

**BEFORE THE QUEENSTOWN LAKES DISTRICT COUNCIL HEARINGS PANEL**

**UNDER**

the Resource Management Act 1991

**IN THE MATTER**

of the review of parts of the Queenstown Lakes District Council's District Plan under the First Schedule of the Act

**AND**

**IN THE MATTER**

of submissions and further submissions by  
**REMARKABLES PARK LIMITED AND**  
**QUEENSTOWN PARK LIMITED**

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**STATEMENT OF EVIDENCE OF JOHN STACEY BALLINGALL ON BEHALF OF  
REMARKABLES PARK LIMITED AND QUEENSTOWN PARK LIMITED**

**(ECONOMICS)**

**STREAM 13 REZONING HEARINGS**

**9 June 2017**

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**BROOKFIELDS  
LAWYERS**

J D Young / M Broekman  
Telephone No. 09 379 2155  
Fax No. 09 379 3224  
P O Box 240  
DX CP24134  
**AUCKLAND**

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## 1. QUALIFICATIONS AND EXPERIENCE

- 1.1 My name is John Stacey Ballingall. I am the Deputy Chief Executive of the New Zealand Institute of Economic Research Incorporated (**NZIER**).
- 1.2 I graduated from Massey University in Palmerston North with a Bachelor of Applied Economics and a Masters of Applied Economics. My Masters thesis was a Computable General Equilibrium (**CGE**) analysis of the proposed P5 trade agreement. I have been using CGE models, such as the one used for this brief, for almost 20 years.
- 1.3 I have 16 years' experience in the application of economics to a wide range of business and policy issues. In between my two stints at NZIER, I was the Deputy Director of the Ministry of Foreign Affairs and Trade's Economic Division.
- 1.4 In my consultancy and public sector work, I have prepared a wide range of reports relevant to this case. I specialise in modelling or analysing the economic impacts of projects, and advising government agencies on the quality of their regulatory impact analyses and broader policy advice.
- 1.5 I have worked on several projects that use economic modelling to assess the desirability or feasibility of regional economic development initiatives. I have also worked on several research projects in the tourism sector, including in Queenstown.
- 1.6 Relevant projects include:
- (a) Economic analysis related to Lot 6 at Queenstown airport;
  - (b) Economic impact assessments of convention centres in Auckland and Queenstown;
  - (c) Assessment of resource consent applications lodged by aquaculture companies with the Environmental Protection Authority, drawing on the Resource Management Act 1991 (**RMA**) framework;
  - (d) Economic analysis of potential land uses for industrial-zoned land in Upper Hutt, to inform an Environment Court hearing;

- (e) Assessment of s32 analysis of regulatory options to improve water quality in the Horizons Regional Council region;
- (f) Estimating the economic impacts of changes in in-bound international tourism;
- (g) Analysis of the proposed expansion of Wellington International Airport;
- (h) Peer review of America's Cup economic impact evaluation;
- (i) Various industry economic impact analyses (wine, beef and lamb, dairy, wood processing, kiwifruit, horticulture);
- (j) Leading the Manawatu-Whanganui Regional Growth Study;
- (k) Assessing the quality of government agencies' Regulatory Impact Statements, which require the consideration of the costs and benefits of proposed regulatory changes;
- (l) Reviewing the quality of government agencies' policy advice, including commenting on the adequacy of their cost-benefit analysis to choose between policy options;
- (m) Economic impact assessments of major irrigation projects in several New Zealand regions;
- (n) A major project looking at the costs and benefits of an additional Waitemata Harbour crossing in Auckland; and
- (o) Identifying the potential benefits to regional economies from increased mining activity.

