



Bay of Connections

8 November 2013

Final Report

Sector Strategy Employment Scenario

MARTIN^IJENKINS

Preface

This report has been prepared for Bay of Connections by Jason Leung-Wai and peer reviewed by Stephen Knuckey from MartinJenkins (Martin, Jenkins & Associates Limited).

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Executive Summary

This report was commissioned by Bay of Connections (BOC) to provide an employment scenario to 2022 based on the successful implementation of the BOC strategy. This BOC Strategy Scenario can be considered as part of other recently announced regional planning projects such as Invest BOP and regional labour projections being undertaken by the University of Waikato.

The BOC Strategy Scenario is aspirational. Its goal is to deliver an outcome over and above business as usual (BAU+). The scenario outcome therefore needs to result in additional employment greater than what would be achieved if it were not implemented.

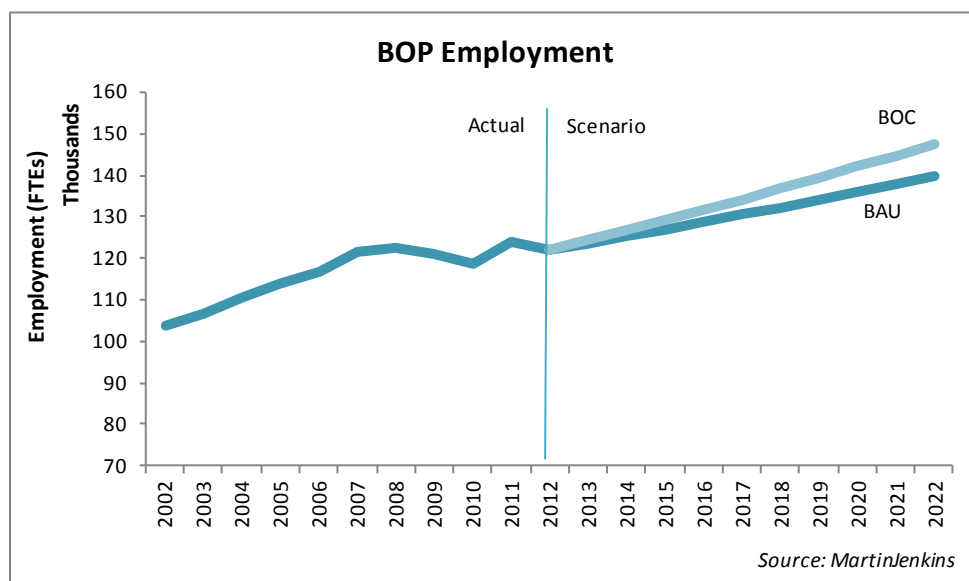
The analysis draws on the BOC Regional Economic Development Strategy evaluation and monitoring framework. It is based on the existing strategy framework and sector strategies and estimates the potential employment outcome that would be achieved if those strategies were to achieve their vision or goals. It includes and is consistent with work being conducted by BERL on employment and GDP scenarios for the Bay of Connections region for the Invest BOP project.

The Business as Usual (BAU) scenario was developed by BERL and forms the baseline from which the BOC Strategy Scenario is determined. BERL also developed two further scenarios – Strategy Stretch and Reality Check. The Strategy Stretch scenario is a high growth scenario, whereas the Reality Check scenario is one where several exogenous factors have been constrained (namely infrastructure, ICT, and population). These scenarios both have outcomes greater than the BAU scenario and reflect high growth (Strategy Stretch) and constrained high growth (Reality Check). Further detail on these scenarios is available on page 4 of the report.

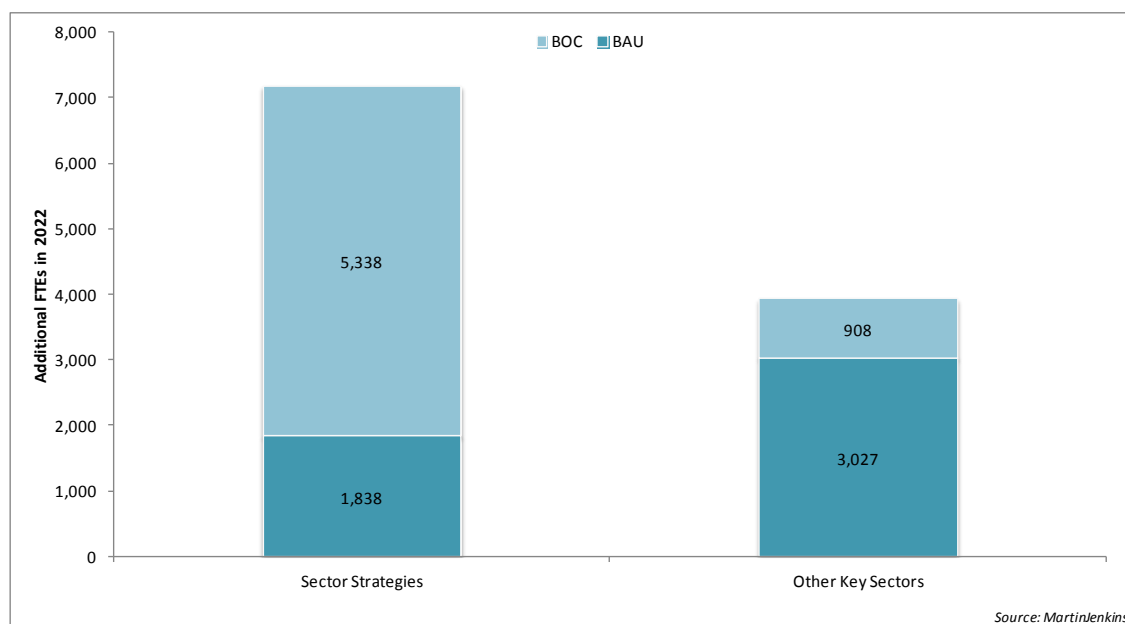
Key Findings

Under the BOC Strategy Scenario there would be 147,512 FTEs employed in the BOC region in 2022, an increase of 25,740 over 2012. The BOC Strategy would result in an additional 7,576 FTE jobs over and above what would be expected under the BAU scenario in 2022.

While aspirational, the BOC Strategy Scenario is achievable. The employment outcome through the BOC Strategy Scenario is 6,088 FTEs less than the BERL Strategy Stretch scenario. The BOC Strategy Scenario is similar to that identified in the BERL Reality Check scenario (90 FTEs less).



The main impact of the BOC Strategy Scenario is on those key sectors where a sector strategy has been implemented. Of the 7,576 new FTE jobs attributable to the BOC Strategy Scenario, 5,338 FTEs would be within the sectors where strategies are implemented while 908 FTEs would be in other key sectors. A further 1,330 additional FTEs would be created in non-key sectors.



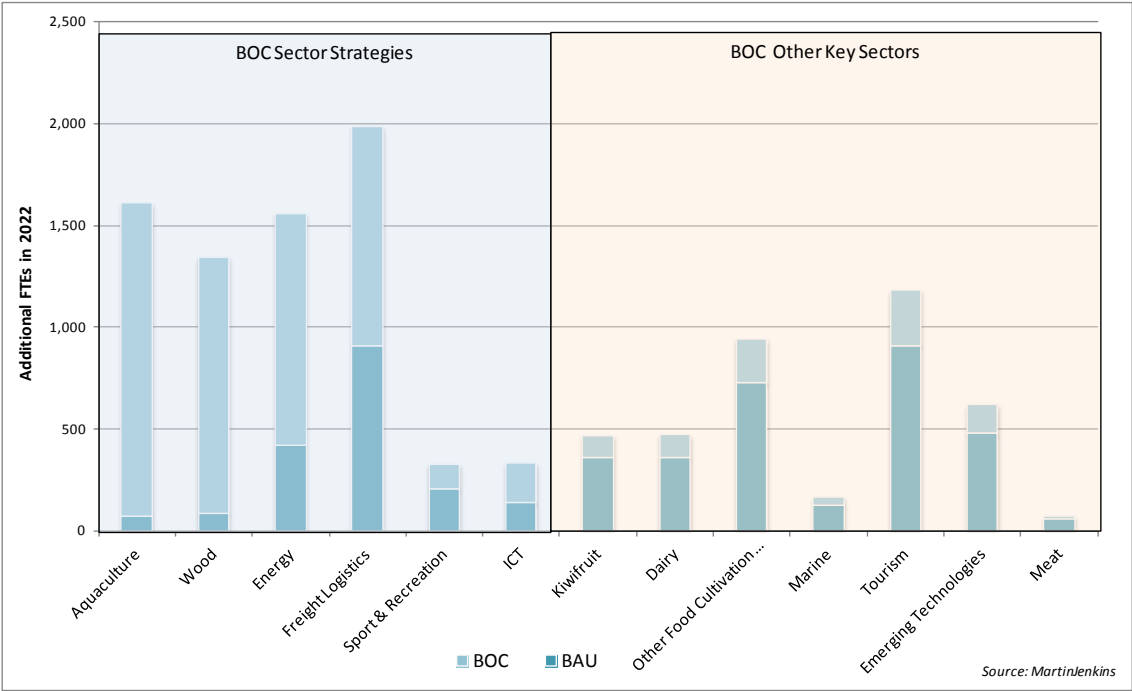
The breakdown of FTE growth between the BAU and BOC scenarios for each of the sectors is presented in the following table.

FTEs	2012	BAU				BOC Strategy				difference between BAU and BOC
		2022	increase	%PA	FTEsPA	2022	increase	%PA	FTEsPA	
BOC Sector Strategies										
Aquaculture	316	392	76	2.2%	8	1,927	1,611	19.8%	161	1,535
Wood	5,834	5,921	87	0.1%	9	7,182	1,348	2.1%	135	1,261
Energy	871	1,293	422	4.0%	42	2,433	1,562	10.8%	156	1,140
Freight Logistics	4,284	5,194	910	1.9%	91	6,274	1,990	3.9%	199	1,080
Sport & Recreation	1,793	1,999	206	1.1%	21	2,123	330	1.7%	33	124
ICT	872	1,010	138	1.5%	14	1,207	335	3.3%	34	197
Total Sector Strategies	13,970	15,809	1,838	1.2%	184	21,147	7,176	4.2%	718	5,338
BOC Key Sectors										
Kiwifruit	4,195	4,557	362	0.8%	36	4,665	470	1.1%	47	108
Dairy	5,780	6,144	364	0.6%	36	6,253	473	0.8%	47	109
Other Food Cultivation &	3,578	4,305	727	1.9%	73	4,523	945	2.4%	94	218
Tourism	6,513	7,425	912	1.3%	91	7,698	1,185	1.7%	119	274
Marine	366	494	128	3.1%	13	533	167	3.8%	17	38
Emerging Techs	1,068	1,546	478	3.8%	48	1,689	621	4.7%	62	143
Meat	2,009	2,065	56	0.3%	6	2,082	73	0.4%	7	17
Other Key Sectors	23,510	26,536	3,027	1.2%	303	27,444	3,934	1.6%	393	908
Total Strategic Sectors	37,480	42,345	4,865	1.2%	486	48,590	11,111	2.6%	1,111	6,246
Other (non-key) Sectors	84,293	97,592	13,299	1.5%	1,330	98,922	14,629	1.6%	1,463	1,330
Total All Industries	121,772	139,936	18,164	1.4%	1,816	147,512	25,740	1.9%	2,574	7,576

Source: Martin Jenkins

In sectors such as Aquaculture, Wood, and Energy the sector strategies account for a large proportion of the increase in employment. In other sectors, such as Sport & Recreation, the direct contribution is not as significant. However, in those sectors, the benefits tend to be indirect. In the case of Sport & Recreation, the main impact is on employment in the tourism sector.

