

# The CarbonNet Project



## A Historical Perspective



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April 2015

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**ISBN 978-1-74326-467-6 (print)**  
**ISBN 978-1-74326-468-3 (online)**

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## Part 1 – Introduction



# 1 Introduction

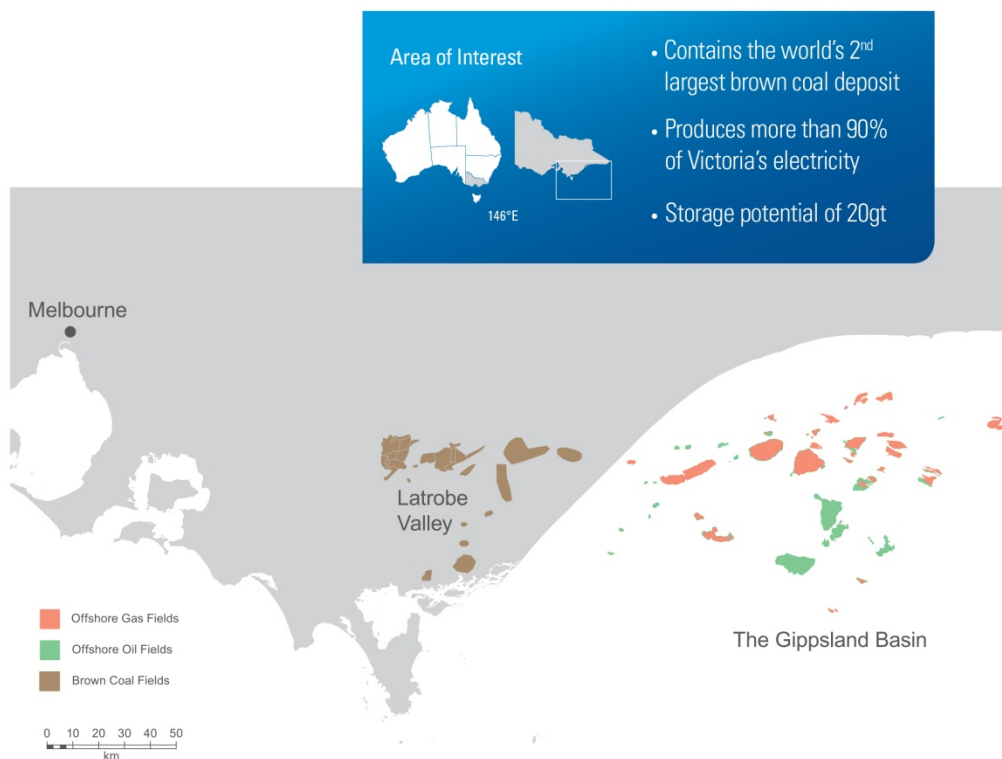
## Knowledge Sharing Report for the Global Carbon Capture and Storage Institute

The Global Carbon Capture and Storage Institute (the Institute) has played an industry leading role in knowledge sharing for the development of carbon capture and storage (CCS) globally. The CarbonNet Project (CarbonNet) together with many other CCS industry participants, recognises and appreciates the value of this knowledge sharing in aiding the development of a global CCS industry. Due largely to

the efforts of the Institute and similar industry bodies, there is a growing resource of knowledge sharing materials available to the CCS industry.

As part of the Institute's investment in knowledge sharing programmes, it supports CarbonNet.

This report, provides a historical perspective of CarbonNet. It is intended to help stakeholders understand how the vision of a network hub concept has developed in Victoria, Australia.



## The Case Study

CCS activities in Australia and Victoria began to develop momentum from 2003 onwards and CarbonNet as a project concept evolved from this work in 2008/09. The announcement in 2009 of funding support from the Australian Government's CCS Flagships Program was a key catalyst for CCS activities in Australia and Victoria.

This report provides a historical perspective to understand what the key elements in developing an enabling environment for CCS might be, and over time might lead to the creation of a CCS network hub in Victoria.

This report divides CarbonNet into the following three time periods:

- Period 1: An emerging context for CCS in Victoria (2003-2007)
- Period 2: The birth of CarbonNet (2008-2011)
- Period 3: CarbonNet's Feasibility and Commercial Definition Stage (2012-2015)

The report provides a summary of CCS related events and activities in Victoria starting in 2003 and to the end of 2014. It includes not only the history of CarbonNet itself, but also provides a high level overview of the context for the development of CCS both in Victoria and Australia more generally.

Key achievements during each period are highlighted in the table below.

