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TasWind Consultative Committee

Socio-Economic Forecast for King Island

TasWind Socio-Economic Study 2013



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CH2MHILL®



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Executive Summary: Socio-Economic Forecast for King Island

King Island is at a cross-roads in terms of its future economic direction given an ongoing loss of population and a decline in traditional rural industries. Current development options include a 200 tower wind farm (TasWind) being investigated by Hydro Tasmania, and two international links golf courses being developed at Cape Wickham and Ocean Dunes (north of Currie). A new abattoir and reopening of the Grassy Scheelite mine are also being considered.

CH2M HILL has developed an economic forecast for King Island under two models: Model 1 with development of 200 wind towers; and Model 2 without the wind towers. The economic forecast is based on Australian Bureau of Statistics (ABS), industry and project data and uses historical numbers as its basis. The economic forecast is an indicative estimate of the King Island economy.

Economic Forecast for King Island

King Island's Gross Regional Product (GRP) is a measure of the size or net wealth generated by the economy. Changes in this figure over time can represent changes in the output and types of industries, employment and productivity.

An economic forecast for King Island with the wind towers (Model 1) and without the wind towers (Model 2) is presented in Table E.1. Low, moderate and high scenarios based on varying rates of growth in the number of golf visitors and tourists have been estimated over a 2013 to 2044 timeframe. Both models include the construction and operation of the two links golf courses and associated tourism facilities but exclude the potential new abattoir and the reopening of the Scheelite mine. Growth in golf-related tourism is capped at 25,000 visitors per year for Cape Wickham and at 20,000 visitors per year at Ocean Dunes.

Table E.1: Economic Forecast for King Island (King Island GRP excl. dwelling ownership and taxes, nominal dollars, \$M)

King Island GRP, \$M (excl. dwelling ownership and taxes)		Year (See notes on each year below table)				
Model	Scenario (Golf growth rate)	2013	2017 ¹	2022 ²	2027 ³	2044 ⁴
Model 1 (with TasWind)	Low scenario (3% growth)	\$114.6	\$148.2	\$162.6	\$188.6	\$320.2
Model 2 (without TasWind)	Low scenario (5% growth)	\$114.6	\$136.0	\$160.3	\$190.6	\$370.5
Model 1 (with TasWind)	Moderate scenario (4% growth)	\$114.6	\$147.6	\$164.0	\$192.3	\$347.0
Model 2 (without TasWind)	Moderate scenario (6% growth)	\$114.6	\$136.5	\$162.5	\$196.0	\$382.9
Model 1 (with TasWind)	High scenario (5% growth)	\$114.6	\$149.2	\$168.0	\$199.3	\$383.8
Model 2 (without TasWind)	High scenario (7% growth)	\$114.6	\$137.1	\$164.8	\$202.0	\$385.3

¹ 2017: start of TasWind construction (Model 1 only) ² 2022: post TasWind construction period (Model 1 only)

³ 2027: Operation of TasWind (Model 1 only)

⁴ 2044: TasWind after 25 years (Model 1 only)

GRP is forecast to grow significantly to 2044 under both Model 1 and Model 2. GRP initially grows more quickly in Model 1 due to the start of the construction phase of TasWind in 2017 with the GRP forecast of \$147.6M in the moderate scenario approximately \$11.1M greater than Model 2. By 2027,

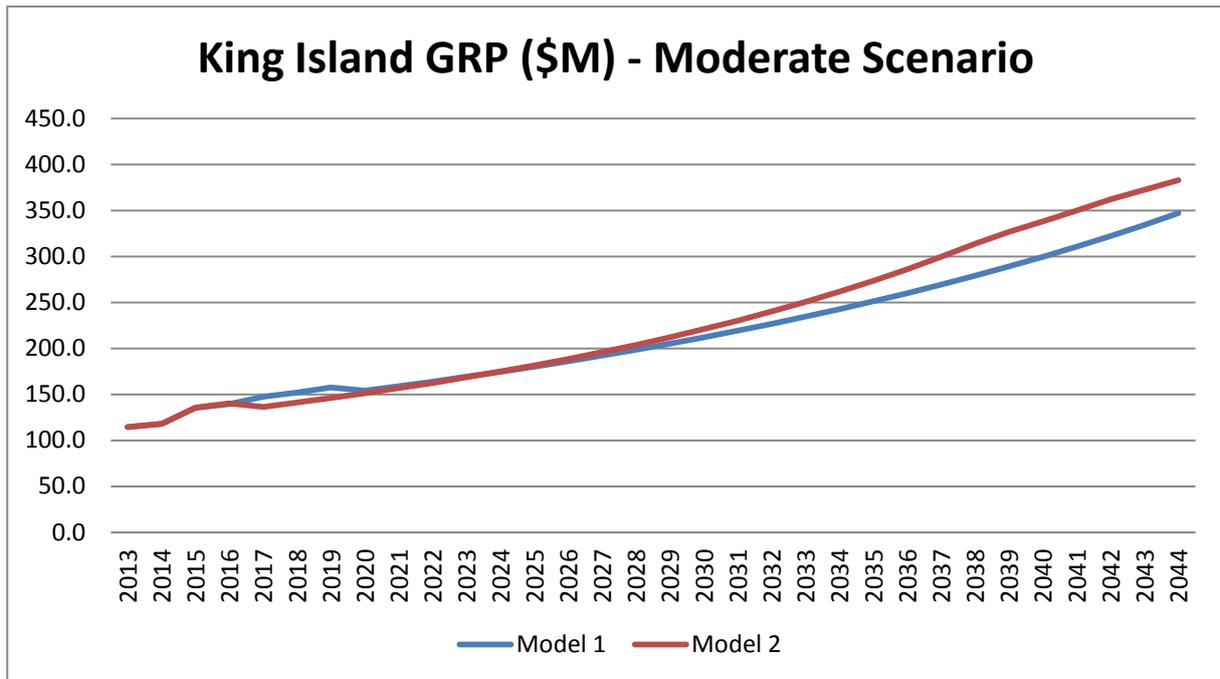
GRP in Model 1 of \$192.3M is approximately \$3.7M less than Model 2 because of the assumed faster growth in golf visitors and tourists in Model 2.

The construction of the TasWind Project under Model 1 will be accompanied by associated upgrades to existing port infrastructure, accommodation facilities, and the installation of a fibre optic telecommunication cable. Depending on the port design and other costs, these infrastructure upgrades may result in a range of indirect benefits to the King Island economy and community but further analysis will be required. While the impact of these indirect benefits has not been explicitly considered in the economic model, the potential benefits will not accrue to the King Island economy or community under Model 2.

Economic growth in Model 2 under the moderate scenario is estimated to be \$35.9M larger in 2044 than Model 1. This is because of assumed more rapid growth in golf visitors and tourists in Model 2. In both models, the two golf courses and facilities bring increased economic activity in the accommodation and food, retail (shopping), and other service industries (such as, spending on the golf courses and recreation). A cap in golf visitors is also reached in 2042 in the high scenario in Model 2. The potential impact of more golf courses, golfers and tourists has not been considered in either model.

The forecast King Island GRP for both models with the moderate scenario is shown in Figure E.1. This shows the impact of the construction phase of the TasWind Project on the King Island economy between 2017 and 2019 in Model 1. It also shows that under Model 1, GRP grows more slowly after construction of TasWind given an assumed slower rate of golfing visitor and tourist growth.

Figure E.1: King Island GRP (\$M) – Moderate Scenario



Under the moderate scenario, in terms of Model 1 (with wind towers and golf course development):

- The construction industry is forecast to range from \$16.2M in 2013 (which includes construction activity on the Cape Wickham and Ocean Dunes golf courses) to \$16M in 2019 with the construction of the TasWind Project, before decreasing to \$6.9M in 2020.
- Agriculture and fishing is forecast to grow from \$39.8M to \$85.5M as a result of inflation.

- Accommodation and food services is driven by the forecast increase in golf visitors and tourists to King Island, and accounts for the largest source of growth, increasing from \$1.6M to \$49.5M.
- “Other Services” includes rental, hiring and real estate, and arts and recreation, and includes spending at the golf courses and resorts. This increases significantly from \$1.6M to \$35.8M. This sector also includes a proportion of TasWind neighbour and landholder payments as rental income for landholders.

The impact of wind farms on property values is variable, and will depend on the distance from the wind farm and underlying land use. Given current agricultural land uses on King Island and proposed compensation arrangements, the project may not significantly impact on property values associated with existing uses but landholder agreements may restrict future subdivision and development.

There will also be additional economic impacts from decommissioning of the wind towers after 2044 but this has not been explicitly considered in the model. Decommissioning will likely stimulate additional construction activity with other impacts in the accommodation and food industries as workers are required to remove the wind towers. Hydro Tasmania have outlined that rehabilitation of land above ground level will be managed in consultation with land owners and will form part of any agreement reached with individual landowners.

Hydro Tasmania has also indicated (22 May 2013) that it will provide financial support for a feasibility study for a new King Island abattoir and, if TasWind proceeds, would make an equity contribution to match funding to beef producers’ investments. This potential investment has not been included in Model 1. However, if it brought new investment in an abattoir, then this could generate significant employment and economic activity associated with the beef industry.

Under the moderate scenario, in terms of Model 2 (without wind towers but with golf course development):

- Accommodation and food services is driven by the forecast increase in golf visitors and tourists to King Island and accounts for the largest source of growth, increasing from \$1.6M to \$67.3M.
- “Other services” including spending on golf courses provides the second largest source of economic growth, increasing from \$1.6M to \$42.3M.
- Agriculture and fishing is forecast to grow from \$39.8M to \$85.5M as a result of inflation as in Model 1.

Both golf course developments on King Island are based on the success of similar golf courses, such as Barnbogle Dunes and Barnbogle Lost Farm in Tasmania. There is increasing Government and private sector interest in the development of high quality golf courses in Tasmania. Future tourism development on King Island will depend on the success of the two golf courses, but also initiatives to improve marketing and packaging of tours, as well as enhancing the overall tourist experience with a range of services and accommodation. There will be opportunities for owner-operators in the tourism sector, for example, with wildlife tours, fishing charters, etc.

Key factors influencing the economic models

Key factors influencing both Model 1 and 2 are:

- The amount of economic stimulus from the construction phase of TasWind between 2017 and 2019 in Model 1 is directly influenced by how much work is undertaken by King Island contractors

and workers, and how much is spent on King Island providing accommodation, food and other services for TasWind construction workers.

