

# **Are there 27,000 jobs in the Galilee Basin?**

Briefing Note  
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**Key points:**

- Queensland government statements that the development of the Galilee Basin would result in an increase of 27,000 jobs are unfounded.
- No source is provided for this estimate. It is likely to be based on the economic assessments of the four main Galilee Basin projects, Carmichael, Alpha, Kevin's Corner and China First.
- These projects propose to employ around 9,000 people, not 27,000.
- The 27,000 figure comes from "indirect" employment impacts, which have been estimated with an economic model the ABS says is "biased", the Productivity Commission says is "abused" and the NSW Land and Environment Court found to be "deficient".
- These models are inaccurate as they assume there is unlimited labour in the economy and they ignore the negative impacts of large mining projects on other mining projects and other industries like agriculture and manufacturing.
- Agricultural employment has decreased by 28 per cent in Queensland during the mining investment boom. Manufacturing has been steady, despite modelled predictions of large increases.
- Importantly the models assume that all these projects are financially viable and will proceed on schedule. With low coal prices this will not be the case, as demonstrated by a Galilee Basin proponent going into administration recently.

## Introduction

In recent media statements senior Queensland Government members have claimed that development of coal mines in Queensland's Galilee Basin will create 27,000 jobs.<sup>1</sup> No source for this figure is provided in the media statements and no such estimate features in the Government's Galilee Basin Strategy.<sup>2</sup>

Although no source is provided, the 27,000 estimate is likely to have come from the economic assessments of the four most advanced Galilee Basin projects, Carmichael, Kevin's Corner, Alpha and China First. The economic assessments of these projects estimate their total impact on Queensland employment at 26,974 jobs, as shown in the table below:

**Table 1: Total employment impact of Galilee Basin projects for year 2030**

2030 employment impact		Source
Carmichael	10,797	Supplementary Environmental Impact Statement, economic appendix (GHD, 2013), page 30, table 9
Alpha	5,691	Environmental Impact Statement, economic impact statement, appendix N, (Economic Associates, 2010), page 51, table 5.17
Kevin's Corner	6,532	Environmental Impact Statement, economic impact statement, appendix V, (Economic Associates, 2011) Page 67, table 5.21
China First	3,954	Environmental Impact Statement, economic impact assessment, (AEC group, 2010), page (xv) table ES.6
<b>Total</b>	<b>26,974</b>	

The estimates in table 1 are all based on the year 2030. All assessments assume that these projects are into their main production phase by 2030 and that a similar level of employment impact is sustained over most of the project life. Earlier years are more volatile during construction and the different timing of each project, so the 2030 estimate would be more indicative of the general cumulative employment claims of the projects.

Three points should be noted about these estimates:

- These estimates do not estimate how many people work in these mines, but the impacts of the projects on "downstream" or "indirect" jobs in other industries.
- The method used for making most of these estimates is "input-output" modelling, which has been described by the Australian Bureau of Statistics (ABS) as "biased", the Productivity commission says is regularly "abused" and the NSW Land and Environment Court has dismissed as "deficient".<sup>3</sup>
- They assume the projects are financially viable and will proceed as planned.

<sup>1</sup> <http://www.smh.com.au/it-pro/well-do-what-it-takes-in-galilee-basin-seeney-20141117-11o6zb.html>  
<http://www.abc.net.au/lateline/content/2014/s4130566.htm>

The figure is 28,000 in this media statement -

<http://statements.qld.gov.au/Statement/2014/11/17/historic-agreements-bring-jobs-to-queensland>

<sup>2</sup> (Queensland Government, 2013)

<sup>3</sup> (ABS, 2011; Gretton, 2013; Preston, 2013)

