Upper Hunter Economic Diversification Project

Report 3 of 3: Strategy Report

Buchan Consulting

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Executive Summary

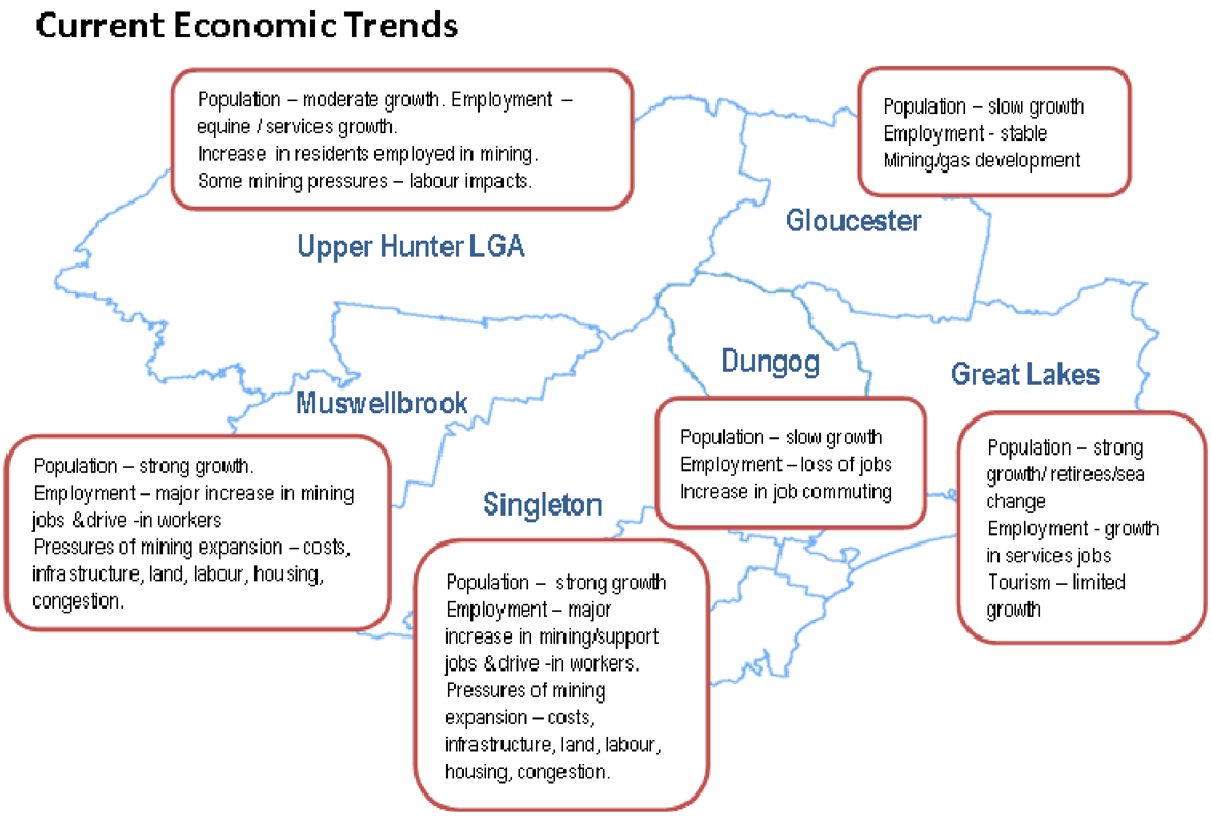
This Strategy Report is the third and final report prepared as part of the Upper Hunter Economic Diversification Project. It outlines a strategy for diversification and for the strengthening of local economies in the Upper Hunter Region.

A. Regional Economy

The regional economy and industry analysis and the industry and community consultations highlight both: the differences in the local government areas (LGAs) that make up the Upper Hunter Region; and the medium and longer term economic development challenges that the individual LGAs face, in terms of developing sustainable local economies. There are differences between LGAs in terms of population size, industry mix and current trends in population and industry growth.

The LGAs have had a differential growth performance. The major growth factor in the Upper Hunter Region has been mining activity and this has driven jobs growth in mining operations and support services. Those areas experiencing population growth have seen increases in activity and jobs in population related services (eg. retail, health, education, and other services). Agricultural activity has been impacted by continued consolidation and price/cost squeezes experienced by producers. Skill shortages and competition for employees with the mining sector have impacted on a range of industries in the region. There are also issues in terms of competing land use and future access to water.

The smaller LGAs have experienced limited employment growth, or in the case of Dungog, a major decline in local jobs. Great Lakes has seen growth in service jobs.



The following are the specialisations in each of the areas. A few sectors are the major drivers and this includes the mining driven areas of Singleton and Muswellbrook; the equine and agricultural region of

Upper Hunter LGA; the agricultural regions of Dungog and Gloucester and the population and tourism driven region of Great Lakes.

Major Current Economic Drivers (Key Sectors) in Each Local Government Area

Major Drivers Rank	Cluster 1 Singleton	Muswellbrook	Upper Hunter	Cluster 2 Dungog	Gloucester	Cluster 3 Great Lakes
1	Coal Mining	Coal Mining	Equine	Agribusiness- beef, dairy	Agribusiness- beef, dairy	Population Services – retail/services
2	Mining Support	Power generation	Agribusiness- beef, dairy, crops, food processing	Population Services – retail/services	Population Services – retail/services	Tourism
3	Power generation	Mining Support	Population Services – retail/service	Tourism	Health & Aged Care	Health & Aged Care
4	Population Services – retail/services	Equine	Tourism	Education	Tourism	Building and construction
5	Agribusiness – beef, dairy	Wine	Education		Education	Education
6	Defence	Agribusiness – beef, dairy			Coal Mining	Agribusiness – aquaculture, fishing, beef, timber
7	Wine	Population Services – retail/services				
8	Tourism	Tourism				
9	Education	Education				

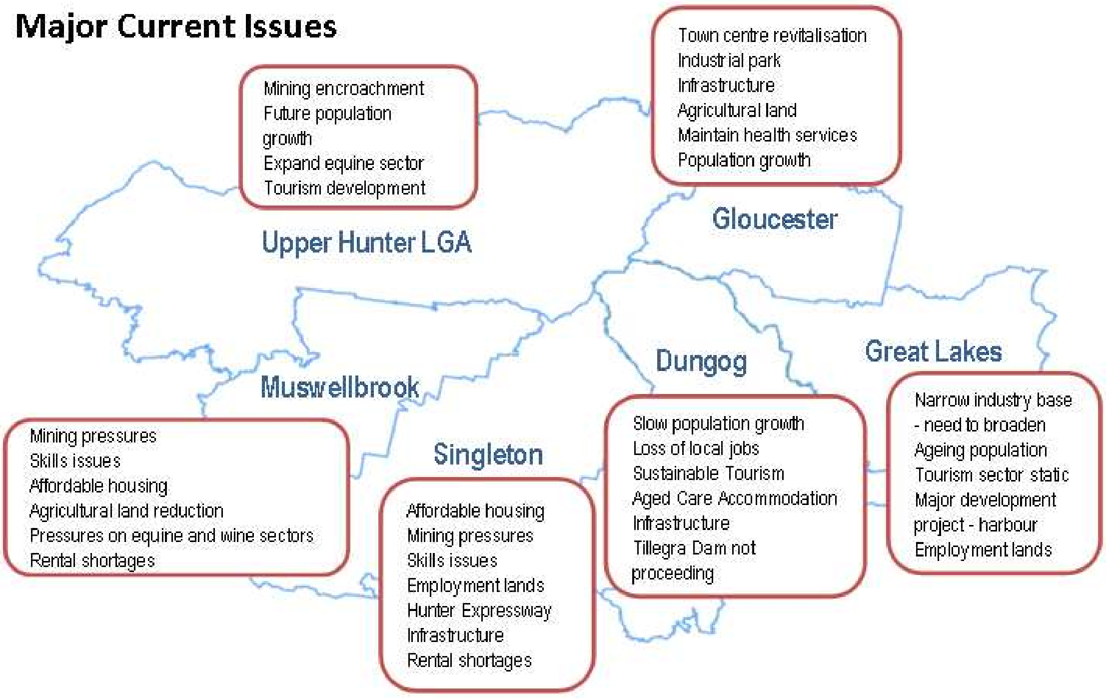
Source: Buchan Consulting analysis based on ABS Census 2006 data (industry of employment of residents and jobs located in the LGA)

The industry specialisation in each area tends to be narrow, which creates vulnerabilities with cyclical and structural changes in these sectors. In the case of the mining regions, there are substantial support industries that are servicing mining (that will be affected in the medium to longer term as mining winds down in specific areas).

Over the last decade there have been substantial changes in employment locations, particularly with the strong industry and services growth in Newcastle and other areas of the Lower Hunter and the major expansion in mining in the Upper Hunter. The regional inter-linkages between the Upper Hunter and Lower Hunter are becoming more important. In response to these trends, many employees are now operating in a broader regional labour market, with increasing levels of commuting to employment opportunities.

While there is a need to strengthen local economies, regional linkages between areas will become increasingly important over longer term horizons. These growing inter-linkages also suggest a need for broader economic strategies and programs that operate at a regional level, rather than at an individual local government area level.

B. Major Issues



There are a number of issues for the future, which shape the context for the diversification strategy.

Industry Structure

There are major industry issues in the region. .

- Structure of industry - a reliance on a narrow industry base with the major sectors linked to local resources nexus (mining and agriculture). Outside of the mining sector, most businesses are small, with 75% employing less than 10 persons.
- Ongoing pressures of a dual speed economy - the growth in mining and its impacts on other sectors and on communities.
- Competing land use and resource issues - the growth of existing key sectors (agriculture) and diversification options are dependent on maintaining critical mass in these sectors (eg. equine, wine).
- The future horizon of coal mining and the pattern and levels of employment over the next 20-30 years. There will potentially be a number of jobs to replace over this horizon as the location of mining shifts further west (although mobile workforces are largely covering the current rapid jobs growth). This issue is mainly focused on the populations of Singleton, Muswellbrook and to a lesser extent in Upper Hunter LGA. The other LGAs have more limited links to the mining sector. Over time there is potential for some cyclical variations in demand levels, to impact on employment. New coal technologies will reduce emissions and will extend market horizons for production and exports.

Population and Jobs

There are issues in relation to population and jobs.

- Differences in population growth, with Dungog and Gloucester, experiencing slow growth. This has implications for maintaining and developing sustainable communities.
- Recognition of the link between jobs and population growth. Future growth in area populations is dependent on the availability of local jobs or ready access to jobs within commutable distances. Growing populations will provide threshold demand levels for local services.
- An increasing integration of regional labour markets, with some Upper Hunter residents travelling to jobs in the Lower Hunter and in adjacent areas; and residents from the Lower Hunter commuting to jobs in the Upper Hunter.
- An ageing of the population and a need to develop accommodation and services for seniors.
- Based on population growth projections, the Upper Hunter Region (including Great Lakes) would require a total of 13,440 additional jobs over the 25 year period to 2036 or an average of an additional 538 jobs per year across the region. The major requirements are in the larger population areas of Great Lakes, Singleton and Muswellbrook.
- Looking across the total region, projected population growth will generate a total of 5975 jobs (45% of job requirements). Meeting the full jobs requirement will require an increase in jobs that are servicing broader regional, state and national markets. Over the next 20 years, mining and mining related jobs are likely to fill this gap in the mining areas, and at the same time will be one of the main drivers of population growth in these locations.

Environment

Environmental issues are important for the region.

- Environment issues, including: the effects of climate change on regions and sub regions; and the impacts of a proposed carbon tax and an ETS on the mining sector (and for coal demand the impacts of policies in overseas markets) and the power generation sector.
- Availability of water to service growing populations, regional industries and agriculture.
- Maintenance of productive of land for agriculture and ensuring appropriate buffers.

Competitive Position

The Upper Hunter Region has a number of advantages.

- Overall the Upper Hunter has a number of major advantages including: access to a major port, national road and rail networks, well located industrial land; a growing population; workforce skills; access to a major regional airport; a significant defence presence; access to a large regional market and proximity to the Sydney market. Improvements in regional highways are having impacts and will make the Upper Hunter Region more accessible as an industry location.
- Major constraints include: slow population growth in some areas; ageing populations; competing land use; perceptions of location and access; developed industrial estates; and competition with other regions (eg. Lower Hunter, Mid North Coast, Central Coast, and Western New South Wales (eg. Dubbo, Tamworth, and Parkes).

Future Development

Future development and diversification involves a number of elements.

- Building on areas of clear competitive strengths in the region - in the equine industry; mining support/engineering; power generation; renewables; tourism; and agriculture and processing). A key focus is on building on advantages through a supply chain approach that captures value adding and support activities.
- Encouraging innovation - there is potential for innovation in the region including: low-emissions coal initiatives; clean energy technologies (gas and renewables); and agriculture (eg. wine, cattle, equine, intensive horticulture). Much of this involves the expansion of industry/university research and development linkages and partnerships.
- The increasing skill levels in most sectors and the need to deliver vocational education and training in the region and to develop stronger business involvement in skills development.
- Action on both regionally linked opportunities and on specific opportunities in each LGA.

Infrastructure

Infrastructure development is critical for future diversification.

- Improvements in key strategic infrastructure including roads, rail, water, sewer, industrial land, town centres and broadband. A regional approach is required to planning and the funding of infrastructure.
- Development of industrial estates to provide for specialist industry requirements and for light industrial activities (servicing local and regional markets).

C. A Diversification Strategy

The future development of the region requires the generation of sustainable jobs, which are based on both building on current advantages and on creating new areas of advantage. A key issue is taking a regional approach as there will continue to be interrelationships between the LGAs and between the Upper Hunter Region and the Lower Hunter Region. These interrelationships relate to: industry supply chains; regional markets for businesses; and the operation of regional labour markets. This strengthening and diversification of the Upper Hunter Region has a number of components:

- Increasing local populations to build ongoing critical mass for service industries and to develop associated jobs.
- Building on specific industry strengths and local advantages and leveraging these as a foundation for future industry diversification and growth.
- Developing new areas of industry that are based on emerging opportunities (eg. logistics based on improved highway access, and new areas of agriculture).
- Developing knowledge intensive activities. This includes: the development of renewable energy support activities; education and training delivery; and industry research and development activities.

It is recognised that the current situation and future prospects of the local areas differ substantially due to their resource base, population trends, industry structure, location and accessibility. The larger areas (Muswellbrook, Singleton and Upper Hunter LGAs) have growing populations and an industry base. The smaller areas (Gloucester and Dungog) need to increase their populations to maintain sustainable communities and will face greater challenges in generating local jobs. Great Lakes as a coastal area will experience continuing population growth and will need to broaden its industry base.

A major feature is taking a regional cluster and industry cluster approach, which involves recognition of areas of specialisation in each of the LGAs. Great Lakes is not traditionally seen as part of the Upper Hunter. While it may partner with the Upper Hunter Councils in some areas, in other areas its linkages would be with the other coastal areas of the mid North Coast.

In pursuing economic diversification in the Upper Hunter, there will be a need for: funding for key infrastructure; strategic regional policy and industry policy support from the New South Wales Government; and access to Australian Government regional and industry programs.

Strategy Elements

Build on Advantages & Create New Advantages

Upper Hunter Region

1. Population/Market Growth
- **Population Growth - local/regional**
  - Town centres focus
  - Increase services demand - population services, business services, light industrial

2. Build on Current Industries
- **Supply Chain Links & Broader Markets**
  - Electricity generation, energy, mining support, engineering, agribusiness, equine, wine, tourism
- **Value Adding**

3. Develop New Areas
- **New & Emerging Sectors**
  - Intensive agriculture; renewable energy & support, logistics
  - SME growth

- **Shire / Regional Specialisations**
- **Inter-Linkages – UH & LH**
  - Industry supply chains
  - Business - regional markets
  - Jobs - regional labour market

4. Creating New Areas of Advantage
- **Knowledge / Innovation Based Activities**
  - Education & training
  - Research & development
  - Support services
  - Professional / technical services
- **Associated with current & emerging industries**

Support

Short Term : Mining Growth Pressures
- Accommodation / housing plan
- Industrial workforce plan

Information Needs:
- Agribusiness review
- Mining sites rehab study

Medium Term : Regional Planning
- UH Regional Strategy

Medium Term : Key Infrastructure
- Roads, rail, water, sewer, industrial areas, broadband
- UH Region Infrastructure Plan

Funding:
- Mining royalties options

Regional Cooperation
- Industry & regional clusters
- Economic development
- Business attraction

Partnerships
- Govt: NSW Govt, Councils
- Business – associations/chambers, lead companies
- Mining companies

D. Opportunities

Opportunities for growth and diversification have been identified for each local government area.

Opportunities Summary – Upper Hunter Region

Regional Cluster 1			Regional Cluster 2		Regional Cluster 3
Singleton	**Muswellbrook**	**Upper Hunter**	**Dungog**	**Gloucester**	**Great Lakes**
Medium Term	**Medium Term**	**Medium Term**	**Medium Term**	**Medium Term**	**Medium Term**
Mining support Mining services Power Generation and support Tourism Logistics hub Engineering training centre Government services Business services	Mining Mining support and services Power generation and support Equine industry growth and development. Tourism Wine industry development Professional and technical services Cultural and creative industries (visual art and music) Business services Government services	Equine industry growth and development. Tourism Renewable energy and support , education and research Services to mining industry Professional services	Agriculture revitalisation Intensive agriculture and development of an agribusiness park Agribusiness education and training (regional role) – extend Tocal College programs into Dungog Film sector – development of a residential film school, capitalising on film festival Tourism – market segment development Aged care	Agriculture revitalisation Intensive agriculture and development using Gloucester Growers Cluster Wine sector Mining and gas support – engineering services Tourism : market segment development – short breaks - adventure, nature based, agri-tourism Retail revitalisation <Potential for regional partnering with Dungog on tourism and agribusiness> Health and Aged care	Forster Tuncurry Crown Harbour Project Health services - extend and develop broader health and wellbeing focus Aged care Small business development and incubator Agriculture revitalisation – existing sectors and intensive agriculture Tourism: continue market segment development - active tourism/lifestyle, adventure sports, water based; eco-tourism and nature-based tourism. Building and construction – environmental focus Small business development and incubator Professional and technical services Government services
Long Term	**Long Term**	**Long Term**	**Long Term**	**Long Term**	**Long Term**
Engineering Agribusiness – intensive horticulture, wine , beef Food processing Renewable energy and support Aged care	Renewable energy and support Engineering Education and training Use of mining sites Aged care	Agriculture revitalization -Intensive horticulture Food processing expansion	Renewables - part of Hunter Renewable Energy Precinct : some limited opportunities for wind and solar generation Professional and technical services	Power generation (small gas fired plant) Industrial Park Professional and technical services	Light industrial – develop businesses in industrial area Environmental services (Centre of Excellence– in sustainability - research and training) Tourism training centre

E. Implementation

The strategy has both short term/medium term requirements and longer term horizons.