- Reduced use of local contractors and workers will reduce the amount of economic stimulus on King Island and increased use of local contractors and workers will increase the amount of economic stimulus.
- It has been assumed that Fly in – Fly out (FIFO) construction workers (at 80% of workforce) will spend significantly less on King Island (\$10,000 p.a.) than locally based workers (\$45,000 p.a.). A higher proportion of locally based workers will increase the amount of economic stimulus on King Island but may crowd out local housing and tourist accommodation with other impacts.
- The amount of economic stimulus from the TasWind compensation payments between 2020 and 2044 depends on how the compensation payments are split between the community and landholders, and the amount of payment that may go to off-Island landowners (leakage off-Island is assumed to be 35% but may be higher depending on where the wind towers are located). Increased compensation payments would increase the amount of economic stimulus to King Island but it would still only represent around 1% of the King Island economy in 2044.
- The potential impact of TasWind on the development of the two international links golf courses and other tourism related businesses is difficult to determine. It has been assumed that TasWind will lead to a slower growth in golfing and associated visitors (4% growth p.a. with TasWind compared to 6% p.a. without TasWind in the moderate scenario). Appropriate marketing of King Island and the golf courses may partly mitigate any negative impact of the wind towers on golfing visitors. The potential for additional golf courses and further tourism development has not been modelled.

Other Socio-Economic Measures

As well as impacting on the King Island economy, the TasWind and golf course developments will have other impacts on King Island as outlined in Table E.2.

Table E.2: Comparison of Socio-Economic Measures – Moderate Scenario

	Model 1: with wind towers and golf courses	Model 2: without wind towers but with golf courses	Difference: Model 1 and Model 2
King Island GRP (excluding dwelling ownership and taxes less subsidies)	King Island GRP is forecast to increase from \$114.6M in 2013 to \$347M in 2044	King Island GRP is forecast to increase from \$114.6M in 2013 to \$382.9M in 2044	By 2044, GRP in Model 1 is \$35.9M smaller than Model 2
Direct Payments	Direct payments to community, neighbours and landholders totalling \$3.2M to \$4.1M each year between 2020 to 2044 Potential for leakage of 35% to 50% of landholder payments off King Island	No direct payments	Direct payments in Model 1 totalling \$3.2M to \$4.1M each year between 2020 to 2044 but 35 to 50% leakage off King Island
King Island Employment (direct and indirect) Excludes FIFO	130 to 160 FTEs between 2020 to 2044 (post-construction)	110 to 140 FTEs between 2020 to 2044	20 to 30 additional FTEs in Model 1 between 2020 and 2044

	Model 1: with wind towers and golf courses	Model 2: without wind towers but with golf courses	Difference: Model 1 and Model 2
Population	Population increase of 230 to 280 people between 2020 to 2044 (post-construction)	Population increase of 200 to 255 people between 2020 to 2044	Additional population increase of 25 to 30 people in Model 1 to 2044
FIFO workers	Construction: <ul style="list-style-type: none"> 35 to 45 FIFO workers p.a. between 2013 to 2016, and 200 to 300 FIFO workers p.a. between 2017 to 2019 Operation: <ul style="list-style-type: none"> Approximately 10 FIFO workers over 25 years (TasWind only) 	Construction: <ul style="list-style-type: none"> 35 to 45 FIFO workers p.a. between 2013 to 2016 Operation: <ul style="list-style-type: none"> Few 	200 to 300 more FIFO workers in Model 1 between 2017 to 2019, and 10 more FIFO workers from 2020 to 2044
Grassy Port / Shipping services	Port upgrade at \$12.5M to \$15M by Hydro Tasmania Potential for a wider range of shipping services depending on port design – upgraded port may also impact on freight costs	Upgrade uncertain Potential for restricted shipping services – may also impact on freight costs	Port upgrade in Model 1 but benefit will depend on design and future freight costs

Note: FIFO = Fly in – fly out workers FTEs = Full time equivalent workers

King Island Future Development and Challenges

Regardless of any decision on the TasWind Project, there are a range of immediate challenges that King Island needs to address including: further exploration and attraction of alternative shipping services; upgrade of King Island Airport; and tourism marketing and sector development.

Over time, King Island will also need to consider how to promote vertical integration in key agricultural sectors and develop value-adding activities that occur along the supply chain – from production through processing and transport to marketing and sales. More will need to be done by the tourism industry in tandem with the new golf courses to support development of King Island as a boutique tourist destination. In the longer term, the potential arrival of more than 50,000 tourists each year will generate a range of positive and negative social impacts on the King Island community, infrastructure and the local environment. This will also require careful management into the future.

A key question that this economic forecast cannot answer is “How does the King Island Community want King Island to look into the future?”. Model 1 with the wind towers and Model 2 without the wind towers result in different economic forecasts by 2044. The differences in the two models mainly relate to:

- The differences in the types of industry and employment – Model 1 will involve more construction between 2017 and 2019 while Model 2 will involve faster growth and development of the tourism and service industries;
- The impacts on the King Island landscape – Model 1 will bring significant changes to the landscape with 200 wind towers while Model 2 will bring more limited changes from the golf courses; and
- The nature of future port development – Model 1 will bring a port upgrade at \$12.5M to \$15M by Hydro Tasmania with the potential for a wider range of shipping services but the future value of the upgrade will depend on the port design and there may also be impacts on freight costs.

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1 Introduction

1.1 Project Background

King Island is situated at the western entrance to Bass Strait and is midway between Victoria and Tasmania. King Island is approximately 64 kilometres north to south and 27 kilometres east to west. The Island has a population of around 1,565 people (2011 ABS Census) of which some 800 reside in the township of Currie situated on the west coast. There are two other villages – Naracoopa on the east coast and Grassy (a former mining town) to the south east. Important local industries are dairy, beef, fishing, kelp and tourism.¹

King Island is at a cross-roads in terms of its future economic direction given an ongoing loss of population and a decline in traditional rural industries. Current options include a large wind farm development (TasWind) with around 200 wind towers being investigated by Hydro Tasmania (see Appendix A), and two international links golf courses being developed at Cape Wickham and Ocean Dunes (north of Currie).² A new abattoir and reopening of the Grassy Scheelite mine are also been considered.

The TasWind Consultative Committee (TWCC) has been funded by Hydro Tasmania to undertake an independent socio-economic study to assess the economic forecast for King Island with and without wind towers.³ This has been commissioned through King Island Council. The aim of the study is to provide a socio-economic assessment of *'What's on the table for King Island with and without wind towers?'*⁴

CH2M HILL has prepared this report for the TWCC and our methodology and key assumptions are outlined in Appendix B. The economic forecast is based on Australian Bureau of Statistics (ABS), industry and project data and uses historical numbers as its basis. The forecast is an indicative estimate of the King Island economy in the longer term. We have assumed that it is 'business as usual' for beef and dairy farming, kelp, fishing, dairy production (cheese manufacturing) and mining. Tourism projections have been considered including changes associated with the two new golf course developments.

2 King Island Socio-Economic Profile

This section provides a snapshot of the economic forecast for King Island under two models:

- Model 1 (with development of the 200 wind towers and the two golf courses); and
- Model 2 (without the wind towers but with the two golf courses).

The economic forecast for King Island has been considered over the following time periods:

- 5 years (during construction of the wind towers at 2017);

¹ Source: http://www.kingisland.tas.gov.au/webdata/resources/files/INFORMATION_SHEET.pdf

² TasWind Consultative Committee, 2013, *Scope Economic Study – King Island*.

³ *Ibid.*

⁴ *Ibid.*

- 10 years (post wind tower construction, during the operational phase of the TasWind Project at 2022 and 2027) ; and
- Post wind towers (after 25 years at 2044).

Key assumptions relating to the socio-economic model are outlined in Appendix B.

The results from the two models are presented below along with discussion of various direct and indirect economic impacts.

2.1.1 King Island Socio-Economic Profile – Model 1

King Island’s Gross Regional Product (GRP) is a measure of the size or net wealth generated by the economy. Changes in this figure over time can represent changes in the output and types of industries, employment and productivity.

An economic forecast for King Island with the wind towers and golf courses is presented in Table 2.1. Low, moderate and high scenarios based on varying rates of growth in the number of golf visitors and tourists have been estimated over a 2013 to 2044 timeframe. The model includes the construction and operation of TasWind and the two links golf courses and associated tourism facilities but excludes the potential new abattoir and the reopening of the Scheelite mine. Growth in golf-related tourism is capped at 25,000 visitors per year for Cape Wickham and at 20,000 visitors per year at Ocean Dunes.

Table 2.1: Economic forecast for King Island with wind towers and golf courses (GRP excl. dwelling ownership and taxes, nominal dollars, \$M)

King Island GRP, \$M (excl. dwelling ownership and taxes)		Year (See notes on each year below table)				
Model	Scenario (Golf growth rate)	2013	2017 ¹	2022 ²	2027 ³	2044 ⁴
Model 1 (with TasWind)	Low scenario (3% growth)	\$114.6	\$148.2	\$162.6	\$188.6	\$320.2
Model 1 (with TasWind)	Moderate scenario (4% growth)	\$114.6	\$147.6	\$164.0	\$192.3	\$347.0
Model 1 (with TasWind)	High scenario (5% growth)	\$114.6	\$149.2	\$168.0	\$199.3	\$383.8