2003-2007	2008-2011	2012 - 2015
<ul style="list-style-type: none"> <li>• Victorian Government's Energy Technology Innovation Strategy provides funding opportunities to industry for pre-commercial CCS projects</li> <li>• CO2CRC established and the Otway project concept developed</li> <li>• Regulatory frameworks for CCS are developed at Commonwealth level</li> <li>• Pre-commercial activities for CCS begins in Victoria through Geoscience Victoria</li> </ul>	<ul style="list-style-type: none"> <li>• Commonwealth Government CCS Flagship Program established</li> <li>• CarbonNet shortlisted as one of four projects within CCS Flagships Program</li> <li>• CO2CRC commences injection at the Otway storage pilot project</li> <li>• Regulatory frameworks for CCS are developed at State level</li> <li>• Geoscience Australia conducts pre commercial CCS-related field surveys in Bass Strait</li> </ul>	<ul style="list-style-type: none"> <li>• CarbonNet awarded CCS Flagship status and funding</li> <li>• CarbonNet awarded first Commonwealth Greenhouse Gas Assessment Permit in Bass Strait</li> <li>• CO2CRC secures funding to continue the Otway pilot project until 2020</li> <li>• CarbonNet and GCCSI run a regulatory test toolkit workshop for Victoria</li> <li>• Commonwealth releases a further three Greenhouse Gas Assessment blocks in Bass Strait</li> </ul>



## Part 2 – CarbonNet: A Historical Perspective





## 2 The CarbonNet Project: A Historical Perspective

### Period 1: An emerging context for CCS in Victoria (2003-2007)

In this period, a focus on the development of CCS technology started to emerge.

At a national level, work began in the CCS research and development sector through funding for the Cooperative Research Centre for Greenhouse Gas Technologies (CO2CRC) and development of the legal and regulatory frameworks.

At the state level, work began on the characterisation of the storage basins in Victoria through the work of Geoscience Victoria. A demonstration CCS project began in the Otway Basin, which raised community awareness about geosequestration, and funding was committed to research and development specifically related to CO<sub>2</sub> source and capture technology.

### CO2CRC is established and the Otway Basin CCS Demonstration Project begins

The CO2CRC was established in 2003.<sup>1</sup> The main focus of the CO2CRC is carbon dioxide capture, injection and geosequestration. This research began in 1999 under the auspices of the former Australian Petroleum Cooperative Research Centre which was in operation from 1991 to 2003.

The CO2CRC undertook an assessment of the geological storage opportunities for CCS in Victoria in late 2006. The study was intended to provide a broad overview of the possible geological storage opportunities for CCS and was not an exhaustive study. Potential storage basins were assessed on a number of geological, geographical and industrial characteristics. The study found that:<sup>2</sup>

- Overall, the geological settings of Victoria had considerable potential for CCS opportunities
- The offshore Gippsland Basin had the most favourable characteristics for geological storage

followed by the onshore Otway Basin, offshore Otway Basin and onshore Gippsland Basin

- The onshore Otway Basin provided the best potential for CO<sub>2</sub> storage within an onshore setting

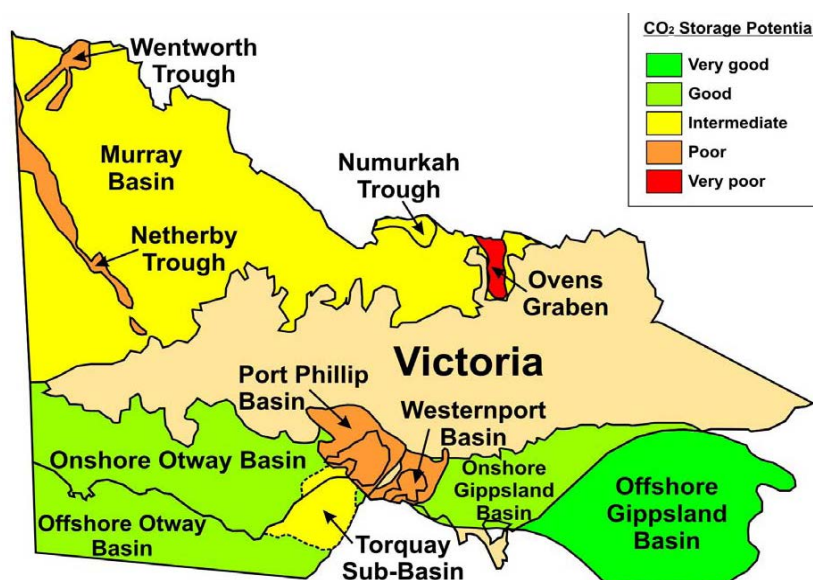
The outcomes of this regional study are presented in Figure 1.

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<sup>1</sup> CO2CRC comprises participants from Australian and global industry, universities, other research bodies and government agencies.

<sup>2</sup> CO<sub>2</sub>CRC, 2007, Review of Geological Storage Opportunities for Carbon Capture and Storage in Victoria: Summary Report.

Figure 1 – CO<sub>2</sub> Storage Potential of the Sedimentary Basins of Victoria



Source: CO2CRC – Review of geostorage opportunities for CCS in Victoria

### Legal and Regulatory Frameworks develop

A sound regulatory framework for CCS is required to underpin development and operation of CCS projects. In 2005, all jurisdictions in Australia endorsed the development on a nationally consistent basis of CCS regulatory frameworks through the Regulatory Guiding Principles for Carbon Dioxide Capture and Geological Storage.<sup>3</sup>

To facilitate sound regulation of pipeline transportation and injection and storage of CO<sub>2</sub> in geological formations in offshore areas, the Australian Government put in place the *Offshore Petroleum and Greenhouse Storage Act 2006*. The Act aims to provide project developers with the certainty required to commit to major low emission energy projects involving CCS. It also allows for the establishment of an effective regulatory framework to ensure that projects meet health, safety and environmental requirements.