The Short Term/Medium Term focus is on addressing the current impacts of the mining boom on industry and on communities and dealing with infrastructure issues. The current major pressures of the mining sector boom in the region are on accommodation and on regional workforces. There is a need for a planned approach to address these issues through: development of a mining regions accommodation plan (examining demand and supply options); and developing an Upper Hunter Regional Industry Workforce Plan - this would assess demand and supply issues over 5 year and 10 year horizons and would focus on recruitment, retention and skills development across the mining sector and the other key industries.[1]

The long term involves: acting on developing long term sustainable economic development opportunities for the Upper Hunter Region, which are based on competitive advantages of the region and the local government areas; replacement of mining jobs as industry location and activity levels change; and encouraging continued population growth to underpin the development of local service activities and jobs.
This requires local action and regional action on major industry opportunities. There are a number of development requirements and these include:

- Technical and business studies: covering intensive agriculture opportunities in the region; and on the potential uses of rehabilitated mining sites.
- Regional strategy: development of an *Upper Hunter Regional Strategy*, which is equivalent to the *Lower Hunter Regional Strategy* and can provide a foundation for planning decisions.
- Infrastructure: develop an *Upper Hunter Region Infrastructure Plan*, which would set priorities for key infrastructure development across the region. This would include the development of freight related infrastructure. Three key projects have been identified and these are: Rail - Scone Rail Overpass Proposal, and Singleton *'Gowrie Gates'*; and Roads - the construction of F3 Freeway to Branxton.
- Strategic Projects: there are a number of strategic projects identified in this report, which will shape the future of the region and these include: renewable energy projects (eg. Kyoto Park); Forster-Tuncurry Harbour development; regional extension of the agriculture diversification projects; power sector - future investment in generating capacity and technologies; and the major housing development projects in the region.
- Employment lands: the development of a regional delivery plan for industrial areas.
- Funding: the development of a r*oyalties for regions* type program to fund key infrastructure requirements in mining related regions and in adjacent areas. This could be developed on the WA model and cover community infrastructure to service larger regional populations; and funding for economic diversification projects.

A regional and industry cluster approach is required and this will deliver more effective outcomes for the region, and enable better access to industry development programs.

- Industry Clusters: this involves developing active industry clusters (involving businesses and industry organisations (chambers and specialist associations – eg equine sector, wine sector). The industry clusters that should be developed would include: Agribusiness Cluster 1 - Gloucester, Dungog and Great Lakes; Agribusiness Cluster 2 – Upper Hunter, Muswellbrook, Singleton; Renewable Energy Cluster - Upper Hunter , Singleton, Muswellbrook, Dungog and Great Lakes; Mining and Mining Support - Singleton, Muswellbrook, Upper Hunter; Tourism clusters: Cluster 1 Upper Hunter, Dungog, Gloucester and Great Lakes; Cluster 2 Singleton, Muswellbrook; Wine - Singleton, Muswellbrook, Upper Hunter; and Equine cluster - Upper Hunter , Muswellbrook, Singleton.
- Future skills: the sectors that are identified in this diversification strategy have a higher knowledge and skills component and there will be a need to develop workforce skills for

1 This strategy would build on some of the work that is underway on increasing the number of apprentice positions in mining and mining support (Muswellbrook).

these industries. This requires a *regional workforce plan* in both the short term (to deal with current skills pressures) and in the medium term to develop skills for emerging industry sectors. There is a need to further develop delivery of education and training in the region, with the establishment of several specialist centres delivering a range of TAFE programs and ACE programs.

- Partnerships: a partnership approach should be a focus of the sector development and diversification projects. These partnerships would involve: Councils, industry associations and chambers, NSW government agencies, and key businesses in each sector. Mining companies are strongly supportive of their local communities and are involved in funding a range of programs and initiatives.
- Economic Diversification Projects Fund: consideration should be given to establishing an *Economic Diversification Projects Fund*. The fund would be used to support innovative diversification projects in the region. As part of a regional partnerships approach funding could be provided by the government (through Department of Trade and Investment NSW project funding); from Councils; and from contributions from mining companies.
- Upper Hunter Diversification Group: There is a need for a mechanism to drive the regional diversification strategy and to monitor progress. This would involve the formation of a task group comprising: government agencies, all Councils, and industry representatives.

1 Introduction

This Strategy Report is the third and final report prepared as part of the Upper Hunter Economic Diversification Project.[2] It outlines a strategy for diversification and for the strengthening of local economies in the Upper Hunter Region. It should be noted that the views expressed and the recommendations contained in this report are those of the consultants and do not necessarily represent the views of the New South Wales Government and its agencies or the views of the participating Councils.

The project was commissioned by the New South Wales Government and the six Councils in the Upper Hunter Region. The focus of the project was on examining the future of the region and the emerging industry and employment opportunities over medium and longer term horizons.

The study brief included Great Lakes LGA as part of the study area. It is recognised that for planning purposes Great Lakes is traditionally not regarded as part of the Upper Hunter Region and is usually grouped with other coastal LGAs.[3] In ABS regional data Great Lakes is part of the Balance of the Hunter - Statistical Subdivision of the Hunter Region (and this is the area that is analysed as the Upper Hunter Region in this report).[4]

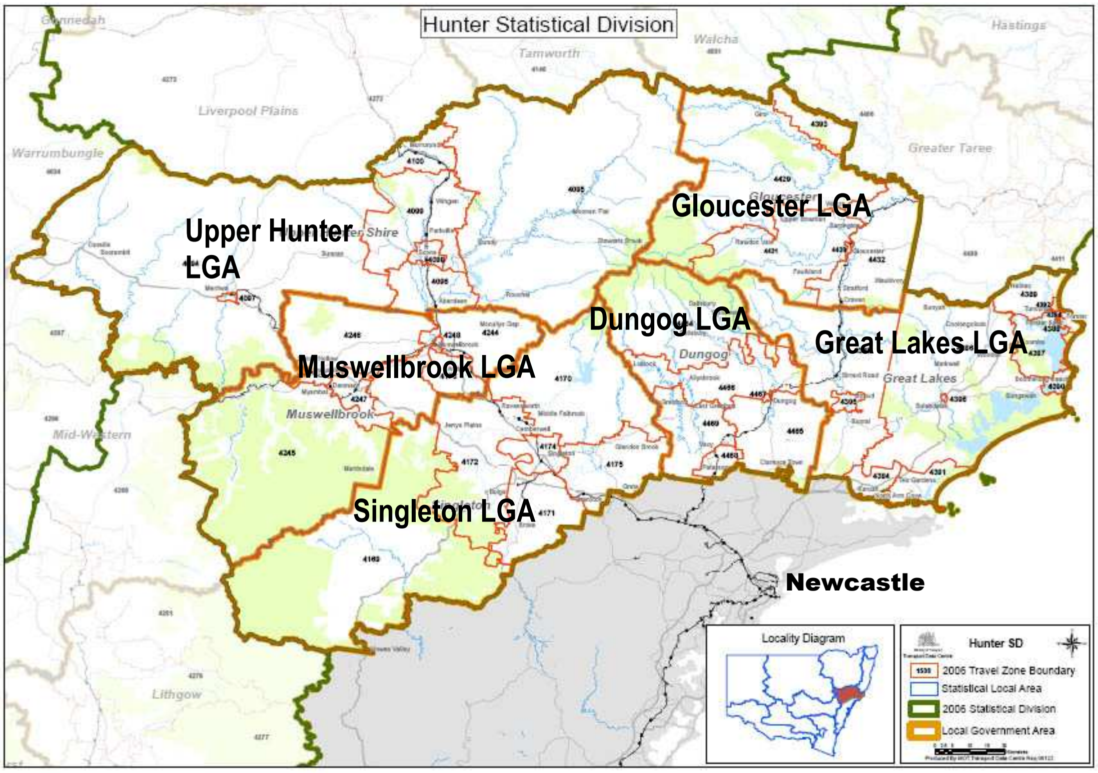
This report outlines the future directions and opportunities for the Upper Hunter Region and for each of the six local government areas. The findings outlined are based on: an analysis and assessment of current industries in the region, their future development profile and potential opportunities in these sectors; and identification of other opportunities in new and emerging areas.

The region covered in this project is large covering a total of almost 25,000 km2 and had a population of 103,483 in 2010.

The report recognises that, while there are some common industries across the local government areas; each LGA differs in terms of: population size; growth profile; the relative scale of industries; and the importance of specific economic drivers.

The LGAs have been grouped into 3 clusters: Cluster 1: mining influenced LGAs of Singleton and Muswellbrook and the adjacent Upper Hunter LGA (an agribusiness focus but now impacted by mining); Cluster 2: the inland rural areas of Dungog LGA and Gloucester LGA; and Cluster 3: the coastal economy of Great Lakes LGA (and its rural hinterland).

2 Report 1: Upper Hunter Regional Economy and Industry Report Buchan Consulting January 2011.
3 Great Lakes is included in the NSW Department of Planning's Mid North Coast Regional Strategy 2006 and is part of the Mid North Coast Tourism zone.
4 This Statistical Subdivision covers the Local Government Areas (LGA) of Dungog, Gloucester, Great Lakes, Upper Hunter, Singleton and Muswellbrook, and comprises an area of 24,982 km2 (86% of the Hunter Region's land mass).



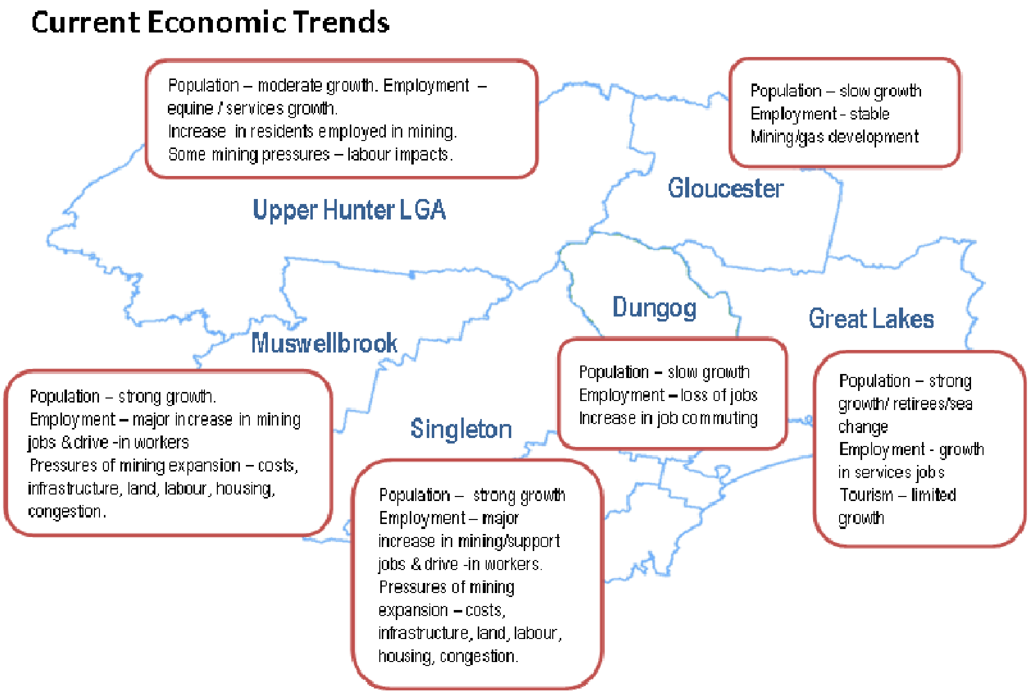
Source: NSW Department of Transport Website

2 Economic Development in the Upper Hunter

2.1 Economic Development in the Region

2.1.1 Current Assessment

The regional economy and industry analysis and the industry and community consultations highlight both the differences in the LGAs that make up the Upper Hunter Region and the medium and longer term challenges that the individual LGAs face, in terms of developing sustainable local economies. The LGAs differ in terms of population size, industry mix and current trends in population and industry growth.



The areas vary in population size with the largest (and fastest growing) being Great Lakes LGA (with 35,924 persons or 34% of the regional population in 2010). In the period between 1996 and 2006, the population of the Upper Hunter Region (including Great Lakes) increased by 10% or 9100 (from 91,000 to 100,000), with almost 90% of this growth concentrated in two LGAs - Great Lakes (5500 or 60%) and Singleton (2700 or 30%). The period between 2006 and 2010 has seen some stronger population growth emerge in Muswellbrook LGA and Upper Hunter LGA.

There are different dynamics at play in each of the local government areas in the Upper Hunter.

Population growth in Great Lakes is mainly being driven by sea-change moves to the coast for retirement and for lifestyle change; Singleton has the second largest population in the region and is experiencing growth, which has largely been associated with the continued expansion of jobs in mining in the Upper Hunter Region. Recent growth in the 2006-2010 period in Muswellbrook is largely due to similar factors. In the case of the Upper Hunter LGA, recent growth can be attributed to the ongoing expansion of the equine industry, combined with some mining employees choosing to live in the LGA. In the smaller rural LGAs, population growth has been slower, due to industry restructuring in the agriculture sector and some loss of local jobs in other sectors.

The mining intensive LGAs of Muswellbrook and Singleton are experiencing the stresses and strains of the significant ongoing growth in mining and mining support activities.

The pressures of mining growth are reflected in: housing prices; rental costs; housing availability; critical skill shortages; problems in recruitment for non-mining industries; cost pressures on the community (who do not work in mining); and regional infrastructure not keeping up. These pressures are also being felt across the wider region, in areas where mining employees are being drawn from (eg. Upper Hunter LGA). Industrial estates need to expand to secure mining support industries and other industrial activities. There are major local concerns about competing land uses and the impact of continued expansion of the mining sector on agriculture and tourism in the region.

Population is growing in these areas (particularly Muswellbrook and Singleton), with most of the growth in local jobs being due to the expansion in mining. The full benefits of the growth in employment are not being felt (in terms of the development of these communities), due to the significant number of workers who drive into the area, from the Lower Hunter and from other areas. In terms of economic development strategy, Singleton has a stronger industrial focus in terms of maximising the benefits gained through retaining and attracting mining support industries. The town centres in both LGAs are seen as requiring significant revitalisation.

The Upper Hunter LGA has experienced ongoing growth in the equine sector and some emerging population growth as a result of: persons working in the mining sector moving into the area to live; and some movement of persons (including families) seeking lifestyle changes. There is a major emphasis by Council on: developing the tourism sector; renewable energy; and continued growth in the equine sector.

The rural LGAs with smaller populations, Dungog and Gloucester, have generally experienced much flatter conditions.

In these areas there have been some losses in jobs: from industry restructuring; from the impact of current price and cost pressures on traditional agriculture; and from the decline of the timber industry in the region. Population growth has been slower, with the main increase coming from retirees moving into the area. However there are some indications of people making lifestyle changes also moving into the areas. In the case of Dungog LGA, this growth is occurring in those parts of the LGA that allow for commuting to jobs in the Lower Hunter. Both of the Councils want to develop new areas of agri-business and to develop their tourism sectors - by developing the product offer and through targeting specific market segments. While infrastructure needs to be improved, the LGAs are not experiencing the same growth strains as are occurring in the mining areas.

The coastal LGA of Great Lakes is the largest LGA in terms of population. Like many coastal areas it is experiencing continued population growth due to attractiveness of the region as a retirement and lifestyle location. The area is also a major regional coastal tourism destination. As a result of these two key drivers, the area has: much lower workforce participation rates; lower average incomes; higher levels of part-time employment and is reliant on a narrow band of industries, including tourism and services (eg. health and aged care, retail and other population services).

In Great Lakes there are major concerns about the long term sustainability of this structure of the economy, and there is a strategic focus on developing other industries to strengthen the local economy.

Table 1. Key Features of the Upper Hunter Region LGAs

Cluster 1	Key Features	
	Mining Areas	
Singleton	Major centre for mining and mining support Defence base Agribusiness Workforce participation rate high Higher average incomes - due to mining wages Growing population	Low unemployment Significant number of families with children Growth in housing More jobs than employed residents Significant commute into region to mining jobs – from the Lower Hunter and adjacent LGAs Experiencing pressures of mining expansion – housing, skills, costs, congestion
Muswellbrook	Major centre for mining and now mining support Agriculture Centre for cultural services Regional centre for some government services Workforce participation rate high Higher average incomes - due to mining wages Growing population	Low unemployment Significant number of families with children More jobs than employed residents Significant commute into region to mining jobs – from the Lower Hunter and adjacent LGAs Experiencing pressures of mining expansion – housing, skills, costs, congestion
	Agriculture	
Upper Hunter LGA	Major centre for equine industry Agriculture is major activity (eg. beef, crops) Workforce participation rate is high Some mining exploration occurring	Low unemployment Manufacturing - food processing Workforce participation rate is high Increase in mining employees living in the LGA
Cluster 2	**Rural Areas**	
Dungog	Agriculture and local services are the major activities Emerging tourism sector	Slow population growth Ageing population Declining local jobs Commuting to employment in Lower Hunter Region and commuting to mining jobs in Singleton and Gloucester.
Gloucester	Agriculture and local services are the major activities Emerging tourism sector Some mining & gas activity	Slow population growth Ageing population High level of employment self-containment.
Cluster 3		
	Coastal Centre and Villages	
Great Lakes	Population services and tourism are major activities Fishing & aquaculture is a key sector. Agriculture located in inland areas. Largest population in the region and fastest growing population. Growth driven by retirement living and lifestyle living.	Ageing population (one of oldest populations in NSW) Highest percentage of persons on age pensions (20%) Lower average incomes – pensions and lower paid services jobs (incl. part time and casual jobs) Some commuting to jobs in other LGAs – Greater Taree, Newcastle and Port Stephens

Source: Buchan Consulting analysis 2010/11

2.1.2 Economic Drivers

The following are the key sectors that are driving the local economies of each of the LGAs. The analysis shows the specialisation that exists in each of the areas and the dominance of a few sectors. This includes the mining driven areas of Singleton and Muswellbrook; equine and other agriculture in the Upper Hunter LGA; the agricultural areas of Dungog and Gloucester; and the population and tourism driven region of Great Lakes.

While the industry and employment data used in this report is mainly from the 2006 ABS Census, current industry analysis and consultations indicates that the importance and relative scale of these sectors has not changed, even though employment numbers in a sector have changed (eg. with some increases and some declines). The major economic driver has been the strong growth in mining and mining support activities in Muswellbrook and Singleton in the period to 2010.