¹ 2017: start of TasWind construction

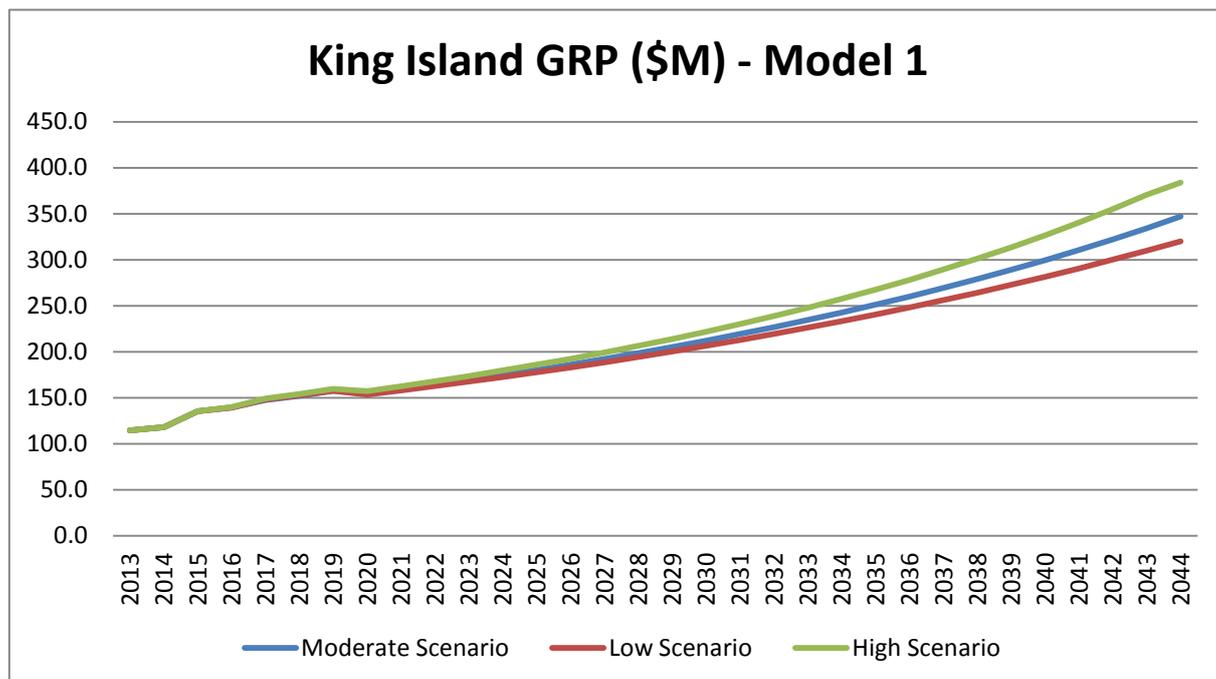
² 2022: post TasWind construction period

³ 2027: Operation of TasWind

⁴ 2044: TasWind after 25 years

The forecast King Island GRP for the low, moderate and high scenarios under Model 1 is shown in Figure 2.1. This shows the impact of the construction phase of the TasWind Project on the King Island economy between 2017 and 2019. It also shows the change in GRP given different assumptions on golfing visitor and tourist growth.

Figure 2.1: King Island GRP (\$M) – Model 1



Key observations from the economic forecast of King Island with wind towers and golf course development are outlined below:

- In the moderate scenario, King Island GRP (excluding dwelling ownership and taxes less subsidies) is forecast to increase from \$114.6M in 2013 to \$347M in 2044. Key economic impacts associated with the construction and operation of the TasWind Project include:
 - The construction industry is forecast to range from \$16.2M in 2013 (which includes construction activity on the Cape Wickham and Ocean Dunes golf courses) to \$16M in 2019 with the construction of the TasWind Project, before decreasing to \$6.9M in 2020. This sector represents on-island construction only;
 - Electricity, gas, water and waste services is forecast to increase from \$2.3M in 2013 to \$7.5M in 2044, driven by the ongoing operations and maintenance employment and expenditure on TasWind; and
 - Agriculture and fishing is forecast to grow from \$39.8M to \$85.5M as a result of inflation.
- The expected increase in tourism, and related services, associated with the two golf course developments on King Island is the most significant driver of forecast growth in King Island’s GRP over the period from 2013 to 2044. Key components of King Island’s GRP that are forecast to increase as a result of increased tourism include:
 - Accommodation and food services is driven by the forecast increase in golf visitors and tourists to King Island, and accounts for the largest source of growth, increasing from \$1.6M to \$49.5M;

- “Other Services” includes rental, hiring and real estate, and arts and recreation, and includes spending at the golf courses and resorts. This increases significantly from \$1.6M to \$35.8M. This sector also includes a proportion of TasWind neighbour and landholder payments as rental income for landholders; and
- Retail trade and shopping is forecast to grow from \$3.6M in 2013 to \$15.4M.
- King Island GRP under the low scenario is forecast to grow to \$320.2M by 2044, \$26.8M less than the moderate scenario. The major cause for this difference is less growth in the accommodation and food services industry due to a slower rate of growth in golfing visitors and tourists.
- King Island GRP in the high scenario is estimated to be \$383.8M in 2044 and \$36.8M larger than the moderate scenario.

As with any major infrastructure project, such as TasWind, it is inevitable that there is a significant “boom period” with construction followed by a smaller but longer operational phase. Careful planning and management of this cycle will be required by Hydro Tasmania, King Island Council, industry groups and other major organisations on King Island.

There will also be additional economic impacts from decommissioning of the wind towers after 2044 but this has not been explicitly considered in the model. Decommissioning will likely stimulate additional construction activity with other impacts in the accommodation and food industries as workers are required to remove the wind towers. Hydro Tasmania have outlined that rehabilitation of land above ground level will be managed in consultation with land owners and will form part of any agreement reached with individual landowners.⁵

In terms of the impact of the TasWind Project on the King Island population, as identified in the recent Hydro Tasmania preliminary socio-economic assessment:⁶

“The great majority of the population increase would be temporary, with many workers flying in and out for weeks at a time. A number of these workers may bring families with them and even relocate to the island; however these people would be in the minority.”

It is possible that a small number of workers and families may be sufficiently attracted to the King Island lifestyle to remain after the TasWind construction phase. Potentially, King Island could “market” its unique lifestyle and experience and target a permanent population increase.

In total, the operational phase of the TasWind Project, the two golf courses and supporting business development may generate around 85 to 105 direct Full Time Equivalent (FTE) jobs and with multiplier effects this may increase to 130 to 160 FTEs created on King Island. If these jobs were largely to be filled by new residents to King Island then this could lead to an overall population increase of between 230 to 280 people including families. This would be a significant population increase for King Island and could provide opportunities for further development of the tourism, retail and service sectors.

⁵ See: Hydro Tasmania, TasWind website, Frequently Asked Questions: “What happens at the end of a wind farm life?”, <http://www.taswind.com.au/frequently-asked-questions>

⁶ E3 Planning 2013, Preliminary Socio Economic Impact Assessment TasWind King Island Tasmania, p.24.

Model 1 – Discussion of key issues

A range of issues related to Model 1 and development of the TasWind Project are discussed below.

TasWind Project impacts on the King Island economy

There will be a range of positive and negative direct and indirect economic impacts from the TasWind Project on the King Island economy covering construction and operation (see Table 2.2). There will also be direct and indirect economic impacts from decommissioning but this is likely to be after the initial 25 year operational period. It is recognised that there can also be other environmental and social impacts⁷ but these are not identified in Table 2.2.

Table 2.2: Summary of TasWind Economic Impacts on King Island

Direct Economic Impacts, King Island	
Positive	Negative
<ul style="list-style-type: none"> - Use of local contractors during construction and operation (and potentially decommissioning) - Direct employment of local workers during construction and operation (and potentially decommissioning) - Locally sourced worker accommodation (excluding Fly in – Fly out (FIFO) workers camp) - Spending on local retail and services - Landholder and neighbour payments - Community payments 	<ul style="list-style-type: none"> - Increased demand for local contractors and local workers may increase local labour costs - Increased demand for local accommodation may increase housing costs and crowd out tourist accommodation
Indirect Economic Impacts, King Island	
Positive	Negative
<ul style="list-style-type: none"> - Upgrade to local infrastructure e.g. Grassy Port (depending on design), new telecommunications and reinstatement of local roads - Indirect employment (e.g. local retail and services) - Associated visitor spending on local retail and services 	<ul style="list-style-type: none"> - Increased demand for natural resources, such as gravel, sand and water, may affect local availability - Potential adverse impacts on demand for tourism and recreation - Potential disruption to traffic during construction (and potentially during decommissioning)

The size and nature of the local direct and indirect economic impacts will largely depend on how Hydro Tasmania undertakes the project in terms of the use of local contractors and workers, and sourcing of natural resources, local services, supplies and accommodation. Appropriate project planning and mitigation of potential negative economic impacts will be essential.

⁷ For discussion of a range of environmental and social impacts from wind farms in Australia including environmental, landscape and noise impacts see Nina Hall, Peta Ashworth and Hylton Shaw 2012, *Exploring community acceptance of rural wind farms in Australia: a snapshot*, CSIRO.

The construction phase is where there could be significant direct economic benefits to King Island but this will largely depend on the number of workers accommodated in a self-contained workers camp, and the number of workers accommodated in island accommodation. In the model it has been assumed that FIFO construction workers will spend \$10,000 per annum and locally based workers \$45,000 per annum. It is possible that the workers camp would be built and supplied from off King Island and this would significantly reduce any direct economic benefit. Locally accommodated workers would likely spend more than FIFO workers on King Island retail and services as they are living in the community rather than in a serviced workers camp.

The challenge with more locally accommodated workers is that Hydro Tasmania will need to work closely with local accommodation providers and the tourism industry to ensure appropriate access to, and provision of, additional accommodation to avoid crowding out of tourist accommodation and local housing. Hydro Tasmania would also need to work with airline companies to arrange suitable worker air charter flights to avoid crowding out of flights for the island population and tourists.

It is anticipated that the TasWind Project would have a dedicated emergency management and response plan (or similar) that would set out how any accident or emergency would be managed to avoid any impact on King Island's volunteer emergency services.

Impact on the "King Island Brand"

It is difficult to account for the potential economic impact of the TasWind Project on the "King Island Brand" within the economic model developed for this study. Potentially, the TasWind Project may be seen as a positive brand impact with production of renewable energy⁸ whereas alternatively the scale of the project may be seen as a negative impact on the landscape and "Brand image".

As identified in the Hydro Tasmania preliminary socio-economic assessment⁹, the impact of the TasWind Project on the "King Island Brand" will need to be tested with key industries, markets and tourists. This will inform the extent to which TasWind may be seen as positive or negative on the King Island economy and key industries.

Shipping services and infrastructure

The major King Island port for shipping and freight is the Tasport Grassy Port which was originally constructed to service the local Scheelite mine. The Grassy Port will require extensive upgrading by Hydro Tasmania to accommodate larger ships that will deliver wind turbine components during the construction phase of the TasWind Project. The estimated upgrade cost is approximately \$12.5 - \$15 million.¹⁰

An earlier 2008 study had also assessed port upgrade options with an estimated redevelopment cost in 2009 of \$39.6 to \$54.6 million depending on the cost and availability of rock from the Scheelite mine. The 2008 study identified a range of direct and indirect economic benefits from a port upgrade including savings in fuel imports, increased value of

⁸ For example, see King Island Courier 22 May 2013, "Big green energy benefit for KI brands".

⁹ E3 Planning 2013, Preliminary Socio Economic Impact Assessment TasWind King Island Tasmania, p.37.