### Pre-commercial support for CCS technologies

The Victorian Government began investing in the development of low emission technologies through the Energy Technology Innovation Strategy (ETIS) from 2006.

The aim of ETIS is to drive pre-commercial energy technologies down their respective cost curves. This will assist the development of low cost, low emissions technologies associated with Victoria's brown coal and renewable energy resources to become available for commercial deployment in time to minimise the economic cost of carbon emissions.

Under the initial ETIS funding, money was allocated to the Otway Pilot Demonstration Project managed by CO2CRC. The Otway pilot Demonstration project involved the injection of carbon dioxide into the Naylor depleted natural gas field and well system, as well as building monitoring and verification diagnostics facilities. The CO<sub>2</sub> was sourced from a nearby separate reservoir in the Otway Basin.

The Otway project has stored 65,000 tonnes of CO<sub>2</sub> and was pivotal to the establishment of legislative and regulatory frameworks. It has also provided a positive example of raising community awareness and acceptance of CCS in the region.

<sup>3</sup> Ministerial Council on Mineral and Petroleum Resources, 2005, Carbon Dioxide Capture and Geological Storage Australian Regulatory Guiding Principles.

The Otway project is now internationally recognised as a pilot storage platform, and continues to be supported by CO2CRC, the Australian Government and the Victorian Government.

ETIS also funded the following activities:

- Various research and development projects lead by the CO2CRC and the Commonwealth Science and Industrial Research Organisation (CSIRO) in pre and post-combustion capture projects
- A pilot carbon project at the International Power Hazelwood site, is capable of capturing up to 50 tonnes of CO<sub>2</sub> per day, aimed at accelerating the development of highly efficient, low carbon dioxide intensity power technologies



CO2CRC's H3 Capture Project - Hazelwood Power Station



## Period 2: The birth of CarbonNet (2008-2011)

During this period, there were significant developments in CCS, internationally and in Australia. These developments were instrumental catalysts for the birth of the CarbonNet concept.

### International commitment to large-scale demonstration of CCS

At the international level, the G8 Hokkaido Toyako Summit Leaders Declaration in 2008 recognised the imperative for CCS deployment and supported the launching of 20 large-scale CCS demonstration projects globally by 2020.

### National commitment and support for CCS development in Australia

At the national level, there was a recognition by the Australian Government that it shared a global responsibility to establish the viability of CCS technology and to establish this at scale.

The National Low Emissions Coal Initiative (NLECI) was an Australian government initiative established in 2007 to accelerate the development and deployment of low emissions coal technologies and CO<sub>2</sub> transport and storage infrastructure. The NLECI aimed to enable major cuts in greenhouse gas emissions from coal usage to be made over time while enhancing energy security and maintaining the contribution of coal to Australia's economic growth.

The following key initiatives were also developed by the Australian Government:

- CCS Flagships Program
- The Global Carbon Capture and Storage Institute
- Carbon Storage Taskforce
- Pre-Competitive Geological Storage Data Acquisition

### CCS Flagships Program

In 2009 the Australian Government announced a Clean Energy Initiative to support innovation in clean energy and low emissions technologies over nine years. The initiative included the CCS Flagships Program, which built on the work done by the National Low Emission Coal Initiative.

The CCS Flagships Program is designed to support the construction and demonstration of between two and four large-scale integrated CCS projects in Australia and formed part of Australia's contribution to the G8's goal of 20 large scale CCS projects being operational world wide by 2020.

### Global Carbon Capture and Storage Institute

The Australian Government launched the Institute in April 2009. One of the key objectives of the Institute is to facilitate and accelerate development and worldwide deployment of safe, economic and environmentally sustainable commercial-scale CCS projects.

### Carbon Storage Taskforce

The Carbon Storage Taskforce (Taskforce) was created by the Australian Government in October 2008 as part of the National Low Emissions Coal Initiative. It was tasked with developing the National Carbon Mapping and Infrastructure Plan. As part of the process of developing that Plan, the Taskforce commissioned a number of reports covering topics such as the costs of CO<sub>2</sub> transport and injection, CCS communication strategies, project financing and projections of the uptake of CCS equipped plant over the period to 2050.

The Taskforce delivered the Plan to the Minister for Resources and Energy in September 2009 and reported that "the Gippsland Basin has the greatest capacity of the eastern basins. It is also very close to the Latrobe Valley hub (150 km). From a purely technical point of view, it is the first choice for the development of a long-term storage basin in Victoria." The Taskforce found the Prospective Storage Capacity for the Gippsland Basin to be greater than 20 gigatonnes.