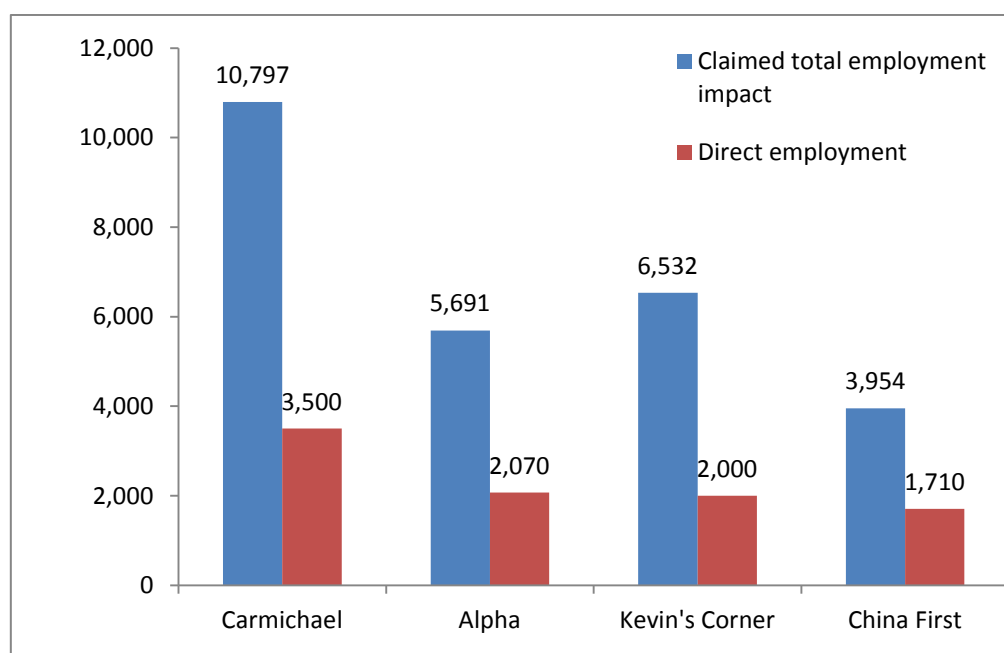
## Direct and Indirect jobs in Galilee Basin Projects

The numbers of people who would actually work on the Galilee Basin mine projects is far smaller than the estimated indirect impacts, as shown in Table 2 and Figure 1 below:

**Table 2: Galilee Basin Projects' direct and indirect jobs in 2030**

	Indirect	Direct	Source - Direct
Carmichael	10,797	3,500	Supplementary Environmental Impact Statement, economic appendix (GHD, 2013), page 31, figure 22
Alpha	5,691	2,070	Environmental Impact Statement, economic impact statement, appendix N, (Economic Associates, 2010), page (xiv)
Kevin's Corner	6,532	2,000	Environmental Impact Statement, volume 1, section 2, Project description, page 31
China First	3,954	1,710	Environmental Impact Statement, economic impact assessment, (AEC group, 2010), page (vi)
<b>Total</b>	<b>26,974</b>	<b>9,280</b>	

**Figure 1: Galilee Basin Projects' direct and indirect jobs in 2030**



Sources: as above

Table 2 and Figure 1 show that the numbers of people who would actually work in Galilee Basin mining projects is estimated by the proponents at 9,280, around one third of the claimed total employment impact.