The proportion of the increase in employment for each of the BOC key sectors as a result of BAU and the BOC Strategy Scenario is illustrated in the following graph.



Next Steps

The analysis determines the aspirational employment targets as defined in the vision and goals of the individual sector strategies. Where practical it assesses potential employment as a direct result of strategy actions, such as the Opotiki Harbour Project. However, there is clearly a need to more closely align strategy actions to employment outcomes.

As a part of this project, a clearer understanding of how the various sector strategies contribute to the overall strategy has emerged. As well, the quality of the relationship between action outcomes and strategy outcomes has been assessed. It is clear that further work is required to align actions to deliverable outputs and, in turn, employment outcomes. This will ensure a clearer relationship across the strategies in terms of their contribution, but also within the strategies to align their goals to their actions. It will also allow for improved reporting of outputs and outcomes.

Our expectation is that this work will form the basis of the broader evaluation framework that has been developed for the BOC Regional Economic Development Strategy and will be able to be incorporated into future monitoring (such as the annual report) and reviews.

Contents

Introduction	1
Aquaculture	6
Wood	9
Energy	12
Freight Logistics	15
Sport & Recreation	19
ICT	23
Impact on Other Sectors	25
Summary	28
Next Steps	31
Bibliography	32
Consultation	33
Appendix A: Sector ANZSIC2006 Composition	34
Appendix B. BOC Sector Strategies	35

Tables

Table 1:	New Zealand Employment Projections to 2022	4
Table 2:	BERL Scenarios for Future Alternatives, 2012 - 2022	5
Table 3:	Aquaculture Vision, Goals and Themes	6
Table 4:	Aquaculture Sector, BAU and BOC Strategy Scenarios to 2022	7
Table 5:	Wood Vision, Goals and Themes	9
Table 6:	Wood Sector, BAU and BOC Strategy Scenarios to 2022	10
Table 7:	Energy Vision, Goals and Themes	12
Table 8:	Energy Sector, BAU and BOC Strategy Scenarios to 2022	13
Table 9:	Freight Logistics Strategy Vision, Goals and Themes	15
Table 10:	Freight Logistics Sector, BAU and BOC Strategy Scenarios to 2022	16
Table 11:	Sevens Vision, Goals and Themes	19
Table 12:	Sport & Recreation Sector, BAU and BOC Strategy Scenarios to 2022	22
Table 13:	ICT Sector, BAU and BOC Strategy Scenarios to 2022	24
Table 14:	Industries in Non-key Sectors.....	26
Table 15:	Comparison of BAU and BOC Strategy Scenarios	28
Table 16:	BOC Sector Strategies	35

Figures

Figure 1:	Bay of Connections Key Sectors.....	2
Figure 2:	Aquaculture Sector, FTE Growth Scenarios	7
Figure 3:	Wood Sector, FTE Growth Scenarios	10
Figure 4:	Energy Sector, FTE Growth Scenarios	13
Figure 5:	Freight Logistics Sector, FTE Growth Scenarios	16
Figure 6:	Sport & Recreation Sector, FTE Growth Scenarios	21
Figure 7:	ICT Sector, FTE Growth Scenarios	23
Figure 8:	BOC FTE Employment Growth to 2022, BAU and BOC Contribution	29
Figure 9:	BOC FTE Employment Growth to 2022, BAU and BOC Strategy Scenarios	30

Introduction

The purpose of this report is to deliver an employment scenario to 2022 based on the successful implementation of the Bay of Connections (BOC) sector strategies. The BOC Strategy Scenario can be considered in relation to other regional development projects that have been announced, such as Invest Bay of Plenty and regional population projections being undertaken by Waikato University.

Approach

The approach builds on the evaluation and monitoring framework developed as part of the revised BOC strategy (Bay of Connections, 2011, pp. 31, 32)

The **BAU scenario** for the BOC region has been developed by BERL and acts as the baseline employment scenario for each sector. This BAU scenario has been developed as part of the Invest Bay of Plenty project. It is the likely outcome if there were no specific actions taken to influence or support specific sectors. BERL has also run a Strategy Stretch and a Reality Check scenario that can be used to validate the BOC Scenario.

The **BOC Strategy Scenario** is the potential outcome when sector strategies have been implemented successfully. Where a strategy is in place, employment outcomes are based on the strategy's vision and goal/s. Where possible and practical, actions within each of the sector strategies have been assessed to identify associated potential employment outcomes, including when employment is likely to occur. Strategy documents have been assessed and discussed with the sector strategy chair or project leader. Where possible, actions that result in an absolute increase in employment outcomes or an increase in the growth rate of employment (in the case of actions that encourage productivity or production outputs) have been incorporated.

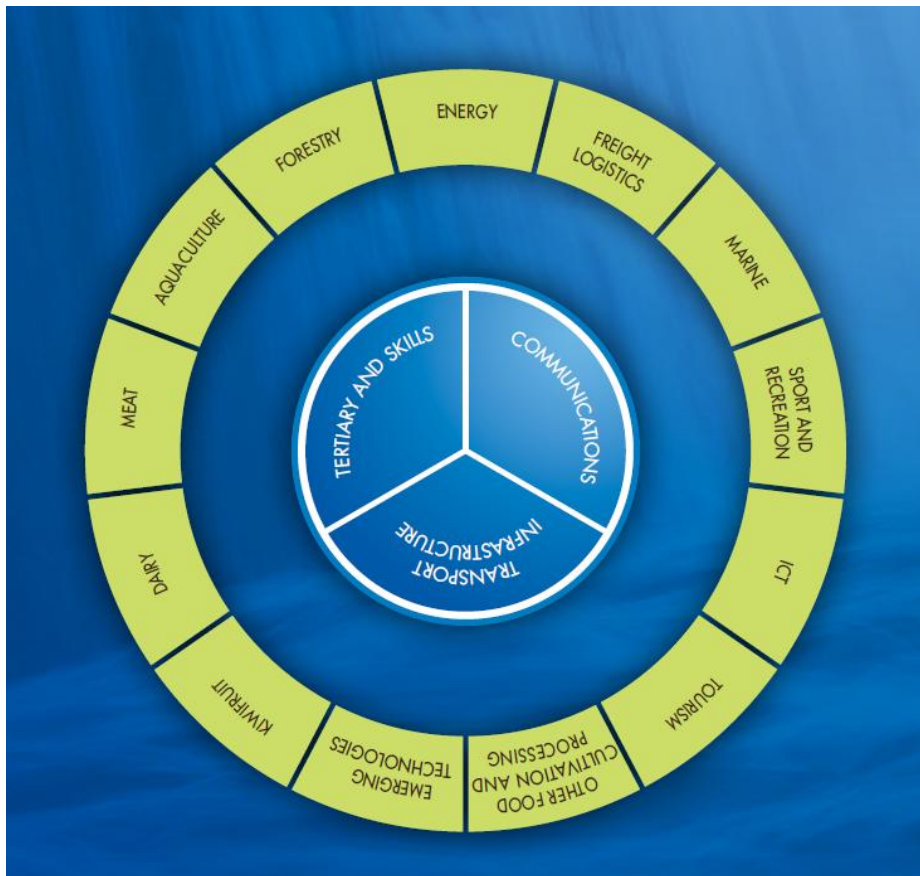
For those sectors where strategies have not been implemented, a proxy rate of employment growth greater than BAU has been assumed. Where possible we have considered national sector strategies and their aspirational targets for employment growth. Similarly, we have assumed an additional contribution to non-key sectors as a result of indirect and induced impacts.

Background

The BOC Regional Economic Development Strategy (REDS) has a strong sector focus. The strategy was initiated in 2007 and the framework was revised in 2011 (Bay of Connections, 2011). The strategy identifies 13 key sectors where the BOC area has a comparative advantage; and provides support to those sectors to develop an aspirational strategy (BAU+) with a focus on sustainable job growth.

The 13 key sectors identified in the BOC REDS are: Aquaculture, Wood, Kiwifruit, Dairy, Other Food Cultivation & Processing; Energy; Freight Logistics; ICT; Marine; Sport & Recreation; Tourism; Emerging Technologies; and Meat.

Figure 1: Bay of Connections Key Sectors



Source: (Bay of Connections, 2011)

To date, sector strategies have been implemented for Aquaculture (2009, updated in 2013), Wood (2011), Energy (2011), and Freight Logistics (2011), and Sevens (2013). A biking

strategy is currently being developed, and an ICT sector strategy has been identified as the next sector for engagement. A Māori strategy is close to being finalised. A summary of the BOC Sector Strategies is included as an appendix.

Each of these strategies is intended to operate within the BOC REDS framework, with a focus on enabling a prosperous region through generating and encouraging additional sustainable employment. There is a strong focus on collaboration, with the strategies developed, implemented and overseen by key sector representatives, regional stakeholders and relevant agencies.

Each of the key sectors where a strategy has been implemented is discussed separately in the following sections. Each strategy has been assessed to identify the vision, goals and themes; and a scenario assumption has been determined to identify the strategy employment target.

For key sectors where there is no direct BOC strategy (Kiwifruit, Dairy, Other Food Cultivation & Processing; Marine; Sport & Recreation; Tourism; Emerging Technologies; Meat), we have applied a consistent growth rate above the BAU level that reflects the positive indirect impacts resulting from actions implemented in those sectors where a strategy is in place. Similarly, for non-key sectors, we have applied a consistent growth rate above the BAU that reflects the induced impacts resulting from increased expenditure from industry and households.

BERL Scenarios

The BERL scenarios have been developed in a separate report to Bay of Plenty Regional Council.¹ These include a Business as Usual, Strategy Stretch and Reality Check scenario. These have been developed using BERL's Computable General Equilibrium Model.

Underpinning the regional scenarios is a national projection that is based on world growth and the demand for New Zealand exports recovering and then growing at their historical averages. Similarly the level of productivity across the sectors of the New Zealand economy continues to improve at their historic levels. National growth by industry is shown in Table 1.