## Pre-Competitive Geological Storage Data Acquisition

Identifying suitable geological sites for CO<sub>2</sub> storage is a prerequisite for large scale demonstration and deployment of CCS technologies in Australia.

Work to develop sufficient basic knowledge of prospective CO<sub>2</sub> storage sites was undertaken on a pre-competitive (public information) basis by Geoscience Australia. This knowledge helped inform government decisions on the release of suitable greenhouse gas exploration acreage which could be taken up for commercial exploration and development.

## Victorian State Government commitment and support for CCS development

The Victorian Government has been supportive of the Australian Government's initiatives. It acknowledged that the public sector would play a role, through coordination and facilitation, to streamline, and optimise the deployment of CCS. The objective is to create a pathway for the long-term viability of future CCS projects.

Key CCS-related developments by the Victorian Government during this period include:

- Developing a legislative framework for offshore and onshore carbon storage – including the *Greenhouse Gas Geological Sequestration Act 2008* and the *Offshore Petroleum and Greenhouse Gas Storage Act 2010*
- Advanced geo-technical understanding of regional storage potential in the offshore Gippsland Basin through the Victorian Geological Carbon Storage initiative carried out by Geoscience Victoria

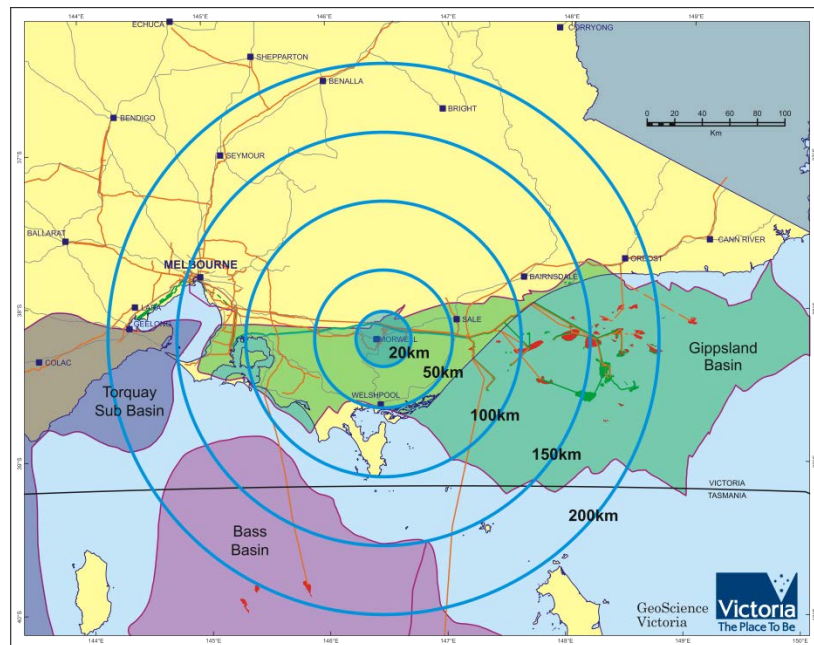
- Announcement of a round of ETIS grants for industry to:
  1. Establish a large-scale, pre-commercial, CCS demonstration program to demonstrate effective integration of the main elements of CCS
  2. Explore the potential for CCS as a viable option for greenhouse gas mitigation given the particular characteristics of Victorian brown coal and generation infrastructure
- Pre-feasibility work on the development of CCS in Victoria leading to the establishment of CarbonNet as a project concept.

## Strategic merits of CCS development in Victoria

The Gippsland Region of Victoria has the potential to become a CCS network hub because of the close proximity between its major coalfields, electricity generators and industrial processors (the largest sources of CO<sub>2</sub> are all located within a 15km radius) and offshore basins offering CO<sub>2</sub> storage potential (see Figure 2).

The largest sources of CO<sub>2</sub> are highly concentrated, both in terms of physical location and ownership. It offers an opportunity for shared infrastructure and a multi user CCS network. The strategic merits and prospective nature of CCS in Victoria was acknowledged by the Taskforce in its final report in September 2009.<sup>4</sup>

Figure 2 – Proximity of Latrobe Valley Coal Fields, and Geological Basins in Victoria



### The development of CarbonNet as a project concept

In early 2008/09, CCS in Victoria was advanced through an extensive body of prefeasibility work undertaken by the Victorian Government, with the support of several external consultants and facilitated by the William J Clinton Foundation through its Clinton Climate Initiative.

To inform the potential scope of CarbonNet, the CarbonNet pre-feasibility study was undertaken in 2009 to assess the technical and commercial elements of the CarbonNet concept. The work included:

- A technical analysis on the implementation of large scale CO<sub>2</sub> capture technologies and CO<sub>2</sub> transport in the Latrobe Valley
- The feasibility study of safely storing CO<sub>2</sub> undertaken
- A financial and commercial analysis

A key goal for CarbonNet is the development of a commercial model to facilitate both private and public sector investment.