## **2. CODE OF CONDUCT**

- 2.1 I have read and am familiar with the Code of Conduct for Expert Witnesses in the current Environment Court Practice Note (2014), have complied with it, and will follow the Code when presenting evidence to the Council. I also confirm that the matters addressed in this statement of evidence are within my area of expertise,

except when relying on the opinion or evidence of other witnesses. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

### **3. SUMMARY**

#### **3.1 My main conclusions are as follows:**

- (a) The present value of the additional tourism spending that the gondola would create over 35 years would be \$1.43 billion, even under conservative estimates of the additional per-day spending of visitors;
- (b) This is split between spending on gondola tickets (\$280 million) and other tourism activities in the regional economy (\$1.15 billion);
- (c) The present value of the gondola construction over two years would be \$72 million, and the present value of the visitor accommodation construction over ten years would be \$84 million;
- (d) The construction of the gondola would expand Queenstown's real GDP by \$29.9 million from 2016 to 2019, and add 148 jobs;
- (e) Household spending would increase by \$14.1 million over this period due to the construction creating more jobs and lifting the average wage in the Queenstown economy;
- (f) The gondola construction phase would benefit a wide range of industries, including non-residential construction, construction services, rental and hiring businesses, metal manufacturing, non-metallic mineral manufacturing, fuel and transport support services;
- (g) Other parts of the Queenstown economy also benefit from higher levels of economic activity and household incomes during the gondola construction phase, such as accommodation, real estate services, wholesaling and retailing;
- (h) During a single representative year (2026), the additional tourism revenue that is generated by the gondola's presence in the Queenstown economy,

along with additional visitor accommodation construction, boosts Queenstown's real GDP by \$20.4 million, and household spending by \$16.9 million. This creates an additional 177 jobs;

- (i) This additional tourism spending boosts economic activity in accommodation, sport and recreation services, travel agency and tour arrangement services, heritage and artistic activities, retailing; gambling activities and food and beverage services; and
- (j) I conclude that building and operating the gondola as proposed would have a significant positive impact on the Queenstown economy, through additional spending on the gondola and its associated activities, and also in the wider regional economy.

#### **4. INTRODUCTION**

4.1 The proposed gondola and visitor accommodation investment will support additional economic activity in the Queenstown regional economy in two distinct phases:

- (a) When the gondola is constructed, we would expect greater economic activity in the non-residential construction sector; and
- (b) When the gondola is operational, we would expect a boost in tourism spending in the regional economy. At the same time, there will be further non-residential construction activity required to build the visitor accommodation planned by Queenstown Park Limited (**QPL**).

4.2 To estimate these regional economic impacts, we use a CGE model of the Queenstown regional economy.

#### **5. ECONOMIC IMPACT ASSESSMENT METHODOLOGY**

5.1 CGE models are now our preferred method for assessing economic impacts and are used extensively in New Zealand and internationally. A CGE model is "a well-designed model that is used by skilled practitioners to shed light on issues the model was designed to illuminate [and] can make a significant contribution to policy debates and decision making".<sup>1</sup>

<sup>1</sup>

Denniss, R. (2012) The use and abuse of economic modelling in Australia, Australia Institute Technical Brief No. 12.

- 5.2 Using actual economic data, CGE models estimate how an economy reacts to major projects or changes in policy, technology or other external factors. CGE models are useful whenever we wish to estimate the effect of changes in one part of the economy (i.e. the construction and tourism sectors in this case) upon the rest of a regional economy (e.g. on retail).
- 5.3 CGE modelling is widely regarded as more robust and providing more credible impact assessments than input-output ('multiplier') methodologies. Multiplier methodologies typically over-state economic impact estimates because they assume that economic resources such as land, labour and capital are infinitely available, are never idle and can be reallocated without adjustment costs.
- 5.4 Multiplier approaches also assume that all prices remain constant, even if demand increases. This is not realistic or credible, especially for modelling a scenario where a major piece of infrastructure – and the additional tourism activity associated with it – is to be enhanced on a major scale, in a region such as Queenstown that has significant labour shortages. The expansion will have an impact on (say) construction wages and the availability of resources required to service additional tourism demand.
- 5.5 In contrast, CGE models are not only driven by prices that respond to changes in supply and demand, but they also account for resource constraints and flow-on effects. That is, in a CGE model, there are no "free lunches". CGE models therefore produce more conservative, but more credible, economic impacts compared to multiplier methodologies.
- 5.6 NZIER's regional CGE model TERM-NZ<sup>2</sup> is a bottom-up model of the New Zealand economy. TERM-NZ is based on a Statistics New Zealand's Input-Output table that identifies the structure of the industries involved. TERM-NZ contains information on 106 industries, 201 commodities and 15 regions.
- 5.7 For this assessment, we have split out the Queenstown economy from the wider Otago region. We have done this using employment data and calibrated it using

