation of the feasibility and opportunity for storage in a nearshore environment using natural basalt deposits, for a pilot scale injection project. |
| 2025 Storage potential in the Arkaringa Basin, South Australia, Expert Study, SRMS Compliant. | A review of the storage potential of a specified area of the Arkaringa Basin, SA. CO2Tech recommended an optimised storage strategy and based on this, provided SRMS-compliant prospective and contingent storage estimates for the site. These estimates provided the input for an Expert Report which was the basis of an Investment Memorandum (IM) for the prospective storage operator. |
| 2024 Santos Moomba MMV Report – Expert Review | CO2Tech experts provided a report to the SA Government and the Clean Energy Regulator that supported the MMV program used by Santos for the Moomba CCS Project and further validated compliance of the project with the CO2 injection license conditions. This report validated the prior 6-months of storage operations, which lead to largest single award of ACCU's to a GHG storage operator in Australia. |
| 2024 Regulatory Approvals Pathway – South Australia Nearshore / Offshore | CO2Tech were commissioned to provide a Techno-Regulatory review of near and offshore regulations for CCS projects in South Australia. The report highlighted all the applicable legislation and the permitting required to secure an injection license. While no precedents had been set for this type of operation, best available information was used to provide estimated timelines and approval pathways. |
| 2023 “Seal Integrity Study” (IEAGHG) | Funded project from International Energy Agency (IEA) to identify key risks to seal integrity. |
| 2023 “CCS potential of various sites in Victoria” | Evaluation of the storage capacity, risks and MMV requirements for onshore and offshore locations at the request of a confidential client. |
| 2023 “Seal Evaluation and Cap Rock monitoring planning”. | <p>Seismic data analysis to evaluate and assess the seal capacity.</p> <p>Calibration and 3D modeling of MICP and seismic data.</p> <p>Baseline cap rock integrity and capacity model.</p> <p>Cap rock monitoring plan for the CCS operations Phase.</p> <p><i>The project was completed on a depleted gas reservoir in Europe.</i></p> |
| 2022 Declaration of Identified Storage Formation (Pilot Energy) | <p>Technical analysis of the CCS potential of the Cliff Head structure as a suitable formation for the storage of carbon dioxide.</p> <p>Australia’s first offshore CCS Declaration of Storage Formation to the relevant regulatory agencies.</p> |

| Project Title and Project Details | Brief Scope of Services |
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| 2022-2023 “Technical Review of the Pelican CCS project” | A review of all subsurface parameters that will serve as a basis for FEED and a Declaration of Storage at the Victorian (AUS) government’s Pelican CCS project. |
| 2022 “Risk Management and MMV planning for a CCS site in Europe - onshore” The project is to provide the client with a risking profile of their CCS site and suggest suitable monitoring techniques to comply with regulations. | Data Review Risking Workshops Compilation of a Risk register CO ₂ Monitoring plan- design |
| 2022 “Mid-west Blue Hydrogen and CCS project” (Pilot Energy, Perth Basin) | Data Review Regional CO ₂ storage capacity assessment Static and Dynamic Modelling & Uncertainty Analysis Development Planning Contingent CO ₂ Storage Resource Assessment CO ₂ Monitoring - plan |
| 2022 “Illinois CarbonSafe Storage Corridor- US” | Data Review and QC Risking (storage and containment) MMV design |
| 2021-2022 “Reservoir modelling to determine optimal appraisal well location for CCS in the Darling Basin” The project is performed to provide inputs to the upcoming appraisal activities for CO ₂ storage in the Darling basin in NSW, Australia | Data gathering and assimilation. Seismic interpretation Static modelling Proposal for the new well location |
| 2021-2022 “Estimating storage capacity through modelling for a depleted gas reservoir in the Perth Basin” The project was performed for Mitsui Australia | Literature review and data gathering Static modelling Dynamic modelling Estimating CO ₂ storage capacity of the depleted reservoir Estimating CO ₂ storage capacity of nearby aquifers Identify data gaps and potential risks. Proposal for further required works |
| 2021 “Reservoir modelling to determine optimal appraisal well location for CCS in the Darling Basin” The project is performed to provide inputs to the upcoming appraisal activities for CO ₂ storage in the Darling basin in NSW, Australia | Data gathering and assimilation. Seismic interpretation Static modelling Proposal for the new well location |