As a result of this analysis of the merits of CCS in Victoria, the concept of CarbonNet was developed with the following key attributes:

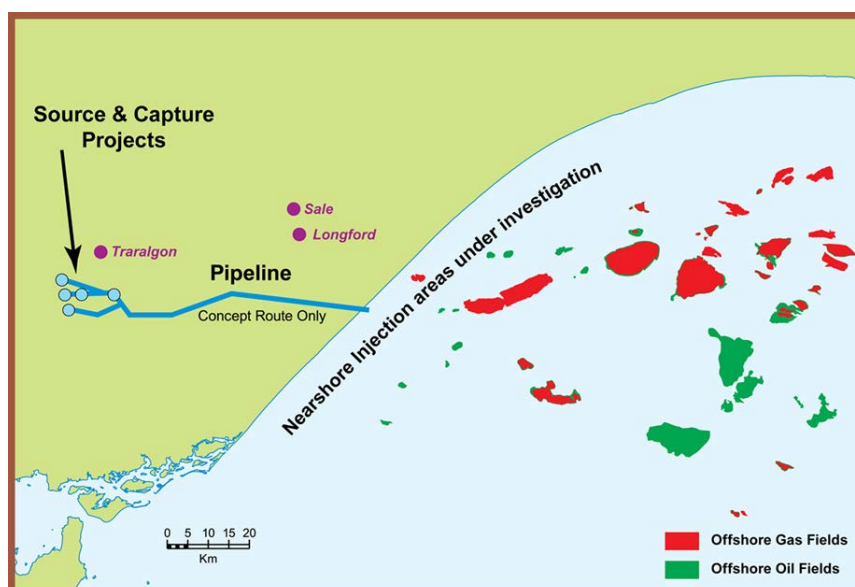
- Adopt a network configuration at a scale that allows for expanding CCS deployment

- Focus on the offshore Gippsland basin that;
  - is located within close proximity to Victoria's lignite resource and associated CO<sub>2</sub> sources
  - has a globally significant CO<sub>2</sub> storage capacity as informed by a wealth of publicly available geological data
  - presents opportunities for lower transport costs
- Mitigate the risk of project failure through a portfolio of elements across the full supply chain
- Leverage the existing ETIS projects and enable multiple CO<sub>2</sub> sources that include a range of potential capture technologies
- Is based upon a long-term pathway towards commercialisation which incentivises private sector participation and allows the government's role to evolve.

The philosophy of CarbonNet's common user infrastructure for transportation and storage enables multiple carbon capture projects to interface with common user infrastructure for transport and potentially multiple storage owners. (refer to Figure 3).



Figure 3 – Conceptual Diagram of CCS Network



### CarbonNet shortlisted for the CCS Flagships Program

The Victorian Government presented the concept of CarbonNet to the CCS Flagships Program and was shortlisted in December 2009 as one of four projects in Australia to proceed to the next stage in the program.

The other projects that presented were Wandoan and ZeroGen in Queensland and the South West Hub in Western Australia.

Over the next two years, the concept of CarbonNet was refined to the point that CarbonNet comprised the following elements:

- A foundation infrastructure network that demonstrates commercial scale CCS (the CarbonNet Foundation Network) and provides scalable infrastructure for future users
- A business model concept seeking to balance private/public sector risk allocation to maximise private capital to finance the CarbonNet Foundation Network.

The CarbonNet Foundation Network being investigated was an integrated CCS hub comprising:

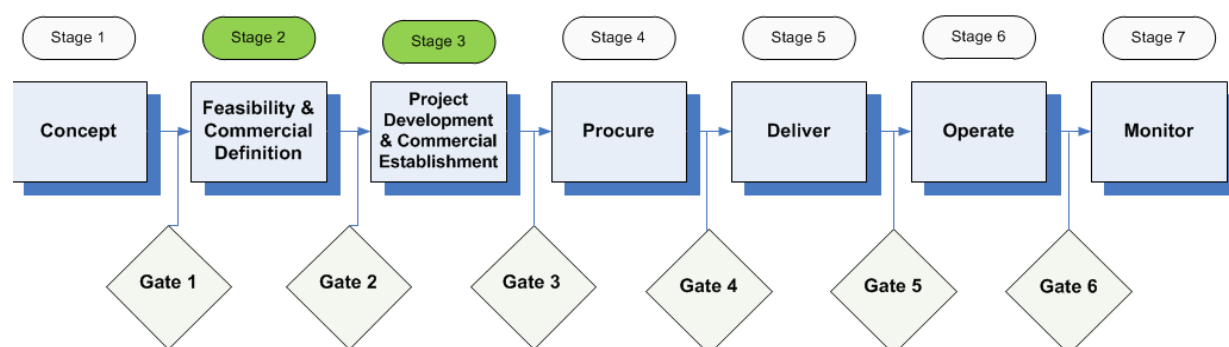
- Storage – An offshore storage reservoir located within the nearshore Gippsland Basin. The Foundation Storage Site location to be selected from a portfolio of 20-plus Prospective Storage Resources

- Transport - A trunk transport pipeline to transport CO<sub>2</sub> from the capture facilities in the Latrobe Valley to the well-head with excess capacity facilitating the connection of future CO<sub>2</sub> sources. Pipeline easements sized to allow the addition of another pipe to increase capacity to at least 20 Mt pa
- Source & Capture – A range of specific CO<sub>2</sub> source and capture elements being developed by the private sector, supplying in the order of 1 Mt of CO<sub>2</sub> pa or greater.