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<sup>2</sup>

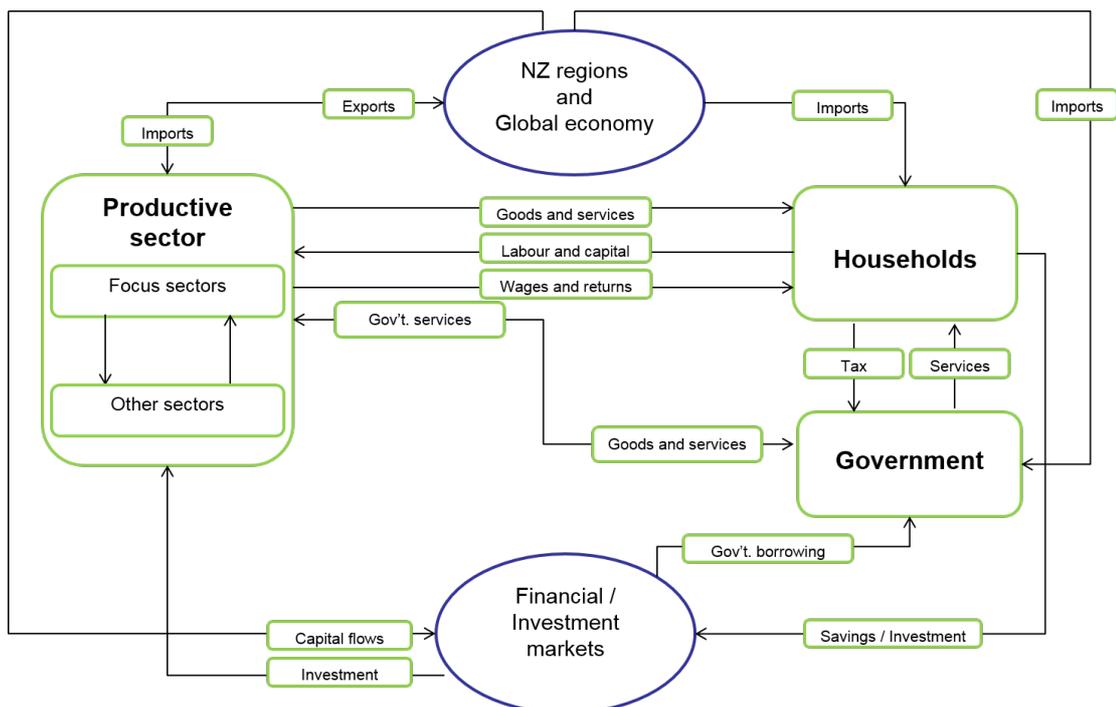
TERM-NZ stands for "The Enormous Regional Model" of the New Zealand economy. It was developed at NZIER by Dr. Erwin Corong based on the original Australian TERM model created by Professor Mark Horridge of the Centre of Policy Studies, Victoria University-Melbourne, Australia. <http://www.copsmodels.com/term.htm>. NZIER maintains close connections with the Centre, ensuring that our modelling techniques reflect international best-practice.

MBIE’s detailed regional GDP data. This provides us with a representation of the Queenstown economy as at the end of 2016.

5.8 TERM-NZ is the only bottom-up regional CGE model of the New Zealand economy that we are aware of. It therefore offers a unique capability to show how developments like the Gondola and its associated visitor accommodation would impact on the Queenstown regional economy.

5.9 A visual representation of TERM-NZ is shown in Figure 1. It highlights how the model can capture the complex and multidirectional relationships between the various parts of each regional economy and how they interact with the rest of New Zealand and rest of the world.

Figure 1 High-level representation of a CGE model



Source: NZIER

## 6. MODELLING SCENARIO DESIGN

### Gondola construction phase

6.1 The first modelling scenario we explore is the gondola construction phase. QPL expect the gondola to cost \$85 million over two / years. Based on this information from

QPL, we boost the non-residential construction sector in our CGE model by \$85 million over two years (or a present value in 2016 prices of \$71.8 million).