| Project Title and Project Details | Brief Scope of Services |
|---|---|
| <p>2020-2021 “CO₂ EOR potential for depleted oil reservoirs in the Cooper and Surat basins in Australia” The project was completed for NERA in collaboration with US based ARI</p> | <p>Constructing the oil field database</p> <p>Screening the oil field database to determine the technical viability of CO₂-EOR</p> <p>Estimating oil recovery and CO₂ storage at field level</p> <p>Identifying viable CO₂ sources</p> <p>Performing screening economic analysis</p> <p>Discussing supportive policies.</p> |
| <p>2019-2020 “Screening Australia’s geological basins for their potential for enhanced oil recovery utilising CO₂ and associated CO₂ storage”. In collaboration with Geoscience Australia, this study explores the economic and technical feasibility and potential of using CO₂ in enhanced oil recovery (CO₂-EOR) and as a pathway to CO₂ storage in Australia.</p> | <p>Compile an inventory of key petroleum and basin parameters relevant for CO₂-EOR including:</p> <p>Tabulation of oil API gravity, together with associated wells and formations</p> <p>Tabulation of basin pressure and temperature and minimum miscibility pressure analysis (where possible)</p> <p>Determination of approximate reserve and volume of oil in place</p> <p>Acquire key parameters for major basins.</p> <p>Ascertain (semi-quantitative) the potential for EOR and associated CO₂ storage at a basin level.</p> <p>Develop a basin ranking identifying prospective basins for CO₂-EOR and associated CO₂ storage.</p> <p>Identify viable CO₂ sources for CO₂-EOR.</p> |
| <p>2018-2019 “Prediction and verification of CO₂ flow through the fault during a shallow fault experiment” – part of CO2CRC – SRD 3.3 Program</p> | <p>Project management</p> <p>Drilling, coring, and evaluation of shallow fault injection project.</p> <p>Modelling and project planning</p> <p>Geomechanics</p> <p>Geo chemistry</p> <p>M&V technology for shallow fault injection</p> |
| <p>2013 - 2014 “NSW CO₂ Storage Assessment Program” for NSW Department of Trade & Industry. CO2CRC was contracted to be part of the collaborative work program to provide services and advise throughout the assessment and drilling program to explore the potential of the Darling Basin as a CO₂ storage site.</p> | <p>Extensive analysis and modelling to provide an early appraisal for storage potential in the Darling Basin, including:</p> <p>Geological Storage System Characterisation</p> <p>Injection & Plume Migration Modelling</p> <p>Geomechanical Evaluation</p> <p>Geochemical Analysis & Modelling</p> <p>as well as expert advice during the drilling and testing period when two wells were drilled to a depth of 2400m to acquire core and complete downhole testing.</p> |

| Project Title and Project Details | Brief Scope of Services |
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| <p>2011 “Carbon Transport and Storage Assessment Offshore Nova Scotia” for CCS Nova Scotia, Canada (JV between the Province of Nova Scotia, Nova Scotia Power Inc. and Dalhousie University). The study delivered a technical and economic assessment identifying prospective sites for geological storage of 1 and 2 million tonnes of CO₂ per year, options for transporting the CO₂ from an onshore source to the injection site, undertaking a risk assessment, reviewing regulatory/legal requirements and investigating business models to achieve project objectives including the potential use of legacy infrastructure.</p> | <p>Collect, review and analyse data from various sources to develop detailed geoscientific evaluation of potential sites including site characterisation work.</p> <p>Document a methodology for the assessment of data.</p> <p>Liaise and consult with relevant stakeholders and other projects to evaluate the legal, permitting and policy challenges including property rights, regulatory oversight, financial impact /responsibility of injection & storage and transportation.</p> <p>Develop a risk management methodology and roadmap.</p> <p>Assess the costs involved in a commercial level transport and storage.</p> <p>Deliver a final report on technical and economic feasibility of CCS in offshore Nova Scotia including recommendation for future work.</p> |
| <p>2011 “Carbon Capture and Storage (CCS) study for the Ulleung Basin, Korea” for Korean National Oil Company (KNOC). The objective of this due diligence study was to review and comment on the assessment developed by KNOC identifying a suitable CO₂ storage site in the Ulleung Basin in Korea.</p> | <p>Review of all datasets, interpretations and studies undertaken by KNOC and other consultants on the suitability of CO₂ storage in the identified basin.</p> <p>Comment on the quality of the data, re-interpret correlations and provide suggestion on improvement to the studies and interpretations.</p> <p>Re-assess reservoir and seal quality based on an examination of core samples.</p> <p>Deliver interim and final report on the storage prospects and storage capacity of the identified basin and recommend further work to assist the decision-making process on the storage location.</p> |
| <p>2010 “Pre-feasibility study for a CO₂ free H₂ chain project – CO₂ Transport and Storage Options Associated with a Latrobe Valley CO₂ Source” for HRL Developments. A technical and economic feasibility assessment identifying prospective onshore & offshore sites for the storage of 2 and 3 million tonnes of CO₂ per year and transport options.</p> | <p>Review & update availability of storage options in Victoria and potential for synergies with other projects for economic gain.</p> <p>Review of CO₂ pipeline transport options and technical and commercial impact on project.</p> <p>Review of CCS legislative framework.</p> |
| <p>2010 “Caprock Systems for CO₂ Geological Storage” for IEAGHG. A comprehensive review of caprock systems for CO₂ storage.</p> | <p>evaluate various properties of the caprock, the faults and fractures as well as the effects of hydrodynamics and of potential geochemical reactions of the caprock properties in the presence of CO₂.</p> <p>identify knowledge gaps.</p> <p>produce report.</p> |