### A stage-gated portfolio approach to development

A portfolio approach was taken to the development of the entire CCS value chain (CO<sub>2</sub> source and capture, transport and storage) to encourage multiple users and competition over time. CarbonNet was to be developed through a stage-gated approach to maintain options, recognise it is a long-term investment strategy, and ensure each element of the CCS value chain is developed in an integrated manner and progressed consistently through the project life cycle. CarbonNet's investment pathway defines the key decisions to be made along the lifecycle of the Project. It ensures funding is only allocated to the next phase of work once the previous phase is completed and targeted outcomes are achieved. Figure 4 summaries the stages for delivery of CarbonNet, the investment decision gate for that phase and the key actions for each phase.

Figure 4 – Summary of the Project Development Stage Gates



### Period 3: CarbonNet's Feasibility and Commercial Definition Stage (2012 - 2015)

In the current period, there have been significant challenges for CarbonNet in the context of policy changes at the national level.

The introduction of a carbon price in July 2012 has not attracted bipartisan support and has subsequently been repealed. The outcomes of the Contracts for Closure programme and declining demand for electricity in the National Electricity Market (NEM) have also presented their own challenges.

The CCS Flagships Program has also experienced significant budget cuts over this period. These factors have resulted in the scope and focus of the CCS Flagships program being reduced from four large-scale integrated CCS projects to one or two large-scale integrated CCS projects.

#### CO2CRC secures further funding

In July 2013 the CO2CRC was awarded \$51.6 million to support CCSNET, a network of facilities, onshore and offshore monitoring systems, and world class laboratories which are strongly aligned to CarbonNet's current and future needs.

In 2014 CO2CRC was also able to secure further funding from Commonwealth and Victorian governments (\$25 million in total), along with contributions from industry to continue the Otway project through to 2020.

#### National and international recognition for CarbonNet

In February 2012, CarbonNet was announced as the second CCS Flagship Program project, receiving a

further AUD\$70 million from the Australian Government and AUD\$30 million from the Victorian Government and was able to proceed to the next stage of the project: Stage 2 Feasibility and Commercial Definition.

CarbonNet was also awarded the VIC-GIPP-01 greenhouse gas assessment permit (acreage) by the Commonwealth Government in 2012, which covers an offshore area of around 4,400 square kilometres off the Gippsland coast in Bass Strait (refer Figure 6 ).

In October 2012, CarbonNet was recognised as a project by an international Ministerial level organisation, the Carbon Sequestration Leadership Forum.

#### CarbonNet's progress on storage

One of the key challenges identified for CCS projects globally is obtaining confidence in the ability to store CO<sub>2</sub> in the selected geological formations. Unlike some of the other challenges identified for CCS projects, this is unique to the proposed location of the project and the geological formations.

CarbonNet has adopted a strategy and focus on the characterisation of the prospective storage formation(s)/complex(es) in the Gippsland Basin to demonstrate their ability to store CO<sub>2</sub>.

A unique characteristic of CarbonNet is governments' role as initial project sponsor in leading the storage site identification and characterisation process. The approach essentially involves the project identifying, characterising and selecting the prospective storage site(s) and undertaking storage appraisal planning activities.

Government has led this to provide local context in relation to the storage formations and to provide upstream users with confidence that there is sufficient storage capacity in the Gippsland basin for the long term sustainable development of a multi-user CCS industry in Victoria.

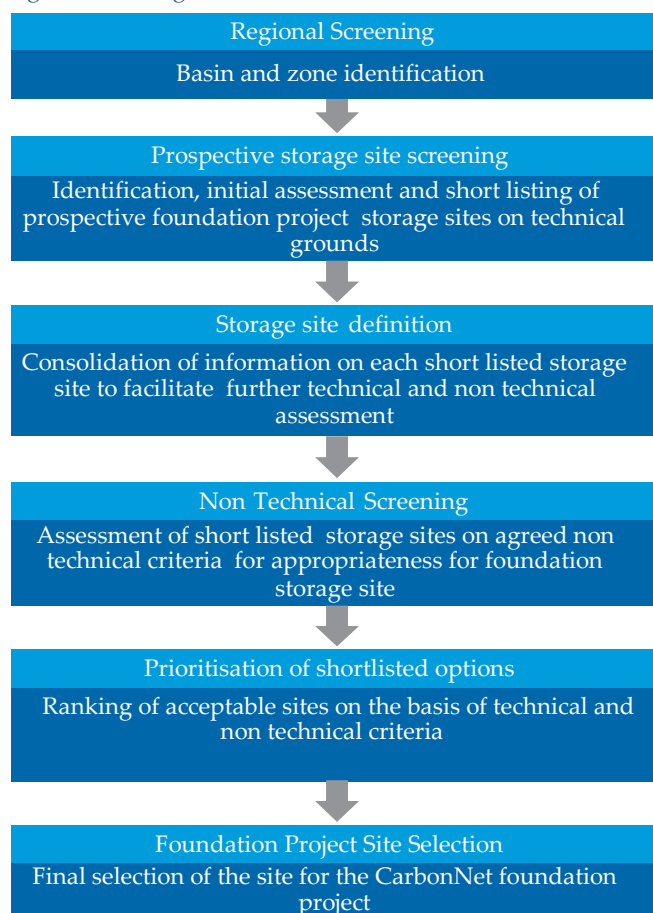
A structured process was developed by CarbonNet to prioritise potential sites for the CarbonNet Foundation Project identified as part of the regional screening activities. The strategy was adopted to address expected requirements of various stakeholders and regulatory regimes.