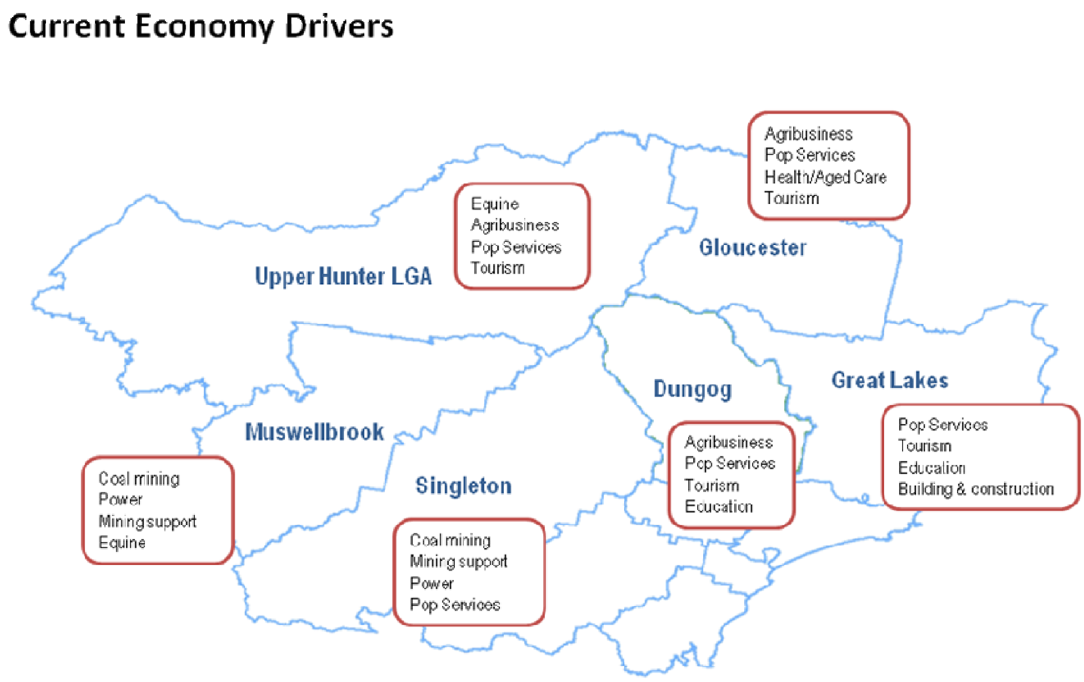


Table 2. Major Current Economic Drivers (Key Sectors) in Each Local Government Area

	Cluster 1			Cluster 2		Cluster 3
Major Drivers Rank	Singleton	Muswellbrook	Upper Hunter	Dungog	Gloucester	Great Lakes
1	Coal Mining	Coal Mining	Equine	Agriculture-beef, dairy	Agriculture-beef, dairy	Population Services – retail/services
2	Mining Support	Power generation	Agriculture-beef, dairy, crops, food processing	Population Services – retail/services	Population Services – retail/services	Tourism
3	Power generation	Mining Support	Population Services – retail/service	Tourism	Health & Aged Care	Health & Aged Care
4	Population Services – retail/services	Equine	Tourism	Education	Tourism	Building and construction
5	Agriculture – beef, dairy	Wine	Education		Education	Education
6	Defence	Agriculture – beef, dairy			Coal Mining	Agribusiness – aquaculture, fishing, beef, timber
7	Wine	Population Services – retail/services				
8	Tourism	Tourism				
9	Education	Education				

Source: Buchan Consulting analysis based on ABS Census 2006 data (industry of employment of residents and jobs located in the LGA)

The following table is from an RDA Hunter report on infrastructure issues and shows economic drivers based on individual Council identification of current and emerging factors.[5]

Table 3. Local Government Area Economic Drivers 2009 (RDA Hunter)

LGA - Sub Group 1			LGA - Sub Group 2			

5 Upper Hunter Infrastructure Project Summary Report October 2009, Regional Development Australia – Hunter P8

Upper Hunter	Muswellbrook	Singleton	Gloucester	Dungog	Great Lakes
Tourism and lifestyle (E)	Tourism and lifestyle (E)	Tourism and lifestyle (M)	Tourism and lifestyle (M)	Tourism and lifestyle (E)	Tourism and lifestyle (M)
Agribusiness (M)	Agriculture (M)	Agriculture (M)	Agriculture (M)	Agriculture (M)	Aquaculture/Agriculture (M)
Aged care (E)	Aged care (E)	Aged care (E)		Ageing population (E)	Aged care (M)
Coal mining support industries (E)	Coal mining support industries (M)	Coal mining support industries (M)	Coal Mining Support Services (E)		
Coal mining (underground operation) (E)	Coal Mining (M)	Coal Mining (M)	Coal Mining (M)		
Climate change related development (E)		Climate change related development (E)		Climate change related development (E)	
	Education (E)		Education (M)	Education (M)	Education (E)
	Power Generation (M)	Power and Energy (M)			
Wine (E)	Wine (M)	Wine/Viticulture (M)	Wine (E)	Wine (E)	
Equine (M)	Equine (M)				
			Retail and services (M)		Retail and services (M)
Land availability and Supply (E)		Defence (M)		Timber (M)	Green economy/environmental management (E)

Source: Upper Hunter Infrastructure Project Summary Report October 2009, Regional Development Australia – Hunter P8 Note: Emerging (**E**), Mature (**M**). Colours indicate common drivers

In terms of the value of output, the Upper Hunter Region is dominated by coal mining as the major regional export sector.

It should be noted that the output value does not represent the value to the region, as most of this revenue accrues to global businesses that are located outside the region. The value to the region comprises the income earned by employees (mining employees and employees in mining support industries), who are resident in the Upper Hunter Region; the income earned by local businesses that are servicing the sector; and the multiplier impacts of the expenditure of local persons employed in the sector.

Table 4. Value of Regional Export Industries

Upper Hunter Region Industry	Estimates Output Value	Estimates Employment	
Resources			
Coal	$6.2 billion (revenue)	11,000 direct & 5000 support	2010 Estimates
Agriculture			
Equine Industry	$100 million (industry revenue)	886 < direct>	2009 Estimates
Other Agriculture (and support) mainly beef, dairy and some crops	$248 million (farm gate value of production)	3753 <direct and support>.	2009 Estimates
Wine (and grapes)	$45-55 million (revenue)	400 <direct>	2009 Estimates
Other			
Tourism	$418 million (total) - $353 million (overnight visitors) - $65 million (day visitors) - $243 million of the total is coastal tourism in Great Lakes LGA. - Balance of $175 million is spread across the rest of the Upper Hunter Region. (visitor expenditure)	2029 <tourism based jobs>	2007/08 estimates

Source: Buchan Consulting Estimates based on analysis of ABS data and industry data

2.1.3 Regional Employment

The structure of jobs in each of the areas reflects their economic base and the key industry sectors in each location.

In terms of jobs, there are substantial differences in the structure of the local economies: Singleton is focused on mining (31% of jobs) and mining support activities and services; Muswellbrook is dependent on mining (17%) and power generation (8%), and services; Upper Hunter LGA has a large agriculture sector (26% of jobs, including the equine and wine sectors) and services. Dungog (22% agriculture) and Gloucester (19% agriculture) are mainly involved in agriculture and the provision of services for the local population. Major activities and jobs in Great Lakes are services (60% of jobs): tourism-related services (accommodation & food services, 13%); and services for the local population (retail 16%) and construction (9%) – reflecting the rate of housing construction and some road construction. [6]

Two of the LGAs, Singleton and Muswellbrook have more jobs than residents in employment. These are the LGAs, where jobs have been growing with the mining expansion (in 2006 Singleton had 69% of regional mining jobs and Muswellbrook had 28% of jobs in this sector). There is substantial commuting to jobs in the mining sector, from both from the Lower Hunter Region and from parts of the Upper Hunter.

In the case of the Upper Hunter, Dungog and Great Lakes LGA, there are fewer jobs than persons in employment, with a significant number of residents commuting to jobs in adjacent areas. (eg. Upper Hunter to Muswellbrook and Singleton; Dungog to Maitland, Singleton, Cessnock and Newcastle; and Great Lakes to Greater Taree, Newcastle and Port Stephens).

The following table shows the key sectors that residents of the Upper Hunter are employed in.

Table 5. Major Sectors of Employment of Employed Residents 2006

Summary Table	Singleton		Muswellbrook		Upper Hunter LGA		Dungog		Gloucester		Great Lakes		Total – Upper Hunter Region	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
Agribusiness														
Agribusiness (included forestry & fishing)	824	8.0	939	14.0	1729	27.9	599	17.3	446	23.7	815	7.7	5039	13.2
Tourism														
Tourism	716	6.9	461	6.9	394	6.4	224	6.5	136	7.3	785	7.4	2717	7.1
Energy														
Mining Direct	2,177	21.1	1,151	17.1	455	7.3	82	2.4	90	4.8	80	0.8	3,955	10.4
Electricity	265	2.6	320	4.8	122	2.0	3	0.1	0	0.0	45	0.4	783	2.1
Services														
Health	359	3.5	264	3.9	260	4.2	182	5.3	152	8.1	682	6.4	1872	4.9
Aged Care	226	2.2	105	1.6	194	3.1	135	3.9	39	2.1	502	4.7	1,198	3.1
Education	519	5.0	370	5.5	372	6.0	264	7.6	117	6.2	682	6.4	2,300	6.0
Retail	1,010	9.8	680	10.1	594	9.6	324	9.4	182	9.7	1,475	13.9	4,198	11.0
All Employed Residents	**10316**		**6723**		**6195**		**3460**		**1879**		**10619**		**38134**	

Source: Buchan Consulting Estimates based on ABS Census 2006 Resident Population Data

6 Analysis of 2006 journey to work data indicates approximately 100-200 jobs in road construction and related areas for Great Lakes LGA, which accounts for around 2 percentage points on the total 9.6% construction jobs in 2006.

2.2 Key Sectors in the Upper Hunter

Report 1 of this project contains a detailed analysis of the key sectors that make up the regional economy.[7]

The key regional export sectors within the region comprise coal, agribusiness and tourism. In total these regional export sectors account for around 22,000 jobs or 52% of jobs in the region.[8] The balance (48%) is mainly jobs that are servicing local populations in the LGAs.

Sector	
Coal Mining	Coal mining has been expanding in the Upper Hunter. In 2006 a total of 5,500 mining jobs were in the region, with Singleton accounting for 70% of these jobs (3,794) and Muswellbrook for 28% of the jobs in the industry. When mining support activities are included then the dominance of mining for jobs in the region is highlighted. Estimates indicate that in 2006 there were a total of 7885 mining related jobs (direct + support) located in the two LGAs. By 2008 this had increased to around 12,000 jobs and by 2010 to around 15,000 jobs. Activity is extending into the Gunnedah Basin.
Power Generation	Muswellbrook and Singleton are the centres of NSW power generation capacity, with the Liddell and Bayswater power stations (Macquarie Generation) and the Redbank power station. The region is also the focus for clean energy projects, including solar (Kyoto Energy Park in the Upper Hunter LGA and a project in Singleton) and wind power. The Upper Hunter Renewable Energy Precinct includes the LGAs of Upper Hunter and Dungog.
Agribusiness	Agribusiness is spread across the region with some industries being more concentrated in several areas. Beef - the major concentrations are in Upper Hunter LGA; Gloucester, and Dungog with properties located in the other LGAs. Equine - is concentrated in Upper Hunter LGA (around Scone) and in Muswellbrook and employs almost 900 ongoing employees. Dairy - the sector is centred on Dungog and Gloucester and has undergone major restructuring over the last decade, with falls in the number of dairy farmers but increases in scale. Forestry and timber - is mainly concentrated in Great Lakes LGA, with Dungog and Gloucester being affected by recent closure of milling operations. Wine - the wine sector is focused in the areas around Singleton and Muswellbrook, with some smaller operations in the other LGAs. The Hunter Valley is a major wine producing region (4,500 hectares of vineyards) and is centred on Pokolbin, near Cessnock, in the Lower Hunter, and in Singleton and Muswellbrook LGAs in the Upper Hunter. Other agriculture - there is some production grains (mainly Upper Hunter LGA), and some flower production across the LGAs. Vegetable production is concentrated around Singleton, however there have been initiatives in Upper Hunter LGA, Singleton and Gloucester to develop this production. Fisheries are located at Great Lakes (both offshore commercial fishing and aquaculture).
Tourism	The LGAs in the study are covered by two tourism regions – Hunter Tourism Region (5 of the Upper Hunter LGAs) and Mid North Coast Tourism Region (Great Lakes LGA).[9] The most recent tourism data from Tourism Research Australia for the six LGAs in the Upper Hunter shows that there was an average of 1.037 million domestic overnight visitors to the region each year (accounting for 3.132 million domestic visitor nights). Around half of these visits were to Great Lakes LGA (511,000 overnight visitors). In total Great Lakes received over 900,000 visitors, when day visitors are included. These overnight visitors are estimated to have spent total of $353 million per year across the six LGAs during this time period. Singleton had the next highest domestic overnight visitors (144,000 visits for 327,000 room nights). Across the six LGAs the number of day visitors totals around 1 million visitors. There are some differences between tourism across the region. Great Lakes is the dominant location (as a coastal destination), which captures the major holiday periods (December through to Easter and school holidays). As a result the average stay is longer (3.6 days). The inland LGAs tend to have both fewer visitors for shorter average stays. Tourism accounted for over 2,000 direct jobs in the Upper Hunter Region or 5.3% of jobs in the region; the largest cluster was in Great Lakes with 745 jobs or 37% of Upper Hunter Region tourism jobs; Singleton was the next largest area with 480 tourist jobs, then Muswellbrook with 331 jobs.[10]
Services	By and large the size of the in-person service sector is driven by the scale of the population. However in the region there is some leakage of retail spending from Singleton and Muswellbrook to Maitland and Newcastle for specialised retail and other services. There is also retail leakage to these larger centres from the other LGAs. Great Lakes is a service economy as it has minimal mining jobs and no substantial manufacturing activity. In the Great Lakes LGA 72% of jobs were in services – with 60% in in-person services: comprising 16% in retail; accommodation and food services 13%; health care and social assistance 12%; and 8% education and training. All of the LGAs have a relatively low share of jobs in knowledge and business services, with the major component being professional, scientific and technical services, which includes accounting, legal and consulting services. Some of the specialist services are concentrated in the Lower Hunter.

7 Report 1: Upper Hunter Regional Economy and Industry Report, Buchan Consulting January 2011
8 For these calculations, the ABS Census shows 37813 jobs in 2006, for 2010 employment numbers additional mining jobs -4000 direct jobs and 2400 support jobs have been added for an estimated 42200 jobs in 2010).
9 Hunter Tourism Region covers the following LGAs: Lake Macquarie, Newcastle, Maitland, Cessnock, Upper Hunter Shire, Singleton, Muswellbrook, Gloucester and Dungog. http://tourismhunter.com.au/about-us Mid North Coast Tourism Region covers: Coffs Coast, Bellingen, Nambucca Valley, Macleay Valley Coast, Greater Port Macquarie, Manning Valley, Great Lakes, and Port Stephens. http://www.midnorthcoasttourism.com.au/
10 TTF data indicates that 4.7% of the NSW workforce was employed in tourism jobs. (TTF National Tourism Atlas 2008 P3)

2.3 Economic Development Issues

Report 1 outlined the major issues in each of the LGAs.[11] To summarise there were a number of common themes that emerged in the review of each of the LGAs and their economic base. These include: a need to ensure greater diversification in the local economy; the impacts of a fast growing mining sector on other industries and the community; concerns about the long term future beyond mining activity; concerns in relation to competing land use and encroachment into key agriculture zones; future water availability; maintaining the environment; a need to develop larger resident communities; the state of regional infrastructure, especially roads; the need to develop industrial infrastructure (including employment lands); and the pressures on local government in terms of its capacity to provide the infrastructure that is required in a growing region. These issues were generally recognised by businesses and other stakeholders.

A common issue across most of the Councils was being able to fund future infrastructure requirements and economic development initiatives for the region.

The Councils have been working (with the *Association of Mining Related Councils*) on proposals to secure a share of mining royalties to provide the necessary funds to develop strategic infrastructure and to improve their communities.[12] The Councils have expressed the desire for a share of levies on mining to be spent on state and regional infrastructure, which service these developments, with the recognition that they are state significant developments.

There are LGA based economic strategies in place that are of varying degrees of comprehensiveness, and that have been based on different levels of regional analysis. Upper Hunter LGA, Dungog, Gloucester, and Great Lakes have commissioned detailed studies undertaken as part of planning processes, to underpin economic development or in relation to impact assessments of major projects (eg. Tillegra Dam). Most of these strategies focus on local area development (at an LGA level or town level) and often do not take account of the broader regional linkages (eg. with the Upper Hunter Region and with the Lower Hunter Region).[13]

The businesses consulted often took a broader region perspective, and wanted to see clear regional strategies to develop sustainable industries in the region and the LGAs. There was also a concern that the New South Government had not developed a long term regional plan for the Upper Hunter Region, similar to the strategies that were developed for the Lower Hunter, Mid North Coast and the Central Coast.

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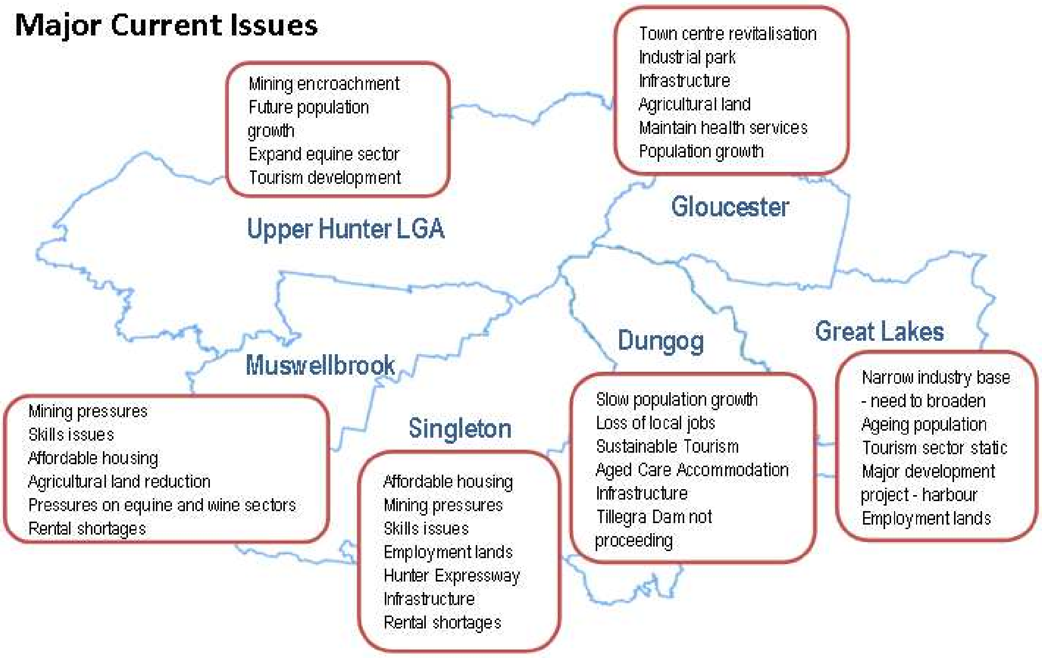
11 Report 1: Upper Hunter Regional Economy and Industry Report, Buchan Consulting January 2011.
12 Royalties for Regions Proposal, Association of Mining Related Councils, November 2010
13 Upper Hunter Shire Draft Economic Development and Tourism Strategic Plan 2010 (September 2010), Council Economic Development & Tourism Committee; Dungog Land Use Strategy March 2010, Worley Parsons; Economic Development Strategy for Gloucester Local Government Area, Report 3: Economic Development Strategy, Buchan Consulting, December 2010; Forster-Tuncurry Employment Land Implementation Strategy November 2009, Hill PDA.