Table 1: New Zealand Employment Projections to 2022

FTEs	2012	2022	difference	%p.a.	FTEs p.a.
Aquaculture	3,389	3,480	91	0.27%	9
Forestry	28,175	32,382	4,207	1.40%	421
Kiwifruit	15,577	16,746	1,169	0.73%	117
Dairy	57,449	61,006	3,557	0.60%	356
Other Food Cultivation & Processing	67,898	71,197	3,299	0.48%	330
Energy	7,533	8,276	743	0.95%	74
Transport & Logistics	47,916	55,097	7,181	1.41%	718
ICT	51,923	59,254	7,331	1.33%	733
Marine	8,025	9,377	1,352	1.57%	135
Sport & Recreation	20,956	23,220	2,264	1.03%	226
Tourism	89,917	103,594	13,677	1.43%	1,368
Emerging Techs	17,471	20,397	2,926	1.56%	293
Meat	55,060	59,925	4,865	0.85%	486
Total Strategic Sectors	471,291	523,952	52,661	1.06%	5,266
<i>Other (non-key) Sectors</i>	<i>1,407,955</i>	<i>1,585,254</i>	<i>177,300</i>	<i>1.19%</i>	<i>17,730</i>
Total All Industries	1,879,245	2,109,206	229,961	1.16%	22,996

Source: BERL Regional Database and CGE Forecast to 2022

At a national level, the fastest employment growth is in Marine, Emerging Technologies, Tourism, Transport & Logistics and Forestry. Growth is projected to be slowest in Aquaculture and Other Food Cultivation & Processing.

¹ (BERL, 2013)

Regional industry growth is calculated by using the historic growth rates of the Bay of Plenty relative to New Zealand at an industry level. This gives the Bay of Plenty BAU scenario. For the Strategy Stretch and Reality Check scenarios, the growth rates of specific industries are shocked to mimic increased productivity or outputs in specific sectors. The BERL scenarios are shown in Table 2.

Table 2: BERL Scenarios for Future Alternatives, 2012 - 2022

FTEs	2012	2022	difference	%p.a.	FTEs p.a.
BAU (scenario 1)					
Key sectors	37,500	42,300	4,800	1.2	480
Other sectors	84,300	97,600	13,300	1.5	1,330
Total (all industries)	121,800	139,900	18,100	1.4	1,810
Strategy stretch (scenario 2)					
Key sectors	37,500	47,600	10,100	2.4	1,010
Other sectors	84,300	106,000	21,700	2.3	2,170
Total (all industries)	121,800	153,600	31,800	2.3	3,180
Reality check (scenario 3)					
Key sectors	37,500	45,000	7,500	1.8	750
Other sectors	84,300	102,700	18,400	2.0	1,840
Total (all industries)	121,800	147,600	25,800	1.9	2,580
New Zealand					
Key sectors	471,000	524,000	52,700	1.1	5,270
Other sectors	1,408,000	1,585,000	177,000	1.2	17,730
Total (all industries)	1,879,000	2,109,000	230,000	1.2	23,000

Source: BERL Regional Database 2012 and CGE Forecast to 2022

Employment growth in the Bay of Plenty region is expected to be higher than for New Zealand under all three scenarios.

Aquaculture

In 2012, the Aquaculture sector employed 316 FTEs. Under the BAU scenario, the Aquaculture sector is expected to employ 392 FTEs in 2022, an annual growth rate of 2.2 percent. This is faster than nationally, where employment in the Aquaculture sector is expected to grow by 0.3 percent per annum. Table 3 sets out the vision, goal, and themes for the BOC Aquaculture Sector Strategy.

Table 3: Aquaculture Vision, Goals and Themes²

Sector	Vision	Goal	Action themes
Aquaculture	The Bay of Plenty is a world-class aquaculture region.	To grow an integrated and sustainable aquaculture industry in the Bay of Plenty with export sales of \$250 million by 2025.	Leadership New opportunities Marine science, technology, education and training Infrastructure support for marine and aquaculture industries.

Scenario Assumption

The Aquaculture Sector Strategy has a tangible goal of export sales of \$250 million by 2025. It is possible to use this goal as a means to estimate likely employment.

Assumptions:

- ratio of employment to exports is the same as nationally in 2010
- inflation at 2%pa.

In 2010, the ratio of employment to exports in aquaculture was 13.24 FTEs per \$1 million of exports. This suggests that by 2022, there should be FTE employment of 1,927 FTEs. This compares to the BAU employment estimate of 630 FTEs. This is shown in Figure 2.

² (Bay of Connections, 2013)

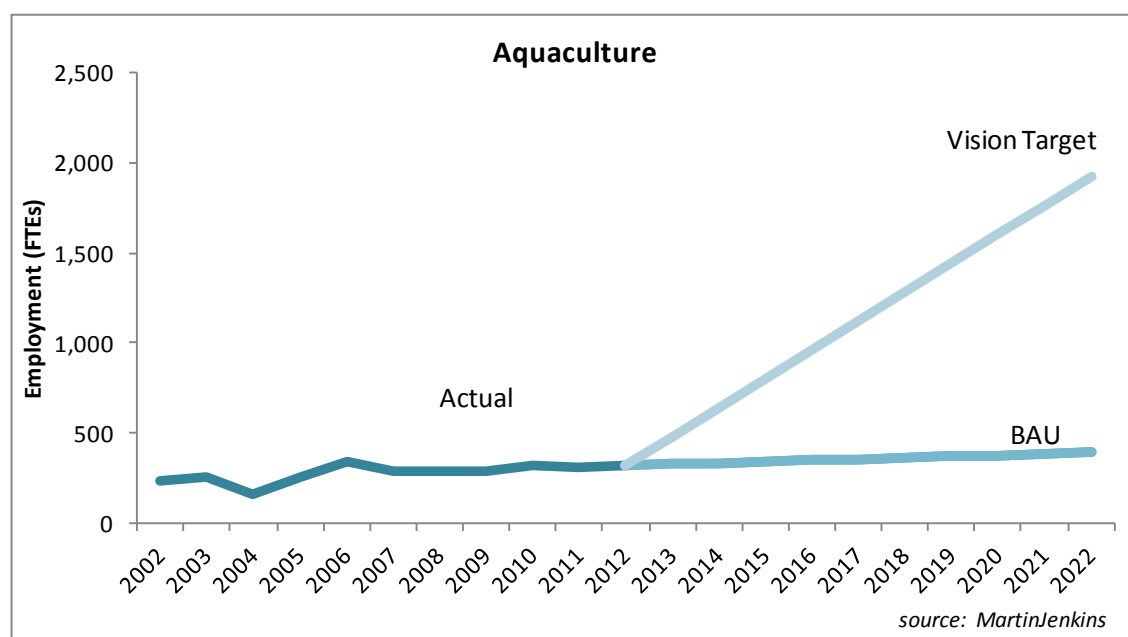
Figure 2: Aquaculture Sector, FTE Growth Scenarios

Table 4 shows the total and annual increase in employment under both the BAU and BOC Strategy scenarios and the expected increase under both. The final column shows the 'additional' employment generated as a result of the BOC Strategy.

Table 4: Aquaculture Sector, BAU and BOC Strategy Scenarios to 2022

FTEs	2012	BAU				BOC Strategy				difference between BAU and BOC
		2022	increase	%PA	FTEsPA	2022	increase	%PA	FTEsPA	
Aquaculture	316	392	76	2.2%	8	1,927	1,611	19.8%	161	1,535

Source: MartinJenkins

By 2022, the Aquaculture Sector Strategy is expected to directly add a further 1,535 FTE jobs over and above the BAU projection.

Discussion

The major employment action for the Aquaculture Sector Strategy is the Opotiki Harbour Development project. An economic impact assessment suggests the project will add an additional 236 – 323 new FTE jobs by year 12.³ This suggests that to meet the aquaculture strategy target, around 900 further jobs need to be encouraged.

Applying a more bullish set of outcomes to the Opotiki Harbour Development Project, where higher value species and a greater level of activity was undertaken, could see up to 450 new jobs.⁴ There could also be improved utilisation of the offshore resource.

The Opotiki Harbour Development Project is also unlikely to begin contributing significantly to aquaculture sector employment numbers until at least 2016, when marine farm production begins.⁵

Another area of potential activity is around inland aquaculture, particularly around Taupo and Opotiki, with the potential to use geothermal energy sources. Sector engagement to support development could encourage additional activity and see an increase in employment. Similarly, in the area of marine science, there is opportunity to develop new high value aquaculture activities, although these are also potentially high risk. The return on this engagement is longer term.

Achieving the aspirational growth target in the Aquaculture Sector in the Bay of Connections region is dependent on a number of positive outcomes. These include not only the Opotiki Harbour Development Project which is a catalyst to growth, but also the success of offshore mussel production, the export value of mussels and the development of other offshore sites in the region.

The development of further offshore sites is the greatest unknown but has the greatest growth potential. Further, the BOC region is supportive of offshore aquaculture and there is plenty of good quality water space available. Thus the strategy target, whilst looking impressive may be achieved with some fair tail winds.

³ (Sapere, 2013)

⁴ (Sapere, 2013)

⁵ The project is also likely to incur around \$70 million in capital expenditure, the majority of that in the first ten years, adding around 350 FTE equivalents for one year (Sapere, 2013).

Wood

In 2012, the Wood Sector employed 5,834 FTEs. Under the BAU scenario, the Wood Sector is expected to employ 5,921 FTEs, an annual growth rate of 0.1 percent. This is **slower than nationally**, where employment in the wood sector is expected to grow by 1.4 percent per annum.

Table 5 sets out the vision, goal, and themes for the BOC Wood Sector Strategy.

Table 5: Wood Vision, Goals and Themes⁶

Sector	Vision	Goal	Action themes
Wood	A world class forestry and wood processing region.	By 2020 we will be adding value to over 70% of the logs harvested in the region.	Investment environment – implementation, partnerships & integration regulations and standards market development competitiveness incentives & assistance log supply security Infrastructure – access & capability energy sustainable land use research & development education & training

Scenario Assumption

The BOC Wood Sector Strategy sets a clear quantitative goal of adding value to over 70 percent of the logs harvested. Analysis undertaken as part of the strategy development suggested that this would directly employ an additional 720 FTEs by 2021 (Bay of Connections, 2011, p. 44).

However, this only incorporates additional investment to achieve the 70 percent value add target, and does not include other actions identified in the strategy. As well, it does not capture

⁶ (Bay of Connections, 2011)

employment related to the construction and operation of biorefineries for the production of transport biofuels. Running a growth scenario 50 percent faster than the national growth rate of 1.4 percent per annum results in FTE growth of 1,348, which is greater than the 722 FTEs identified within the strategy document. The BAU and BOC Strategy Scenarios are shown in Figure 3.