| Project Title and Project Details | Brief Scope of Services |
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| <p>2010 “Injection Strategies for CO₂ Storage Sites” for IEAGHG. Review of international research and current understanding of the strategies, technologies and economics of CO₂ injection in subsurface formations and the discussion of the design of the injection systems for optimising injection and storage capacity.</p> | <p>Review of international research and current understanding of the strategies, technologies, and economics of CO₂ injection in subsurface formations and the discussion of the design of the injection systems for optimising injection and storage capacity.</p> |
| <p>2010 “Assessment of the capture and storage potential of CO₂ co-produced with natural gas in South-East Asia” for Asia Pacific Economic Cooperation (APEC) Energy Working Group. The objective of this project was to assess the techno-economic feasibility of CO₂ storage in subsurface geological formations, including the storage of CO₂ in producing oil and gas fields, to improve oil and gas recovery.</p> | <p>Liaise with Government agencies and oil and gas groups in Southeast Asia.</p> <p>Gather, review, and filter all studies and reservoir data to assess the suitability of the reservoir for CO₂ storage, CO₂ EOR and CO₂ EGR.</p> <p>Quantitative analysis of the economics of transport, injection, and storage of CO₂ from gas discoveries in SE Asia.</p> <p>Analyse the potential for CO₂ injection through EOR and EGR and the impact of enhanced recovery and a carbon trading scheme on the fiscal terms of an O&G development.</p> |
| <p>2008 “Assessment of the Potential for Geological Storage of CO₂ for the Island of Ireland” for Sustainable Energy (SEI), Ireland. This project was carried out by CSA Group in conjunction with CO2CRC and British Geological Survey on behalf of SEI. CO2CRC contributed expertise to identify and quantify CO₂ storage capacity in depleted oil and gas fields and in saline aquifers both onshore and offshore Ireland as well as economic modelling of case studies to provide options for the construction of a new 900 MW coal fired power station with carbon capture and storage.</p> | <p>Undertake hydrogeological assessment of Kinsale gas field to quantify potential for CO₂ storage.</p> <p>Provide recommendations for further work to improve characterisation of the reservoir units.</p> |
| <p>2008 “Regional Study on Potential CO₂ Geosequestration in EL3385 and Surrounding Areas, Otway Basin, South Australia” The project was performed for Strike oil Limited.</p> | <p>Identify potential CO₂ geological storage opportunities within a radius of 200km of the Kingston coal deposit, both onshore and offshore.</p> |
| <p>2006 -2007 “Technical Appraisal of the feasibility for the disposal and storage of CO₂ from the Gorgon Gas Field at Barrow Island by the Gorgon Joint Venture (GJV) by underground injection (Phase III)” for Chevron Australia & WA Department of Industry and Resources. This two-year study was part of the due diligence process and involved the review, assessment, and verification of the effectiveness of GJV’s program for the injection and monitoring of CO₂ as well as the well remediation plan and CO₂ management plan to mitigate the risk of CO₂ leakage and managing the remediation in the event of CO₂ leaking from the primary geological containment structure of the proposed Gorgon CO₂ storage project.</p> | <p>Review and comment on the approach, effectiveness, and impact of various key environmental management documents with respect to long term performance and safety of the CO₂ storage site.</p> <p>Comment on compliance of proponent’s CO₂ management program against local and various international regulatory frameworks.</p> <p>Identify additional investigations and provide recommendations on ways to improve the proponent’s CO₂ management strategy to be at the forefront of industry best practice.</p> <p>Deliver interim reports and final reports.</p> |