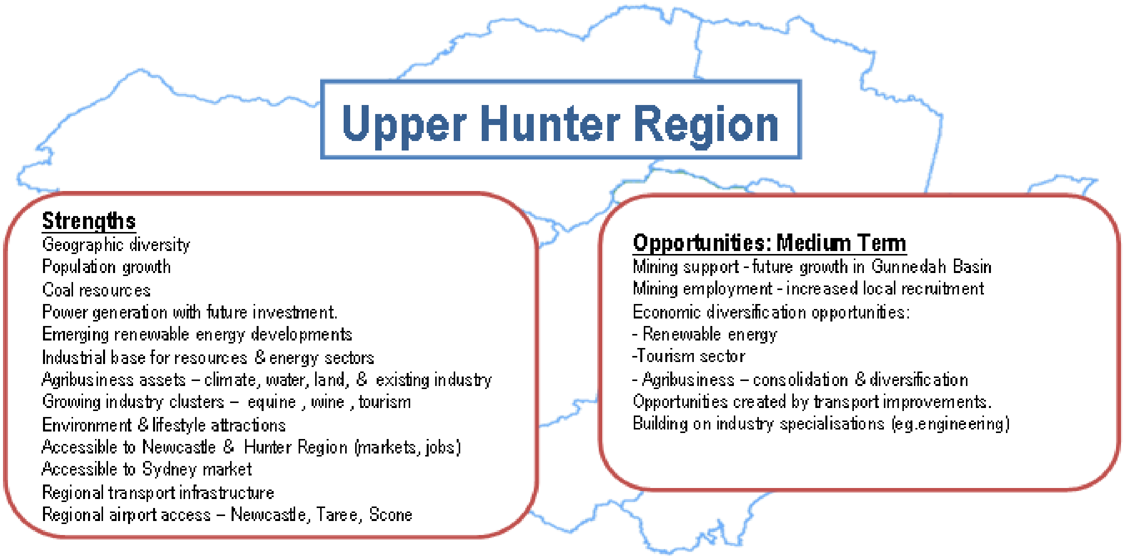
2.4 Assessment of the Region

Most of the Councils have at different times undertaken SWOT assessments of their areas. These tend to be focused on identification of LGA specific issues, and in most case the inter-linkages with other parts of the broader Upper Hunter Region or linkages with the Lower Hunter are not taken into account. Industries, businesses and even employees do not make such distinctions and are operating in markets that extend across local government boundaries. Similarly tourism boundaries are also fluid, as tourists visit areas and attractions rather than individual local government areas. A recent study for the Hunter Development Corporation has undertaken assessments of the overall Hunter Region (Upper Hunter and the Lower Hunter) in the context of future employment lands requirements.[14]

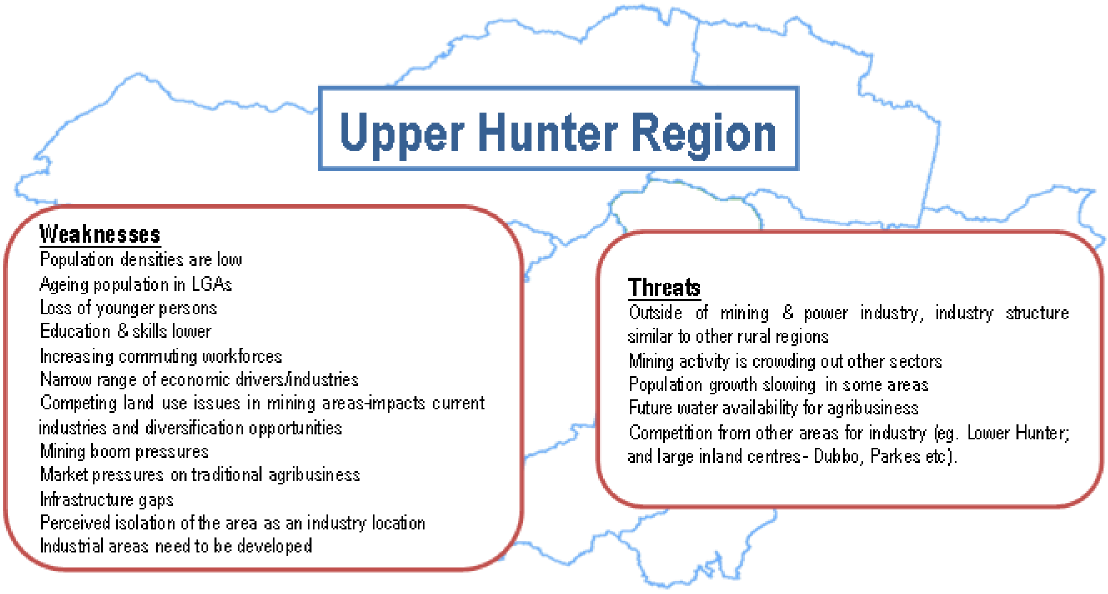
Taking a broader helicopter view, the Upper Hunter Region has a number of major strengths but also faces a number of constraints.

14 *Hunter Region Employment Lands, Market and Context Review,* Report for HDC, ADW Johnson, November 2010 P32-33 (Lower Hunter comprised LGA's of Singleton, Muswellbrook, Upper Hunter, Dungog, Gloucester and Great Lakes).

Strengths and Opportunities - Upper Hunter - Region Wide



Weaknesses and Threats - Upper Hunter - Region Wide



SWOT: Upper Hunter Region	
Strengths	**Opportunities**
Geographic diversity supporting agriculture and tourism Significant resource base – coal and a growing sector Major industry sector - power generation with future investment Emerging renewable energy developments in the region Significant supporting industrial base for the resources and energy sectors Agriculture assets – climate, water, land, and existing industry Growing industry clusters – equine industry, wine sector Environment and lifestyle attractions of the area (both inland and coastal) Accessible to Newcastle as the regional capital and the broader Hunter Region Accessible to Sydney market Regional transport infrastructure (major highways, rail, port access) and associated improvements. Regional airport access – Newcastle, Taree	Future growth in Gunnedah Basin – mining support activity Mining employment - increased local recruitment to mining due to OHS issues (travel) Economic diversification opportunities -Renewable energy development -Developing the tourism sector -Opportunities created by transport improvements – rail upgrades and Muswellbrook to Gunnedah and Muswellbrook to Ulan); and road improvements Pacific Highway, New England Highway - Building on industry specialisations - Agribusiness consolidation and new sectors developing Potential for population growth and residential development in the LGAs (eg. Great Lakes, Singleton, Muswellbrook, Upper Hunter LGA) and in adjacent areas (e.g. Huntlee)
Weaknesses	**Threats**
Population densities are low Access to higher level services at local level (travel distances) Aging of population in most LGAs Loss of younger persons for education and employment General reliance on relatively narrow range of economic drivers in the region Narrow industry base at LGA level, including the services sector Competing land use issues in mining areas, affecting current industries and diversification opportunities Major pressures of a mining boom on communities and other industries in the region -Skill shortages and competition for labour -Shifting workforces between mining projects -Cost pressures -Housing market impacts Large commuting workforces from the Lower Hunter Region Continuing market pressures on traditional agriculture Infrastructure gaps – local roads in smaller LGAs, sewer, water etc. Perceived isolation of the area as an industry location. Industrial areas need to be developed Education and skill levels are lower than other regions	Outside of large industry sectors of mining and the power industry, the industry structure is similar to other rural regions Mining activity is crowding out other sectors due to competing land use Population growth in parts of the region is slowing Future water availability for agriculture is a concern in relation to other sectors requiring water (eg. mining and power generation) Competition from other areas for industry activity (eg. locations in the Lower Hunter; and large inland centres- Dubbo, Parkes etc.)

Source: Buchan Consulting analysis and *Hunter Region Employment Lands, Market and Context Review,* Report for HDC, ADW Johnson, November 2010 P32-33

2.5 Future Factors

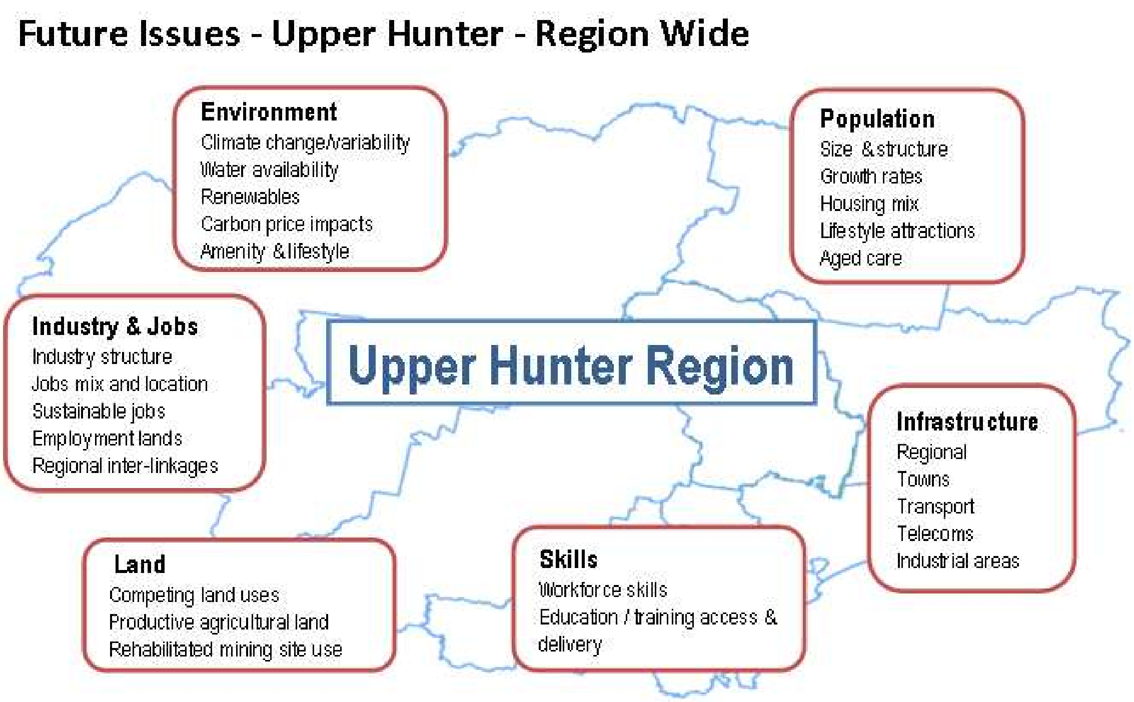
Looking over a 20-30 year period there are a number of issues that will impact on the region and its industries. A major issue for the future is that the industry specialisation in each of the LGAs tends to be narrow, which creates vulnerabilities to cyclical and structural changes in these sectors.

In the case of the mining regions, there are substantial support industries that are servicing mining (that may be affected as mines reach the end of their life in specific areas in the longer term). However industry estimates indicate that the recoverable coal reserves in the broader region (including the Hunter and Gunnedah Coal Fields) would last for 40-50 years.

At the same time there has been substantial change in employment locations, particularly with the strong industry and services growth occurring in Newcastle and other areas of the Lower Hunter, and the major expansion in mining in the Upper Hunter. The regional linkages between the Upper Hunter and Lower Hunter are becoming increasingly more important.

In response to these trends, many employees are now operating in a broader regional labour market, with increasing levels of commuting to employment opportunities. In some cases this is a result of: employees following the opportunities in their sector or individuals being recruited into an expanding sector (eg. mining workers); lifestyle choices (a rural lifestyle- while continuing to work in an industry or profession). In other cases this is due to a decline in local jobs or a narrow range of skilled jobs being available in the LGA that they are resident in. Some of the decline in local jobs has been driven by the regional consolidation of government and private services and by the trend for larger industries to be attracted to the major centres (which can offer transport access, related support industries and services and a larger skilled workforce).

While there is a need to strengthen local economies, regional linkages between areas will become increasingly important over longer term horizons. These growing inter-linkages also suggest a need for broader economic strategies and programs that operate at a regional level for the Upper Hunter (rather than at an individual LGA level).



The following table summarises some of the key issues impacting on the future of the region.

Major Future Issues – Upper Hunter Region

Issue	
Population & Housing	
Demographic	All areas have ageing populations – particularly Great Lakes and Gloucester. There are declining populations in the younger age groups. There is a need to increase population of the region and the individual LGAs. Sustainable jobs will be important for attracting a more diverse population to the region. Larger populations will drive service industries in the region. A strong emphasis will remain on environment and local amenity with the continued attraction of "sea changers" and "tree changers".
Housing	Potential for changes in population location patterns as a result of higher transport costs (peak oil issues) and the shifting location of jobs. More diverse housing needs, including housing options for older age groups with access to services (increased densities in town centres). Increasing urban development pressures on land (including rural residential) in areas with transport accessibility, available services (eg. Singleton) or access to employment in the larger centres of the Lower Hunter (eg. Dungog).
Industry	
Coal	Continuing coal mining activity in some areas over an extended period (estimates of recoverable reserves of 40 years+). Rehabilitated areas becoming available – future uses need assessment. Decline in mining activity in specific areas as mines reach the end of their life. The balance between the coal industry and agriculture in the region. The operations of other industries in a two speed resources economy.
Electricity generation	Upper Hunter continues as a major energy hub, with generation comprising a combination of: coal fired, gas fired, thermal-(base load); and development of renewables (wind and solar).
Agriculture	Development of intensive agriculture and consolidation in traditional sectors of agriculture.
Tourism	Opportunities for growth in the sector but these require development of product and infrastructure and improved regional marketing.
Industrial Activities	Tendency for larger operations to cluster in major centres with good transport access and workforce availability. Areas of Upper Hunter are in competition with Lower Hunter. Light industrial activities/services are linked to local population and markets. There is potential to develop specialisations in centres within the Upper Hunter.
Employment	
Employment	Future changes in job locations due to industry change.
	Changing accessibility with F3 extensions (eg Branxton) impacting on business locations and on future opportunities.
	Continued pattern of regional commuting to major employment centres (major industry and employment hubs).
	Likely that many key services will continue to be regionalised and concentrated in the larger population centres.
	Continued growth in home based employment (facilitated by broadband) with professionals moving to areas for lifestyle changes but still operating in their broader markets.
	Continued skill shortages in higher skill areas and for professionals in the region. The need to develop regional education and training responses to develop employment skills.
Environment	
	Climate change impacts on the region and issues in relation to climate variability and longer term water security issues.
	Maintaining the environment for key sectors of agribusiness and tourism.
	Competing land use – mining and agriculture and the availability of productive land for agriculture.
Transport	
Transport	Transport is a major issue for the future of the region. Improved accessibility is a strategic issue for most areas. There is a need for improved public transport linkages between Upper Hunter and the Lower Hunter. Road infrastructure is a major issue – major highway upgrades are occurring, but secondary roads are poor. Rail improvements are required (for coal and other freight movements).
Infrastructure	
	Action on infrastructure gaps is needed to support an increase in population.
	Action will be required on industry and transport infrastructure to support industry growth, diversification and future employment.
Skills and Education	
Skills	Future diversification of the region requires higher skill levels in all industry sectors. There is a need to lift skills as the region on average has lower education and skill levels, than Lower Hunter and other competing regions.
Education	Regional access to VET and to higher education will continue to be major issues. There is a need to develop regional delivery and specialist training centres. Stronger integration of education and training will be needed to develop skills and new industry opportunities.

Source: Buchan Consulting Analysis 2010/11

It is recognised that the future prospects of the local government areas differ. Singleton, Muswellbrook and Upper Hunter LGAs have stronger diversification opportunities. The smaller population LGAs of Dungog and Gloucester are more constrained and need to increase their populations significantly to develop as sustainable communities.

3 Population and Employment

3.1 Overview - Population and Jobs

Population growth is important for the future of the Upper Hunter Region. This section analyses future population trends and their implications for economic development and diversification. Analysis is also provided of projected employment trends in the region (that relate to population growth) and some indicative modelling of longer term future changes in jobs in the mining sector.

There are differences between the regional clusters in terms of future growth. The differential pattern of population growth that has been experienced is likely to continue over time.

- Great Lakes will continue as an attractive coastal lifestyle and retirement location, with a major challenge being broadening of the industry base and a more diversified population structure.
- Singleton will continue to grow due to its central location and accessibility to employment opportunities in both the Lower Hunter and in the Upper Hunter, and its potential for industrial jobs (eg. engineering and logistics).
- Muswellbrook's growth is likely to continue over the next 15-20 years with mining expansion and associated support activities and services. The longer term future growth will be dependent on growth in mining support and non-mining activities.
- Upper Hunter LGA will experience growth based around lifestyle living, future expansion in the equine sector, development of renewable energy and growth in mining in adjacent areas. [15]
- Dungog and Gloucester will achieve some population growth mainly based around lifestyle living. Achieving population growth to strengthen and develop local communities is important for both these local government areas.

3.2 Population Size and Structure

The areas vary in population size with the largest (and fastest growing) being Great Lakes (with 35,924 persons or 34% of the regional population in 2010).

In the period between 1996 and 2006, the population of the Upper Hunter Region (including Great Lakes) increased by 10% or 9100 (from 91,000 to 100,000), with almost 90% of this growth concentrated in two LGAs - Great Lakes (5500 or 60%) and Singleton (2700 or 30%). The period between 2006 and 2010 has seen: some stronger population growth emerge in Muswellbrook, Singleton and Upper Hunter LGAs; and some slowing of the population growth rate for Great Lakes. In 2010 the region's population was estimated at almost 105,000.

There are different dynamics at play in each of the LGAs.

- Population growth in Great Lakes is being mainly driven by sea change moves to the coast for retirement and lifestyle living.
- Singleton has the second largest population in the region and is experiencing continued growth, which has largely been associated with the expansion of mining in the region.
- Muswellbrook has the third largest population and has experienced stronger population growth during 2010 (1.8% for the year ending June 2010 – based on preliminary estimates).[16] This is largely attributable to the continued growth in mining activity in the area.
- In the case of the Upper Hunter LGA, recent growth can be attributed to the continued expansion of the equine industry and some mining employees choosing to live in the LGA.
- In the smaller rural LGAs, population growth has been slower, due to industry restructuring in the agriculture sector and some loss of local jobs. For these areas future population growth is important for ensuring sustainable communities.

15 Based on the LGA's strengths in the industry, Upper Hunter Economic Diversification Project - Report 1: Upper Hunter Regional Economy and Industry Report, Buchan Consulting, P41-42.
16 ABS Cat No. 3218.0 Regional Population Growth, 31 March 2011, Population Estimates by Statistical Local Area, 2001 to 2010.