Further, learnings were derived by adopting best practice from the developing CCS industry including:

- certification against Det Norske Veritas (DNV) recommended practice for CO<sub>2</sub> storage
- independent scientific peer reviews, and
- utilising knowledge share products and experience from other CCS projects.

The key steps in the process are set out in Figure 5 below:

Figure 5 – Storage Site Selection Process



The CarbonNet storage program benefits from geological data acquired and made public by the oil and gas industry which has operated in the region for decades. CarbonNet has:

- Analysed high resolution details of the subsurface geological strata from 2D and 3D acoustic imaging data, together with rock core material and information from over 50 existing wells within the immediate project area. Over 1,500 wells support this data on a regional basis
- Developed 3D models of the Gippsland Basin, allowing geologists and reservoir engineers to analyse potential storage sites and predict the behaviour of CO<sub>2</sub> throughout the storage process including injection, migration and stabilisation.
- Evaluated and short-listed prospective storage sites in a process similar to that employed by the oil and gas industry, with a focus on safe and secure storage.



In early 2013 CarbonNet was issued with a statement of feasibility from DNV over a portfolio of potential storage sites and subsequently nominated three sites in the offshore Gippsland Basin to regulators for greenhouse gas acreage release.

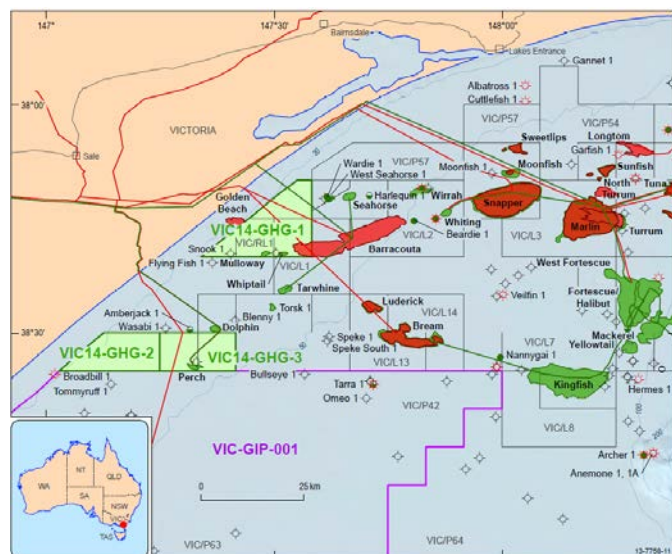


Figure 6 – 2014 GHG acreage release

CarbonNet also held a Regulatory Test Toolkit workshop in August 2013 with 40 different regulators to confirm that a CCS project could be regulated appropriately with the existing regimes.

### CarbonNet's progress on transport

The development of CarbonNet will require the transportation of CO<sub>2</sub> from multiple source parties from the Latrobe Valley and surrounding areas to storage sites in the offshore Gippsland Basin.

The approach to the development of the transportation network is focused initially on addressing questions related to:

- Route alignment: route alignment optimised for the hub network, with considerations relating to range of potential source locations, range of storage sites under consideration (including for Foundation and future storage), the nature and interface with injection facilities, and competing uses of infrastructure corridors
- Pipeline specifications: specification of pipeline given the potential range of CO<sub>2</sub> source parties, the need to support establishment of the Foundation Project and not only provide best opportunity for its

success but also provide a CO<sub>2</sub> envelope that enables future users to meet specifications in the most efficient way

- Pipeline capacity: initial capacity of 5Mt pa and approach to enabling expansion up to 20Mt pa.

Feasibility designs and cost estimates for a range of pipeline network configurations have been prepared.

### CarbonNet's progress on source and capture

CarbonNet has focused efforts on providing confidence in the storage capacity of the Gippsland Basin to allow capture options associated with potential sources of CO<sub>2</sub> to be progressed. While confidence in CarbonNet's storage program has grown, industry's confidence in the commercial viability of capture options has not, in part due to changes in the national policy context.

None of the earlier ETIS projects associated with commercial scale capture in the electricity sector have been able to advance, despite completing detailed feasibility studies.