- 6.2 We can then estimate how the Queenstown economy expands solely because of this additional construction activity.

### **Gondola operation and visitor accommodation phase**

- 6.3 The second scenario considers a representative year of the gondola's operations, as well as additional investment in visitor accommodation as envisaged by QPL.

- 6.4 Essentially this allows us to ask: what additional economic activity is stimulated in the Queenstown economy, once the gondola is in place, from the additional tourism revenue that the gondola's presence generates plus the additional construction spending on visitor accommodation in a given year?

- 6.5 We choose 2026 – arbitrarily – as our representative year. Since gondola visitor numbers will still be in their growth phase, our results can be seen as a conservative estimate, relative to a year when the gondola is operating at full capacity.

- 6.6 To estimate the additional tourism spending in 2026 that can be attributed to the presence of the gondola, we take the following steps:

- (a) Identify the expected number of gondola users, split between skiers and non-skiers, and between domestic and international visitors;
- (b) Estimate their spending on gondola tickets; and
- (c) Estimate their additional spending elsewhere in the Queenstown economy, assuming that all visitors stay an extra day to enjoy the gondola.

- 6.7 Based on information from QPL's Business Plan, by 2026 the gondola is expected to attract 779,555 passengers (527,463 non-skiers and 252,091 skiers).

- 6.8 Using average ticket prices from the same Business Plan (\$69.50 for non-skiers; \$29.15 for skiers), this delivers \$44.0 million of gondola ticket revenue.

- 6.9 We then assume that 50% of this ticket spending would otherwise have been spent in the Queenstown economy on other attractions if the gondola didn't exist. That is, it is unreasonable to assume that *all* of this \$44.0 million is net additional for the regional economy. This leaves us with a net additional tourism spend on gondola tickets of \$22.0 million for 2026.
- 6.10 We further assume that all gondola visitors stay an extra day in Queenstown to enjoy the new attraction. This means there will be additional spending on non-gondola activities (accommodation, meals, shopping, other leisure activities) in the Queenstown economy that can be attributed to the presence of the gondola.
- 6.11 I believe this additional length of stay is reasonable, especially in the context of the other activities that will be available for someone who takes the gondola trip. At its simplest this might be a walk from the ski field base station up to Lake Alta, downhill biking at the ski field (or between the top and mid stations), a zip line to the village plateau, a farm tour from the village or just lunch at the village.
- 6.12 Based on Statistics New Zealand data, the average spend per night of international visitors departing from Queenstown airport is \$329. We subtract from this the cost of the gondola ticket (\$56<sup>3</sup>). This gives us an additional per-day spend of international visitors of \$273 on other (non-gondola) tourism activities in Queenstown. To be conservative, we scale this back by 50% to \$136.50 per international visitor.
- 6.13 Multiplying the number of international visitors going on the gondola (546,852) by \$136.50 gives us net additional international tourism spending on non-gondola activities of \$74.5 million.
- 6.14 For domestic visitors that use the gondola, Statistics New Zealand data shows the average per-day spend is \$164.<sup>4</sup> Subtracting the gondola ticket (\$56) leaves domestic tourists with \$108 per day to spend elsewhere in the Queenstown economy on non-gondola activities. Again, we half this to \$54 to provide a conservative estimate of additional non-gondola tourism spending from domestic visitors to Queenstown.

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<sup>3</sup> This is weighted average of the non-skier (\$69.50) and skier (\$29.15) gondola ticket prices, with the weights being the number of skiers and non-skiers contained in the Business Plan.

<sup>4</sup> This is for domestic day-trip visitors, so does not include additional accommodation spending. Again, this is therefore a conservative estimate.

- 6.15 232,702 domestic visitors spending \$54 each results in net additional domestic tourism spending on non-gondola activities of \$12.6 million.
- 6.16 These additional tourism spending components are summarised in Table 1 below. The total injection of additional tourism spending in 2026 due to the gondola's presence is \$109.0 million.