| Project Title and Project Details | Brief Scope of Services |
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| <p>2007 “Barrow Island CO₂ Reactive Transport Modelling (RTM) Study” for Chevron Australia. The objective of the study was to answer questions regarding the potential for petrological changes (including changes to mineral composition and porosity) occurring in the Dupuy formation and the formation water chemistry during CO₂ injection and the effects on long term storage.</p> | <p>Geochemical analysis</p> <p>Mineralogical analysis of core samples</p> <p>Reactive Transport Modelling (RTM) to assess the effects of CO₂ injection, migration, and chemical interactions into the formation.</p> |
| <p>2005 & 2008 “Quantitative Risk Assessment of the Gorgon Project, Northwest Shelf, Western Australia” for Chevron Australia. One of many studies undertaken for Chevron following the recommendations within the 2006-2007 report to Chevron on the appraisal of the feasibility of the CO₂ storage program. The objective of the study was to further assess the risks of release of CO₂ from the primary geological containment structure of the proposed Gorgon CO₂ storage project.</p> | <p>evaluating the technical and economic feasibility of the Gorgon CO₂ Disposal Project and to provide a comparison of the Gorgon CO₂ Disposal Project with the ESSCIs assessed during the GEODISC project.</p> <p>Review of Gorgon’s due diligence data and risk model to identify methodology to achieve study objective.</p> <p>3-day risk workshop to develop and agree on the details of the process.</p> <p>Undertake risk modelling work.</p> <p>Deliver final report on modelling output and interpretations.</p> |
| <p>2005 to 2012 – Various contracts to evaluate the feasibility of CO₂ geosequestration potential in different parts of Australia and internationally. Studies involves storage within saline aquifers, depleted oil and gas fields and coal beds including the Collie and Perth basins, Northern Perth Basins, Torquay Sub-Basin, South Australian Otway Basin, Sydney Basin, Bowen/Surat Basin, Gippsland Murray Basins, basins in the NZ Southland and Otago Regions and the Asia Pacific region.</p> | <p>Potential site identification</p> <p>Reservoir property assessment</p> <p>Qualitative ranking and suitability of CO₂ storage options</p> <p>Identify data and knowledge gaps.</p> <p>Provision of public consultation and community workshops to disseminate the results.</p> |

1.2 CO2Tech Experience and Competency – Capture and Utilisation

| Project Title and Project Details | Brief Scope of Services |
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| <p>2022-2023- Modular and Scalable Emissions Reduction Solution</p> | <p>Assessment of CO₂ emissions for Singapore’s water industries</p> <p>Customised CCUS solution for CO₂ capture and utilisation to reduce overall emissions.</p> <p>Feasibility study.</p> <p>Techno-economic analysis & Implementation pathway.</p> |
| <p>2022-2023 : Capture and Utilisation R&D on hybrid capture technology and conversion of carbon to products including carbon-negative materials</p> | <p>Techno-economics study for Carbon to Products.</p> <p>Optimizing and expanding Hybrid technology to hard-to-abate sectors Capture solutions R&D.</p> <p>R&D into 1st of its kind carbon-negative materials for various applications including construction.</p> |
| <p>2021 – Techno-economics evaluation of hybrid capture technology The objective of this project is to simulate large-scale membrane contactor capture plants, based on recovering CO₂ from large industrial sources and develop techno-economic models of membrane contactors, to evaluate this technology against other carbon capture processes</p> | <ul style="list-style-type: none"> - Develop process simulation model for membrane contactor using Aspen Custom Modeler and Aspen Plus - Validate the simulation model against pilot plant data <p>Cost estimation (Capex+Opex) and economic analysis to find the cost of capture</p> |
| <p>2021 – CO₂ Capture and Utilisation studies for Asian Development Bank (ADB) for a confidential customer in India for Oil and Gas Sector. The objective of the project was to support Developing Member Countries of ADB for a better understanding of Carbon Capture and Utilisation (CCU) as food grade CO₂ utilisation in the petroleum refinery sector, research the applicability of CCUS technology for the refinery sector to aid in its transition to a low carbon future and prepare technical specification of the plants and calculate a high-level cost estimate of the project to provide information to support investment decision.</p> | <ul style="list-style-type: none"> - Selection of suitable capture technology for capturing CO₂ from various flue gases in petroleum refinery - Propose suitable processes to convert the captured CO₂ to food grade CO₂ - Basic process engineering for CO₂ capture and utilization plants - Cost estimation (AACE class V) for capture and utilization plant |