¹⁰ E3 Planning 2013, Preliminary Socio Economic Impact Assessment TasWind King Island Tasmania, p.36.

beef and dairy exports, increased port capacity for all trades, and savings in single superphosphate imports.¹¹

The upgrade of Grassy Port as part of TasWind is a significant point of difference in the two models. While the impact of these indirect benefits has not been explicitly considered in the economic model as part of this study, the potential benefits will not accrue to the King Island economy or community under Model 2.

The port upgrade may be a significant indirect economic benefit to King Island but it will depend on the port design and suitability for freight. A larger port may increase shipping options but it may also increase maintenance and freight costs. Further analysis will be required as to the costs and benefits of alternative port designs and the future value to King Island.

Given anticipated changes to current shipping services with the withdrawal of the Searoad Mersey in 2014, the availability and cost of shipping services is a critical issue for King Island to address given its dependence on sea freight for export of produce and import of fuel, materials and other goods (also see Section 4).

Other infrastructure upgrades associated with TasWind, such as the fibre optic telecommunications cable, will bring indirect benefits to King Island but may also involve additional costs for businesses and residents to access and use the improved telecommunications services.

Effect on land values, future zoning and use restrictions.

Various Australian and international studies have considered the impact of wind farms on land and property values (see Appendix C). In summary, the impact of wind farms on property values is variable, and will depend on the size and location of the wind farm, the distance of the wind farm from any property, and the underlying land use. However, all valuation studies recognise that further analysis may yield more comprehensive results on the impacts of wind farms depending on the availability of sales data.

Given current agricultural land uses in the areas of interest to Hydro Tasmania¹², and with proposed compensation arrangements, the project may not significantly impact on property values associated with existing uses. However, it is possible that the project will restrict future subdivision and alternative higher value land uses around the wind towers. This may be a particular restriction in southern areas of King Island with tourism and other local development options.

Landowners will benefit from additional income from compensation payments (or rent) for having wind towers on a property and this would increase the value of a property. The payments will be a useful source of non-agricultural income for a significant time period. Hydro Tasmania has also signalled that neighbouring properties may also receive some level of payment.¹³ This is an innovative approach and will help offset the cost of any limitations on future land use because of the project.

In Model 1, it has been assumed that 35% of landholder payments will be to off-island corporate farms and super funds and this will not directly benefit King Island. The amount of

¹¹ GHD 2008, *King Island Ports Corporation & King Island Council Report for King Island Port Feasibility Study "Sea Link to the Future"*.

¹² See: *Hydro Tasmania April 2013*, <http://www.taswind.com.au/designing-a-wind-farm>

¹³ *E3 Planning 2013, Preliminary Socio Economic Impact Assessment TasWind King Island Tasmania*, p.33.

“leakage” will depend on the design of TasWind and may range from 25% to 50% depending on which are properties are used for the project.

It is anticipated that the TasWind Project will not significantly impact on existing agricultural land uses and activities around the wind towers and in the attenuation zone although this will be subject to agreement between Hydro Tasmania and each landowner. Various environmental conditions and controls on the project to protect threatened wildlife, such as the White-bellied Sea-eagle, will also need to be addressed. Potentially, some agricultural practices, such as calving, may need to be undertaken in paddocks away from wind turbines, and pest control may also need to be undertaken in a different way.

For example, at the Bluff Point Wind Farm and Studland Bay Wind Farm now owned by Hydro Tasmania, extensive fencing has been undertaken to reduce the effect of wallaby foraging on pasture growth at both wind farms sites. This is to reduce the prey populations within the wind farm and reduce the attractiveness of the site to eagles. The fencing has been coupled with the installation of wildlife exit gates to allow trapped animals to escape, and an extensive shooting program, both of which were designed to lower the wallaby populations within the fenced areas.¹⁴ Similar pest control activities will likely be required on King Island given the high wallaby population.

TasWind community fund

Various community funds have been set up as part of wind farm developments across Australia and internationally. Typically, in Australia, this has involved an indexed payment of \$500 to \$750 per turbine per annum to a community benefit fund to support different community programs once construction is complete.¹⁵ In the United Kingdom, landowners have offered communities around A\$1,540 (£1,000) per MW installed as compensation.¹⁶ However, relative land prices would need to be further analysed before a similar regime was adopted in Australia.

In Australia, as an example, the Waubra community fund was established in 2008 as part of a commitment by the operators of the Waubra Wind Farm, north-west of Ballarat, to provide a fund for community use in the area where the wind farm operates. Acciona Energy, as operator of the 128 turbine Waubra Wind Farm has provided \$69,180 in 2012-13 to the fund for projects. The fund also seeks grants from other sources for its activities. Each year the fund spends 50% on community projects, 20% on the environment, 10% as direct grants to groups, 5% for benevolent purposes, 5% as a capital fund for the future and 10% on management and communication. The fund is run by the 18 community organisations which operate in the wind farm area with all funds going to support projects from these groups.¹⁷

A TasWind community fund would be established as part of the project and would be part of the proposed direct payments including the community dividend, neighbour and landholder payments ranging from \$3.2M to \$4.1M.¹⁸ In Model 1, it has been assumed to range from \$300,000 to \$400,000 but could be larger and will ultimately depend on Hydro Tasmania and any agreement with the King Island community.

¹⁴ Hydro Tasmania 2012, *Bluff Point Wind Farm and Studland Bay Wind Farm Annual Environmental Performance Report 2011*.

¹⁵ For example, see: <http://www.waubra.org.au/services/waubra-wind-farm-community-fund/> and http://www.theceresproject.com.au/the_ceres_project/benefits

¹⁶ See: <http://www.guardian.co.uk/environment/2012/feb/28/windfarms-risk-free-millions-for-landowners>

¹⁷ See: <http://www.waubra.org.au/services/waubra-wind-farm-community-fund/>

¹⁸ E3 Planning 2013, *Preliminary Socio Economic Impact Assessment TasWind King Island Tasmania*, p.21.

A TasWind community fund would bring a range of direct and indirect benefits and costs to King Island depending on the model adopted and how it is administered – for example, by Hydro Tasmania, a community trust, etc.

Potential benefits and costs of a community trust include:

- Benefits:
 - Funding for local community projects, such as local infrastructure, activities and scholarships.
 - Potential to further leverage the community fund with funding from other sources.
- Costs:
 - Administration of the fund.
 - Potential for increased demands on local residents to volunteer for administration of the fund depending on the management structure of the community fund.

Hydro Tasmania has also indicated (22 May 2013) that it will provide financial support for a feasibility study for a new King Island abattoir and if TasWind proceeds would make an equity contribution to match funding to beef producers' investments.¹⁹ This potential funding has not been included in Model 1. However, if it brought new investment in an abattoir, then this could generate significant employment and economic activity associated with the beef industry.

Resource requirements

The construction of 200 wind towers on King Island will require significant amounts of natural resources – potentially including 1 million m³ of gravel, 100,000 m³ of sand and 30 ML of water and the associated manufacture of 150,000 m³ cement.²⁰

King Island appears to have sufficient resources of gravel and sand although this will need to be further explored. Forward planning and stockpiling will be essential to avoid excessive demand and reduction of local supply in the construction period between 2017-2019.²¹

Depending on Hydro Tasmania's approach to the use of local contractors, there could be significant opportunities for local contractors to gather and transport the required resources. There could also be positive impacts for King Island Council with the future and ongoing use of part of the concrete batching plant after the project construction phase has ended.

Impacts on the golf course developments

Two international links style golf courses are being developed at Cape Wickham and Ocean Dunes (north of Currie) with potential for 4,000 to 10,000 visitors at each course in initial years and growing to up to 20,000 to 25,000 visitors at each course over time.

The initial stages of the two golf course developments are scheduled to be in operation well before construction of the wind towers. The Cape Wickham golf course (Stage 1) is scheduled to be in operation by 2014 and Ocean Dunes (Stage 1) by 2015. Further staged development at each of the golf courses is planned, for example, with additional facilities and accommodation. Depending on financing and construction planning and development,

¹⁹ Hydro Tasmania, pers comm. and King Island Courier, 22 May 2013.

²⁰ Hydro Tasmania, pers comm. 2 May 2013, and E3 Planning 2013, Preliminary Socio Economic Impact Assessment TasWind King Island Tasmania, p.18.

²¹ Hydro Tasmania, pers comm. 2 May 2013.

subsequent stages with development of the golf courses could overlap with construction of the wind towers between 2017 to 2019.

Over the next six to eight years, appropriate construction planning and sourcing of materials, contractors and workers will be required for all major projects on King Island including the two golf courses, wind towers and potentially the Scheelite mine. Otherwise, this significantly increased demand could increase project costs and extend development timeframes as well as impacting on the King Island community with construction impacts and congestion.

The extent to which the development of the golf courses and growth in visitor numbers will be impacted by TasWind is difficult to determine. CSIRO has recognised that “Wind farms can attract tourism, but may conflict with other tourism features”.²² International research from 2008 suggests that “overall there is no evidence to suggest a serious negative economic impact of wind farms on tourists.”²³

Potentially, TasWind may alter the golfing and tourist experience on King Island. This was recognised in the Hydro Tasmania preliminary assessment:

“... the overall impact upon the proposed golf courses is considered to be neutral or negative. The landscape impact of TasWind may not be taken positively by golfers who may have an impression that they are coming to play golf in an ‘untouched’ part of the world.”²⁴

For the purposes of Model 1, it has been assumed that growth in visitor numbers will be 2% slower in each of the three scenarios with TasWind compared to Model 2. Potentially, appropriate marketing of King Island and the golf courses may somewhat mitigate any negative impact of the wind towers on golfing visitors.

Future tourism development on King Island will depend on improving marketing and packaging of tours, as well as enhancing the overall tourist experience with a range of services and accommodation. This is likely to more affect the growth of the tourism sector than any negative impacts from the TasWind Project. However, the ability of tourists to travel to King Island and be suitably accommodated during the TasWind construction period will need to be carefully planned for and managed.

As with further research on the impact of TasWind on the “King Island Brand”, it will be important to research the opinions of tourists and the golfing market to see if there will be any substantial impact on perceptions of King Island and the attractiveness or otherwise of the new golf courses and further tourism development.