Figure 3: Wood Sector, FTE Growth Scenarios

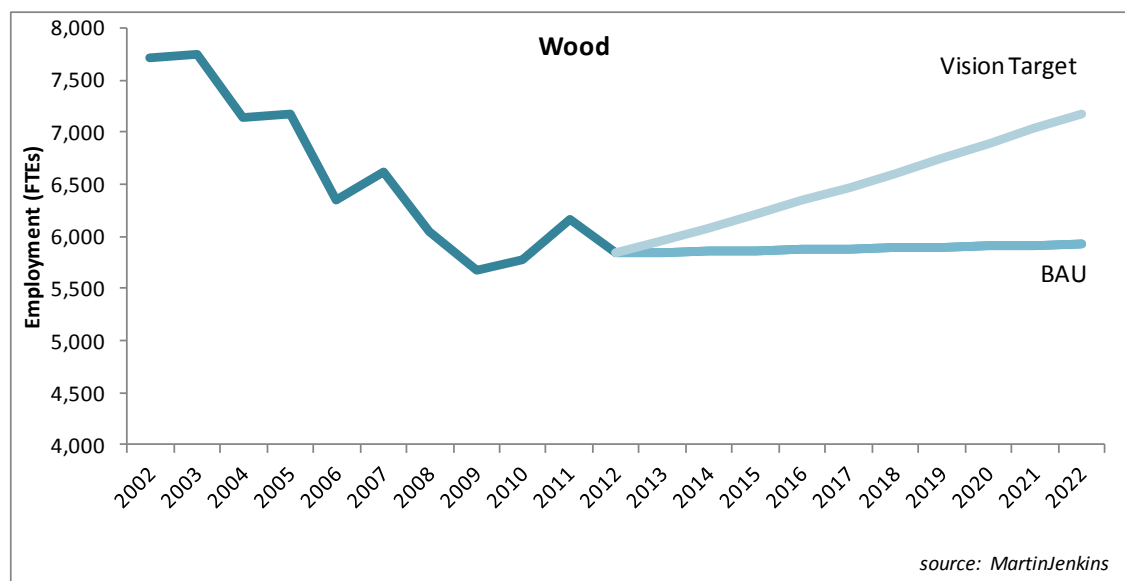


Table 6 shows the total and annual increase in employment under both the BAU and BOC Strategy scenarios and the expected increase under both. The final column shows the 'additional' employment generated as a result of the BOC Strategy.

Table 6: Wood Sector, BAU and BOC Strategy Scenarios to 2022

FTEs	2012	BAU				BOC Strategy				difference between BAU and BOC
		2022	increase	%PA	FTEsPA	2022	increase	%PA	FTEsPA	
Wood	5,834	5,921	87	0.1%	9	7,182	1,348	2.1%	135	1,261

Source: MartinJenkins

Applying a scenario where the wood sector grows 50 percent faster than the national average, the wood sector strategy is looking to achieve 1,260 more FTEs than suggested under the BAU scenario by 2022.

Discussion

Within the Wood Sector Strategy (Bay of Connections, 2011, p. 44), a scenario to 2020 was discussed. The scenario was based on expected growth in forest resource and additional investment required to achieve a 70 percent added value component. Based on the scenario, the sector would add an additional 720 FTEs by 2020. This would be achieved through the investment of NZ\$400 million and generate additional regional GDP of \$150 million per annum. The total increase based on the scenario of 1,348 FTEs is close to double that. However, as noted earlier, the 720 only included employment related to additional investment in processing and did not consider other actions that were identified.

Further, the BOC Strategy Scenario growth target of 2.1 percent per annum is well within the national sector strategy target as stated in the New Zealand Forest and Wood Products Industry Sector Strategy (Woodco, 2012), where the vision is to double export earnings from \$4.5 billion in 2011 to \$12 billion in 2022. This suggests annual average growth in exports of 9.3 percent, which is much higher than the 2.1 percent per annum in the BOC Strategy Scenario. With the focus on value added, you would expect export growth to be at a faster rate than employment growth.

For instance, the Woodscape study (Scion, 2013) identified significant opportunities for wood processing through adding value to logs exports, increasing labour productivity and increasing capital investment. The three themes identified in the study were: compete; transform; and innovate. This would all contribute to higher output per FTE.

Since the BOC Wood Sector Strategy was launched, there have been setbacks in the sector within the BOC region. One of the two newsprint machines at Norske Skog's Kawerau Paper Mill closed with the loss of 110 jobs and the closure of the Tachikawa Forest Products Rotorua Sawmill has recently been announced with potential loss of 120 jobs. However, at the same time, there also appears to be growth within existing processors, which has partly offset the job losses.

A large proportion of the Energy Sector Strategy's employment outputs are likely to occur within the wood sector, particularly as a major component of the Energy Sector Strategy is on conversion of the wood residual into wood fuels and biofuels. This suggests that employment outcomes in the Wood Sector Scenario could be increased further as the Energy Sector Strategy outputs are realised. This potential growth (estimated at around 300 additional FTEs by 2020) has not been incorporated explicitly into the growth scenario suggested in the Wood Sector Strategy but is implicit in the growth rate adopted for this BOC Strategy Scenario analysis.

Energy

In 2012, the Energy Sector employed 871 FTEs. Under the BAU scenario, the Energy Sector is expected to employ 1,293 FTEs in 2022, an annual growth rate of 4.0 percent. Because new electricity generation power stations are likely to be geothermal energy fuelled, and from within the region, this is faster than nationally, where employment in the Energy Sector is expected to grow by 0.9 percent per annum.

Table 7 sets out the vision, goal, and themes for the BOC Energy Strategy.

Table 7: Energy Vision, Goals and Themes⁷

Sector	Vision	Goal	Action themes
Energy	Wealth and wellbeing via energy.	By 2030 the Bay of Plenty has additional energy investments of \$3 billion and 13,000 new jobs.	Growth – investment and partnerships Resources – develop and manage Supply – secure and affordable Use – wise and efficient

The vision target included traditional uses of energy for electricity and heat production and energy products derived from wood and waste.

Scenario Assumption

The BOC Energy Strategy signals an employment target of 13,000 new jobs by 2030. However, only a proportion of these are within the defined Energy Supply sector.⁸ A proportion of the employment target will come from new energy products such as transport biofuels, which will be produced from biomass and waste sourced from within the region. The target does not include employment changes as a result of improvement in energy supply and use.

As a part of the Energy Sector Strategy development, an assessment was made of the likely employment outcomes. These were based on the successful implementation of the actions and resulting investment. Employment was split across direct – energy supply and emerging biorefining⁹ businesses; and indirect – forestry, aquaculture, horticulture and tourism.

⁷ (Bay of Connections, 2011)

⁸ Defined as electricity and gas supply.

⁹ The emerging investment in biorefineries producing transport biofuels are included in the energy sector rather than the wood sector as the programmes are demand driven even though the resource is a product of the wood processing sector.

According to the Energy Sector Strategy assessment, successful implementation would result in an additional 1,690 FTEs by 2020, an additional 3,220 FTEs by 2030, and an additional 6,050 FTEs by 2040 within the Energy Sector (energy supply). Indirectly, an additional 500, 1,200 and 2,160 FTEs could be attributed to the Energy Sector Strategy over the same period. While the numbers do not add up to 13,000 jobs, the assessment is grounded to specific outputs while still being aspirational. Applying these assumptions provides the following BOC Strategy Scenario for the Energy Sector Strategy (Figure 4).

Figure 4: Energy Sector, FTE Growth Scenarios

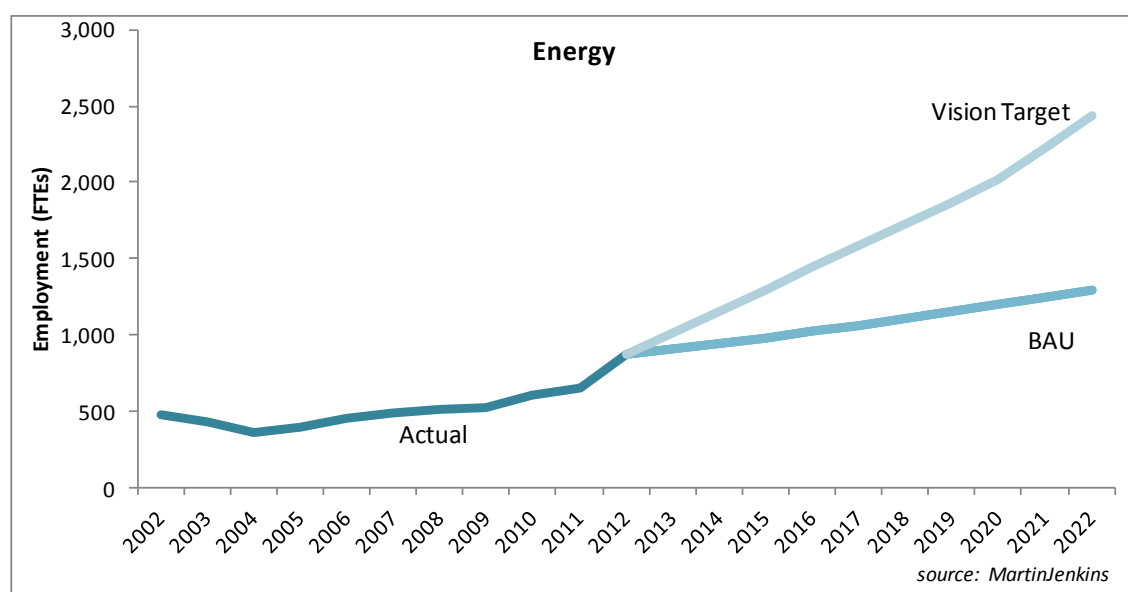


Table 8 shows the total and annual increase in employment under both the BAU and BOC Strategy scenarios and the expected increase. The final column shows the 'additional' employment generated as a result of the BOC Strategy Scenario.

Table 8: Energy Sector, BAU and BOC Strategy Scenarios to 2022

FTEs	2012	BAU				BOC Strategy				difference between BAU and BOC
		2022	increase	%PA	FTEsPA	2022	increase	%PA	FTEsPA	
Energy	871	1,293	422	4.0%	42	2,433	1,562	10.8%	156	1,140

Source: MartinJenkins

By 2022, the Energy Sector Strategy is expected to directly add a further 1,140 FTE jobs over and above the BAU projection.

Discussion

Within the BOC region there is expected to be steady energy growth through geothermal, particularly in Taupo through electricity generation projects, and in Rotorua/Kawerau through heating and industrial energy generation. Electricity generation projects maintain steady rather than spectacular growth in employment figures. There is activity during the construction phase. However, once up and running, employment requirements for new power stations are not high as the new power stations can be operated and maintained using existing personnel.

The area where the Energy Sector Strategy is likely to generate new employment activity is the conversion of the wood residual into firstly wood fuels and then biofuels. In terms of value added and growth in the Energy Sector, there is a significant overlap with the Wood Sector Strategy, particularly in the areas of wood for fuel biofuels and the use of geothermal energy within industry (including wood processing). Scion has undertaken work through the Woodscape Study¹⁰, which found the options in the BOC area were:

- large scale integrated solid wood processing facilities
- large scale production of biofuels and chemicals
- integration of geothermal energy with wood processing.

In the **efficiency** and **secure and affordable supply** areas of the Energy Sector Strategy, benefits are again likely to be experienced by other sectors and are not included in this sector.

An important issue with the BOC Strategy Scenario with regard to energy products derived from biomass and waste is that employment outcomes in these activities are only likely to be realised after a period of time so there is unlikely to be a linear increase in employment. The first phase is around foundation building and ensuring the availability of supply, particularly wood fuels (for example, to Fonterra). The second area of biofuels requires significant investment with large players such as Norske Skog and CHH. This will take time.

