

## Building a Regional Infrastructure

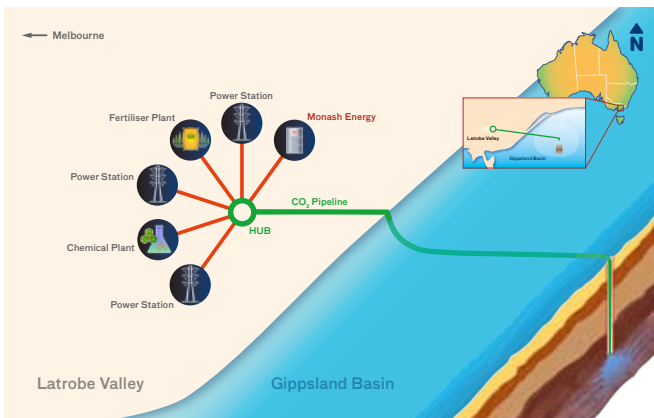


Fig 1: The 'Hub' concept

*'As a centrepiece among methods for reducing greenhouse gases, carbon capture and storage could help secure the long-term viability and prosperity of the Latrobe Valley community and economy.'*

Hon Peter Batchelor MP, Victorian Minister for Energy and Resources, 2007

The development of clean coal conversion technologies creates scope for an energy and resource processing hub in the Latrobe Valley (as shown in Figure 1 at left).

The abundant coal resource is the foundation of this vision, as syngas – the product of coal gasification – can be used to produce a wide array of products. These include the transport fuel that Monash Energy would produce, as well as chemicals, fertiliser, chemical feedstocks and near zero emissions electricity. The flexibility of coal gasification is shown in Figure 2 at right.

The Latrobe Valley's proximity to high-quality, high-volume potential storage in the offshore Gippsland Basin is the key to the viability of the hub concept. Captured CO<sub>2</sub> from multiple sources could be compressed and use shared pipelines, lowering the unit cost of transport, injection and storage.

Power produced from syngas in this configuration is known as Integrated Gasification Combined Cycle (IGCC) and is

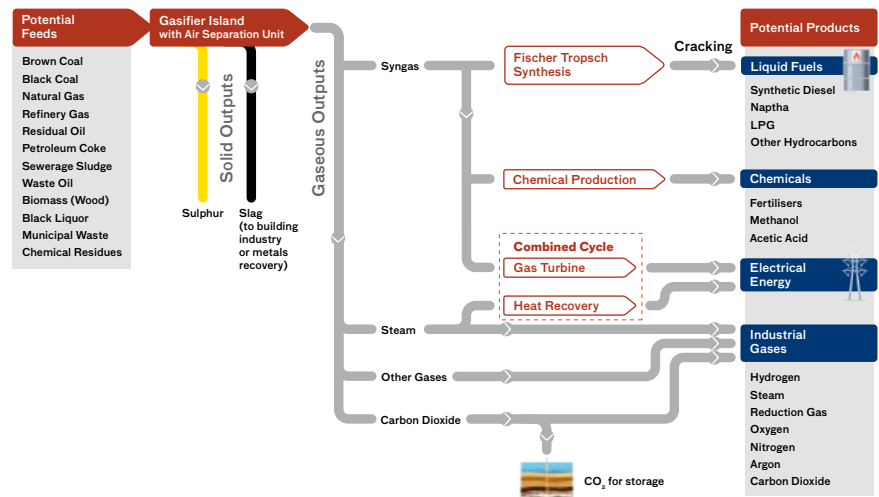


Fig 2: Feedstock options and product options from gasification (generic)

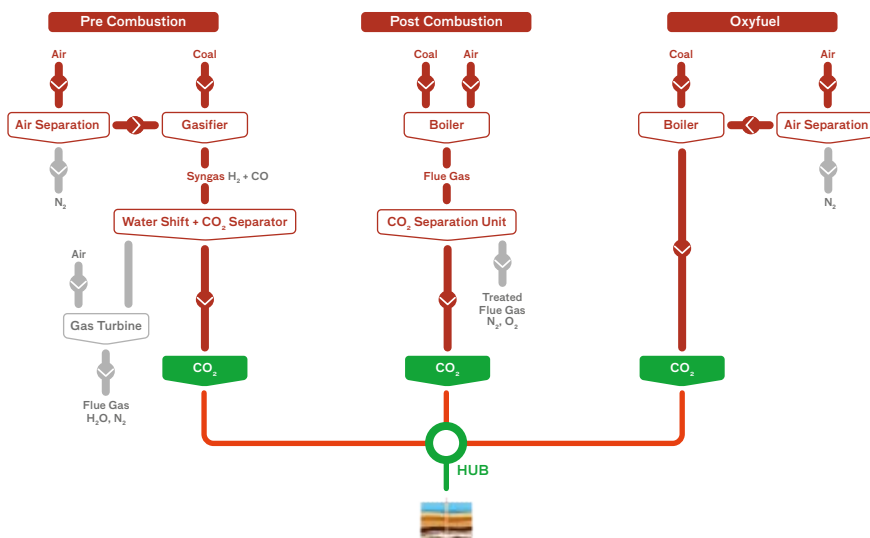


Fig 3: Three principal pathways for establishing a near-zero emissions power station

an example of the configuration known as 'pre-combustion' capture of the CO<sub>2</sub>. There is also a great deal of research and development underway globally, and in the Latrobe Valley, to develop 'post-combustion capture' (PCC) of CO<sub>2</sub>, which would enable retrofit of the existing power stations with CCS.

A third configuration, the 'Oxyfuel' power station, is also post-combustion but the separation of the CO<sub>2</sub> is easier because the exhaust stream (after clean-up) is pure CO<sub>2</sub> rather than a mixture of CO<sub>2</sub> and nitrogen.

PCC and Oxyfuel power stations provide an additional pathway for developments in the Latrobe Valley that can make use of a regional CO<sub>2</sub> collection and transport hub. This is shown in Figure 3 at left.