2.1.2 King Island Socio-Economic Profile – Model 2

An economic forecast for King Island without the TasWind Project but with the two golf courses is presented in Table 2.3. Low, moderate and high scenarios based on varying rates of growth in the number of golf visitors and tourists have been estimated over a 2013 to 2044 timeframe. The model includes the construction and operation of the two links golf courses and associated tourism facilities but excludes the potential new abattoir and the reopening of the Scheelite mine. Growth in golf-related tourism is capped at 25,000 visitors per year for Cape Wickham and at 20,000 visitors per year at Ocean Dunes.

²² Nina Hall, Peta Ashworth and Hylton Shaw 2012, *Exploring community acceptance of rural wind farms in Australia: a snapshot*, CSIRO.

²³ Glasgow Caledonian University March 2008, *The economic impacts of wind farms on Scottish tourism A report for the Scottish Government*.

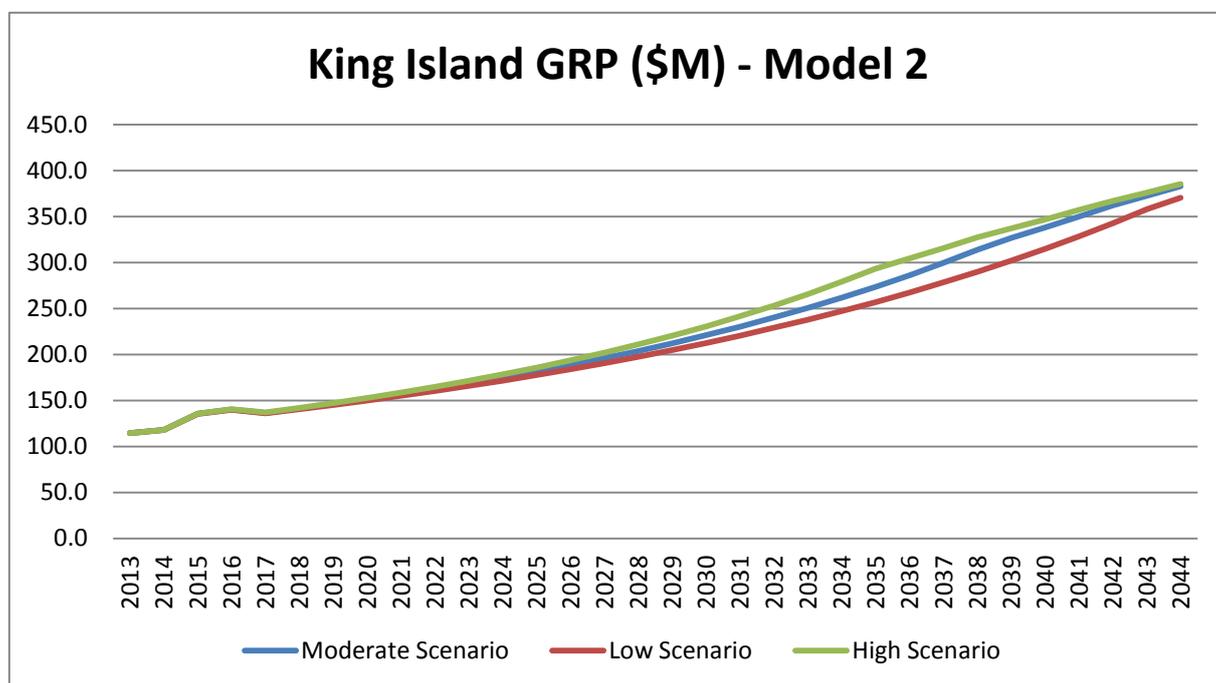
²⁴ E3 Planning 2013, *Preliminary Socio Economic Impact Assessment TasWind King Island Tasmania*, p.44.

Table 2.3: Economic forecast for King Island without wind towers (King Island GRP excl. dwelling ownership and taxes, nominal dollars, \$M)

King Island GRP, \$M (excl. dwelling ownership and taxes)		Year				
Model	Scenario	2013	2017	2022	2027	2044
Model 2 (without TasWind)	Low scenario (5% growth)	\$114.6	\$136.0	\$160.3	\$190.6	\$370.5
Model 2 (without TasWind)	Moderate scenario (6% growth)	\$114.6	\$136.5	\$162.5	\$196.0	\$382.9
Model 2 (without TasWind)	High scenario (7% growth)	\$114.6	\$137.1	\$164.8	\$202.0	\$385.3

The forecast King Island GRP for the low, moderate and high scenarios under Model 2 is shown in Figure 2.2. This shows the impact of the two golf courses and increase in tourism on the King Island economy to 2044. A cap in golfing visitors is reached in 2042 in Model 2 in the high scenario.

Figure 2.2: King Island GRP (\$M) – Model 2



Key observations from the economic forecast of King Island without wind towers but with golf course development are outlined below:

- In the moderate scenario of Model 2, King Island GRP (excluding dwelling ownership and taxes less subsidies) is forecast to increase from \$114.6M in 2013 to \$382.9M in 2044. Major components of King Island GRP growth over the period from 2013 to 2044 under Model 2 include:
 - Accommodation and food services is driven by the forecast increase in golf visitors and tourists to King Island and accounts for the largest source of growth in King Island’s GRP in Model 2, increasing from \$1.6M to \$67.3M;

- “Other services” including spending on golf courses provides the second largest source of economic growth, increasing from \$1.6M to \$42.3M;
- Retail trade and shopping is forecast to grow from \$3.6M in 2013 to \$18.4M with more golfers and tourists; and
- Agriculture and fishing continues to grow from \$39.8M to \$85.5M as a result of inflation.
- King Island GRP under the low scenario is forecast to grow to \$370.5M by 2044, \$12.4M less than the moderate scenario. This result is due to an assumed 2% slower growth in golf visitors and tourists in the low scenario.
- King Island GRP in the high scenario is forecast to grow to \$385.3M. Growth in golf visitors and tourists reaches a cap of 25,000 visitors per year for Cape Wickham and 20,000 visitors per year at Ocean Dunes in 2042 in this scenario. Potentially, additional golf courses and tourist facilities would be developed if the higher forecast growth in this scenario was reached but this has not been modelled.

In total, the operational phase of the two golf courses and supporting business development may generate around 75 to 95 direct Full Time Equivalent (FTE) jobs and with multiplier effects this may increase to 110 to 140 FTEs created on King Island. If these jobs were largely to be filled by new residents to King Island then this could lead to an overall population increase of between 200 to 255 people including families. This would be a significant population increase for King Island and could provide opportunities for further development of the tourism, retail and service sectors.

Model 2 – Discussion of key issues

A range of issues related to Model 2 without the TasWind Project are discussed below.

Golf course development

In Model 2 it is assumed that both the Cape Wickham and Ocean Dunes golf courses proceed according to plan. Both golf course developments are based on the success of similar golf courses, such as Barnbogle Dunes and Barnbogle Lost Farm in Tasmania. There is increasing Government and private sector interest in the development of high quality golf courses. For example, the Tasmanian Government identified in the Regional Economic Development Plan for Northern Tasmania that:²⁵

“Tasmania’s northeast coast has substantial potential for the development of new high quality resorts. The success of the Barnbogle Dunes and Barnbogle Lost Farm golf links developments near Bridport has raised the potential for further resort tourism across the coastal strip and its hinterland.”

The two golf courses will provide an impetus for King Island to further develop tourism and associated supporting retail and service sectors but more will need to be done. There will be opportunities for new owner-operators to become established in the tourism sector, for example, with wildlife tours, fishing charters, etc.

²⁵ Tasmanian Government 2012, *Regional Economic Development Plan Northern Tasmania*.

Future tourism development

As discussed in Model 1, future tourism development on King Island will depend on the success of the two golf courses, but also initiatives to improve marketing and packaging of tours, as well as enhancing the overall tourist experience with a range of services and accommodation.

King Island has an outstanding natural environment and is close to a major population centre (i.e. Melbourne) but to date this has not been sufficient to support the growth of the tourism sector. The number of tourists has stayed around 5,000 tourists per annum for several years.²⁶ More will need to be done by the tourism industry in tandem with the new golf courses to support development of King Island as a boutique tourist destination. Constraints that will need to be overcome include the cost of getting tourists to King Island and the availability and frequency of air services. More tourists to King Island will require additional air services and competition may help reduce the price of air travel.

Initiatives to broaden the peak tourist season, take advantage of food diversification, and market special events on King Island, such as the Long Table Festival and Imperial Marathon, will be important. Improved monitoring of tourism on King Island will be required to track tourism numbers and the local spend, and to continue to improve the quality of the King Island tourist experience.

In the longer term, the potential arrival of more than 50,000 tourists each year will generate a range of positive and negative social impacts on the King Island community and the local environment. This will also require careful management into the future.

“King Island Brand”

As identified in Model 1, it is difficult to account for the potential economic impact of the golf courses on the “King Island Brand” within the economic model developed as part of this study. However, if well designed, constructed and marketed, there is potential for the two golf courses to be promoted as a recreational and natural tourism based experience that is consistent with the “King Island Brand” and experience. The potential impact of the two golf courses on the “King Island Brand” could be tested with key industries, markets and tourists.

Shipping services and infrastructure

A major challenge for King Island in terms of Model 2 will be how to ensure continued cost effective shipping services. As identified in Model 1, with anticipated changes to current shipping services by early 2014, this will be a critical issue for King Island to address given its dependence on sea freight for export of produce and import of fuel, materials and other goods (also see Section 4).

3 Socio-Economic Comparison of the Two Models

This section compares the socio-economic results from the two models. GRP is forecast to grow significantly to 2044 under both Model 1 and Model 2. GRP initially grows more quickly in Model 1 due to the start of the construction phase of TasWind in 2017 with the GRP forecast of \$147.6M in the moderate scenario approximately \$11.1M greater than Model 2.

²⁶ King Island Tourism Industry, pers comm. 3 May 2013.