Table 6. Population of the Upper Hunter Region 1996-2010

ERP at 30 June	1996	2001	2005	2006	2007r	2008r	2009r	2010p	96-06 p(a)	06-10 p(a)	2009r-2010p	
									AAG	AAG	Change	AAG
Statistical Local Area	no.	no.	no.	no.	no.	no.	no.	no.	%	%	no.	%
Cluster 1												
Singleton (A)	20,200	21,230	22,554	22,948	23,257	23,561	23,798	24,182	1.3	1.3	384	1.6
Muswellbrook (A)	15,700	15,221	15,690	15,937	16,071	16,187	16,374	16,676	0.1	1.1	302	1.8
Upper Hunter Shire (A)	13,400	13,538	13,475	13,589	13,607	13,846	14,029	14,198	0.1	1.1	169	1.2
Cluster 2												
Dungog (A)	7,900	8,405	8,383	8,403	8,405	8,484	8,637	8,673	0.6	0.8	36	0.4
Gloucester (A)	5,000	4,927	4,929	4,972	4,970	5,023	5,089	5,181	-0.1	1.0	92	1.8
Cluster 3												
Great Lakes (A)	28,700	32,201	33,922	34,192	34,656	35,006	35,451	35,924	1.8	1.2	473	1.3
Total UH Region	**90900**	**95522**	**98953**	**100041**	**100966**	**102107**	**103378**	**104834**	**1.0**	**1.2**	**1,456**	**1.4**

Source: ABS Cat No. 3218.0 Regional Population Growth, 31 March 2011, Population Estimates by Statistical Local Area, 2001 to 2010. N.B. ABS specifies that estimates for 2001 to 2006 are final, estimates for 2007 to 2009 are revised (r) and estimates for 2010 are preliminary (p). <UH Region = Total hunter Statistical Division Balance> AAG= average annual growth

Table 7. Population Trends in the Upper Hunter Region 1996-2010

	1996	2001	2006	2010 Est.	1996-2006 change	1996-2006 share change	2006-2010 change	2006-2010 share of change
Statistical Local Area	no.	no.	no.	no.	no.	%	no.	%
Cluster 1								
Singleton (A)	20,200	21,230	22,948	24,182	2,748	30.1	1,234	25.7
Muswellbrook (A)	15700	15,221	15,937	16,676	237	2.6	739	15.4
Upper Hunter Shire (A)	13400	13,538	13,589	14,198	189	2.1	609	12.7
Cluster 2								
Dungog (A)	7900	8,405	8,403	8,673	503	5.5	270	5.6
Gloucester (A)	5000	4,927	4,972	5,181	-28	-0.3	209	4.4
Cluster 3								
Great Lakes (A)	28700	32,201	34,192	35,924	5,492	60.1	1,732	36.1
Total UH Region	**90,900**	**95,522**	**100,041**	**104,834**	**9,141**	**100.0**	**4,793**	**100.0**

Source: ABS Cat No. 3218.0 Regional Population Growth, 31 March 2011, Population Estimates by Statistical Local Area, 2001 to 2010. N.B. ABS specifies that estimates for 2001 to 2006 are final, estimates for 2007 to 2009 are revised (r) and estimates for 2010 are preliminary (p).
<UH Region = Total hunter Statistical Division Balance>

The follow tables show the differences in age structure of each of the areas. Great Lakes and Gloucester have the older populations. In 2006, Great Lakes (27% -65 and over) and Gloucester (22% - 65 and over) had the highest percentage of the population aged 65 years and over. This is compared with those with the lowest shares in this age group - Singleton (9%) and Muswellbrook (10%).

All populations are ageing, but Great Lakes and Gloucester will continue to have the oldest populations (due to retirees being attracted to the areas and the ageing in place of the existing population). In 2026 Great Lakes is projected to have 37% of its population aged 65 years or over and Gloucester will have 31% in this age group. For Singleton and Muswellbrook, the shares of the population in younger age groups (eg. aged 0-14 years and 25-39 years) will decline, but will still account for over 50% of the population in 2026. Major declines in these younger age groups are projected for both Gloucester and Dungog.

Table 8. Population by Age Groups 2006-2026

	Age Groups					Shares				
	0-14	15-39	40-64	65+	Total		0-14	15-39	40-64	65+
LGA						**LGA**				
Singleton						**Singleton**				
2006	5,600	8,000	7,300	2100	23000	2006	24.3	34.8	31.7	9.1
2011	5,500	8,500	7,900	2400	24300	2011	22.6	35.0	32.5	9.9
2021	6,000	9,100	8,500	3700	27300	2021	22.0	33.3	31.1	13.6
2026	6,300	9,300	8,800	4400	28800	2026	21.9	32.3	30.6	15.3
Muswellbrook						**Muswellbrook**				
2006	3,800	5600	4900	1600	15900	2006	23.9	35.2	30.8	10.1
2011	3,700	5600	5100	1900	16300	2011	22.7	34.4	31.3	11.7
2021	3,800	5600	5300	2500	17200	2021	22.1	32.6	30.8	14.5
2026	3,900	5500	5300	2800	17500	2026	22.3	31.4	30.3	16.0
Upper Hunter						**Upper Hunter**				
2006	2,700	4200	4600	2100	13600	2006	19.9	30.9	33.8	15.4
2011	2,600	4000	4500	2300	13400	2011	19.4	29.9	33.6	17.2
2021	2,500	3800	4300	2700	13300	2021	18.8	28.6	32.3	20.3
2026	2,500	3600	4200	2900	13200	2026	18.9	27.3	31.8	22.0
Dungog						**Dungog**				
2006	1800	2300	3100	1300	8500	2006	21.2	27.1	36.5	15.3
2011	1700	2300	3200	1400	8600	2011	19.8	26.7	37.2	16.3
2021	1800	2300	3200	1800	9100	2021	19.8	25.3	35.2	19.8
2026	1800	2300	3200	2100	9400	2026	19.1	24.5	34.0	22.3
Gloucester						**Gloucester**				
2006	900	1100	1900	1100	5000	2006	18.0	22.0	38.0	22.0
2011	800	1100	1900	1200	5000	2011	16.0	22.0	38.0	24.0
2021	800	1000	1700	1500	5000	2021	16.0	20.0	34.0	30.0
2026	800	1000	1700	1600	5100	2026	15.7	19.6	33.3	31.4
Great Lakes						**Great Lakes**				
2006	5,500	7400	12000	9300	34200	2006	16.1	21.6	35.1	27.2
2011	5,500	7900	13000	10800	37200	2011	14.8	21.2	34.9	29.0
2021	6,000	8200	14100	14600	42900	2021	14.0	19.1	32.9	34.0
2026	6,200	8300	14400	16800	45700	2026	13.6	18.2	31.5	36.8
Total Upper Hunter Region						**Total**				
2006	20,300	28,600	33,800	17,500	100200	2006	20.3	28.5	33.7	17.5
2011	19,800	29,400	35,600	20,000	104800	2011	18.9	28.1	34.0	19.1
2021	20,900	30,000	37,100	26,800	114800	2021	18.2	26.1	32.3	23.3
2026	21,500	30,000	37,600	30,600	119700	2026	18.0	25.1	31.4	25.6
New South Wales						**New South Wales**				
2006	1,333,200	2,387,300	2,174,900	920,600	6,816,100	2006	19.6	35.0	31.9	13.5
2011	1,357,200	2,479,100	2,307,600	1,042,800	7,187,000	2011	18.9	34.5	32.1	14.5
2021	1,460,400	2,628,800	2,451,800	1,398,700	7,939,800	2021	18.4	33.1	30.9	17.6
2026	1,511,100	2,701,000	2,514,800	1,596,000	8,322,800	2026	18.2	32.5	30.2	19.2

Source: New South Wales Statistical Local Area Population Projections, 2006-2036, Department of Planning March 2010

Another indicator of the age structure (and income structure) and the incidence of retirees is the share of the population receiving age pensions. There were substantial differences, with 20% of the Great Lakes population and 16% for Gloucester residents being in receipt of an age pension, compared with only 6% for Singleton and 7% for Muswellbrook.

Table 9. Age Pension Recipients 2006 and 2009

LGA	Singleton	Muswellbrook	Upper Hunter	Dungog	Gloucester	Great Lakes
Age Pension - Centre link 2009 (no)	1 529	1203	1 514	781	795	6 955
Age Pension - Centrelink 2006 (no)	1 409	1129	1 374	682	694	6 109
Change 2006-09 (no)	120	74	140	99	101	846
Share of Population receiving an aged pension 2009 (%)	6.4	7.3	10.8	9.0	15.6	19.6

Source: ABS Regional Indicators by LGA 2009

Reflecting the different structure of the populations in the LGAs, Singleton (43%) and Muswellbrook (39%) have a higher share of couple families with children under 15. In contrast, Great Lakes (24%) and Gloucester (29%) have a much lower share of families with these younger children.

Table 10. Families by Family Type – Upper Hunter Region 2006

LGA	Singleton		Muswellbrook		Upper Hunter LGA		Dungog		Gloucester		Great Lakes		Total UH	
Family Type	no	%	no	%	no	%	no	%	no	%	no	%	no	%
Couple families with children under 15 and/or dependent students no	2501	42.9	1558	39.3	1257	35.3	808	36.0	402	28.8	2243	23.9	8769	33.2
Couple families with non-dependent children only no	513	8.8	281	7.1	251	7.1	184	8.2	95	6.8	551	5.9	1875	7.1
Couple families without children no	1983	34.0	1433	36.2	1522	42.8	953	42.5	726	52.0	5141	54.7	11758	44.6
One parent families with children under 15 and/or dependent no students	521	8.9	483	12.2	347	9.8	200	8.9	107	7.7	978	10.4	2636	10.0
One parent families with non-dependent children only no	245	4.2	168	4.2	144	4.0	78	3.5	51	3.7	403	4.3	1089	4.1
Other families no	63	1.1	41	1.0	35	1.0	19	0.8	15	1.1	87	0.9	260	1.0

Source: ABS Census 2006, Resident Population Data

3.3 Population Projections

3.3.1 Future Population

This section analyses population projections to 2036 for the six LGAs. Two sets of projections are examined. The first are population projections prepared at a local government area level by the *Department of Planning (DoP)* and released in March 2010. These projections are based on a forecasting model that takes account of demographic factors and uses ABS Census data as a foundation. While the data is generally used by government agencies, consultations with Councils in the region indicated that there are concerns that the projections understate the rate of population growth that is now occurring in some of the areas.

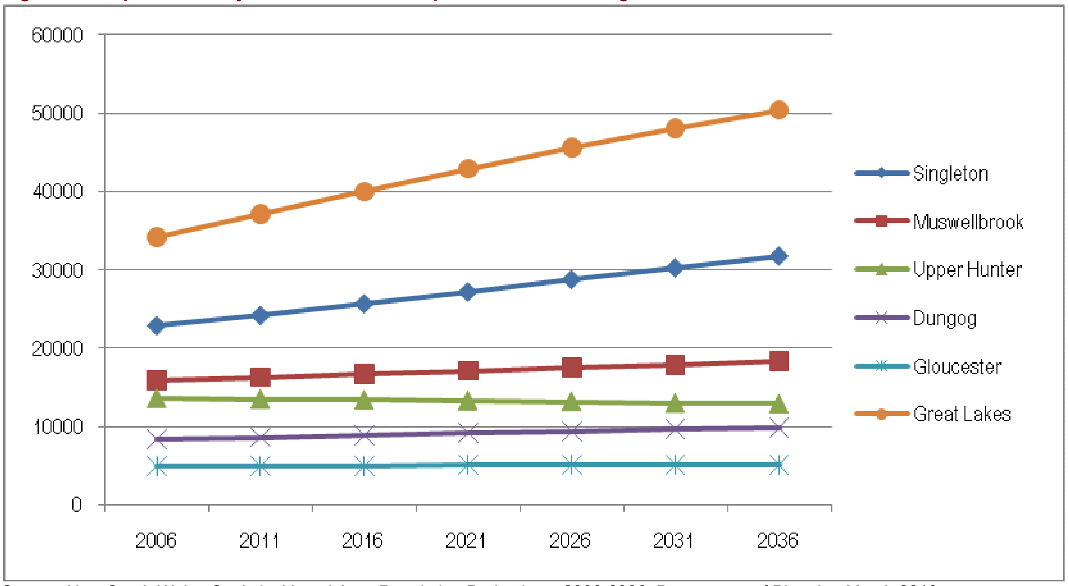
The second projections have been prepared as part of this project and provide for higher rate of growth over 5 year periods to 2036. These have been based on an analysis of Council planning documents and housing strategies and consultations about developments occurring in each of the LGAs.

Table 11. Population Projections to 2036 - Department of Planning 2010

Population Projections								Change
LGA	2006	2011	2016	2021	2026	2031	2036	2011-36
Cluster 1								
Singleton	22900	24200	25700	27200	28800	30300	31800	7600
Muswellbrook	15900	16300	16700	17100	17500	17900	18300	2000
Upper Hunter	13600	13500	13400	13300	13200	13000	12900	-600
	52400	54000	55800	57600	59500	61200	63000	
Cluster 2								
Dungog	8400	8600	8900	9200	9400	9700	9900	1300
Gloucester	5000	5000	5000	5100	5100	5100	5100	100
	13400	13600	13900	14300	14500	14800	15000	
Cluster 3								
Great Lakes	34200	37100	40000	42900	45600	48100	50400	13300
Total UH Region	**100,000**	**104,700**	**109,700**	**114,800**	**119,600**	**124,100**	**128,400**	**23700**

Source: New South Wales Statistical Local Area Population Projections, 2006-2036, Department of Planning March 2010

Figure 1. Population Projections to 2036 – Department of Planning 2010



Source: New South Wales Statistical Local Area Population Projections, 2006-2036, Department of Planning March 2010

The following projections have been prepared by Buchan Consulting and are based on higher rates of population growth in each period, than those allowed for in the DoP projections. These higher rates reflect some of the local planning being undertaken by each of the Councils and their allowance for future additional housing land.

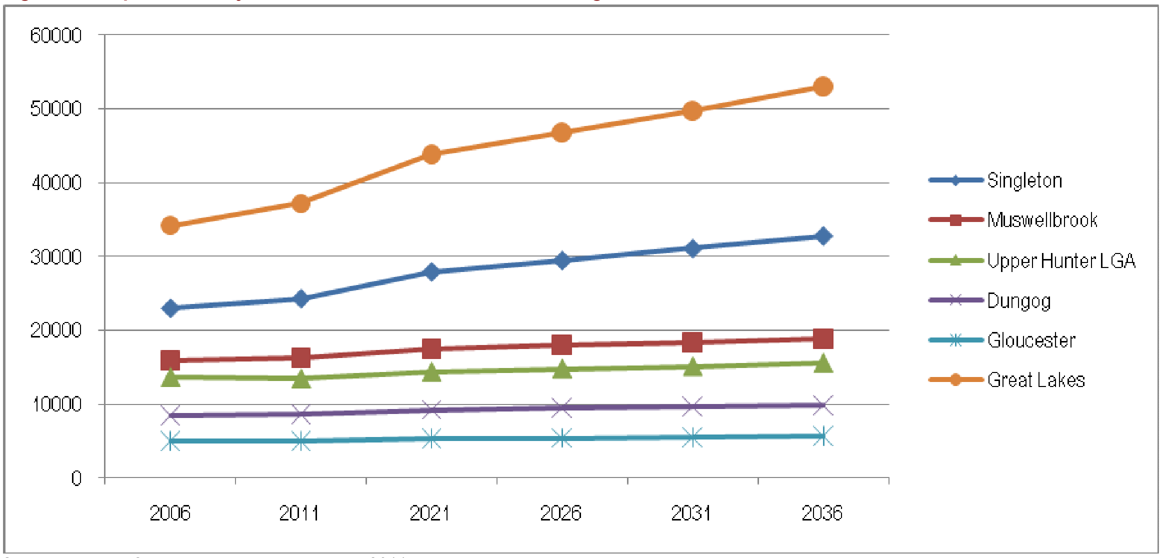
Overall, these revised projections have an Upper Hunter Region population in 2036, which at 135,712 is 7300 higher. Most of this additional population growth occurs in several LGAs - Upper Hunter, Great Lakes and Singleton. There is also stronger growth in Muswellbrook and Gloucester over the period.

Table 12. Population Projections 2011- 2036

Upper Hunter	2006 DoP	2011 DoP	2021 Revised	2026 Revised	2031 Revised	2036 Revised	Change 2011-2036
Cluster 1							
Singleton	23000	24300	27945	29482	31103	32814	8514
Muswellbrook	15900	16300	17441	17964	18324	18873	2573
Upper Hunter LGA	13600	13400	14338	14768	15064	15515	2115
Cluster 1	**52500**	**54000**	**59724**	**62214**	**64491**	**67203**	**13203**
Cluster 2							
Dungog	8500	8600	9202	9478	9668	9861	1261
Gloucester	5000	5000	5300	5406	5514	5624	624
Cluster 2	**13500**	**13600**	**14502**	**14884**	**15182**	**15485**	**1885**
Cluster 3							
Great Lakes	34200	37200	43896	46749	49788	53024	15824
Total Upper Hunter (C1-3)	**100200**	**104800**	**118122**	**123848**	**129460**	**135712**	**30912**

Source: Buchan Consulting Analysis, February 2011

Figure 2. Population Projections 2011- 2036 Buchan Consulting – 6 LGAs



Source: Buchan Consulting Analysis, February 2011

The following compares the average annual growth rates that are used in the projections.

Table 13. Projected Population Annual Average Growth Rates for the Upper Hunter Region 2006 - 2036

	2006-2011		2011-2021		2021-2026		2026-2031		2031-2036	
	DoP	Buchan	DoP	Buchan	DoP	Buchan	DoP	Buchan	DoP	Buchan
Singleton	1.1	1.1	1.2	1.4	1.1	1.1	1.0	1.1	1.0	1.1
Muswellbrook	0.5	0.5	0.5	0.7	0.5	0.6	0.5	0.4	0.4	0.6
Upper Hunter	-0.1	-0.3	-0.1	0.7	-0.2	0.6	-0.3	0.4	-0.2	0.6
Dungog	0.5	0.2	0.7	0.7	0.4	0.6	0.6	0.4	0.4	0.4
Gloucester	0.0	0.0	0.2	0.6	0.0	0.4	0.0	0.4	0.0	0.4
Great Lakes	1.6	1.7	1.5	1.7	1.2	1.3	1.1	1.3	0.9	1.3

Source: New South Wales Statistical Local Area Population Projections, 2006-2036, Department of Planning March 2010; Buchan Consulting Analysis, February 2011

The higher population projections have a number of implications for the region, in terms of future housing requirements and jobs requirements in each of the LGAs. From a jobs perspective there are two elements - a larger population generates a higher level of local demand and more jobs; and attracting a larger population to an area requires more local jobs.

3.3.2 Housing Requirements

Indicative housing requirements are based on applying an average household size to the increase in population. The average household size used is 2.3 persons, and this average takes account of both families with children and smaller households (due to the incidence of retirees in the region). Two sets of housing projections are outlined, and these are based on the revised population projections prepared by Buchan Consulting and the DoP projections. In broad terms, the Buchan projections take account of Council economic development and housing strategies.

It should be noted that these are indicative of the total housing market requirements. Specification of the future housing mix would need to be based on a more detailed analysis of the age profile of the future population.

Table 14. Future Housing Requirements – Upper Hunter Region

LGA	Housing Outlook
Singleton	Projections are broadly in line with Council projections for future population and housing. There are currently several plans to provide new housing developments at North Singleton, Bridgman Ridge, Hunter Green and Gowrie Links. Singleton Council also has housing land which it is developing.
Muswellbrook	There are plans to provide for the development of 2000 housing lots. There is an 800 lot development being planned south of the Muswellbrook town by Eastbrook Links Monarch Developments. Growth is expected in Denman and a new Denman New Regional Subdivision (107ha of land has been approved to develop into large residential blocks). There is potential for rezoning of another 216ha of residential land.
Upper Hunter LGA	Council expects that the population will increase by between 1000-1800 in the period to 2032. This compares with the DoP projections for a declining population. The Buchan projections broadly reflect the Council's expectations
Dungog	Council's land use strategy indicates that an additional 832 - 1570 dwellings will be required by 2031. The strategy allows for up to 1500 dwellings. These include 280 dwellings at Vacy, 280 at Gresford, 50 at Martin's Creek, 200 at Paterson and 580 at Clarence Town with a possible extension of 100 lots to the current Melbee Estate in Dungog.
Gloucester	The housing land supply is seen as adequate for 10 years, with the potential for longer term future growth.
Great Lakes	There is identified potential for 6200 dwellings in areas including at Hawks Nest, Tea Gardens as well as Forster-Tuncurry. This is broadly in line with the population projections in this report.