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| <p>2020-21 – Techno-economics for Carbon Negative Biorefinery. The objective of this study is to model a small-scale biorefinery which is commercially viable by carrying out a techno-economic assessment. A smaller biorefinery would reduce the non-food biomass feedstock demand thus allowing for easy sourcing from the areas in close proximity.</p> <p>Additionally, the smaller scale would lead to lower capital cost for the commercial biorefinery compared to the traditional 2,000 metric tonnes per day (t/d) or larger biorefineries. Finally, it will establish the lower scale limit of a Carbon Negative Biorefinery for the commercial production of carbon negative biochemicals and bioproducts.</p> | <ul style="list-style-type: none"> - Conceptual level of process designs to develop detailed process flow diagrams - mass and energy balancing via simulation as zero dimensional energy model - Capital and project cost estimations and operational cost calculations - Discounted cash flow economic model for the - calculation of the product’s minimum selling price |
| <p>2020-21 – Evaluation for 2nd generation capture technology (Adsorbent) for Carbon Capture for High Pressure CH₄/CO₂ streams (Natural Gas) The project objective is to finalize the recipe of the novel adsorbent to be ready for pilot test to progress through higher TRL.</p> | <ul style="list-style-type: none"> - Modify previously tested zeolite based adsorbent - Study isotherm characteristics of the novel adsorbents - Study the structure of the novel adsorbents using XRD technique and perform elemental analysis by Energy-Dispersive X-ray Spectroscopy - Optimize adsorbent recipe for working capacity and selectivity of CO₂ over CH₄ |
| <p>2018-2020 “Project Management, field-testing and evaluation new and advanced (2nd generation) capture technology – Adsorbent and Membrane Technology”</p> | <p>Design and engineering of field test facility, development of research program to test and validate new 2nd generation capture technology in membrane and adsorbent technologies, project management and field operational support.</p> |
| <p>2019 “Reduction of Greenhouse Gas Emission in Steel Production” Explore pathways for reducing greenhouse gas emissions in steel production, including carbon capture and storage.</p> | <ul style="list-style-type: none"> - Evaluate emerging global initiatives for reducing emissions in steel industries - Propose options for the utilisation of steel plant by-product gases to reduce greenhouse gas emissions - Ascertain suitability of bio-chemical process to convert by-product gases to value added ethanol as an alternative fuel for transport industry. - Evaluate CO₂ capture options from all major emission sources at steel plant. - Evaluate viability of various transport and storage options for captured CO₂ including a review of potential CO₂ storage locations and review the economics and viability of CO₂ transport options to these sites. (trucking, piping, shipping) <p>Assist with technical and costing data to prepare basis for the business case for implementing emission reduction.</p> |
| <p>2018 – 2019 “Hydrogen Energy Supply Chain Project – Design and supply of the gas clean up and hydrogen purification pilot plant”</p> | <ul style="list-style-type: none"> - Design, engineering, procurement and delivery of the gas clean up (removal of cyanides, sulphides and chlorides) and hydrogen purification (separation and concentration) pilot plants. <p>Provision of performance guarantees to ensure the process delivers the required hydrogen purity of 99.999vol%.</p> |