Table 1: Summary of additional tourism spending, 2026

	<b>Gondola tickets</b>	<b>Non-gondola spending</b>	<b>Total</b>
Additional international tourism spending	\$16.0 million	\$74.5 million	\$90.4 million
Additional domestic tourism spending	\$6.1 million	\$12.6 million	\$18.6 million
<b>Total</b>	<b>\$22.0 million</b>	<b>\$87.0 million</b>	<b>\$109.0 million</b>

Source: NZIER, based on Business Plan

- 6.17 The present value of this one year's additional tourism spending is \$55.4 million in 2016 prices, assuming a discount rate of 7%.
- 6.18 In addition to this representative year's additional tourism spending, we also model additional construction activity required to build the visitor accommodation that forms part of QPL's business plan.
- 6.19 The proposal is to build around 30,000m<sup>2</sup> of accommodation, at a mid-point cost estimate of \$4,250 per m<sup>2</sup>, or a total cost of \$127.5 million, over ten years. Taking 2026 as our representative year, the present value at 7% of one year's visitor accommodation construction spending is \$7.4 million.
- 6.20 We use these estimates to 'shock' our CGE model of the Queenstown economy to see how the economy changes.
- 6.21 Note that we have not explicitly modelled other potential changes to Queenstown's tourism offering that might be generated as a result of the gondola's presence. These are covered in NZSki's evidence.
- 6.22 I have seen a draft of this evidence and agree that the gondola could potentially facilitate an expansion of The Remarkables ski area without the need for additional,

central or local government-funded infrastructure. This would likely generate additional tourism revenue for the regional economy, over and above what is modelled in my evidence.

- 6.23 It would likely also promote greater utilisation of tourism infrastructure in the regional economy during the off-season, which will support productivity growth and a more efficient use of regional resources, and potentially spur additional investment by tourism operators.

## 7. RESULTS

### Gondola construction phase

- 7.1 During the gondola construction phase, the Queenstown economy expands as shown in the table below.

Table 2: Economic impacts of gondola construction

Measure	Change in \$ millions from 2016 baseline	% change from 2016 baseline
Real GDP	29.9	1.5
Real household consumption	14.1	1.3
Export volumes	1.8	0.4
Employment	148	0.7
Real wages	N/A	0.6

- 7.2 The building of the gondola over two years expands the capital stock of the Queenstown economy, lifting its real GDP by \$29.9 million.
- 7.3 Employment (0.7%, or 148 jobs) and real wages (0.6%) both lift as the demand for labour increases in a growing economy. This lifts regional household spending by \$14.1 million.
- 7.4 At the industry level (see 'Detailed modelling results – gondola construction phase' **attached** and marked "A"), non-residential construction unsurprisingly benefits the most, along with supporting industries such as construction services, rental and hiring businesses, metal manufacturing, non-metallic mineral manufacturing, fuel and transport support services.

- 7.5 Other parts of the Queenstown economy benefit from higher levels of economic activity and household incomes, such as accommodation, real estate services, wholesaling and retailing.

### **Gondola operations and visitor accommodation construction phase**

- 7.6 The additional tourism spending, both on the gondola tickets and elsewhere in the Queenstown economy, plus the new construction activity for visitor accommodation in our representative year (2026), sees the Queenstown economy expand by 1.0% or \$20.4 million relative to the post-gondola 2016 baseline.<sup>5</sup>

Table 3: Economic impacts of additional tourism spending and visitor accommodation construction, 2026

<b>Measure</b>	<b>Change in \$ millions from post-gondola 2016 baseline</b>	<b>% change from post-gondola 2016 baseline</b>
Real GDP	20.4	1.0
Real household consumption	16.9	1.6
Export volumes	55.2	12.0
Employment	177	0.8
Real wages	N/A	0.75

- 7.7 Export volumes expand rapidly by 12.0%, or \$55.2 million as additional tourism revenue enters the Queenstown economy.
- 7.8 Employment and real wages both lift further, which boosts real household spending by 1.6% or \$16.9 million. 177 new jobs are created by this one year's additional economic activity.
- 7.9 The biggest winners at the industry level are the industry level accommodation, sport and recreation services, travel agency and tour arrangement services, heritage and artistic activities, retailing, food and beverage services, and gambling activities (see

<sup>5</sup> That is, we update our 2016 baseline to include the presence of the gondola.

'Detailed modelling results – gondola operation and visitor accommodation construction phase' **attached** and marked "B").