Notwithstanding this, CarbonNet has continued to identify opportunities to work with industry on commercial scale capture options. However, as a CCS network hub project, it is not CarbonNet's role to choose capture technologies for industry. The intent is to enable a variety of source participants from across a range of industry sectors.

The range of potential source industry participants operate in a variety of markets, and their pathway for commercialisation can achieve different outcomes (including for government, the economy and the region). They also have different requirements and appetites for participating as a 'first mover' in CCS. Understanding these issues is crucial for CarbonNet in developing both an approach to engaging with industry and an appropriate commercial model.

### CarbonNet's progress on the commercial model

CarbonNet continues to consult with industry to develop a better understanding of potential source projects and their appetite for CCS and CarbonNet

There are significant commercial challenges for structuring a CCS project. For this reason, CarbonNet has adopted a framework for defining alternative

commercial approaches and for comparing these options.

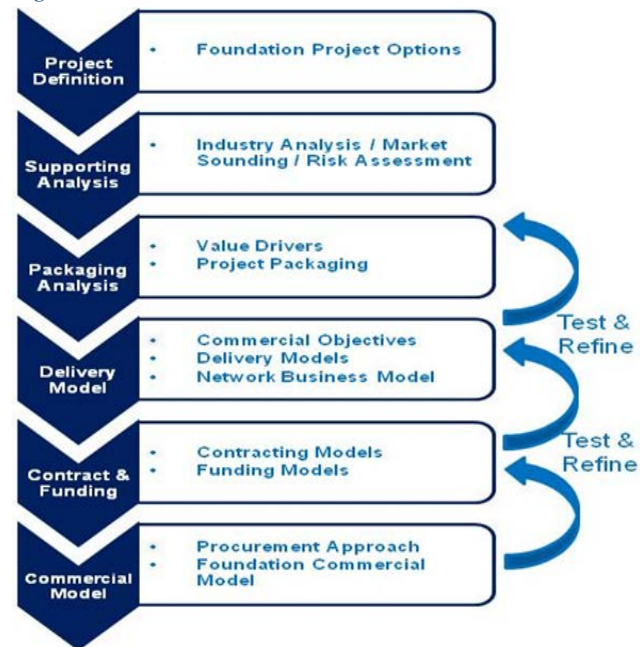
Whilst providing a structure adaptable to any CCS hub project development, the commercial framework as presented has to some extent been developed from a government perspective. The framework needs to test how government can best facilitate the desired outcomes and define the appropriate roles of the parties.

Underpinning the commercial framework is an objective for development of a multi-user hub network. The commercial model must in the first instance facilitate investment in the Foundation Project whilst ensuring future expansion of CCS is not restricted. The unique attributes of a CCS hub network to be addressed in the commercial model include:

- Nature of the CCS Value Chain: The most efficient commercial ‘packaging’ of components across the CCS chain for delivery and operation will depend on the different types of parties involved at each point of the value chain, the nature of the interfaces and the risk profile and risk appetite. This is further complicated by the stage of technology development across the range of source projects that might participate
- Role of government in facilitating projects and industry development: The development of approaches that enable commercialisation, including approaches to bearing risks (unique and business as usual risks) and facilitating private sector delivery of projects/project elements) or contracting / co-investment models.
- Whole of life approach: The consideration of planning/approvals through construction, commissioning, operations and decommissioning in the commercial model including consideration of the incentives for Foundation and subsequent parties to participate in the CCS network

Figure 7 illustrates the commercial framework (methodology) developed for defining the commercial model for a CCS hub project. It provides a structured approach to defining and comparing alternative commercial (and financial) arrangements in way that addresses the unique attributes highlighted above.

Figure 7: Commercial Framework for CarbonNet



### Next Steps for CarbonNet

In line with the stage-gated approach being adopted by CarbonNet, the results of the Feasibility and Commercial Definition Stage are to be reported in a business case to government in 2015 – 16. The results of the Feasibility and Commercial Definition Stage will inform a decision by government on next steps for the project.



## Appendices





## Appendix A – Definitions

<b>CarbonNet</b>	The CarbonNet Project is investigating the potential for large-scale CCS in Victoria’s Gippsland region; capturing CO <sub>2</sub> from electricity generation, industrial processes and coal-based industries in the Latrobe Valley, and injecting it deep underground offshore in the Gippsland Basin for safe, long term storage.
<b>CCS</b>	Carbon Capture and Storage
<b>CO2CRC</b>	Cooperative Research Centre for Greenhouse Gas Technologies
<b>CSIRO</b>	Commonwealth Scientific and Industrial Research Organisation
<b>CCS Flagship Program</b>	The CCS Flagships program is part of the federal government’s Clean Energy Initiative. The main objective of this program is to support the construction and demonstration of large-scale integrated CCS projects in Australia and supports the G8’s call for the launch of 20 demonstration CCS projects worldwide by 2010, to be operational from 2015 and for commercial deployment by 2020
<b>ETIS</b>	Energy Technology Innovation Strategy
<b>Institute</b>	Global Carbon Capture and Storage Institute
<b>Taskforce</b>	Carbon Storage Taskforce