The Energy Sector Strategy also follows the timeframe presented in the New Zealand Bioenergy Strategy¹¹, where the aim is to lift bioenergy use by 2040 to 25 percent of consumer energy. The Bioenergy Strategy has a three phase approach, with the development phase being from 2015, and the expansion phase being from 2020. This suggests that tangible employment gains will not be seen until at least 2015 - 2020.

¹⁰ (Scion, 2013)

¹¹ (Bioenergy Association of New Zealand, 2010)

Freight Logistics

In 2012, the Freight Logistics Sector employed 4,284 FTEs. Under the BAU scenario, the Freight Logistics Sector is expected to employ 5,194 FTEs, an annual growth rate of 1.9 percent. This is **faster than nationally**, where employment in the Freight Logistics Sector is expected to grow by 1.4 percent per annum. Table 9 sets out the vision, goal, and themes for the BOC Freight Logistics Sector Strategy.

Table 9: Freight Logistics Strategy Vision, Goals and Themes¹²

Sector	Vision	Goal	Action themes
Freight Logistics	World Class freight logistics.	Lift New Zealand's ranking in Logistics Performance.	Leadership and planning Partnerships and integration Enabling legislation and regulation Health, safety and environment Logistics infrastructure Enabling technology Development and innovation Workforce and skills

Scenario Assumption

It is not possible to identify a clear employment target for the BOC Freight Logistics sector from its vision, goal or themes. In fact, a significant increase in employment is not necessarily a desirable outcome considering that freight and logistics services is an input into other sectors; and the vision and goals are focused on performance improvements, including efficiency improvements.

Employment growth (for example, through increasing the scale of Port Tauranga) needs to be considered separately to productivity growth (i.e. more efficient freight movement that lowers freight costs to customers).

In the first instance, we have used a 3.9 percent per annum stretch target, which is twice the BAU growth rate of 2.0 percent per annum. The BAU and BOC Strategy Scenarios are shown in Figure 5.

¹² (Bay of Connections, 2011)

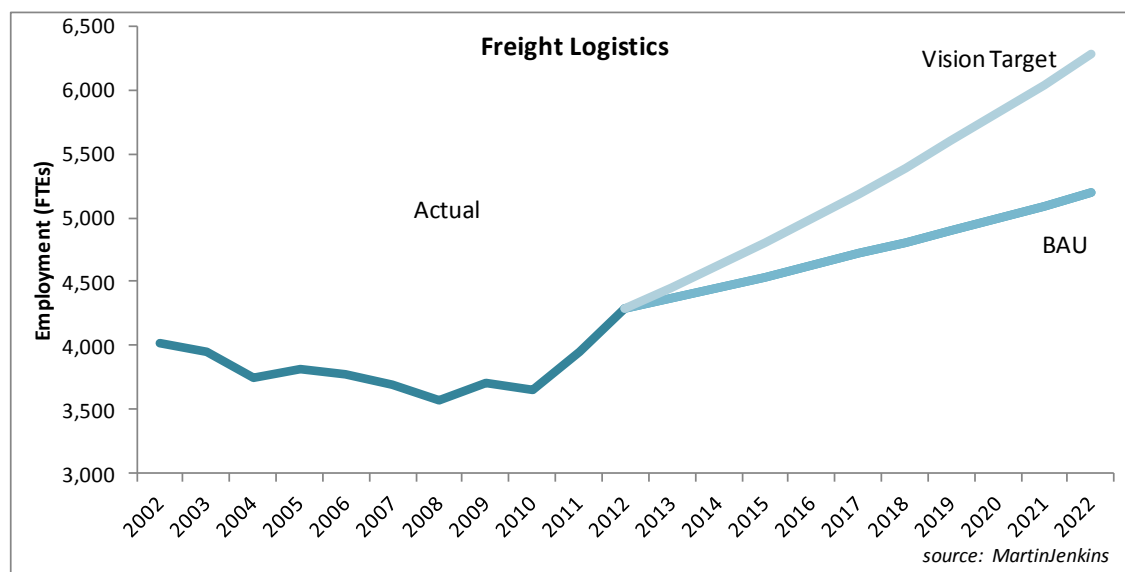
Figure 5: Freight Logistics Sector, FTE Growth Scenarios

Table 10 shows the total and annual increase in employment under both the BAU and BOC Strategy scenarios and the expected increase under both. The final column shows the 'additional' employment generated as a result of the BOC Strategy Scenario.

Table 10: Freight Logistics Sector, BAU and BOC Strategy Scenarios to 2022

FTEs	2012	BAU				BOC Strategy				difference between BAU and BOC
		2022	increase	%PA	FTEsPA	2022	increase	%PA	FTEsPA	
Freight Logistics	4,284	5,194	910	1.9%	91	6,274	1,990	3.9%	199	1,080

Source: MartinJenkins

By 2022, the BOC Freight Logistics Sector Strategy is expected to directly add a further 1,080 FTE jobs over and above the BAU projection.

Discussion

Positive outputs on some actions in the BOC Freight Logistics Sector Strategy do not necessarily result in improvements in employment outcomes within the Freight Logistics Sector. This is because improvements in efficiency within the sector can result in fewer employees. An example is the move to HPMV, which results in an increase in freight movement with fewer trucks and potentially employees.

Therefore, the analysis needs to consider and differentiate between efficiency gains that can result in a reduction in employment within the Freight Logistics Sector and an increase in

employment in sectors with significant logistics activity; and employment change as a result in increased activity within the Freight Logistics Sector as a result of their improved efficiency.

Efficiency improvements

Improvements in freight logistics efficiency will result in lower business costs and improved competitiveness in export markets. Further, more efficient logistics can result in deferring expenditure on infrastructure as freight volume increases.

Within the BOC Freight Logistics Sector Strategy there is a focus on the correlation between freight movement and GDP. An earlier study estimated the ratio as 1.4 to 1.0, which means that heavy vehicle travel increases at a rate approximately 1.4 times the real rate of increase in GDP.

Similarly, the BOC Freight Logistics Sector Strategy looks at the international competitiveness of New Zealand through the World Bank Logistics Performance Index, which is a biennial report on comparative logistics performance across around 150 countries. With the Upper North Island handling around 65 percent of the country's freight movements¹³, and around a third¹⁴ of New Zealand's exports going through the Ports in the BOP, the index is a good indicator of the efficiency of the BOC freight logistics.

In 2006, 55 percent of freight movements in the Bay of Plenty region were from within the Bay of Plenty region.¹⁵ That is, goods produced within the region and moved through the region, largely for export through the Port of Tauranga. Improvements in efficiency can result in improved performance in key export sectors, but also other sectors that have a high logistics costs. This can flow through to increase employment, particularly if there is output growth as a result of the logistics gains.

Employment growth

Employment growth within the Freight Logistics Sector is likely to be tied to increasing export and import volumes moving through the Port of Tauranga. Employment will result from increased servicing (stevedoring and marshalling) and associated logistics service providers including storage and warehousing and transport providers that base themselves in the BOC region. Over 2,000 people currently work at the Port of Tauranga, of which 185 are directly employed by the Port.¹⁶

¹³ (Bay of Connections, 2011)

¹⁴ (Ministry of Business, Innovation and Employment, 2013)

¹⁵ (Richard Paling Consulting, 2010)

¹⁶ (Port of Tauranga, 2013)

Globally, freight movements are increasing at around 4.5 percent annually. Port of Tauranga has seen container growth increase by around nine percent annually. Nationally, the upper North Island generates more than half the country's GDP and contains over half the population. This results in more than half of New Zealand's freight moving through Northland, Auckland, Waikato and the Bay of Plenty.¹⁷

In 2006, 126 million tonnes of freight moved through the Upper North Island. This volume is expected to double by 2035.¹⁸ The Bay of Plenty Regional Freight Study suggests that freight volumes will increase from 31.8 million tonnes to over 48.6 million tonnes by 2031, an increase of 53 percent.¹⁹

In 2013, total exports through the Port of Tauranga increased by six percent, with export growth led by logs (14%), dairy (27%) and meat (8%). The Port of Tauranga is the single largest export port for Kotahi, who are the logistics company formed to support Fonterra (dairy), Silver Fern Farms (meat) and other primary commodity producers.²⁰

This suggests that the BOC region is an increasingly significant player in the movement of goods, particularly in New Zealand's key export sectors.

Employment growth as a result of increased activity is captured directly within the Freight Logistics sector. With export volumes nationally increasing and with the Port of Tauranga aiming to increase its share of export throughput, assuming growth twice the regional BAU and 2.8 times the national BAU scenarios for the sector strategy is an achievable target.

¹⁷ (Upper North Island Strategic Alliance, 2013)

¹⁸ (Richard Paling Consulting, 2010)

¹⁹ (Richard Paling Consulting, 2010)

²⁰ (Port of Tauranga, 2013)

Sport & Recreation

In 2012, the Sport & Recreation Sector employed 1,793 FTEs. Under the BAU scenario, the Sport & Recreation Sector is expected to employ 1,999 FTEs, an annual growth rate of 1.1 percent. This is **slightly faster than nationally**, where employment in the Sport & Recreation Sector is expected to grow by 1.0 percent per annum.

Similar to the Energy and Freight Logistics strategies, the bulk of employment benefit are not captured within the Sport & Recreation Sector itself. The Tourism Sector is the main beneficiary due to visitors and participants attracted to events and facilities.

Within the Sport & Recreation Sector, there are two separate strategies. The Sevens Strategy has been adopted and is underway, while the Biking Strategy is currently being developed and will be launched in late 2013/early 2014.

Sevens Strategy

The BOC Sevens Strategy sits within the Sport & Recreation Sector. Table 11 sets out the vision, goal, and themes for the BOC Sevens Strategy.

Table 11: Sevens Vision, Goals and Themes²¹

Sector	Vision	Goal	Action themes
Sevens	The Bay of Plenty is the world's leading Sevens Rugby service provider.	A Sevens Rugby programme that attracts the interest and commitment of the world's Sevens nations, delivering sporting and economic benefit to the Bay of Plenty through employment, investment and revenue.	Event hosting; National team base; High performance facilities and training courses; Education; Tourism; International opportunities; Funding

Although there is no clear target from which to estimate employment, the actions are relatively tangible i.e. number of events hosted, national teams attracted, courses run etc. Having a clearer understanding of a likely scenario based on these actions will allow us to assign employment outcomes to the BOC Sevens Strategy. However, as noted above, much of the employment benefit will be through the Tourism Sector.

²¹ (Bay of Connections, 2013)

Biking Strategy

The BOC (along with others²²) supports the Cycling and Mountain Biking Tourism Marketing Network (CMBTMN), which has been formed to promote cycling and mountain biking in the Central North Island as a tourism offering to domestic and international visitors.