Source: Consultations with Planning Directors of Councils and reviews of housing strategies (TCG Planning and Buchan Consulting December 2010)

Over the 25-year horizon to 2036, the projections indicate a total demand for additional housing in the Upper Hunter Region of 13,440 dwellings, with over half of these being in Great Lakes. In broad terms, population and housing growth is concentrated in the larger LGAs in the region. The slower growth rates in the Department of Planning projections mean that the estimated housing demand is around 3000 dwellings lower (total dwellings of 10,304) across the total region over the period.

One of the major differences relates to Upper Hunter LGA, which is projected to have a population decline, whereas the Council's expectation is for an increase in population of between 1000-1800 in the period to 2031. The Buchan projections allow for this stronger population and housing growth in Upper Hunter LGA, and in Muswellbrook and Gloucester. This is based on both current growth trends and more active economic development initiatives being implemented in future, as well as land developments and rezoning efforts, such as those occurring in Upper Hunter LGA.

Table 15. Increase in Households – Housing Requirements to 2036 (number of dwellings)- Higher Growth

Change in Numbers 2011-2036 Upper Hunter Region	Households Ave size 2.3 2011 -2021	2021-2026	2026-2031	2031-2036	Total 2011-2036
Cluster 1					
Singleton	1585	668	705	744	3702
Muswellbrook	496	227	156	239	1119
Upper Hunter LGA	408	187	128	196	920
Cluster 2					
Dungog	262	120	82	84	548
Gloucester	130	46	47	48	271
Cluster 3					
Great Lakes	2911	1241	1321	1407	6880
Total UH Region	**5792**	**2489**	**2440**	**2718**	**13440**

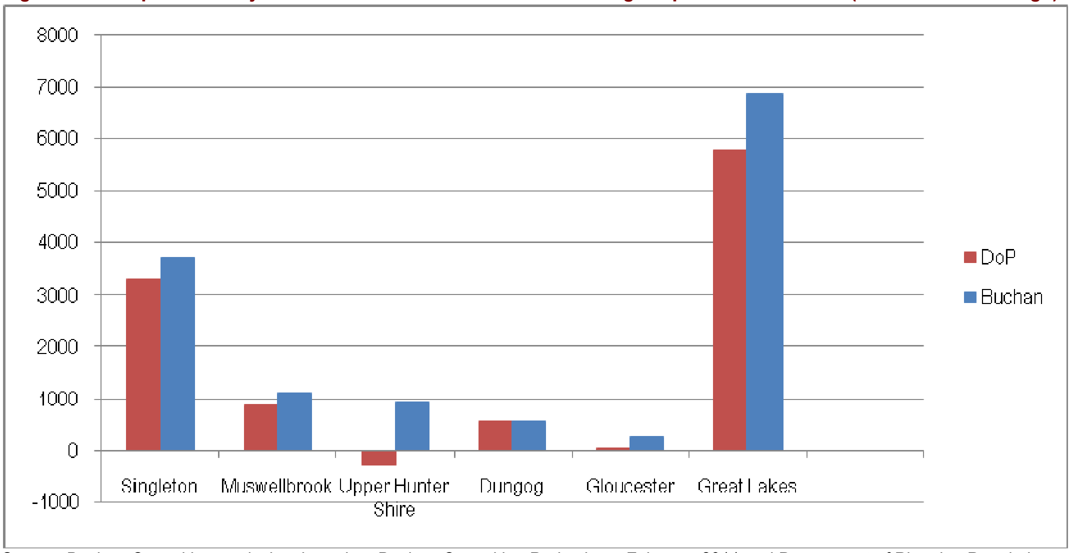
Source: Based on Buchan Consulting Projections, February 2011

Table 16. Increase in Households – Housing Requirements to 2036 (number of dwellings)- Lower Growth

Change in Numbers 2011-2036 Upper Hunter Region	Households Ave size 2.3 2011 -2021	2021-2026	2026-2031	2031-2036	Total 2011-2036
Cluster 1					
Singleton	1304	696	652	652	3304
Muswellbrook	348	174	174	174	870
Upper Hunter	-87	-43	-87	-43	-261
Cluster 2			0	0	
Dungog	261	87	130	87	565
Gloucester	43	0	0	0	43
Cluster 3			0	0	
Great Lakes	2522	1174	1087	1000	5783
Total UH Region	4391	2087	1957	1870	10304

Source: Based on Department of Planning Population Projections, March 2010

Figure 3. Comparison Projected Increase in Households – Housing Requirements to 2036 (Number of Dwellings)



Source: Buchan Consulting analysis – based on Buchan Consulting Projections, February 2011 and Department of Planning Population Projections, March 2010.

It should be noted that in the case of the smaller LGAs of Dungog and Gloucester, the major challenge is securing population growth to support the planned increases in housing stock. In recent years the constraint has not been a supply side (i.e. the availability of housing land) but rather demand side (i.e. slow population growth).

3.4 Future Job Requirements

Population growth impacts on jobs in the area. There are several interrelated aspects of this: a larger population generates a higher level of local demand for services and more jobs; and a larger population requires more local jobs, if job commuting is to be held constant or reduced (and population is to be attracted to an area).

To indicate the dimensions of these job requirements, some indicative estimates were developed. [17] The following are the estimated regional job requirements based on the population projections and the household estimates developed by Buchan Consulting, as part of this review of future opportunities. The job requirements assume an average of one job per household being required for the increased population in the local government areas. This average allows for family households (where there may be more than one person working) and the incidence of retirees in the region (who are not in the labour force and do not require employment).

Based on population growth projections, the Upper Hunter Region (including Great Lakes) would require a total of 13,440 additional jobs over the 25 year period to 2036 or an average of an additional 538 jobs per year across the region. These job requirements are proportionate to population growth rates and population size, with the major requirements being in the larger population areas of Great Lakes, Singleton and Muswellbrook.

17 These estimates are based on population and employment modelling undertaken by Buchan Consulting.

Table 17. Estimated Jobs Required for Larger Regional Population

Job Requirements <Assumes 1 job per household> Change	Total Period 2011-2036	Additional Jobs 2011 -2021	2021-2026	2026-2031	2031-2036	Additional Jobs Years 25 Jobs per year
Cluster 1						
Singleton	3702	1585	668	705	744	148
Muswellbrook	1119	496	227	156	239	45
Upper Hunter LGA	920	408	187	128	196	37
Cluster 1	**5740**	**2489**	**1083**	**990**	**1179**	
Cluster 2						
Dungog	548	262	120	82	84	22
Gloucester	271	130	46	47	48	11
Cluster 2	**820**	**392**	**166**	**129**	**132**	
Cluster 3						
Great Lakes	6880	2911	1241	1321	1407	275
Total Upper Hunter Region	**13440**	**5792**	**2489**	**2440**	**2718**	**538**

Source: Buchan Consulting Projections February 2011

Looking across the total region, projected population growth will generate a total of 5975 jobs leaving a gap of 7465 jobs over the period to 2036. The total job requirements represent an average of an additional 538 jobs per year over the 25 year period, whereas population growth will only generate an average of 239 additional jobs per year or around 45% of the jobs that would be required in the region and in each of the LGAs.

- **A larger population will generate higher demand for services and this will create jobs in population related services (eg. retail, health, hospitality, construction and light industrial etc.).**
- **However a key issue is that this growth in population related services will on average only generate around half of the local jobs that are needed. Meeting the full jobs requirement will require an increase in jobs that are servicing broader regional, state and national markets.**
- **Over the next 20-25 years mining and mining related jobs are likely to fill this gap in the mining areas, and at the same time will be one of the main drivers of population growth in these locations.**

Table 18. Estimated Jobs Generated by Population Growth 2011-2036

Job Numbers Generated Upper Hunter Region	Total Period 2011-2036	2011-2021	2021-2026	2026-2031	2031-2036	Average Jobs per year 25 years
Cluster 1						
Singleton	1646	705	297	313	331	66
Muswellbrook	497	220	101	69.	106	20
Upper Hunter LGA	409	181	83	57	87	16
Cluster 2						
Dungog	244	117	53	36	37	10
Gloucester	120	58	20	21	21	5
Cluster 3						
Great Lakes	3059	1294	552	588	625	122
Total UH Region	**5975**	**2575**	**1107**	**1085**	**1208**	**239**

Source: Buchan Consulting Projections February 2011

The following shows the indicative the mix of the population driven local jobs that would be generated, and these are focused on retail (23 %), other services (25%), health and community services (9%), construction services (8%), business services (7%) and food services (7%).

Table 19. Estimated Jobs Generated by Population Growth 2011-2036 (Sectors)

Total Upper Hunter Region Sectors	2011-2036	2011-2021	2021-2026	2026-2031	2031-2036	Shares 2011-2036
Retail	1305	562	242	237	264	22.8
Food Services	422	182	78	777	85	7.1
Construction Services	476	205	88	86	96	8.0
Other Light Industrial Services	462	199	85	84	93	7.7
Health & Community Services	565	2447	104	103	114	9.5
Business Services	433	187	80	79	88	7.2
Communication Services	70	30	13	13	14	1.2
Education & Training	351	151	65	64	71	5.9
Other Services (Recreation, arts, entertainment, other services)	1480	638	274	267	299	24.8
Transport and Related services	411	173	76	757	83	6.9
Total Jobs	**5975**	**2575**	**1107**	**1085**	**1208**	**100.0**

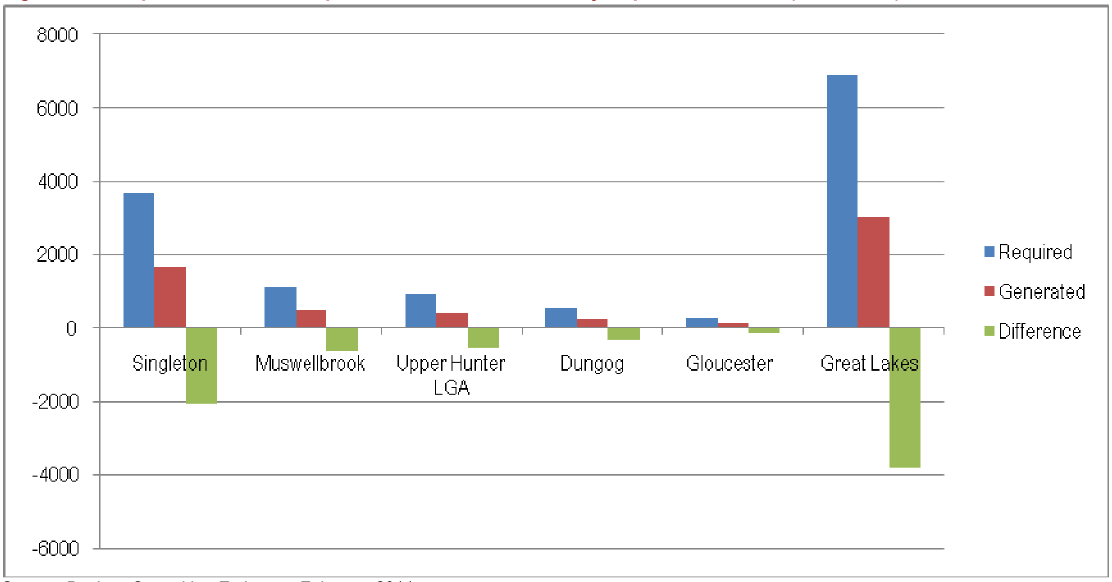
Source: Buchan Consulting Projections February 2011

Table 20. Estimated Jobs Gap 20011-2036

Difference Jobs Generated and Required Upper Hunter Region	Total Period 2011-2036	2011-2021	2021-2026	2026-2031	2031-2036	Average Jobs per year 25 years
Cluster 1						
Singleton	-2056.2	-880.3	-371.0	-391.6	-413.2	-82.2
Muswellbrook	-621.5	-275.5	-126.1	-86.6	-132.7	-24.9
Upper Hunter LGA	-511.0	-226.6	-103.9	-71.1	-108.9	-20.4
Cluster 2		0.0	0.0	0.0	0.0	0.0
Dungog	-304.4	-145.5	-66.7	-45.5	-46.7	-12.2
Gloucester	-150.5	-72.2	-25.5	-26.1	-26.7	-6.0
Cluster 3		0.0	0.0	0.0	0.0	0.0
Great Lakes	-3821.3	-1616.8	-689.3	-733.7	-781.5	-152.9
Total UH Region	**-7464.9**	**-3217.0**	**-1382.4**	**-1355.2**	**-1509.6**	**-298.6**

Source: Buchan Consulting Estimates February 2011

Figure 4. Comparison of Jobs Required and Jobs Generated by Population Growth (2011-2036)



Source: Buchan Consulting Estimates February 2011

Filling this jobs gap highlights the need for strengthening of existing industries, for economic diversification and for business attraction in each of the LGAs, in order to create jobs in the regional export industries (industries that are servicing broader markets).

- **Over the horizon of the next 20-25 years, mining and mining related employment is likely to fill much of this gap, within the major mining centres of Singleton and Muswellbrook.**
- **Meeting these job requirements in several of the other LGAs will be more of a challenge and require the pursuit of diversification opportunities that are outlined in this report. At the same time the mining related areas need to also need to be pursuing long term diversification options to broaden the base of their local economies.**

3.5 Mining Jobs in the Region

3.5.1 Current Workforce

Singleton and Muswellbrook have some major future long-term labour market and employment issues because of the numbers of local residents employed in the mining sector and the medium-term and long-term shifts in jobs as specific mines reach the end of their production life. These changes are likely to take place over a period of 25-30 years.

In 2006 there were a total of 5,500 mining jobs in the Upper Hunter Region, with Singleton accounting for 70% of these jobs (3,794) and Muswellbrook for 28% of the jobs in the sector.[18] Analysis of industry data shows that in Singleton, an estimated 1583 jobs were involved in mining support activities, taking the total of mining related jobs to 5377 or 40% of total jobs in the LGA (in 2006). In the case of Muswellbrook, mining support jobs were estimated at 956 jobs and this meant that around 31% of jobs in the LGA were mining related (a total of 2478 mining jobs and support jobs). In total, the mining related jobs (direct + support) located in the two LGAs totalled 7855 jobs.

The sector has continued to expand in the Upper Hunter, since 2006. In June 2008, there were an estimated 8,384 mining jobs in the two LGAs and 4024 jobs in mining support activities. By June 2010 direct mining employment in the Singleton-North West Region had increased to 11,179 (with an estimated 9000-10,000 of these jobs being in the two Upper Hunter LGAs), and indirect mining support jobs were likely to be over 4000.[19] The following table compares mining jobs in the Upper Hunter with the total mining jobs in New South Wales. The Upper Hunter Share has increased from its share of NSW mining jobs from an estimated 42% in 2001/02 to around 55% of jobs in 2008/09 and 59% in 2009/10.

Table 21. Coal Industry Employment NSW and Upper Hunter Region

Coal Industry Employment	Employment 2001/02	Employment 2005/06	Employment 2006/07	Employment 2007/08	Employment 2009/10
Mining Production Employees (A) NSW	10052	12658	13392	15387	19087
Upper Hunter Mining Production Employees (B, C)	4188	6173	6720	8384	11179 Singleton –North West
	<ABS Census>				
Share (%)	41.7	48.8	50.2	54.5	58.6

Source: A. Coal Services Annual Report 2008/09 P10; B: ABS Census and C: New South Wales 2009 Coal Industry Profile, DPI

18 ABS Census 2006 Working Population Data.

19 Whitehaven Coal employs around 500 persons at two mines in the Narrabri area in the North West. It operates the Sunnyside Mine about 15km west of Gunnedah and the Rocglen mine 25km to Gunnedah's north. Expansion of coal mining is expected in the Caroona and Watermark areas 40km to Gunnedah's south east. BHP Billiton and China's Shenhua Energy have acquired exploration licenses (ELs) and expect to commence mining around 2012 - 2015. Each EL has an estimated coal reserve of about 500 million tonnes each, with both operations expected to be underground long wall mining.

The increase in mining jobs in the region since 2006 has led to significant growth in the *mobile workforce* (comprising daily commuters from the Lower Hunter and workers from further afield who travel in and stay in local accommodation during their shift periods).[20] Based on the estimates of commutes of 31% in 2006, the number of workers commuting to direct mining jobs in the region in 2010 would now be over 3500 (31% of 11,258 jobs). When commuting to jobs in mining support industries are taken into account, this number could now be between 4500-5000 employees currently commuting into Singleton and Muswellbrook each day.

This has now become the pattern of employment over the lifecycle of mines, with workers moving to the next mine as specific mines reach the end of their life. At the same time the number of mining workers coming from other locations and staying in accommodation has increased. While the number of local residents recruited into the mining sector would have increased in the last 4 years, a large part of the growth in labour requirements is being serviced by these commuting workforces.

With continued growth in the sector, the share of the local workforce employed has increased. In 2006, a total of 3589 residents in the 3 LGAs: Singleton -2061, Muswellbrook- 1097 and Upper Hunter - 431 were employed in the mining sector. This represented 16% of employed persons in Muswellbrook and 20% of employed residents in Singleton. With the recent mining growth these percentages have potentially increased to around 25% for Singleton and 22% for Muswellbrook. This implies that around 4500-5000 residents of Singleton (2500-3000) and of Muswellbrook (2000) would now be employed in mining jobs. There is also an increasing number of Upper Hunter LGA residents employed in the sector (431 in 2006 and potentially up to 800 in 2010).

These estimates are based on the largest share of the jobs growth continuing to be taken up by the drive-in workforce. With the recent growth to 2010, this number of commuters to mining jobs is likely to have increased by 25%-35% to around 4500 to 5000. Industry discussions indicate that there has also been an expansion in mining support employment in the region.

3.5.2 Medium Term Outlook

In the medium term to long term (over the next 15-20 years), jobs growth in the mining sector is likely to continue. For example, the impact assessment report on the Mt Arthur Mine indicates that employment would increase from current numbers of around 1,000 to around 2,600.[21] Overall the outlook for the sector in the medium term could involve a net 2000-2500 additional mining jobs in the Upper Hunter Region.

This jobs growth may continue to place pressures on the local labour market in Muswellbrook, Singleton and Upper Hunter.

3.5.3 Long Term Employment Adjustment

Issues affecting Future Employment

A major issue is the future pattern of regional employment beyond coal mining. The timing and scale of employment adjustment issues in the medium/long term will be influenced by a number of factors and these include:

- The levels of activity and employment in the mining sector, if coal demand levels are affected by environmental policies, land use conflicts and cyclical trends in the main export markets.
- The age structure of the current workforce (ages of Upper Hunter Region residents employed in the sector) and the number of retirements from the sector, over a 10-15 year period.
- The extent of additional mining jobs in the medium-term (next 10-15 years) that are taken up by local residents, compared with a drive-in workforce.