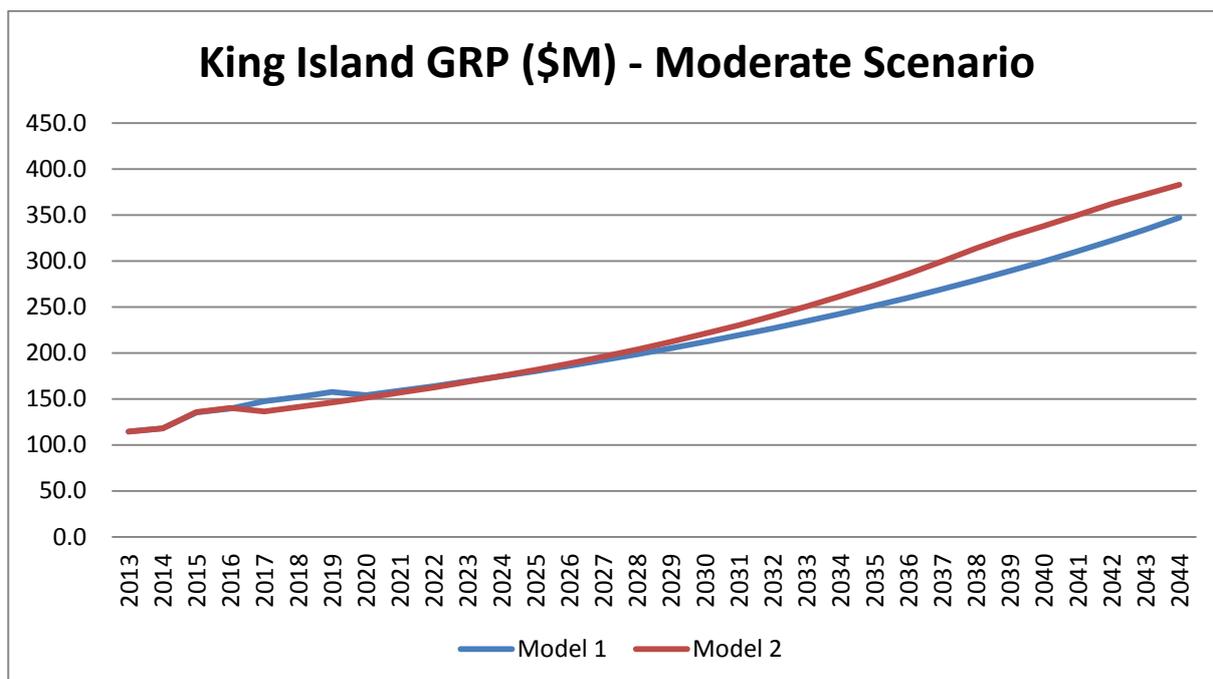
By 2027, GRP in Model 1 of \$192.3M is approximately \$3.7M less than Model 2 because of the assumed faster growth in golf visitors and tourists in Model 2.

Table 3.1: Economic Forecast for King Island (King Island GRP excl dwelling ownership and taxes, nominal dollars, \$M)

King Island GRP, \$M (excl dwelling ownership and taxes)		Year (See notes on each year below table)				
Model	Scenario (Golf growth rate)	2013	2017 ¹	2022 ²	2027 ³	2044 ⁴
Model 1 (with TasWind)	Low scenario (3% growth)	\$114.6	\$148.2	\$162.6	\$188.6	\$320.2
Model 2 (without TasWind)	Low scenario (5% growth)	\$114.6	\$136.0	\$160.3	\$190.6	\$370.5
Model 1 (with TasWind)	Moderate scenario (4% growth)	\$114.6	\$147.6	\$164.0	\$192.3	\$347.0
Model 2 (without TasWind)	Moderate scenario (6% growth)	\$114.6	\$136.5	\$162.5	\$196.0	\$382.9
Model 1 (with TasWind)	High scenario (5% growth)	\$114.6	\$149.2	\$168.0	\$199.3	\$383.8
Model 2 (without TasWind)	High scenario (7% growth)	\$114.6	\$137.1	\$164.8	\$202.0	\$385.3

The forecast King Island GRP for both models with the moderate scenario is shown in Figure 3.1. This shows the impact of the construction phase of the TasWind Project on the King Island economy between 2017 and 2019 in Model 1. It also shows that under Model 1, GRP grows more slowly after construction of TasWind given an assumed slower rate of golfing visitor and tourist growth.

Figure 3.1: King Island GRP (\$M) – Moderate Scenario



Economic growth in Model 2 under the moderate scenario is estimated to be \$35.9M larger in 2044 than Model 1. This is because of assumed more rapid growth in golf visitors and tourists in Model 2. In both models, the two golf courses and facilities bring increased economic activity in the accommodation and food, retail (shopping), and other service industries (such as, spending on the golf courses and recreation). A cap in golf visitors is also reached in 2042 in Model 2 in the high scenario. The potential impact of more golf courses, golfers and tourists has not been considered in either model.

The construction of the TasWind Project under Model 1 will be accompanied by associated upgrades to existing port infrastructure, accommodation facilities, and the installation of a fibre optic telecommunication cable. Depending on the port design and other costs, these infrastructure upgrades may result in a range of indirect benefits to the King Island economy and community but further analysis will be required. While the impact of these indirect benefits has not been explicitly considered in the economic model, the potential benefits will not accrue to the King Island economy or community under Model 2.

Key factors influencing the economic models

Key factors influencing both Model 1 and 2 are:

- The amount of economic stimulus from the construction phase of TasWind between 2017 and 2019 in Model 1 is directly influenced by how much work is undertaken by King Island contractors and workers, and how much is spent on King Island providing accommodation, food and other services for TasWind construction workers.
- Reduced use of local contractors and workers will reduce the amount of economic stimulus on King Island and increased use of local contractors and workers will increase the amount of economic stimulus.
- It has been assumed that Fly in – Fly out (FIFO) construction workers (80% of workforce) will spend significantly less on King Island (\$10,000 p.a.) than locally based workers (\$45,000 p.a.). A higher proportion of locally based workers will increase the amount of economic stimulus on King Island but may crowd out local housing and tourist accommodation with other impacts.
- The amount of economic stimulus from the TasWind compensation payments between 2020 and 2044 depends on how the compensation payments are split between the community and landholders, and the amount of payment that may go to off-Island landowners (leakage off King Island is assumed to be 35% but may be higher depending on where the wind towers are located). Increased compensation payments would increase the amount of economic stimulus to King Island but it would still only represent around 1% of the King Island economy in 2044.
- The potential impact of TasWind on the development of the two international links golf courses and other tourism related businesses is difficult to determine. It has been assumed that TasWind will lead to a slower growth in golfing and associated visitors (4% p.a. growth with TasWind compared to 6% p.a. without TasWind in the moderate scenario). Appropriate marketing of King Island and the golf courses may partly mitigate any negative impact of the wind towers on golfing visitors. The potential for additional golf courses with further tourism development has not been modelled.

Socio-economic comparison of the two models

A comparison of socio-economic measures under the two models is outlined in Table 3.2.

Table 3.2: Comparison of Socio-Economic Measures – Moderate Scenario

	Model 1: with wind towers and golf courses	Model 2: without wind towers but with golf courses	Difference: Model 1 and Model 2
King Island GRP (excluding dwelling ownership and taxes less subsidies)	King Island GRP is forecast to increase from \$114.6M in 2013 to \$347M in 2044	King Island GRP is forecast to increase from \$114.6M in 2013 to \$382.9M in 2044	By 2044, GRP in Model 1 is \$35.9M smaller than Model 2
Direct Payments	Direct payments to community, neighbours and landholders totalling \$3.2M to \$4.1M each year between 2020 to 2044 Potential for leakage of 35% to 50% of landholder payments off King Island	No direct payments	Direct payments in Model 1 totalling \$3.2M to \$4.1M each year between 2020 to 2044 but 35 to 50% leakage off King Island
King Island Employment (direct and indirect) Excludes FIFO	130 to 160 FTEs between 2020 to 2044 (post-construction)	110 to 140 FTEs between 2020 to 2044	20 to 30 additional FTEs in Model 1 between 2020 and 2044
Population	Population increase of 230 to 280 people between 2020 to 2044 (post-construction)	Population increase of 200 to 255 people between 2020 to 2044	Additional population increase of 25 to 30 people in Model 1 to 2044
FIFO workers	Construction: <ul style="list-style-type: none"> 35 to 45 FIFO workers p.a. between 2013 to 2016, and 200 to 300 FIFO workers p.a. between 2017 to 2019 Operation: <ul style="list-style-type: none"> Approximately 10 FIFO workers over 25 years (TasWind only) 	Construction: <ul style="list-style-type: none"> 35 to 45 FIFO workers p.a. between 2013 to 2016 Operation: <ul style="list-style-type: none"> Few 	200 to 300 more FIFO workers in Model 1 between 2017 to 2019, and 10 more FIFO workers from 2020 to 2044
Grassy Port / Shipping services	Port upgrade at \$12.5M to \$15M by Hydro Tasmania Potential for a wider range of shipping services depending on port design – upgraded port may also impact on freight costs	Upgrade uncertain Potential for restricted shipping services – may also impact on freight costs	Port upgrade in Model 1 but benefit will depend on design and future freight costs

Other potential projects and impacts

There are other potential projects on King Island that could also benefit from TasWind. These potential projects have not been considered in either model as part of this study but are briefly outlined below.

King Island Scheelite (KIS) gained planning and environmental approvals to reopen the Grassy Scheelite mine in 2011. KIS is seeking finance to reopen the mine and is undertaking further feasibility and value engineering studies. KIS has examined ways to improve cost efficiencies associated with reopening the mine to reduce upfront costs and generate strong early cash flow and increase the mine life.²⁷

KIS has also identified that “more reductions to infrastructure, operating cost, in particular power costs are being targeted”.²⁸ Hydro Tasmania has identified that, potentially, it would be possible to sell bulk electricity to the mine at a rate less than that of diesel and this would substantially reduce the overall cost of production and in turn improving the overall viability of the mine.²⁹ The reopening of the Scheelite mine could have additional indirect benefits for King Island in terms of shipping, air services, accommodation and material resources. For example, the rock from the mine could be used to expand the Grassy Port and for other purposes.

The TasWind Project could also benefit other renewable energy projects on King Island. For example, wave energy systems may be able to use the proposed TasWind 600MW cable to connect to the National Electricity Grid. Wave energy could be generated from wave turbines built into the breakwater of an upgraded Grassy Port and generate around 15MW or there could be a stand-alone array of around 50 x 1MW wave energy units off the west coast of King Island. Over time, a major energy storage facility could also be established.³⁰

4 King Island Future Development and Challenges

This section briefly considers what different development options might mean for King Island from an economic perspective, and how a small island community, such as King Island, can best prosper. A full response to these two questions is beyond the scope of this report but key observations are provided below.

The growth of any region is influenced by a range of factors including the availability of resources and labour, access to and distance from major markets, and the adequacy and cost of transport and communication networks. Particular challenges that may affect small island economies include:³¹

- A small domestic market with dominant providers, limited competition and high input and service costs;
- A limited production base with highly specialised output and reliance on several industries; and
- Vulnerability to external shocks, such as changes to commodity prices, fuel costs etc.