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| <p>2016-2017 “Hydrogen Energy Supply Chain Project – Feasibility & FEED study for the capture and storage of 65 tonnes of CO2 from the off-gas stream of a pilot plant in the Latrobe Valley, Victoria, Australia”</p> | <ul style="list-style-type: none"> - Developing an overview of the potential technologies for each element of the value chain. - Developing the detailed design basis for the entire scheme including the separation and purifying of the H2 and CO2 streams and the subsequent injection and storage of CO2 in the Otway Basin. - Preparing capital and operating cost estimates. <p>The study involved the feasibility of an end-to-end scheme to produce ultra-pure hydrogen from a syngas stream, then capture, purify, inject and store the CO2 by-product waste stream in the Otway Basin as part of a scientific experiment. producing ultra-pure hydrogen from a syngas stream, capturing CO2 from the tail gas of the hydrogen production plant, purifying it to food grade quality, and injecting the CO2 product in the Otway Basin as part of a Science Experiment.</p> |
| <p>2012-2014 “Study on retrofitting CO2 capture to fossil based power plants using heat integration to minimise energy penalty” Project funding by ANLEC R&D and Brown Coal Innovation Australia and supported by GD Suez. The objective of the project was to develop retrofit pathways for CO2 capture based on modelling and simulation and develop heat integration strategies to minimise energy penalty.</p> | <ul style="list-style-type: none"> - Simulate power plant performance using GE's GateCycle software. - Develop heat integration strategies based on pinch analysis and linear programming. - Flowsheet development for solvent based CO2 capture. - Modelling and simulation of CO2 capture retrofit for coal based and natural gas based combined cycle power plants - Economic assessment and calculation of cost of capture and levelized cost of electricity with CO2 capture. |
| <p>2011-2014 “CO2CRC’s UNO MK3 Capture Project” The objective of the project was to further improve the performance of CO2CRC’s patented second generation, novel and environmentally benign precipitating potassium carbonate solvent, validate CO2CRC’s thermodynamic laboratory work and improve simulation model. Improve kinetics of the potassium carbonate by use of promoter. Testing novel packing and unconventional absorber internals</p> | <ul style="list-style-type: none"> - Design, install, commissioning and operation of pilot plant - Assess optimum performance of precipitating solvent system. - Develop simulation models from thermodynamic modelling and pilot plant data for the design and costing of a large scale plant. - Examine cost effective heat integration methodologies including the impact of auxiliary heating, air cooling and alternate stripper designs - Perform economic assessment |

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| <p>2010 “H3 Capture Project” for International Power Ltd and Brown Coal Innovation Australia under Victorian State Government’s Energy Technology Innovation Scheme (ETIS) The project objective was to test novel post combustion CO2 capture technologies including environmentally benign carbonate based solvent, membrane contactor technology and adsorption technology. Resolve key issues for all technologies (technical risk and cost reduction) and to extract the maximum information on materials cost and properties. To help to identify the most effective commercial technology for a retrofit or a new capture plant. Assess the energy integration options for the power plant and capture processes.</p> | <ul style="list-style-type: none"> - Investigate the performance of a promoted potassium carbonate-based solvent in 25 TPD capture plant. - Evaluation of the performance of membrane module configurations under real flue gas conditions. - Assessment of the adsorption process, equipment and different adsorbents under various working conditions and equipment configurations. - Heat integration of power plant and capture plant. - Scoping-level assessment of post-combustion capture of CO2. |
| <p>2009-2011 “Pre-combustion Capture at HRL, Mulgrave” The objective of this project was to demonstrate technologies (solvent absorption, membrane and adsorption technology) designed to capture carbon dioxide (CO2) from Synthesis gas (Syngas) produced from the gasification of brown coal by HRL Developments Pty. Ltd.</p> | <ul style="list-style-type: none"> - Design, build and operate three rigs in accord with these parameters (for solvent absorption membrane, and adsorbent PSA) at HRL Mulgrave - Running CO2 capture test campaigns with Hot Potassium solvent, testing of polymeric gas separation membranes, inorganic molecular sieve membranes and membrane gas absorption, pressure vacuum swing adsorption (PVSA) process trials using zeolite 3 A and zeolite 13 X adsorbents - Study effects of minor components on gas separation processes |
| <p>2009 “Increasing the Knowledge and Awareness of Carbon capture and Storage: Capacity Building in the APEC Region (Phase IV)” for the APEC Energy Working Group. The objective was to help increase the capacity of developing APEC economies to assess the potential of CCS technologies within their own economies and evaluate options for the implementation and potential uptake of such technologies..</p> | <ul style="list-style-type: none"> - Preparation of training materials for each of the host economies and the delivery of workshops in Indonesia & China. |

Technical Advisory and Consultancy Services

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