20 The latter is reflected in the numbers who stay in Singleton and Muswellbrook accommodation, and this is reflected in occupancy rates for motel accommodation and for rental housing in both areas.
21 Coakes Consulting – Mt Arthur Coal Consolidation Project Social Impact and Community Engagement Report August 2009 P8

- Potential resident movements out of the region, as persons move to jobs in the Gunnedah Basin and to other mining areas (this would be particularly the case for younger mining workers, who are more mobile).
- The future mix between a commuting workforce and local resident workers, as some of the mines scale down as they move towards the end of their production life.
- The development of mining support and other related activities in the region, which are servicing broader mining markets outside of the Upper Hunter Region.

Employment Scenarios

To illustrate the potential adjustment issues, two longer term scenarios were modelled. These covered the replacement of 3000 and 4000 jobs (of residents of the 3 mining related LGAs) over a 10 year horizon and a 15 year horizon. These are designed to be indicative only of the potential impacts of a scale-down in mining activities.

Developing actual estimates would require detailed workforce information from the mining companies, and this could be undertaken as part of the *Regional Industry Workforce Plan* that is recommended in this report.

Adjustment for local residents would depend on the age profile of mining workers, and the share between local full time residents and the mobile workforce. For example, in 2006 around 37% of residents (of Singleton and Muswellbrook) employed in the mining were 45 or over and around 14% were over 55 years of age.[22]

The following analysis is indicative of job replacement requirements. To illustrate the situation, two cases for jobs replacement in the LGAs are examined: replacement of up 4000 jobs and 3000 jobs over either a 15 year period or a 10 year period (the time periods used - 2021-2031 and 2021-2036 are illustrative only). In the analysis we have allowed for a total of 507 retirements over a 10 year period and 1845 over 15 year period for residents, who are employed in mining. This is based on the current age structure of residents employed in the sector.[23] Retirements, including some early retirements would be one of the adjustment factors when mining employment reduced in the region.

It should be noted that these estimates provided an indication of the scale of the adjustment that would be made in terms of residents, who are employed in the mining sector. At present local residents are estimated to hold less than half of the mining jobs located in the region. The table below summarises the results of the modeling.

- In the case of 3000 jobs (over a 15 year period), total of 1255 jobs (after retirements – more local workers are retiring over this longer period) would need to be replaced and this represents an average of 84 additional jobs per year over the full period. If this occurred over a 10 year period total of 2493 jobs (after retirements) would need to be replaced or an average of 249 jobs per year.
- In the case of 4000 jobs (over a 15 year period), a total of 2155 jobs (after retirements – more local workers are retiring over this longer period) would need to be replaced and this represents an average of 144 replacement jobs per year. If this occurred over a 10 year period total of 3493 jobs (after retirements) would need to be replaced or an average of 349 jobs per year.

22 Analysis of ABS Census 2006, Resident Population Data. Employed residents by industry of employment.
23 Over the longer period of 15 years, more employed residents reach 65 years and retire from mining. This reduces the net number of jobs that need to be replaced.

Table 22. Summary of Job Requirements – Indicative Estimates

		3000	4000
Mining Jobs Replacement		**Jobs**	**Jobs**
<Persons >			
15 year Transition			
3 LGAs	2021-2036	3000	4000
Replacement over 15 years (2021-2036)	Retirements (15 years)	1845	1845
Future Jobs Requirements – 3 LGAs	**Net replacement**	**1255**	**2155**
Additional Jobs Average per year (15 years)		**84**	**144**
10 Year Transition			
3 LGAs	2021-2031	3000	4000
Replacement over 10 years (2021-2031)	**Retirements (10 years)**	507	507
Future Jobs Requirements – 3 LGAs	**Net replacement**	**2493**	**3493**
Additional Jobs Average per year (10 years)		**249**	**349**

Source: Buchan Consulting projections February 2011

What has the recent growth pattern been for the three LGAs of Singleton, Muswellbrook and Upper Hunter? The jobs data for the three LGAs shows the following.

- Non-mining jobs increased by 2801 between 2001 and 2006 or 560 jobs per year.
- The major growth was in-person services (an increase of 1744 jobs or 349 jobs per year) and goods producing and business services (an increase of 1057 jobs or 211 jobs per year).
- This jobs growth in these sectors was offset by a fall of 1399 jobs due to employment declines in several sectors (agriculture, retail and other goods related services).

Table 23. Job Trends 2001-06 in Non-Mining Industries – 3 Local Government Areas

	LGA				Total 3 LGAs
Job Trends 2001-06	**Singleton no**	**Muswellbrook no**	**Upper Hunter no**	**Total 3 LGAs 5 years**	**Ave increase per year**
Job Growth <Excluding Mining>					
Regional Export Industries					
Goods Producing	154	107	233	494	98.8
Knowledge & Business Services	317	174	72	563	112.6
Total goods producing & business services	471	281	305	1057	**211.4**
Population Driven Jobs					
In Person Services	919	577	248	1744	348.8
Total (Non- mining Jobs)	**1390**	**858**	**553**	**2801**	**560.2**
Job Declines					
Agribusiness	-115	-106	-168	**-389**	-77.8
Retail	-233	-222	0	-455	-91
Other Goods Related	-369	-85	-101	-555	-111
Total Declines	-717	-413	-269	-1399	-280
Net jobs (Non- mining Jobs))	**673**	**445**	**284**	**1402**	**280**
Mining					
Mining Jobs	882	502	0	1384	277
Note :It should be noted that the rapid growth in mining employment has occurred in the 2006-2010 period					

Source: Buchan Consulting analysis of jobs data: Singleton and Muswellbrook ABS Census 2006 Working Population Data; Upper Hunter LGA ABS Census 2006, Resident Population Data

Future Job Requirements

Future job requirements for residents in the mining related areas is a combination of replacement of mining employment and the additional jobs required for a larger labour force associated with regional population growth. In addition there are a number of specific workforce issues which affect regional adjustment and these include differences in the skill mix of mining jobs and the other areas of employment that have been growing. Mining jobs are more male intensive, while service jobs generally employ a high percentage of females. A significant share of the service jobs are likely to be part-time and the wage rates of mining jobs and other jobs vary significantly. In addition, a major decline in the number of locally held high-paying jobs would have impacts local consumer demand levels.

It is recognised that more detailed analysis of long term employment and adjustment issues in the mining sector in the region is required. This should be conducted as part of the development of a *Regional Industry Workforce Plan*, which is discussed in Section 9 of this report.

4 Environment Issues

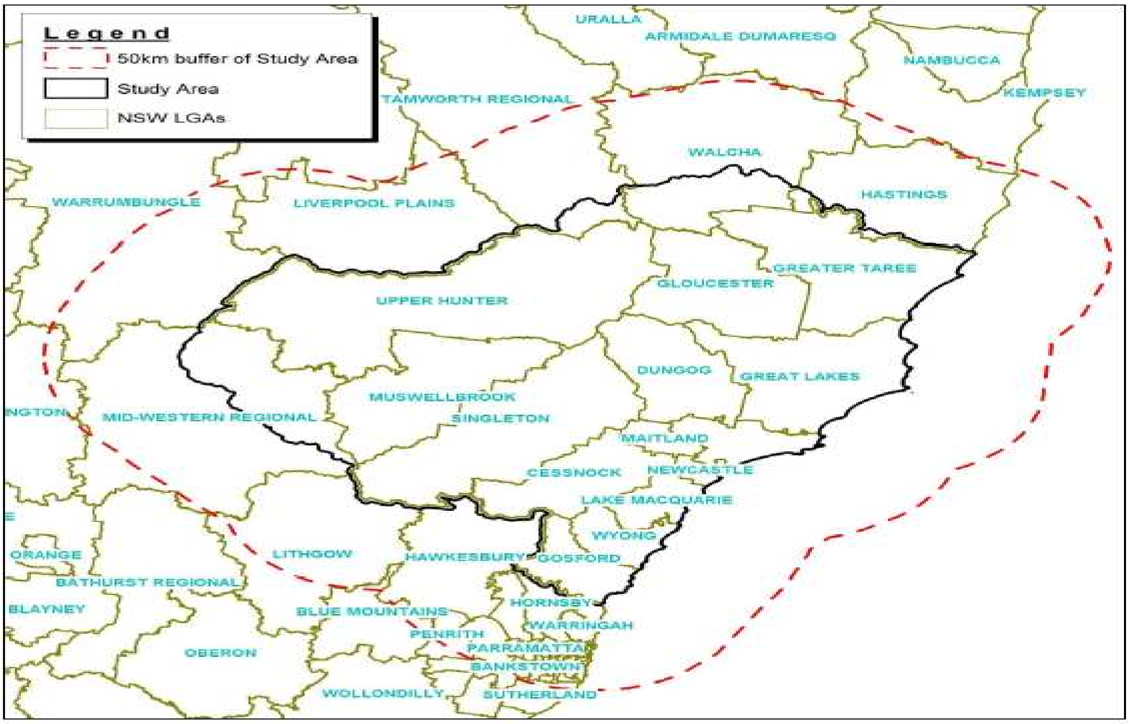
4.1 Overview - Climate Change and the Region

As both an energy production region and an agricultural production region, the Upper Hunter is at the centre of discussions on climate change and environmental issues.

This section of the report draws on research that has been undertaken in the region on environment and climate issues. Hunter Councils has undertaken a major regional climate change project, which has examined climate issues in the area covering the Hunter Region, Lower North Coast Region and Central Coast Region.[24] The study identified, three sub regional *climate zones* (coastal, central and western) for the region, within which there is climatic similarity (e.g. rainfall patterns, temperatures etc.). Rainfall and climate conditions differ substantially across the region that makes up the Upper Hunter.

The report projects a number of trends to 2080 and these include: an increase in minimum temperatures and maximum temperatures, due to warmer winters, springs and summers; no significant change in average annual rainfall in the period 2020-2080; a shift in average water balance by 2040, with wetter conditions in the period 2020-2040 and drier conditions from 2040-2080; a statistically significant increasing trend in the number of extreme heat events.

Figure 5. LGAs in the Climate Change Study Area



Source: *Historic and Projected Impacts of Climate Change on the Western Climatic Zone of the Hunter, Central and Lower North Coast*, Hunter & Central Coast Regional Environmental Management Strategy , Hunter Councils 2010

24 Hunter, Central and Lower North Coast Regional Climate Change Project, 2010; *Historic and Projected Impacts of Climate Change on the Western Climatic Zone of the Hunter, Central and Lower North Coast*, Hunter & Central Coast Regional Environmental Management Strategy , Hunter Councils 2010

Figure 6. Climate Zones in the Region

Source: *Historic and Projected Impacts of Climate Change on the Western Climatic Zone of the Hunter, Central and Lower North Coast*, Hunter & Central Coast Regional Environmental Management Strategy , Hunter Councils 2010 P6

A major issue that has been identified in the region is competition for resources between sectors and this includes competing land use between mining and agriculture and the availability of water for these sectors and for any future expansion in agriculture activities.

Annual surveys of the broader Hunter Region, conducted by the Hunter Valley Research Foundation since 2006, have tracked community attitudes to climate change.[25]

Climate change factors have important implications for future patterns of industry development in the region and will also shape the future spatial pattern of development and land use. The Department of Planning, with other government agencies is proposing to undertake more detailed analysis of the spatial land use planning implications of climate change futures.

This analysis will be important for long term economic development of the region, and for diversification opportunities.

4.2 Industry Impacts

4.2.1 Overview

Several of the key industries that are located in the Upper Hunter Region have different sensitivities to climate change factors. These industries include agriculture, tourism and the energy sector.

Agriculture productivity is affected by changes in rainfall and temperatures and land quality; tourism is impacted by sea level issues (coastal tourism), weather patterns and storm patterns; and the mining sector is impacted by policy responses (national and international policies) which may affect future demand for coal products. Within the region, tourism is important in most of the LGAs; mining is of major importance in two LGAs (Singleton and Muswellbrook) and agriculture is a dominant activity in three of the LGAs (Dungog, Gloucester, Upper Hunter LGA).

25 Hunter Region Environmental Attitudes Survey 2009-10, The Hunter Valley Research Foundation 2010

Taken together these three sectors of agriculture, tourism and mining account for 11,075 jobs or 29% of the Upper Hunter Region's total jobs in 2006. With significant growth in mining activity in recent years this jobs share will have increased even further.

Table 24. Employment in Climate Change Sensitive Industries 2006

Local Government Areas	Agriculture, Forestry and Fishing		Mining		Tourism	
	Jobs	Share of jobs in LGA	Jobs	Share of jobs in LGA	Jobs	Share of jobs in LGA
Cluster 1						
Singleton	532	4.3	3794	30.7	480	3.9
Muswellbrook	515	6.5	1522	19.3	331	4.2
Upper Hunter Shire	1237	26.3	45	1.0	251	5.3
Cluster 2						
Dungog	438	21.5	7	0.3	129	6.3
Gloucester	337	19.4	93	5.4	94	5.4
Cluster 3						
Great Lakes	486	5.3	39	0.4	745	8.2
Total Upper Hunter Region	**3545**	**9.4**	**5500**	**14.5**	**2030**	**5.4**
Key Climate Related Factors	Average and seasonal rainfall patterns , average and extreme temperatures,		National and international climate change policies impacting on demand.		Sea level rise and storm surges, bushfires, high temperatures and rainfall patterns, impacting on visitor numbers.	

Source: Buchan Analysis of ABS Census 2006 Working Population data and HCCREMS Potential Impacts of Climate Change on the Hunter, Central and Lower North Coast of NSW, 2010

4.2.2 Agriculture

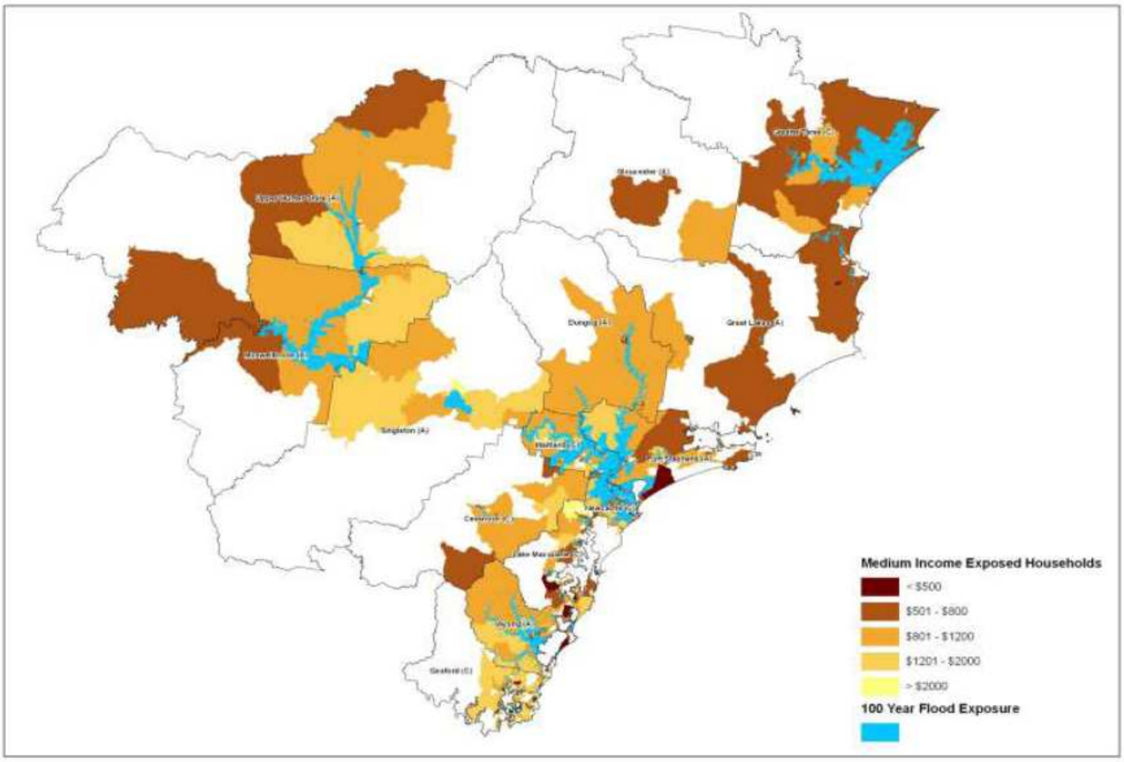
Recent climate change projections for the Hunter, Central and Lower North Coast indicate that there will be an increase in the frequency of extreme rainfall events in all climate zones in summer and autumn, although the frequency of these events could decrease in winter. As a result, flooding is likely to become more frequent and more intense for much of the region's low lying areas. Around 43,500 hectares of land in the Upper Hunter Region (excluding Gloucester LGA) is exposed to a 1 in 100 year flood. Approximately 89% of this area is agricultural land, with some residential areas also being exposed (especially in Dungog and Upper Hunter LGAs). Over half of the land subject to flooding is in Muswellbrook LGA.

Table 25. Estimate of Land Exposed to Flooding (1 in 100 year) - Upper Hunter Region.

	Cluster 1			Cluster 2		Cluster 3
Generalized Land Use Zones (hectares)	Singleton	Muswellbrook	Upper Hunter Shire	Dungog	Gloucester	Great Lakes
Agricultural	3308	23629	7355	3168	N/A	1300
Commercial	45	3	7	0	N/A	5
Education	41	0	2	1	N/A	0
Hospital/Medical	0	0	0	0	N/A	0
Industrial	0	0	0	0	N/A	0
Other	0	0	0	0	N/A	0
Conservation	121	1427	202	206	N/A	301
Residential	363	46	608	1031	N/A	288
Transport	0	0	0	0	N/A	0
Total Exposed Area (Ha)	**3879**	**25106**	**8174**	**4406**	**N/A**	**1894**

Source: HCCREMS Potential Impacts of Climate Change on the Hunter, Central and Lower North Coast of NSW, P43 na – not currently available

Figure 7. Areas Exposed to Flooding (1 in 100 year) and Median Incomes of Exposed Households, Hunter, Central & Lower North Coast



Source: HCCREMS Potential Impacts of Climate Change on the Hunter, Central and Lower North Coast of NSW, P43.

Horticulture (including viticulture) and cropping are most dependent on water and hence adequate runoff and stream flows. This horticulture makes up a considerable proportion of the land use and agricultural output in the Upper Hunter Region. Although a slight increase in average annual rainfall is projected for the region, it is expected that there will be changes in rainfall variability. These changes in variability will lead to: higher rainfall intensity; an increase in the number of dry days; and a higher frequency and severity of droughts. These will have negative impacts on runoff and stream flows.[26]

The wine sector is susceptible to rising temperatures and extreme heat on grape crops. Higher temperatures also place heat stress impacts on livestock (eg. dairy and intensive livestock production).

There are concerns in the region about long term water availability for agriculture given the water requirements of the mining sector and power generation.