The CMBTMN area has the highest concentration and variety of trails in New Zealand, and includes eight of the 21 “Great Rides” trails. The goal is to make these trails known to domestic and international visitors to build the Central North Island’s reputation:

- 1 internationally as THE region to visit for cycling and mountain biking in New Zealand
- 2 internationally as one of the best cycling and mountain biking destinations in the world
- 3 domestically and internationally for the quality and variety of its cycling and mountain biking trails.

The CMBTMN is focused on the Central North Island and has a steering committee made up of eight regional tourism bodies - Bay of Plenty, Rotorua, Coromandel, Taupo, Eastland, Hawke’s Bay, Ruapehu and Hamilton/Waikato.

Although included within the Sport & Recreation Sector, the Biking Strategy is largely a tourism play in relation to employment outcomes. The Biking Strategy is based on marketing cycle trails in the BOC region and providing an avenue for existing and new businesses to participate.

While there may be a few jobs created to support the ongoing marketing and administration, and increased retail sales of biking equipment that can be captured within the Sport & Recreation Sector, the majority of the employment growth will be as a result of expenditure within the Tourism sector.

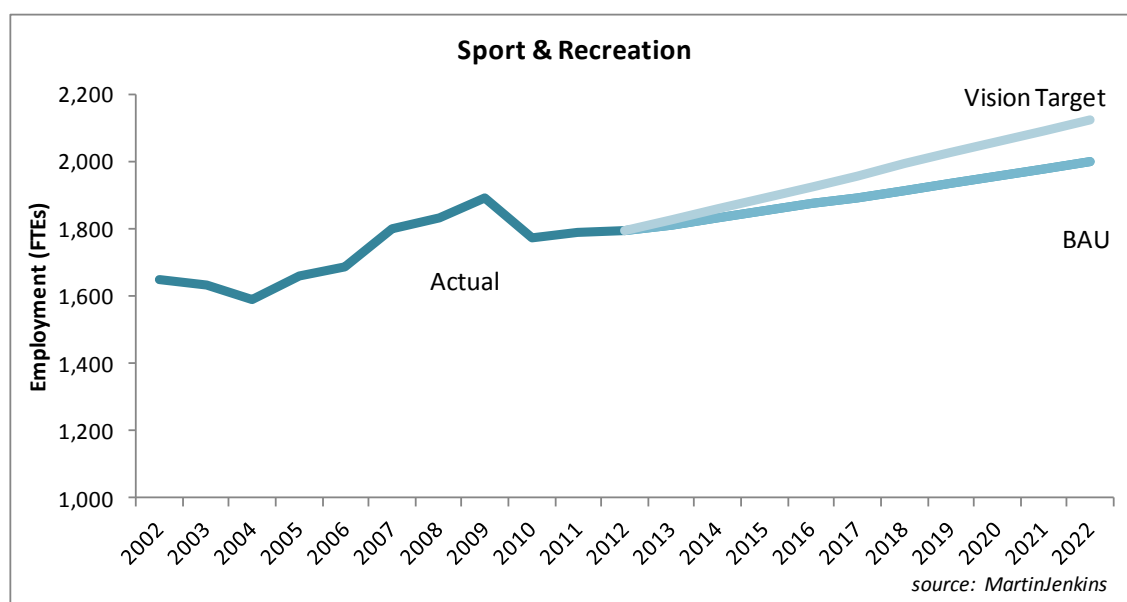
²² Sport Bay of Plenty, Sport Waikato and Rotorua International Airport.

Scenario Assumption

Within the Sport & Recreation Sector itself, much of the employment outcomes will result from project administration and maintenance of grounds and facilities. However, there is some flow on to retailing, where a portion is assigned to the sector.²³

In the absence of clear employment goals, the BOC Strategy Scenario is based on employment in the Sport & Recreation Sector growing at 1.6 times the BAU rate out to 2022, which is equivalent to an additional 12 FTEs per annum over the BAU scenario. The BAU and BOC Strategy scenarios are shown in Figure 6.

Figure 6: Sport & Recreation Sector, FTE Growth Scenarios



Initial growth is likely to be from the BOC Sevens Strategy through the administrative infrastructure required to host the national sevens, as well as high performance training for international teams, peaking for the 2016 Olympics. The Biking Strategy is likely to kick in over 2014/15 and will result in a slight increase in the sector's employment.

²³ The Sport & Recreation sector is made up of Toy and Sporting Good Manufacturing (25%); Clothing Wholesaling (10%); Footwear Wholesaling (10%); Toy and Sporting Good Wholesaling (25%); Clothing Retailing (10%); Footwear Retailing (10%); Sport and Camping Equipment Retailing (90%); Toy and Game Retailing (10%); Sports Grounds and Facilities nec (87%); Sports and Services to Sports nec (87%); Other Recreation Services (87%).

Table 12 shows the total and annual increase in employment under both the BAU and BOC Strategy scenarios and the expected increase under both. The final column shows the 'additional' employment generated as a result of the BOC Strategy.

Table 12: Sport & Recreation Sector, BAU and BOC Strategy Scenarios to 2022

FTEs	2012	BAU				BOC Strategy				difference between BAU and BOC
		2022	increase	%PA	FTEsPA	2022	increase	%PA	FTEsPA	
Sport & Recreation	1,793	1,999	206	1.1%	21	2,123	330	1.7%	33	124

By 2022, the Sevens and Biking strategies are expected to directly add a further 124 FTE jobs over and above the BAU projection.

Discussion

The BOC Strategy Scenario suggests that 33 FTEs will be added by the sector each year over the next ten years. Of these, 12 will be as a result of the Sport & Recreation Sector strategies, namely the Sevens and Biking strategies.

The Bay of Plenty Rugby Union has achieved its first target of securing the national sevens tournament for 2014 and 2015. The national sevens tournament had previously been hosted by Queenstown. The tournament is hosted over two days and there is full coverage of the tournament on Sky TV.

The BOP Rugby Union and the Bay of Plenty Polytechnic have received funding from the Ministry of Education to develop a "rugby sevens study abroad" programme. Other actions are still to be initiated.

The Biking Strategy is still in the development phase and a decision on whether it progresses beyond that phase will be determined next year. However, with little impact expected on employment within the Sport & Recreation sector, the decision will not significantly impact on the aspirational strategy target.

With much of the economic benefit being captured by the Tourism Sector through visitors and participants attracted as a result of the strategies, the Sport & Recreation Sector itself is unlikely to benefit significantly. Additional activity will largely be in administration and maintenance and development of sport and recreation facilities.

Like the other strategies the actual sector target is aspirational and it is unclear whether the successful implementation of all actions under each strategy will result in the sector target being achieved. Further, with much of the activity occurring outside the Sport & Recreation Sector, a clearer understanding of the likely tourism impacts of the actions will provide a better picture of the value of the two Sport & Recreation strategies.

ICT

ICT is likely to be the next BOC sector strategy to be implemented after biking. As the ICT Sector Strategy is likely to be implemented within the scenario period, a growth scenario greater than BAU has been calculated.

In 2012, the ICT Sector employed 872 FTEs. Under the BAU scenario, the ICT Sector is expected to employ 1,010 FTEs, an annual growth rate of 1.5 percent. This is **faster than nationally**, where employment in the ICT Sector is expected to grow by 1.3 percent per annum.

Scenario Assumption

The ICT sector is assumed to grow at twice the BAU rate due to an aspirational goal and positive actions being set. This suggests an annual growth rate of 3.3 percent per annum between 2012 and 2022 (or 4.1 percent per annum between 2015 and 2022). It is expected that the strategy will be implemented in 2015. The BAU and BOC Strategy scenarios are shown in Figure 7.

Figure 7: ICT Sector, FTE Growth Scenarios

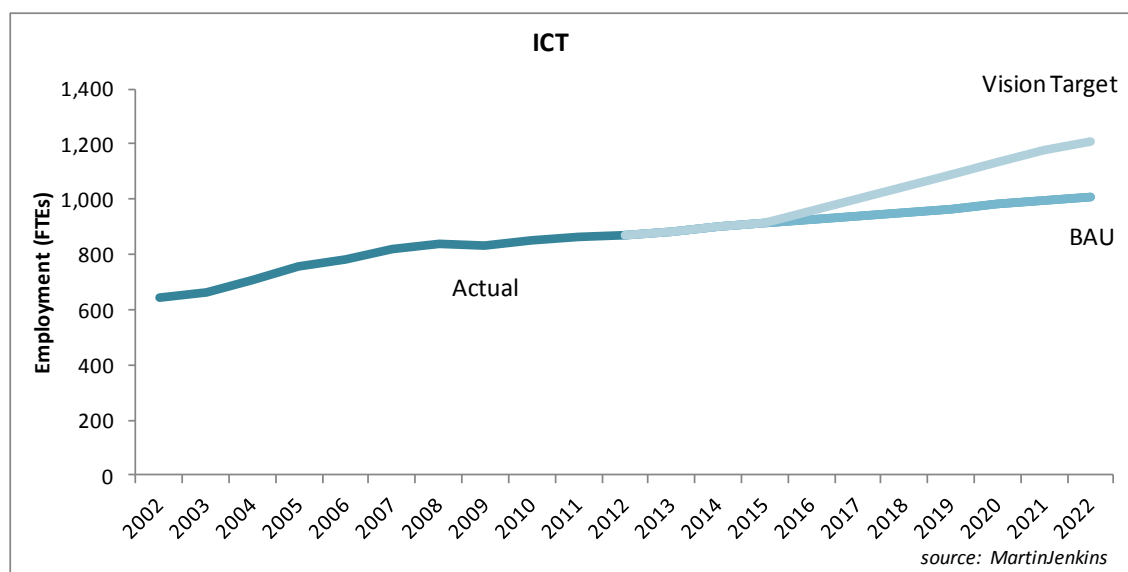


Table 13 shows the total and annual increase in employment under both the BAU and BOC Strategy scenarios and the expected increase under both. The final column shows the 'additional' employment generated as a result of the BOC Strategy.

Table 13: ICT Sector, BAU and BOC Strategy Scenarios to 2022

FTEs	2012	BAU				BOC Strategy				difference between BAU and BOC
		2022	increase	%PA	FTEsPA	2022	increase	%PA	FTEsPA	
ICT	872	1,010	138	1.5%	14	1,207	335	3.3%	34	197

Source: MartinJenkins

By 2022, the ICT Sector Strategy is expected to directly add a further 197 FTE jobs over and above the BAU projection.

Discussion

The ICT Sector Strategy has not yet been developed. This scenario is based on the strategy being in place by 2015.

Impact on Other Sectors

The actions taken in the sectors where strategies are underway will have a direct impact on the performance of the other key sectors (Kiwifruit, Dairy, Other Food Cultivation & Processing, Marine, Tourism, Emerging Technologies, and Meat). There are also likely to be flow-on effects to non-key sectors, both in terms of improved productivity, but also as a result of increased employment and therefore regional expenditure and potentially population growth.