### **Sensitivity analysis: Gondola operations and visitor accommodation construction phase**

- 7.10 The amount of additional tourism spending in the Queenstown regional economy due to the presence of the gondola will in part be driven by how much longer gondola users decide to stay in Queenstown.
- 7.11 In the scenario above, I assume all visitors stay an additional day to enjoy the gondola, its associated tourism activities, and other tourism activities in the Queenstown region. Note that because we have discounted visitors per-day spend by 50% (see paras 6.12 and 6.14 above), this is equivalent to visitors staying half a day extra, but spending the full amount of their per-day spend.
- 7.12 I recognise that this assumption is subject to uncertainty, However, neither I nor QPL's tourism expert witnesses are aware of any data sources which could be used to provide a more data-driven estimate of the expected additional length of stay due to the gondola's presence.
- 7.13 To account for this uncertainty, I have also considered an alternative – and more conservative – scenario where gondola users stay for just half a day, instead of a full day. The results are shown below.

Table 4: Economic impacts of additional tourism spending and visitor accommodation construction, 2026 – sensitivity analysis

<b>Measure</b>	<b>Change in \$ millions from post-gondola 2016 baseline</b>	<b>% change from post-gondola 2016 baseline</b>
Real GDP	13.8	0.7
Real household consumption	11.4	1.0
Export volumes	33.6	7.3
Employment	119	0.5
Real wages	N/A	0.5

- 7.14 The results of this sensitivity analysis confirm that under even more conservative additional spending assumptions, the gondola would deliver considerable economic benefits to the Queenstown economy.<sup>6</sup>

### **Taking a longer term perspective**

- 7.15 Our modelling framework does not allow us to look at the economic impacts each year out across the many decades of the gondola's operation. But it is important to appreciate that the gondola and visitor accommodation will generate these additional benefits year in, year out.
- 7.16 If we look over a 35-year period, the present value of the additional tourism spending that the gondola would create would be \$1.43 billion (discounted at 7%). This is split between spending on gondola tickets (\$280 million) and other tourism activities in the regional economy (\$1.15 billion).
- 7.17 The present value of the gondola construction would be \$72 million, and the present value of the visitor accommodation construction would be \$84 million.

## **8. CONCLUSION**

- 8.1 Our economic impact assessment shows that the proposed gondola and visitor accommodation construction would generate substantial additional economic activity in the Queenstown regional economy, even based on our conservative assumptions on per-day tourism spending and how much longer tourists would stay in Queenstown due to the gondola.
- 8.2 The gondola will also lead to additional job creation, both during its construction phase and its operations. These jobs will be spread widely across the various parts of the Queenstown economy.
- 8.3 Accompanying this job growth will be higher real wages, as competition for workers intensifies and firms bid up wages to attract workers. This employment and real wage growth will support additional household spending, which in turn will support further economic activity in the region.

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<sup>6</sup> They are not precisely half the impacts shown in Table 3 because the visitor accommodation construction spending aspect of the scenario has not changed, and the model is not strictly linear.

- 8.4 As a result of these direct and spill-over (or 'ripple') effects, the gondola will boost economic activity and job growth in sectors as diverse as construction, building supply manufacturing and wholesaling, many retail sectors, travel agent and tour arrangements services, heritage and artistic activities, accommodation, food and beverages, business services and beyond.