²⁷ King Island Scheelite, May 2013, Dolphin Project – Value Engineering of Definitive Feasibility Study completed.

²⁸ King Island Courier, “KI Scheelite Open Up Pit Plans”, 22 May 2013.

²⁹ E3 Planning 2013, Preliminary Socio Economic Impact Assessment TasWind King Island Tasmania, p.43.

³⁰ Oceanlinx Limited, pers comm. 17 May 2013.

³¹ See discussion in Bureau of Infrastructure, Transport and Regional Economics (BITRE), 2008, A regional economy: a case study of Tasmania, Report 116, Canberra ACT.

Major changes to the structure and focus of any economy can be disruptive and costly. Small island economies can be especially vulnerable to the closure of large businesses and changes to transport services.

The King Island economy is small and largely based on primary production (beef, dairy, fishing and kelp), dairy manufacturing, mining, tourism, retail and administration services. Some industries, such as the Scheelite mine, operated for many years but then closed.³² Potentially, the Grassy Scheelite mine may reopen depending on investment financing, production costs and the price of tungsten. More recently, in 2012, beef processing ended on King Island because of the relative higher costs of local processing although options for reopening a local abattoir are being assessed.

Different development options for King Island will have a range of short and long term benefits and costs depending on the nature of the development and the “fit” with existing industry, the community and “Brand”. For a small island economy, such as King Island, options that seek to build on existing industries while increasing diversity and retaining future development options will provide for both growth and resilience.

King Island has a strong “Brand” and identity based on high quality agricultural products and the unique natural environment.³³ There are also emerging nature-based tourism, recreation, education and other industries that can take advantage of the natural environment, local produce and “King Island experience”.

Previously, it has been recognised that King Island “is not capitalising on one of its greatest assets – its identity in the national and even the international marketplace as an island that produces premium cheese and beef and, to a lesser extent, seafood.”³⁴ There are also a range of constraints to further development and some of these are due to King Island’s geographic isolation that will always be difficult to overcome. Key constraints include:

- Limited shipping/freight options and high transport costs;
- High electricity and fuel costs; and
- Limited availability of skilled and semi-skilled labour.

Regardless of any decision on the TasWind Project, there are a range of immediate challenges that King Island needs to address:

- Further exploration and attraction of alternative shipping services – for several years King Island Council has been seeking a market-based solution to a shipping service.³⁵ The scheduled ending of the Searoad Mersey in early 2014 will have a significant impact on King Island and a replacement service will be required. Alternative shipping services and a reduction in the cost of freight would benefit key industries and the King Island community. The TasWind Project could bring an upgrade to the Grassy Port but the future benefit to King Island will depend on the port design and future freight costs.

³² A King Island Abattoir Feasibility Study is being undertaken along with an assessment of a Small Livestock Processing Facility, Minutes of a King Island Council Ordinary Meeting, 19 March 2013.

³³ King Island Place Brand Project 2006, Sharing the King Island Way.

³⁴ King Island Place Brand Project 2006, Sharing the King Island Way.

³⁵ King Island Council, Issues Papers, 2013 – Section 1. Shipping.

- Upgrade of the King Island Airport runway and apron lighting, installation of a refuelling facility, and new airport terminal building.³⁶ As well as continuing to provide an essential service, an upgraded airport would support more frequent and increased air services that will likely arise with a projected increase in tourists associated with the development of golf courses on King Island and with other major projects; and
- Tourism marketing and sector development – with the golf course developments there is potential for diversification into additional tourism markets, and the development of additional tourism products to support further development. Further marketing and packing of tourist options will also be essential.

A key question that this economic forecast cannot answer is “How does the King Island Community want King Island to look into the future?”. A King Island strategic plan could provide an agreed community vision for how the King Island community wants to develop in the future. The strategic plan would provide a “touchstone” for any future development and business activity to be assessed against. There have been past attempts to develop such a community vision and could be revisited.

There is also potential for each of the key industry sectors on King Island to prepare and implement a targeted development strategy, such as the King Island Tourism Inc. *Tourism Strategy Plan*.³⁷ The preparation of each strategy would be led by the relevant industry group on King Island in association with key partners, such as King Island Council, relevant agencies and associations. The focus would be to clearly articulate agreed objectives, targets, markets and actions in each strategy. It is recognised that this approach would require investment and commitment from each key industry sector but it would lead to an agreed vision for each sector and support more coordinated and cost-effective sector development. The success of each strategy will depend on the extent to which it is funded and implemented.

Over time, King Island will also need to consider:

- How to promote vertical integration in key agricultural sectors and develop value-adding activities that occur along the supply chain – from production through processing and transport to marketing and sales;
- How to further develop niche markets for premium King Island agricultural products;
- How to encourage value-adding in the tourist sector with a range of quality accommodation, services and activities;
- The impacts of climate change on agricultural production and development in low-lying coastal areas vulnerable to rising sea levels and storm surges;
- How to enable coastal subdivision with a range of large and small block sizes for different types of residential development while maintaining the natural character of the King Island coastline; and
- Attracting and retaining an appropriately skilled and flexible workforce to support a more diversified economic base.

³⁶ King Island Council, *Issues Papers, 2013 – Section 8. King Island Airport*.

³⁷ King Island Tourism Inc. 2009, *Tourism Strategy Plan*.

Appendix A: The TasWind Project

TasWind is a concept by Hydro Tasmania to develop a 200 tower wind farm on King Island with a high voltage underwater cable to Victoria.³⁸ If it proceeds, TasWind will generate approximately 2,400 gigawatt hours (GWh) of electricity. The cost of construction of TasWind will be around \$2 billion. It may involve up to 500 workers in the construction phase and 15 to 20 workers in the operation phase. Many of the construction workers would be fly in - fly out (FIFO) and would be based at a workers camp.

If it proceeds, the design of the project will be determined in several phases by Hydro Tasmania with a series of assessments including detailed environmental and socio-economic investigations, wind monitoring, technical studies, supplier negotiations and community and stakeholder consultation.

Based on a hardstand, foundation and roads, the footprint of each tower will be around 0.25 ha and represent less than 1% of a 20,000 ha investigation area. The siting of each tower will depend on various factors including environmental and heritage considerations, separation distance from houses, prevailing wind direction and space between the towers.

³⁸ This appendix is sourced from Hydro Tasmania, *TasWind Community Bulletin #1 November 2012, and Community Bulletin #2 April 2013.*

Appendix B: Socio-Economic Model

Methodology and Approach

CH2M HILL has prepared this report for the TWCC. Our methodology and approach to this socio-economic study involved the following phases in accordance with the Project Scope³⁹:

- Phase 1: Project initiation and review of Hydro Tasmania's Preliminary Socio Economic Impact Assessment.⁴⁰
- Phase 2: Development of a socio-economic profile of King Island under Model 1 (with development of the 200 wind towers) and Model 2 (without the wind towers).
- Phase 3: Economic comparison of both models, assessment of how the respective models place King Island from an economic perspective, and discussion of how can King Island best prosper long-term. This phase includes preparation of this report.
- Phase 4: Presentation of findings to the King Island community.

The economic forecast for King Island has been considered over the following time periods:

- 5 years (during construction of the wind towers);
- 10 years (post wind tower construction, during the operational phase of the TasWind Project); and
- Post wind towers (after 25 years).

Key assumptions

CH2M HILL has developed a socio-economic model for King Island based on ABS Census and economic data and supported by local industry and project information (where available), professional opinion and judgement. Economic forecasting uses historical numbers as its basis with the critical assumption that the past can be used to predict the future. If economic conditions change significantly, such as with global financial downturns, or changes to commodity prices, economic forecasting becomes much less accurate, especially over the long term.

Drawing on ABS Census and National Accounts data⁴¹, in particular industry of employment by occupation and state account data, CH2M HILL derived an estimated gross regional product (GRP) (or net measure of wealth generated by the region) for King Island in 2011. The derived GRP for King Island was adjusted based on local industry knowledge and professional judgement to account for the reduction in manufacturing output due to the closure the of the King Island abattoir in 2012. Applying a constant rate of inflation of 2.5%

³⁹ *TasWind Consultative Committee 2013, Scope Economic Study – King Island.*

⁴⁰ *See CH2M HILL Technical Memo 2013, Review of Hydro Tasmania's Preliminary Socio Economic Impact Assessment TasWind King Island Tasmania.*

⁴¹ *See: ABS 2012, Census of Population and Housing, Basic Community Profile, King Island; ABS Tasmanian State and Regional Indicators; Australian National Accounts: State Accounts, Tasmania.*

per annum, a 2013 baseline GRP for King Island was calculated. Drawing on available local and industry information and data, CH2M HILL developed a range of assumptions relating to the construction and operation of the TasWind Project and two golf course developments and the associated economic impacts to King Island as part of this Study. These economic impacts were then applied to the derived GRP for King Island, and forecast over the period 2013 to 2044.

The TWCC outlined various assumptions that should be made within both of the models including:

- i. That it is ‘business as usual’ for beef and dairy farming, kelp industries, fishing, dairy production (cheese manufacturing) and mining. That is production levels remains relatively similar to present day levels. CPI should be included in economic analyses. The exception to this assumption is where economic impacts are identifiable as a result of activity within the model. For example, if agricultural practices were negatively affected as a result of wind turbine exclusion zones.
- ii. Tourism projections should be included in both models including any associated changes in correlation with the two golf course developments.