Other key sectors

The sectors for which strategies are in place are closely tied to the performance of other key sectors in the BOC region. In particular:

- effective Freight Logistics affects the productivity of those sectors that have a high transport component such as dairy, kiwifruit, meat, forestry, and tourism.
- improvements in energy efficiency affect the productivity of all sectors, especially those that are high energy consumers. There is a particularly close relationship between energy and forestry, which is a large energy user, but also could be a major contributor to generation of energy through heating fuel as well as biofuels.
- the Sport & Recreation Strategy impacts on the Tourism Sector.

Scenario Assumption

For other key sectors we apply a rate **30 percent** greater than the BAU growth, which supports a relatively high transport and energy component and the flow on effects of actions to those sectors. It also incorporates the inter-relationship of three of the key sector strategies – Energy, Wood and Freight Logistics as well as the impact of Sport & Recreation on the Tourism Sector and population.

To an extent, we have considered the implementation of the Māori Regional Economic Development Strategy into the 30 percent faster growth. We expect the Māori Regional Economic Development Strategy to have a significant impact on the success of other primary based strategies, particularly around wood, energy, aquaculture, dairy, meat and other primary cultivation and processing.

Additionality

The BOC scenario sees other key sector employment in 2022 increase by 908 FTEs more than the 3,027 determined by the BAU scenario, an annual growth rate of 1.6 percent per annum.

Non-key sectors

Finally, there is likely to be a flow on effect to non-key sectors, through increased demand for inputs and services and increased expenditure. Non key sectors include all the other sectors in the economy that have not been included within the key sectors. Further, key sectors are made up of portions of sectors, so the remaining proportion of those sectors is classed as non-key sectors. The following table presents the sectors or portions of sectors that make up the non-key sectors

Table 14: Industries in Non-key Sectors

All of employment in non-key sectors	Proportion of employment in non-key sectors
Oil & gas	Mining and quarrying
Rubber, plastic & other chemical manufacturing	Textiles & apparel manufacturing
Non-metallic mineral manufacturing	Printing, publishing & recorded media
Basic metal manufacturing	Fertiliser & other industrial chemical manufacturing
Water supply; Sewerage, drainage & waste disposal services	Transport equipment manufacturing
Residential construction	Machinery and other equipment manufacturing
Other construction	Furniture and other manufacturing
Finance services	Industrial goods wholesaling
Insurance services	Other wholesale trade
Services to finance & insurance	Retail trade
Real estate	Road passenger transport
Ownership of owner-occupied dwellings	Equipment hire & investments in other property
Central government administration & defence	Scientific research & computer services
Local government administration	Other business services
Pre-school, primary and secondary education	Personal & other community services
Other education	Structural, sheet & fabricated metal manufacturing (30%)
Hospitals and nursing homes	Accommodation, restaurants, cafes, and bars (51%)
Other health & community services	Communication services (21%)
	Cultural & recreational services (31%)
	Horticulture and fruit growing (3%)
	Other farming (3%)
	Services to agriculture, hunting & forestry (1%)
	Rail, water, air transport & services (19%)

Source: BERL

Scenario Assumption

Non-key sector employment increases **10 percent** faster than under the BAU scenario. This is largely a result of business services to the key sectors, but also increased expenditure as a result of more and higher value employment. There is also a second round of benefits through population growth resulting from additional employment opportunities.

Additionality

The BOC scenario sees other non-key sector employment in 2022 increase by 1,330 FTEs more than the 13,299 determined by the BAU scenario, an annual growth rate of 1.6 percent per annum.

Summary

The BOC Strategy Scenario is based on estimating the likely employment within the BOC region as a result of successful sector strategies. Likely employment under the BOC Strategy Scenario is based on the sector strategies either achieving their goals, or growing at a rate faster than BAU.

The BAU scenario has been developed by BERL and uses their Computable General Equilibrium model to assign activity based on a set of likely economic inputs and activity at a global and national level. The BOC scenario analysis identifies additional growth over and above the BAU scenario.

The scenario comparisons by sector are shown in Table 15.

Table 15: Comparison of BAU and BOC Strategy Scenarios

FTEs	2012	BAU				BOC Strategy				difference between BAU and BOC
		2022	increase	%PA	FTEsPA	2022	increase	%PA	FTEsPA	
BOC Sector Strategies										
Aqua culture	316	392	76	2.2%	8	1,927	1,611	19.8%	161	1,535
Wood	5,834	5,921	87	0.1%	9	7,182	1,348	2.1%	135	1,261
Energy	871	1,293	422	4.0%	42	2,433	1,562	10.8%	156	1,140
Freight Logistics	4,284	5,194	910	1.9%	91	6,274	1,990	3.9%	199	1,080
Sport & Recreation	1,793	1,999	206	1.1%	21	2,123	330	1.7%	33	124
ICT	872	1,010	138	1.5%	14	1,207	335	3.3%	34	197
Total Sector Strategies	13,970	15,809	1,838	1.2%	184	21,147	7,176	4.2%	718	5,338
BOC Key Sectors										
Kiwifruit	4,195	4,557	362	0.8%	36	4,665	470	1.1%	47	108
Dairy	5,780	6,144	364	0.6%	36	6,253	473	0.8%	47	109
Other Food Cultivation &	3,578	4,305	727	1.9%	73	4,523	945	2.4%	94	218
Tourism	6,513	7,425	912	1.3%	91	7,698	1,185	1.7%	119	274
Marine	366	494	128	3.1%	13	533	167	3.8%	17	38
Emerging Techs	1,068	1,546	478	3.8%	48	1,689	621	4.7%	62	143
Meat	2,009	2,065	56	0.3%	6	2,082	73	0.4%	7	17
Other Key Sectors	23,510	26,536	3,027	1.2%	303	27,444	3,934	1.6%	393	908
Total Strategic Sectors	37,480	42,345	4,865	1.2%	486	48,590	11,111	2.6%	1,111	6,246
Other (non-key) Sectors	84,293	97,592	13,299	1.5%	1,330	98,922	14,629	1.6%	1,463	1,330
Total All Industries	121,772	139,936	18,164	1.4%	1,816	147,512	25,740	1.9%	2,574	7,576

Source: MartinJenkins

In 2012, the BOC region employed 121,772 FTEs. By 2022, the BAU scenario suggests that the BOC region will employ 139,936 FTEs, which is 18,164 FTEs more than in 2012. Under the BOC Strategy Scenario, the BOC region is expected to employ 147,512 FTEs.

Based on the current set of assumptions we have estimated that the BOC Strategy could contribute an additional 7,576 FTE jobs by 2022, or 758 FTE jobs per year. Additional jobs will occur directly within the sector in which the BOC Sector Strategy is targeting, and indirectly in other key and non-key sectors.

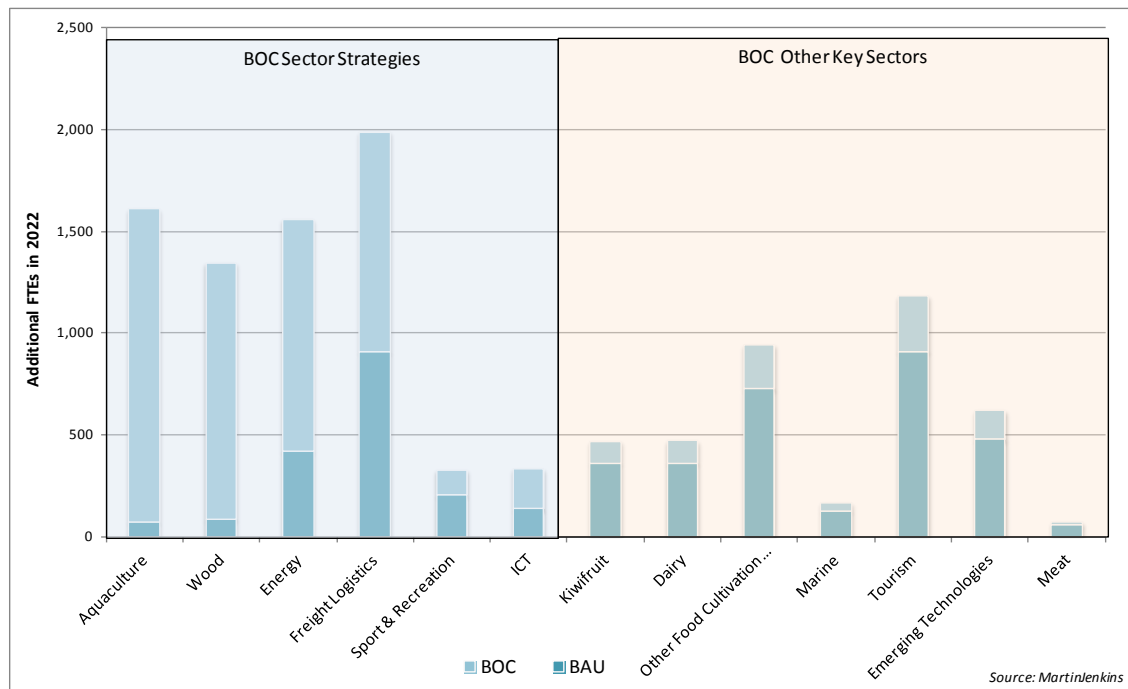
The largest gains are in the four key sectors where there is a BOC Sector Strategy over the scenario period. Combined, these four key sectors account for an additional 5,017 FTE jobs over BAU in 2022. The key sectors (without a strategy in place but for which the region has a comparative advantage) account for a further 908 additional FTEs.

The greatest direct impact is expected to occur in the Aquaculture sector, where an additional 1,535 jobs are expected as a result of BOC collaboration. This is closely followed by the Wood sector with an additional 1,261 FTEs. The Energy and Freight Logistics sectors are next, with additional employment of 1,140 and 1,080 FTEs respectively.

The BOC Sector Strategies will have a significant indirect impact in the other key sectors, particularly the Tourism, Other Food Cultivation & Processing and Emerging Technologies sectors, generating an additional 274, 218 and 143 jobs respectively.

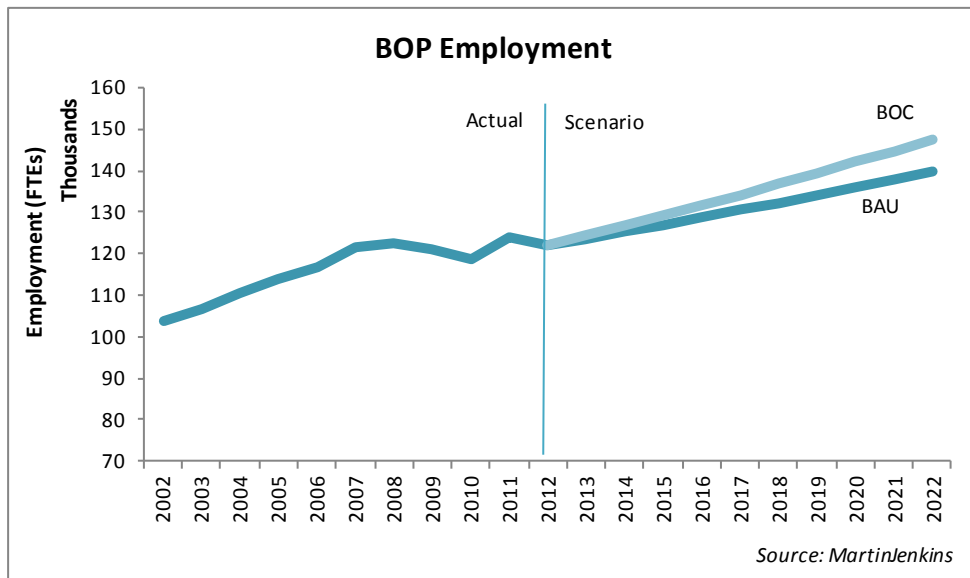
The growth in each sector under the BAU and BOC Strategy scenarios is shown in Figure 8.