John Ballingall

9 June 2017

## APPENDIX A: DETAILED MODELLING RESULTS – GONDOLA CONSTRUCTION PHASE

Industry	Change in value of output, \$m	Industry	Change in value of output, \$m
Non-residential building construction	71.24	Sewerage and drainage services	0.00
Construction services	6.24	Water supply	0.00
Accommodation	3.19	Meat and meat product manufacturing	0.00
Real estate services	2.43	Gas supply	0.00
Owner-occupied property operation	2.38	Seafood processing	0.00
Rental and hiring services (except real estate); non-financial asset leasing	1.69	Forestry and logging	0.00
Waste collection, treatment, and disposal services	1.48	Textile and leather manufacturing	0.00
Other store based retailing; non-store and commission based retailing	1.33	Basic chemical and basic polymer manufacturing	0.00
Residential property operation	1.21	Oil and gas extraction	0.00
Non-residential property operation	1.06	Superannuation and individual pension services	0.00
Banking and financing; financial asset investing	0.91	Coal mining	0.00
Repair and maintenance	0.90	Warehousing and storage services	0.00
Fabricated metal product manufacturing	0.47	Fertiliser and pesticide manufacturing	0.00
Non-metallic mineral product manufacturing	0.46	Telecommunications services	0.00
Fuel retailing	0.46	Defence	0.00
Transport support services	0.45	Life insurance	0.00
Wood product manufacturing	0.43	Petroleum and coal product manufacturing	0.00
Gambling activities	0.41	Polymer product and rubber product manufacturing	0.00
Road transport	0.41	Rail transport	0.00
Scientific, architectural, and engineering services	0.36	Pulp, paper, and converted paper product manufacturing	0.00
Other goods and commission based wholesaling	0.32	Health and general insurance	0.00
Recreational, clothing, footwear, and personal accessory retailing	0.26	Electricity transmission and distribution	0.00
Personal services; domestic household staff	0.23	Electricity generation and on-selling	0.00
Motion picture and sound recording activities	0.23	Other manufacturing	0.00
Beverage and tobacco product manufacturing	0.22	Air and space transport	-0.01
Legal and accounting services	0.21	Electronic and electrical equipment manufacturing	-0.01
Grocery, liquor, and tobacco product wholesaling	0.16	Library and other information services	-0.01
Basic material wholesaling	0.15	Clothing, knitted products, and footwear manufacturing	-0.01
Medical and other health care services	0.14	Metal ore and non-metallic mineral mining and quarrying	-0.01
Broadcasting and internet publishing	0.14	Primary metal and metal product manufacturing	-0.02
Other transport	0.10	Printing	-0.02
Publishing (except internet and music publishing)	0.08	Postal and courier services	-0.03
Fruit, oil, cereal, and other food product manufacturing	0.08	Poultry, deer, and other livestock farming	-0.03
Adult, community, and other education	0.08	Veterinary and other professional services	-0.03
Exploration and other mining support services	0.07	Auxiliary finance and insurance services	-0.04
Motor vehicle and motor vehicle parts retailing	0.06	Pharmaceutical, cleaning, and other chemical manufacturing	-0.04
Tertiary education	0.06	Residential care services and social assistance	-0.07
Religious services; civil, professional, and other interest groups	0.05	Department stores	-0.08
Computer system design and related services	0.05	Central government administration services	-0.08
Machinery manufacturing	0.04	Hospitals	-0.11
Agriculture, forestry, and fishing support services	0.03	Sport and recreation services	-0.13
Motor vehicle and motor vehicle parts wholesaling	0.03	Local government administration services	-0.17

Industry	Change in value of output, \$m	Industry	Change in value of output, \$m
Dairy cattle farming	0.02	Specialised food retailing	-0.18
Heritage and artistic activities	0.02	Building cleaning, pest control, and other support services	-0.19
Sheep, beef cattle, and grain farming	0.01	Public order, safety, and regulatory services	-0.30
Preschool education	0.01	Machinery and equipment wholesaling	-0.31
Dairy product manufacturing	0.01	Furniture, electrical, and hardware retailing	-0.34
Furniture manufacturing	0.01	School education	-0.36
Horticulture and fruit growing	0.00	Employment and other administrative services	-0.39
Fishing and aquaculture	0.00	Transport equipment manufacturing	-0.39
		Travel agency and tour arrangement services	-0.40
		Supermarket and grocery stores	-0.42
		Advertising, market research, and management services	-0.47
		Food and beverage services	-0.66
		Heavy and civil engineering construction	-2.05
		Residential building construction	-30.83