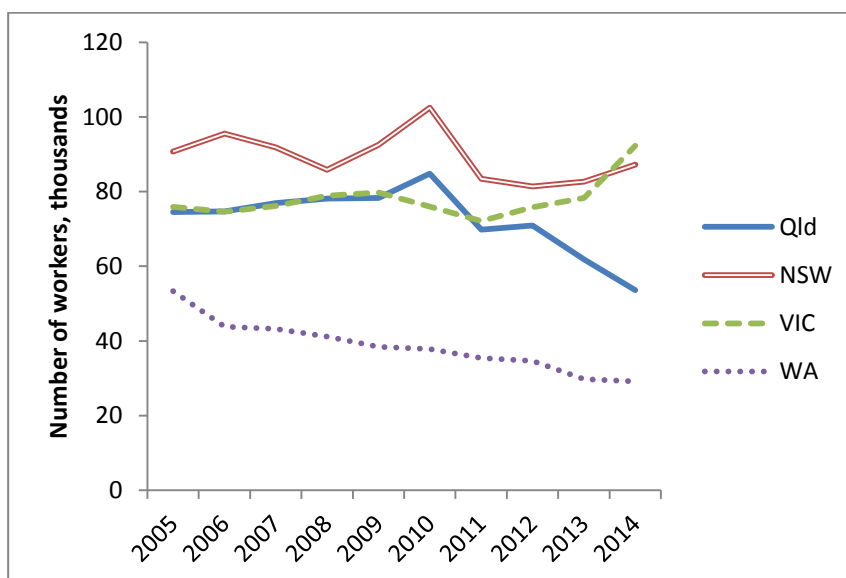
### Indirect jobs calculations

The employment estimates for the Carmichael, Alpha and Kevin's Corner projects are based on input output models. These models are mathematically certain to overstate the employment impacts of the projects as they:

- Assume there is an infinite amount of skilled labour in the economy.
- Assume that workers for these projects do not come from other mining projects or other industries.
- Assume that wages and other costs faced by these projects and other industries do not change in the region as a result of the projects.<sup>4</sup>

Clearly these are not realistic assumptions. There is a limited amount of labour in the economy and most workers on mining projects come not from unemployment, but from other mining projects and other industries. This is more the case for mining projects than for any other industry, as shown in research by the Reserve Bank of Australia.<sup>5</sup> This is also shown by real world data from the ABS. Figure 2 below shows reductions in agricultural employment in the mining states of Queensland and WA, while Victoria has seen an increase and NSW has returned to earlier levels:

**Figure 2: Employment in agriculture 2005-2014, selected states**



Source: ABS (2014) 6291.0.55.003 Labour Force, Australia, Detailed, Quarterly, presented in (Campbell, 2014)

Figure 2 shows that 21,000 jobs have been lost in Queensland agriculture since 2010, 28 per cent of total agricultural employment. A still greater percentage has been lost in Western Australia. Input output modelling assumes that this decline does not, indeed cannot, happen.

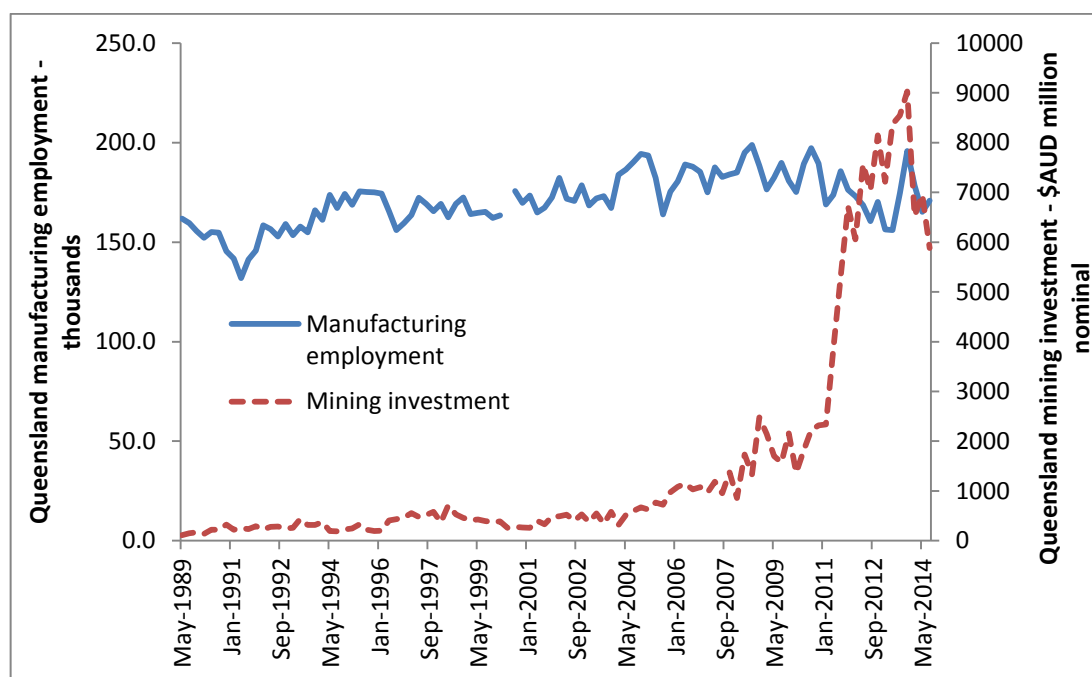
Input output models usually predict a large increase in manufacturing employment due to increased mining spending on machinery and equipment. For example, the Kevin's Corner economic impact assessment estimates that due to the expenditure of the project that Queensland manufacturing employment would increase by 3,500 people.<sup>6</sup> However, ABS data shows that no such increases actually occur. Queensland manufacturing employment has remained around the same level despite massive increases in mining spending, as shown in Figure 3 below:

<sup>4</sup> For more detailed and technical discussion of the limitations of input output modelling, see (ABS, 2011; Denniss, 2012; Gretton, 2013; Layman, 2002)

<sup>5</sup> (D'Arcy, Gustafsson, Lewis, & Wiltshire, 2012)

<sup>6</sup> (Economic Associates, 2011) See page 67, table 5.21, years 2029-30

**Figure 3: Queensland manufacturing employment and mining investment**



Sources: ABS 6291.0.55.003 Labour Force, Australia, Detailed, Quarterly and ABS 5625.0 Private New Capital Expenditure and Expected Expenditure, Australia

Figure 3 shows that despite unprecedented levels of mining investment since 2008, the state's manufacturing employment has barely changed. If anything manufacturing employment has trended downwards.

The reason manufacturing employment has not changed with mining investment is that while some parts of the manufacturing industry benefit from mining spending, others are negatively affected. As manufacturers compete for labour, wages are bid up. Workers go to the benefiting parts of the industry from the negatively affected parts. The negatively affected parts may take on new staff, or they might reduce employment, close down or delay their operations. The data shows that few new staff have entered the sector.

The only Galilee Basin project not to use input output modelling in its assessment is the China First project. Its modelling is based on 'general equilibrium' modelling which does not assume unlimited labour. The assessment for that project actually notes that for most of the project's life there will be 1,666 less people working in manufacturing in Queensland as a result of the project. This more sophisticated model and more realistic assumptions is the reason the China First project has the least difference between its direct and indirect employment estimates.

## Financial viability

All the employment modelling assumes these projects are financially viable and will proceed according to schedule. Current coal prices make this an unrealistic assumption. Many economists and banks are sceptical that the projects will proceed. Macquarie Bank has said that developing these projects would require people to "ignore conventional economics".<sup>7</sup>

<sup>7</sup> (Scharples, 2013)

In fact, few of the Galilee Basin projects are likely to proceed as planned. The marginal financial nature of Galilee Basin projects and the inaccuracy of input output models is demonstrated by Bandanna Energy, which has recently gone into administration. One of Bandanna's key assets is the South Galilee Basin coal project. The project's input output model concluded that it would employ 1,909 people and increase annual output by \$1.2 billion from 2019 to 2047. In fact, the project is financially unviable, so is likely to employ zero people, produce zero output and has lost money for shareholders.<sup>8</sup>

## Conclusion

Claims that the development of the Galilee Basin coal projects will create 27,000 jobs are unfounded. If the projects do go ahead they will require only around 9,000 workers.

The remainder of the 27,000 estimate is based on indirect jobs estimates which are unreliable. The modelling techniques used are questionable and empirical data shows that they ignore the negative effects of mining projects on other industries, particularly agriculture and manufacturing.

Due to the dubious financial viability of the Galilee Basin projects, even the 9,000 jobs estimate is unlikely to be realised.

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<sup>8</sup> (Aurecon Hatch, 2012) see p39-40



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