Figure 8: BOC FTE Employment Growth to 2022, BAU and BOC Contribution



The BOC Sector Strategies will also have an indirect impact on non-key sectors accounting for 1,330 of the 14,630 additional FTE jobs in 2022. The aggregate difference in employment between the BAU and BOC scenarios is shown in Figure 9.

Figure 9: BOC FTE Employment Growth to 2022, BAU and BOC Strategy Scenarios



Next Steps

The current analysis uses strategy goals or national growth rates as the basis to determine likely employment outcomes in 2022 for the sectors where there has been BOC engagement. We have also assumed that this engagement will have indirect and induced flow-on effects to the remaining sectors in the BOC region.

The analysis is at a fairly high level, and the potential to assign growth outcomes to specific actions is limited. The analysis provides an “**order of magnitude**” of the aspirational employment outcomes expected as a result of the existing strategies being successful.

The end game of an evaluation and measurement framework would be to assign employment outcomes to individual actions within each sector strategy. This would provide a clearer understanding of the value of the action in terms of employment outcomes. It would also allow for a more accurate assessment of **when** the employment outcomes are likely to occur. Combined, these would provide a clearer focus on the specific actions undertaken and the allocation of contestable resources across actions within and across strategies

It would also ensure that actions are consistent with the sector strategies aspirational goals. If the actions are unlikely to result in the aspirational target set in the sector vision and goals, then either individual actions or the goals should be revised.

Further it would allow for better evaluation and *monitoring* of each of the strategies; improve the annual reporting process; and provide a clearer picture of the progress and success of each of the sector strategies.

Finally, it provides a means to measure the success of the BOC REDS as a whole. As a programme of work, it is possible to show the impact on the economy at an aggregate level. This is important to justify, review and improve the BOC REDS.

We would hope to be able to apply a more consistent approach across new and revised strategies in future. The concurrent development of the various Sector Strategies at the same time as the BOC REDS was being revised has meant that there is not consistency in how actions are framed and how information is collated and collected. This requires a clearer terms of reference at the development and review phase of each Sector Strategy, but also closer engagement with the individual sector advisory group to ensure that actions are presented in a way that outcomes can be identified and measured.

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Consultation

Adrian Slack, Senior Economist, BERL – BAU Regional Growth Scenarios

John Galbraith, Consultant – Aquaculture, Wood and Freight Logistics Strategies

Brian Cox, Consultant – Energy Sector Strategy

Mark Whitworth, Customer & Cargo Services, Port of Tauranga – Freight Logistics Strategy

Wayne Werder, Sport BOP CEO, Sport & Recreation Sector Strategy

Kristin Dunne-Powell, Consultant, Gro – Biking Strategy

Mike Rogers – BOPRU CEO, Sevens Strategy

Graeme Coates – Chair, Regional Aquaculture Organisation.

Appendix A: Sector ANZSIC2006 Composition

Key Sector	Industries
Aquaculture	Aquaculture; Seafood Processing (50%).
Forestry	Plant Nurseries (10%); Forestry; Logging; Services to Forestry; Log Sawmilling; Wood Chipping; Timber Resawing & Dressing; Plywood & Veneer Manufacturing; Fabricated Wood Manufacturing; Wooden Structural Component Manufacturing; Wood Product Manufacturing nec; Pulp, Paper & Paperboard Manufacturing; Solid Paperboard Container Manufacturing; Corrugated Paperboard Container Manufacturing; Paper Bag & Sack Manufacturing; Paper Product Manufacturing nec.
Kiwifruit	Plant Nurseries (30%); Kiwi Fruit Growing; Aerial Agricultural Services (60%); Services to Agriculture nec (50%); Fruit & Vegetable Processing (75%).
Dairy	Dairy Cattle Farming; Aerial Agricultural Services (10%); Services to Agriculture nec (50%); Milk & Cream Processing; Ice Cream Manufacturing; Dairy Product Manufacturing nec.
Other Food Cultivation & Processing	Grain Growing; Poultry Farming (Meat); Poultry Farming (Eggs); Beekeeping; Tobacco & Hops Growing; Cultivated Mushroom Growing; Crop & Plant Growing nec; Hunting & Trapping; Rock Lobster Fishing; Prawn Fishing; Finfish Trawling; Squid Jigging; Line Fishing; Marine Fishing nec; Poultry Processing; Oil & Fat Manufacturing; Flour Mill Product Manufacturing; Cereal Food & Baking Mix Manufacturing; Bread Manufacturing; Cake & Pastry Manufacturing; Biscuit Manufacturing; Sugar Manufacturing; Confectionery Manufacturing; Seafood Processing (50%); Prepared Animal & Bird Feed Manufacturing; Food Manufacturing nec; Soft Drink, Cordial & Syrup Manufacturing; Beer & Malt Manufacturing; Wine Manufacturing; Spirit Manufacturing; Tobacco Product Manufacturing; Plant Nurseries (50%); Cut Flower & Flower Seed Growing; Vegetable Growing; Grape Growing; Apple & Pear Growing; Stone Fruit Growing; Citrus Growing; Berry Fruit Growing; Other Fruit Growing nec; Fruit & Vegetable Processing (25%).
Energy	Electricity Supply; Gas Supply.
Transport & Logistics	Road Freight Transport, Long Distance Bus Transport (75%); Short Distance Bus Transport (including Tramway) (75%); Taxi and Other Road Passenger Transport (75%); Rail Transport (75%); International Sea Transport (75%); Coastal Water Transport (75%); Inland Water Transport (75%); Scheduled International Air Transport (16%); Scheduled Domestic Air Transport (16%); Non-Scheduled Air and Space Transport (16%); Pipeline Transport (72%); Transport nec (72%); Parking Services (72%); Services to Road Transport nec (72%); Stevedoring (72%); Water Transport Terminals (72%); Port Operators (72%); Services to Water Transport nec (72%); Services to Air Transport (72%); Travel Agency Services (72%); Road Freight Forwarding (72%); Freight Forwarding (except Road) (72%); Customs Agency Services (72%); Services to Transport nec (72%); Grain Storage (72%); Storage nec (72%); Courier Services; Other Transport Equipment Leasing (83%).
ICT	Professional & Scientific Equipment Manufacturing nec (50%); Computer & Business Machine Manufacturing; Telecommunication, Broadcasting & Transceiving Equipment Manufacturing (20%); Electronic Equipment Manufacturing nec (50%); Electric Cable & Wire Manufacturing (25%); Professional Equipment Wholesaling (50%); Computer Wholesaling; Business Machine Wholesaling nec (50%); Electrical & Electronic Equipment Wholesaling nec (50%); Telecommunication Services; Data Processing Services; Information Storage & Retrieval Services; Computer Maintenance Services; Computer Consultancy Services.
Marine	Synthetic Fibre Textile Manufacturing (10%); Textile Finishing (10%); Made-Up Textile Product Manufacturing (10%); Rope, Cordage & Twine Manufacturing (20%); Synthetic Resin Manufacturing (10%); Spring & Wire Product Manufacturing (10%); Nut, Bolt, Screw & Rivet Manufacturing (10%); Metal Coating & Finishing (10%); Fabricated Metal Product Manufacturing nec (10%); Shipbuilding; Boatbuilding; Professional & Scientific Equipment Manufacturing nec (10%); Telecommunication, Broadcasting & Transceiving Equipment Manufacturing (20%); Electrical Equipment Manufacturing nec (10%); Pump & Compressor Manufacturing (10%); Business Machine Wholesaling nec (10%); Machinery & Equipment Wholesaling nec (10%); Marine Equipment Retailing (90%); Consultant Engineering Services (10%).
Sport & Recreation	Toy and Sporting Good Manufacturing (25%); Clothing Wholesaling (10%); Footwear Wholesaling (10%); Toy and Sporting Good Wholesaling (25%); Clothing Retailing (10%); Footwear Retailing (10%); Sport and Camping Equipment Retailing (90%); Toy and Game Retailing (10%); Sports Grounds and Facilities nec (87%); Sports and Services to Sports nec (87%); Other Recreation Services (87%).
Tourism	Retail (10%); Cafes & restaurants (40%); Road passenger, rail & water transport (40%); Air transport (84%); Other transport, storage & transport services (28%); Machinery & equipment hiring & leasing (17%); Cultural & recreational services (13%).
Emerging Technologies	Structural Steel Fabricating; Architectural Aluminium Product Manufacturing; Structural Metal Product Manufacturing nec; Metal Container Manufacturing; Sheet Metal Product Manufacturing nec; Medical & Surgical Equipment Manufacturing.
Meat	Grain-Sheep & Grain-Beef Cattle Farming; Sheep-Beef Cattle Farming; Sheep Farming; Beef Cattle Farming; Pig Farming; Deer Farming; Mixed Livestock; Livestock Farming nec; Meat Processing; Bacon, Ham & Smallgoods Manufacturing.

Appendix B. BOC Sector Strategies

Table 16: BOC Sector Strategies

Sector	Vision	Goal	Action themes
Aquaculture	The Bay of Plenty is a world-class aquaculture region.	To grow an integrated and sustainable aquaculture industry in the Bay of Plenty with export sales of \$250 million by 2025.	Leadership New opportunities Marine science, technology, education and training Infrastructure support for marine and aquaculture industries.
Freight Logistics	World Class freight logistics.	Lift New Zealand's ranking in Logistics Performance.	Leadership and planning Partnerships and integration Enabling legislation and regulation Health, safety and environment Logistics infrastructure Enabling technology Development and innovation Workforce and skills
Wood	A world class forestry and wood processing region.	By 2020 we will be adding value to over 70% of the logs harvested in the region.	Investment environment Infrastructure.
Energy	Wealth and wellbeing via energy.	By 2030 the Bay of Plenty has additional energy investments of \$3 billion and 13,000 new jobs.	Growth – investment and partnerships Resources – develop and manage Supply – secure and affordable Use – wise and efficient
Sport & Recreation	Sevens The Bay of Plenty is the world's leading Sevens Rugby service provider.	A Sevens Rugby programme that attracts the interest and commitment of the world's Sevens nations, delivering sporting and economic benefit to the Bay of Plenty through employment, investment and revenue.	Event hosting National team base High performance facilities and training courses Education Tourism International opportunities funding
	Biking	<i>To promote cycling and mountain biking in the Central North Island as a tourism offering to domestic and international visitors.</i>	To be developed
ICT	To be progressed in 2014		

Source: Individual Sector Strategies