Other key assumptions used by CH2M HILL are:

	MODEL 1 - King Island with Wind Towers			MODEL 2 - King Island without Wind Towers		
	Low	Moderate	High	Low	Moderate	High
TasWind construction assumptions						
Commencement of construction	2017	2017	2017			
Construction period (yrs)	3	3	3			
Average annual construction FTEs	340	340	340			
Proportion of construction workers employed on FIFO basis	80%	80%	80%			
Annual on-Island spend by FIFO workers (assumed to be lower as based in a workers camp)	\$10,000	\$10,000	\$10,000			
Annual on-Island worker spend	\$45,000	\$45,000	\$45,000			
Total annual construction stimulus from workers	\$5,780,000	\$5,780,000	\$5,780,000			
Local construction expenditure						
<i>Roads</i>	\$5,000,000	\$5,000,000	\$5,000,000			
<i>Port upgrade</i>	\$12,500,000	\$12,500,000	\$12,500,000			
<i>Permanent accommodation upgrades</i>	\$4,500,000	\$4,500,000	\$4,500,000			
<i>Accommodation/ visitors</i>	\$1,500,000	\$1,500,000	\$1,500,000			
<i>Fibre optic telecommunication cable</i>	\$1,000,000	\$1,000,000	\$1,000,000			
<i>Concrete batch plant</i>	\$700,000	\$700,000	\$700,000			
<i>Quarries</i>	\$1,100,000	\$1,100,000	\$1,100,000			

Total local construction expenditure	\$26,300,000	\$26,300,000	\$26,300,000			
Proportion of construction expenditure on-Island	25%	25%	25%			
Total annual construction expenditure on-Island	\$2,191,667	\$2,191,667	\$2,191,667			
TasWind operation assumptions (post construction)						
Commencement date	2020	2020	2020			
Operation period	25	25	25			
Total operation workers	20	20	20			
Proportion of FIFO workers	50%	50%	50%			
Annual FIFO worker spend	\$35,000	\$35,000	\$35,000			
Annual on-Island worker spend	\$45,000	\$45,000	\$45,000			
Total annual stimulus from workers	\$800,000	\$800,000	\$800,000			
Ongoing annual maintenance, contract etc.	\$400,000	\$450,000	\$500,000			
Number of towers	200	200	200			
Annual direct payments						
<i>Community fund</i>	\$1,500	\$1,750	\$2,000			
<i>Neighbour payments</i>	\$1,500	\$1,750	\$2,000			
<i>Landholder payments</i>	\$7,925	\$8,975	\$10,025			
<i>Leakage (35% of non-community fund payment)</i>	\$5,075	\$5,775	\$6,475			
Total payment per turbine	\$16,000	\$18,250	\$20,500			
Total annual direct payments	\$3,200,000	\$3,650,000	\$4,100,000			
Cape Wickham construction assumptions						
Commencement of construction	2012	2012	2012	2012	2012	2012
Construction period	2	2	2	2	2	2
Average annual construction FTEs	80	80	80	80	80	80
Proportion of construction workers employed on FIFO basis	50%	50%	50%	50%	50%	50%
Annual on-Island spend by FIFO workers	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000
Annual on-Island worker spend	\$45,000	\$45,000	\$45,000	\$45,000	\$45,000	\$45,000
Total annual construction stimulus from workers	\$3,200,000	\$3,200,000	\$3,200,000	\$3,200,000	\$3,200,000	\$3,200,000
Total construction expenditure	\$25,000,000	\$25,000,000	\$25,000,000	\$25,000,000	\$25,000,000	\$25,000,000
Proportion of construction expenditure on-Island	35%	35%	35%	35%	35%	35%
Total annual construction expenditure on-Island	\$4,375,000	\$4,375,000	\$4,375,000	\$4,375,000	\$4,375,000	\$4,375,000

Cape Wickham operating assumptions						
Commencement of operations	2014	2014	2014		2014	2014
Annual visitors (Initial)	6,000	6,000	6,000		6,000	6,000
Additional visitors with golfers	10%	10%	10%		10%	10%
Annual increase in visitors	3%	4%	5%		5%	7%
Spend per visitor						
<i>Spend on golf resort operation and recreation, equipment and associated</i>	\$300	\$300	\$300		\$300	\$300
<i>Spend on accommodation and food services</i>	\$600	\$600	\$600		\$600	\$600
<i>Spend on retail trade</i>	\$100	\$100	\$100		\$100	\$100
Total spend per visitor	\$1,000	\$1,000	\$1,000		\$1,000	\$1,000
Full-time equivalent employees	35	35	35		35	35
Average FTE income	\$60,000	\$60,000	\$60,000		\$60,000	\$60,000
Annual on-Island worker spend	\$45,000	\$45,000	\$45,000		\$45,000	\$45,000
Total annual stimulus from workers	\$1,575,000	\$1,575,000	\$1,575,000		\$1,575,000	\$1,575,000
Ocean Dunes construction assumptions						
Phase 1 - Golf course development						
Commencement of construction	2013	2013	2013		2013	2013
Construction period	2	2	2		2	2
Total construction workers (phase 1)	40	40	40		40	40
Proportion of construction workers employed on FIFO basis	50%	50%	50%		50%	50%
Annual on-Island spend by FIFO workers	\$35,000	\$35,000	\$35,000		\$35,000	\$35,000
Annual on-Island worker spend	\$45,000	\$45,000	\$45,000		\$45,000	\$45,000
Total annual construction stimulus from workers	\$1,600,000	\$1,600,000	\$1,600,000		\$1,600,000	\$1,600,000
Total phase 1 construction expenditure	\$7,000,000	\$7,000,000	\$7,000,000		\$7,000,000	\$7,000,000
Proportion of construction expenditure on-Island	35%	35%	35%		35%	35%
Total annual construction expenditure on-Island	\$1,225,000	\$1,225,000	\$1,225,000		\$1,225,000	\$1,225,000
Phase 2 - Accommodation development						
Commencement of construction	2015	2015	2015		2015	2015
Construction period	2	2	2		2	2
Total construction workers (phase 2)	80	80	80		80	80

Proportion of construction workers employed on FIFO basis	50%	50%	50%		50%	50%	50%
Annual on-Island spend by FIFO workers	\$35,000	\$35,000	\$35,000		\$35,000	\$35,000	\$35,000
Annual on-Island worker spend	\$45,000	\$45,000	\$45,000		\$45,000	\$45,000	\$45,000
Total annual construction stimulus from workers	\$3,200,000	\$3,200,000	\$3,200,000		\$3,200,000	\$3,200,000	\$3,200,000
Total phase 1 construction expenditure	\$14,000,000	\$14,000,000	\$14,000,000		\$14,000,000	\$14,000,000	\$14,000,000
Proportion of construction expenditure on-Island	35%	35%	35%		35%	35%	35%
Total annual construction expenditure on-Island	\$2,450,000	\$2,450,000	\$2,450,000		\$2,450,000	\$2,450,000	\$2,450,000
Ocean Dunes operating assumptions							
Phase 1 - Golf course only							
Commencement of operations	2015	2015	2015		2015	2015	2015
Annual visitors (Initial)	4158	4158	4158		4158	4158	4158
Additional visitors with golfers	10%	10%	10%		10%	10%	10%
Annual increase in visitors	3%	4%	5%		5%	6%	7%
Spend per visitor							
<i>Spend on golf resort operation and recreation, equipment and associated</i>	\$300	\$300	\$300		\$300	\$300	\$300
<i>Spend on accommodation and food services</i>	\$600	\$ 600	\$ 600		\$ 600	\$ 600	\$ 600
<i>Spend on retail trade</i>	\$100	\$100	\$ 100		\$ 100	\$ 100	\$ 100
Total spend per visitor	\$1,000	\$1,000	\$1,000		\$1,000	\$1,000	\$1,000
Full-time equivalent employees (phase 1)	35	35	35		35	35	35
Average FTE income	\$60,000	\$60,000	\$60,000		\$60,000	\$60,000	\$60,000
Annual on-Island worker spend	\$45,000	\$45,000	\$45,000		\$45,000	\$45,000	\$45,000
Total annual stimulus from workers	\$1,575,000	\$1,575,000	\$1,575,000		\$1,575,000	\$1,575,000	\$1,575,000
Commencement of operations	2017	2017	2017		2017	2017	2017
Full-time equivalent employees (phase 2)	50	50	50		50	50	50
Average FTE income	\$60,000	\$60,000	\$60,000		\$60,000	\$60,000	\$60,000
Annual on-Island worker spend	\$45,000	\$45,000	\$45,000		\$45,000	\$45,000	\$45,000
Total annual stimulus from workers	\$2,250,000	\$2,250,000	\$2,250,000		\$2,250,000	\$2,250,000	\$2,250,000

Appendix C: Impact on Land Values

Various Australian and international studies have considered the impact of wind farms on land and property values. Key determinants in terms of the impact of wind farms on property values include the size and location of the wind farm, the distance of the wind farm from any property, and the underlying land use

Key findings from different valuation studies include:

- NSW Auditor General, 2009: in a preliminary assessment of eight wind farms across NSW and Victoria, “the main finding was that the wind farms do not appear to have negatively affected property values in most cases”. No reductions in sale price were evident for rural properties or residential properties located in nearby townships with views of the wind farm but rural residential properties were mixed and inconsistent with some possible reductions.⁴²
- Hoen *et al*, 2009: assessed data on almost 7,500 sales of single family homes situated within 10 miles of 24 existing wind facilities in nine different U.S. states. Various analyses were strongly consistent and did not uncover conclusive evidence of the existence of any widespread property value impacts that might be present in communities surrounding wind energy facilities. “Specifically, neither the view of the wind facilities nor the distance of the home to those facilities is found to have any consistent, measurable, and statistically significant effect on home sales prices.”⁴³
- Dent and Sims, 2007: studied various sites in Cornwall in the UK and concluded that “there were generally other factors which were more significant than the presence of a wind farm. Insofar as there was any impact on prices, the results seem to show that it is most noticeable for terraced and semi-detached houses, with there being a significant impact on properties located within a mile of a wind farm.”⁴⁴
- Henderson and Horning, 2006: an assessment of 78 property sales around the Crookwell wind farm over the period 1990-2006 found no measurable reduction in values for those properties that have a sight line to the development. Factors such as soils, improvements and access to services are more important drivers in determining value than the visual amenity of the wind farm.⁴⁵

⁴² NSW Auditor General 2009, *Preliminary Assessment of the Impact of Wind Farms on Surrounding Land Values in Australia*.

⁴³ Ben Hoen, Ryan Wisler, Peter Cappers, Mark Thayer, and Gautam Sethi 2009, *The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonic Analysis*, Ernest Orlando Lawrence Berkeley National Laboratory.

⁴⁴ Dent and Sims 2007, *What is the impact of wind farms on house prices?*, RICS Research, UK.

⁴⁵ Henderson and Horning 2006, *Land Value Impact of Wind Farm Development: Crookwell NSW*. Sydney: Henderson & Horning Property Consultants.

The 2011 Senate inquiry into “The Social and Economic Impact of Rural Wind Farms” concluded that:

“4.19 Although there were conflicting views expressed, there were sufficient indications in the evidence to suggest that the value of rural lifestyle properties in close proximity to wind farms may be adversely affected by the establishment of the wind farms. Agricultural properties near wind farms which do not host turbines may not be similarly affected, although there could be some diminution of values if dwellings on the properties are situated very close to turbines. There might also be some negative effects on agricultural property values if those properties could not utilise aerial applications of fertiliser, seeds and pesticides.”