## APPENDIX B: DETAILED MODELLING RESULTS – GONDOLA OPERATION AND VISITOR ACCOMMODATION CONSTRUCTION PHASES

Industry	Change in value of output, \$m	Industry	Change in value of output, \$m
Accommodation	15.73	Health and general insurance	0.00
Sport and recreation services	15.64	Pulp, paper, and converted paper product manufacturing	0.00
Travel agency and tour arrangement services	4.87	Polymer product and rubber product manufacturing	0.00
Heritage and artistic activities	2.74	Textile and leather manufacturing	0.00
Other store based retailing; non-store and commission based retailing	2.64	Auxiliary finance and insurance services	0.00
Owner-occupied property operation	2.57	Non-residential building construction	-0.01
Food and beverage services	1.91	Horticulture and fruit growing	-0.01
Gambling activities	1.16	Dairy product manufacturing	-0.02
Personal services; domestic household staff	0.68	Metal ore and non-metallic mineral mining and quarrying	-0.03
Transport equipment manufacturing	0.63	Religious services; civil, professional, and other interest groups	-0.04
Road transport	0.58	Printing	-0.04
Other transport	0.56	Dairy cattle farming	-0.05
Postal and courier services	0.55	Exploration and other mining support services	-0.05
Residential property operation	0.50	Motor vehicle and motor vehicle parts retailing	-0.06
Transport support services	0.48	Agriculture, forestry, and fishing support services	-0.07
Publishing (except internet and music publishing)	0.47	Library and other information services	-0.07
Building cleaning, pest control, and other support services	0.45	Machinery manufacturing	-0.08
Beverage and tobacco product manufacturing	0.45	Basic material wholesaling	-0.08
Other manufacturing	0.36	Sheep, beef cattle, and grain farming	-0.09
Clothing, knitted products, and footwear manufacturing	0.30	Waste collection, treatment, and disposal services	-0.09
Pharmaceutical, cleaning, and other chemical manufacturing	0.25	Fuel retailing	-0.10
Air and space transport	0.24	Central government administration services	-0.10
Employment and other administrative services	0.22	Department stores	-0.10
Veterinary and other professional services	0.17	Fabricated metal product manufacturing	-0.11
Other goods and commission based wholesaling	0.17	Adult, community, and other education	-0.11
Specialised food retailing	0.12	Grocery, liquor, and tobacco product wholesaling	-0.11
Fruit, oil, cereal, and other food product manufacturing	0.11	Wood product manufacturing	-0.12
Legal and accounting services	0.06	Non-residential property operation	-0.12
Primary metal and metal product manufacturing	0.02	Residential care services and social assistance	-0.14
Poultry, deer, and other livestock farming	0.01	Broadcasting and internet publishing	-0.14
Preschool education	0.01	Non-metallic mineral product manufacturing	-0.15
Motor vehicle and motor vehicle parts wholesaling	0.01	Medical and other health care services	-0.15
Fishing and aquaculture	0.00	Recreational, clothing, footwear, and personal accessory retailing	-0.18
Electronic and electrical equipment manufacturing	0.00	Hospitals	-0.20
Furniture manufacturing	0.00	Computer system design and related services	-0.23
Electricity generation and on-selling	0.00	Rental and hiring services (except real estate); non-financial asset leasing	-0.23
Telecommunications services	0.00	Tertiary education	-0.25
Water supply	0.00	Heavy and civil engineering construction	-0.27
Petroleum and coal product manufacturing	0.00	Machinery and equipment wholesaling	-0.32
Superannuation and individual pension services	0.00	Banking and financing; financial asset investing	-0.32
Oil and gas extraction	0.00	Repair and maintenance	-0.39

Industry	Change in value of output, \$m	Industry	Change in value of output, \$m
Forestry and logging	0.00	Scientific, architectural, and engineering services	-0.42
Gas supply	0.00	Motion picture and sound recording activities	-0.43
Basic chemical and basic polymer manufacturing	0.00	Furniture, electrical, and hardware retailing	-0.43
Coal mining	0.00	Residential building construction	-0.48
Sewerage and drainage services	0.00	Supermarket and grocery stores	-0.48
Fertiliser and pesticide manufacturing	0.00	Local government administration services	-0.49
Meat and meat product manufacturing	0.00	Advertising, market research, and management services	-0.53
Rail transport	0.00	School education	-0.57
Warehousing and storage services	0.00	Real estate services	-0.61
Life insurance	0.00	Public order, safety, and regulatory services	-0.77
Electricity transmission and distribution	0.00	Construction services	-1.23
Seafood processing	0.00		
Defence	0.00		