4.2.3 Tourism

Tourism is a major activity across most areas of the Upper Hunter Region.
Great Lakes has the largest tourism sector, and this sector could be potentially impacted by climate change effects. The coastal environment of Great Lakes attracts development, residents and tourists. There are risks associated with sea-level rise, coastal storms, extreme tides and storm surges. Such processes can contribute to coastal erosion that impact on property, buildings and infrastructure and coastal amenity.
Great Lakes has a total coastline of 146kms and, 82 kms is either sandy or muddy shores backed by soft sediment. This large portion of coastline is coupled with a high incidence of low lying land areas. As well as having environmental impacts the impacts on beaches could have

26 HCCREMS Potential Impacts of Climate Change on the Hunter, Central and Lower North Coast of NSW P69

major implications for the tourism sector. [27] This would be the case if these effects occurred at the major tourist beaches. The extent of impacts to the region's tourism industry will clearly be affected by a number of factors, including the location, scale, timing and permanency of impacts to the region's beaches and estuaries.

Tourism in other areas of the region can also be affected by climate change. More broadly, changing rainfall patterns, flooding, high temperatures and bush fire risks can affect visitor numbers during peak holiday periods, across all of the areas in the Upper Hunter.

4.2.4 Energy Sector

Coal and electricity generation are two of the largest industry employers in the Upper Hunter Region (mainly in Singleton and Muswellbrook).

Water is an issue for both of these sectors. The mining and power generation sectors are large users and in most instances have water licenses and bulk entitlements to ensure adequate access to water. In general, coal mines are less exposed than the agricultural sector to reduced water runoff, as they usually store water on site in their dams.

The power generation sector is susceptible to changes in rainfall levels. Generators are more prone to a decrease in water supply, as large volumes of water is required for cooling. Low water availability and prolonged drought can affect water quality and increase the occurrence of impurities, requiring major upgrades of filtering systems at power plants.

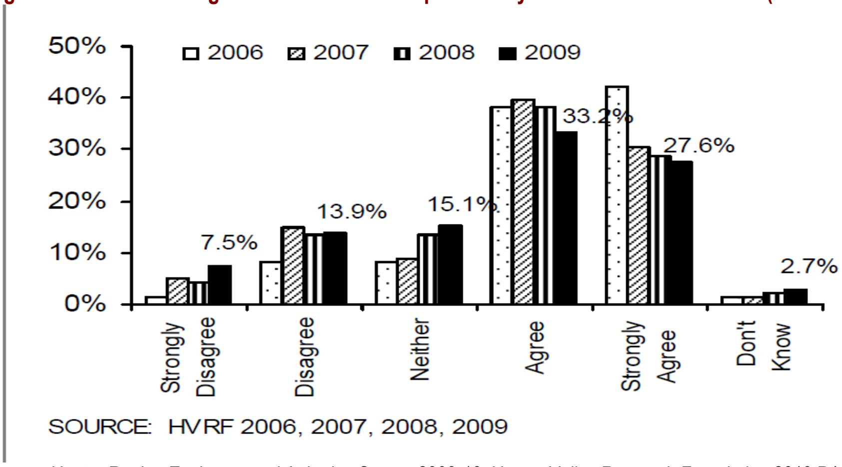
There are large recoverable coal reserves available in the Upper Hunter and Gunnedah coal fields (estimated to be 40-50 years supply). The major impacts of climate change on the sector is likely to be from policy initiatives (domestic and international) that reduce overall coal usage and demand in the longer term (this includes any reductions in domestic demand and in export demand). Depending on the policies implemented and the adjustment assistance provided, the impacts on the mining regions could be significant.

4.3 Community Attitudes to Climate Change

The Hunter Valley Research Foundation has undertaken a series of surveys since 2006 on environmental attitudes in the region. The 2009 survey was released early in 2010. The survey covers attitudes to climate change, to the mining industry and responses to environment.[28]

In relation to climate change, around 60% of respondents either *agreed* (33%) or *strongly agreed* (28%) that climate change would have a direct impact on their lives in the next 20 years.

Figure 8. Climate Change will have a Direct Impact on my Life in the Next 20 Years (2006-09)

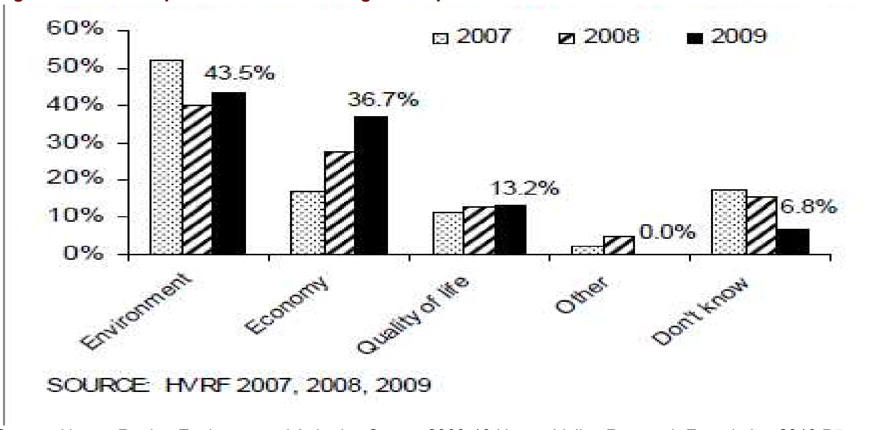


Source: Hunter Region Environmental Attitudes Survey 2009-10, Hunter Valley Research Foundation 2010 P4

The main impacts *were* seen as*:* increased cost of living (18%); increased temperatures or warmer weather (15%); changes in weather / extreme weather events (12%); increased energy/fuel costs (9%); and forced changes to lifestyle / behaviours (8%).[29]

27 HCCREMS Potential Impacts of Climate Change on the Hunter, Central and Lower North Coast of NSW P69
28 Hunter Region Environmental Attitudes Survey 2009-10 The Hunter Valley Research Foundation 2010

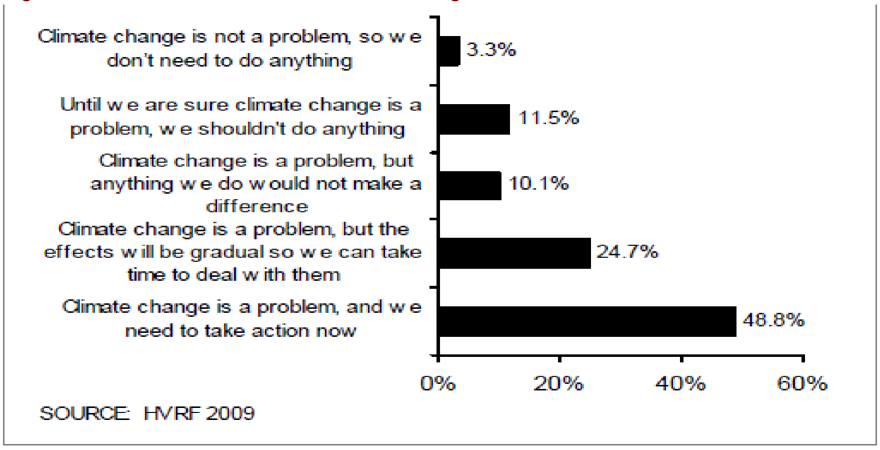
Figure 9. Main Impact of Climate Change Grouped 2007-2009



Source: Hunter Region Environmental Attitudes Survey 2009-10 Hunter Valley Research Foundation 2010 P5

Around half of the respondents indicated that action was required now on climate change, while 25% were of the view that impacts were gradual and that there was time to respond.

Figure 10. Need to Take Action on Climate Change 2009



Source: Hunter Region Environmental Attitudes Survey 2009-10 Hunter Valley Research Foundation 2010 P8

The then Department of Environment, Climate Change and Water (DECCW) commissioned a state-wide environment survey in 2009.[30] The survey showed that the environment was in the top 5 issues of concern of New South Wales residents. However it ranked behind the more immediate concerns about health, education and public transport issues. With the change of government, most of the functions of the Department of Environment, Climate Change and Water have now been transferred to a new *Office of Environment and Heritage* within the *Department of Premier and Cabinet.*

29 Hunter Region Environmental Attitudes Survey 2009-10 Hunter Valley Research Foundation 2010, P5.
30 Who cares about the Environment 2009, A survey of NSW people's environmental knowledge, attitudes and behaviours, DECCW Social Research Series Department of Environment, Climate Change and Water NSW February 2010. In April 2011 most of the functions of the Department of Environment, Climate Change and Water were transferred to a new Office of Environment and Heritage within the Department of Premier and Cabinet.,

5 Energy Sector

5.1 Overview - Energy Sector

The Upper Hunter is an energy region, and has New South Wales' major concentrations of coal mining and electricity generation. This energy role will remain into the long term with some changes in the mix of energy sources for power generation.

Policy changes will have some impacts on the energy sector in the region. It is recognised that there will be a price on carbon emissions and new rules in future for emissions trading. A major issue will be the adjustment measures that are implemented for the mining and energy sectors nationally and the impacts of these policies on the Upper Hunter Region.

In export markets, the coal will remain strong as there will be ongoing demand for the generation of peak load electricity in the major markets. Based on current production rates, the recoverable coal reserves in the Hunter and Gunnedah Coal Fields have an estimated life of 40-50 years.

Achieving cuts in emissions, while responding to the increased demand for electricity, will present major challenges in terms of investment in capacity and the application of new technologies. Some progress on change has been made in the broader Hunter Region: with investment in clean coal technology; the development of coal seam gas (creating opportunities for gas fired power generation, manufacturing and processing and exports of liquefied natural gas); and the encouragement that is being given to the development of renewable energy projects (wind and solar generation) in the Upper Hunter Region. There is recognised potential to expand renewables in the Upper Hunter Region in the medium term. This would be part of an integrated mix of generation capacity comprising coal, gas and renewables, that would be required to meet electricity demand requirements.

The development and use of coal seam gas is of strategic importance. Of the carbon fuels available, gas burns the cleanest (producing less than half the CO_2 emissions of coal) while being one of the cheapest primary energy sources. The use of gas will make a major contribution to reducing CO_2 emissions, while keeping electricity prices affordable.

Several key elements in this process of change are the existing electricity generators and the regional research capability located in the CSIRO Clean Energy Technology Centre and at the University of Newcastle. Regional Development Australia - Hunter (RDA-Hunter) has identified research and development and the investment in renewable energy technologies, as a strategic priority for the broader Hunter Region.

Meeting the growing peak load requirements for electricity will require an energy matrix that comprises a combination of : coal fired generation; gas fired generation; and renewable energy sources.

The NSW Department of Planning is developing a *strategic regional land use policy* for the Upper Hunter Region, which will cover issues including the sustainable development of coal mining and the emerging coal seam gas industry.

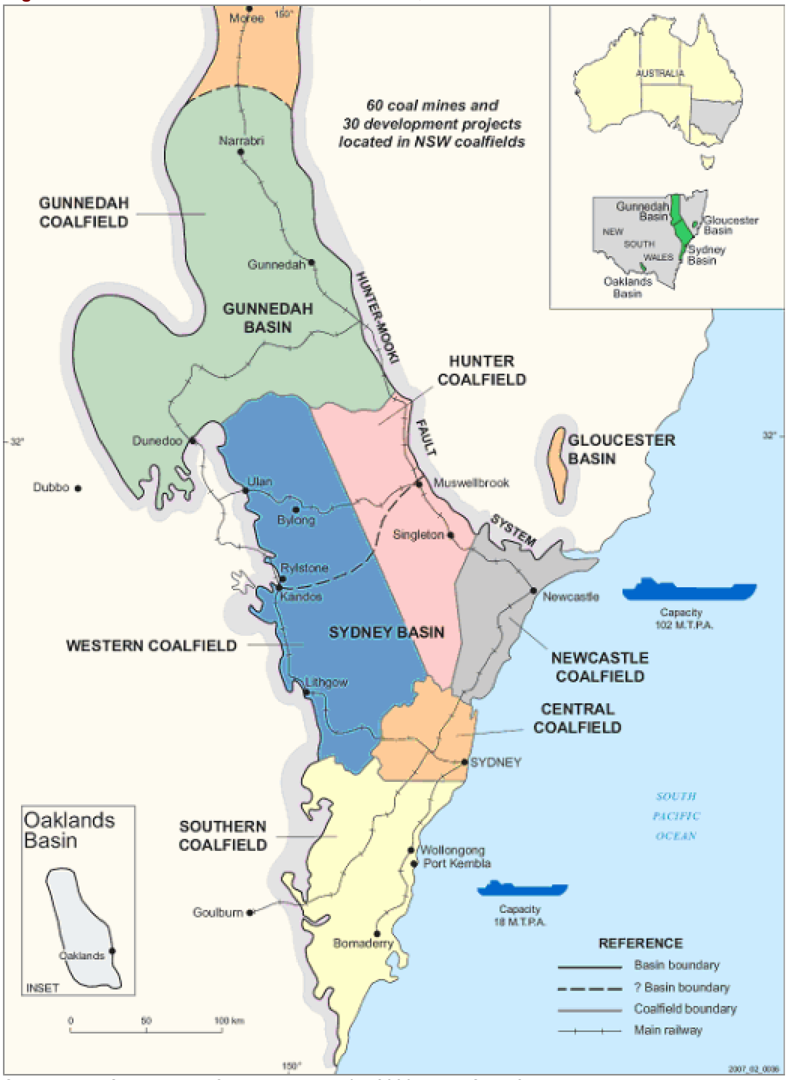
Key issues for the medium to long term future are: continued demand for coal in export markets; the investment in and expansion of gas- fired electricity generation; the development of larger scale renewable energy projects; and the future employment associated with this new energy matrix.

5.2 Coal Mining

5.2.1 Coal Fields in the Upper Hunter

The major coal resources in New South Wales are located in the 500 km long, 150 km wide Sydney-Gunnedah Basin, which stretches from the south of Wollongong to the north of Newcastle, and north-west through Narrabri into Queensland.[31] There are five major coalfields in the Sydney-Gunnedah Basin, with the Hunter Coalfield having the largest reserves.

Figure 11. Location of Coal Reserves, New South Wales



Source: New South Wales Coal Industry Profile 2009, DPI NSW P2

The Hunter Coalfield is the largest producing area in New South Wales and accounts for 4,493 million tonnes or 39% of recoverable coal reserves in NSW. There are significant coal reserves in the Hunter and Gunnedah fields (which are estimated to have a life of 40-50 years).

31 Hunter Investment Prospectus 2009, Hunter Economic Development Corporation (HEDC)

Table 26. Estimated Recoverable Coal Reserves, New South Wales 2008

Coalfield	Reserves (Mt)	Share of Total Reserves %
Hunter	4,493	39.0
Newcastle	1,648	14.3
Gloucester	29	0.3
Southern	786	6.8
Oaklands	1,280	11.1
Western	1,796	15.6
Gunnedah	1,488	12.9
Total NSW	**11,520**	100.0

Source: New South Wales Coal Industry Profile 2009, DPI NSW P3

Around 80% of the coal currently mined in NSW comes from the Hunter Region. Of the saleable coal sourced from this area, around 80% is exported, with the balance mainly being used by the power industry. In 2007/08, an estimated 102 million tonnes of saleable coal (worth around $7.7 billion) was produced in the Hunter (80.44 Mt), Newcastle (18.00 Mt) and Gunnedah (4.03 Mt) coal fields.[32]

Coal is shipped through the Port of Newcastle to major markets including: Japan, Korea, and Taiwan. Export demand levels will remain strong in the medium to long term (as there will continue to be demand from existing and new technology coal fired electricity plants). This long term export future is reflected in the major upgrades in coal loader capacity at the Port of Newcastle and improvements in rail infrastructure.

Similarly within medium to long term horizons, coal will continue to be required to meet NSW's base load electricity supply requirements. This will be progressively supplemented by a matrix of new gas-fired generation capacity (with several major gas pipeline projects underway) and some renewables.

In response to environmental issues, there are a number of joint initiatives (between government, businesses and research organisations), which are focused on reducing emissions, improving efficiency , developing and applying clean coal technologies and making greater use of gas.

5.2.2 Employment in the Coal Sector

Coal mining underpins the broader Hunter Region's economy. The HEDC (now Regional Development Australia-Hunter: RDA Hunter) indicated in its 2009 Report that the sector accounted for around 9000 direct mining jobs and a total of 40,000 indirect jobs (mining support, suppliers and the multiplier impacts of the spending of persons employed in the mining sector and linked industries). This employment extends from the Upper Hunter coalfields and Lower Hunter coalfields into Newcastle.[33]

Major coal operators in the Hunter Region are: Coal & Allied Industries Limited (part of Rio Tinto Group) - Mt Thorley Warkworth, Hunter Valley Operations and Bengalla, Mount Pleasant Project; Xstrata Coal which operates 13 coal mines (including Mt Owen, Ravensworth, Bulga and Beltana, Mangoola, Glendell); Centennial operates underground mines (at Awaba, Mandalong, Myuna, Newstan and Mannering in the Lake Macquarie area); BHP Billiton, operates the Mt Arthur Coal open-cut coal mine near Muswellbrook; Anglo Coal operates Drayton; White Mining Limited (Felix Resources) operates the Ashton Coal Project; and Gloucester Coal Limited has two mining operations (Stratford and Duralie in the Gloucester Basin).[34]

Direct employment in mining comprises a number of occupations: skilled trades, professionals and semi-skilled occupations. Support services to the sector comprise: engineering, manufacturing, transport, construction, OHS services, employment services and research and development. These support services extend right through the Hunter Region and are also located in Newcastle. Some of the engineering support services and other mining support

32 New South Wales Coal Industry Profile 2009 , DPI NSW P9
33 Hunter Investment Prospectus 2009, Hunter Economic Development Corporation (HEDC) P51
34 Hunter Investment Prospectus 2009, Hunter Economic Development Corporation (HEDC) P51

services, which need to be close to the mines, have located in industrial areas in the major Upper Hunter mining centres of Singleton and now Muswellbrook.

Mining activity is a major employment generator in the Upper Hunter Region.

- In 2006 a total of 5,500 mining jobs were in the Upper Hunter Region, with Singleton accounting for 70% of these jobs (3,794) and Muswellbrook for 28% of the jobs in the industry.[35]
- When mining support activities are included then the dominance of mining jobs in the region is highlighted.
- An analysis of industry data shows that in Singleton, an estimated 1583 jobs were involved in mining support activities, taking the total of mining related jobs to 5377 or up to 40% of total jobs in the LGA (in 2006). In the case of Muswellbrook, mining support jobs totalled an estimated 956 and this means that around 31% of jobs in the LGA were mining related (2478 mining jobs and support jobs). In total, the mining related jobs (direct + support jobs) located in the two LGAs totalled an estimated 7855 jobs.
- Based on the increased number of mining jobs in the period since 2006, this would imply the following job numbers in the region. In June 2008, there were an estimated 8,384 mining jobs in the two LGAs, with around 4024 additional jobs in mining support activities. By June 2010 direct mining employment in the Singleton North West Region had increased to 11,179 (around 9500-10,000 in the two Upper Hunter LGAs), with indirect support jobs likely to be over 5000.[36]

This growth in employment in mining sector has been accommodated by some increased recruitment of local residents, but mainly by a major increase in the mobile workforce, who commute from areas in the Lower Hunter (or from further afield and stay in the area during their shift periods). There is major competition for skilled labour in these areas and this is impacting on other industries that cannot pay the wage rates that are offered in mining.

5.2.3 Attitudes to the Mining Sector

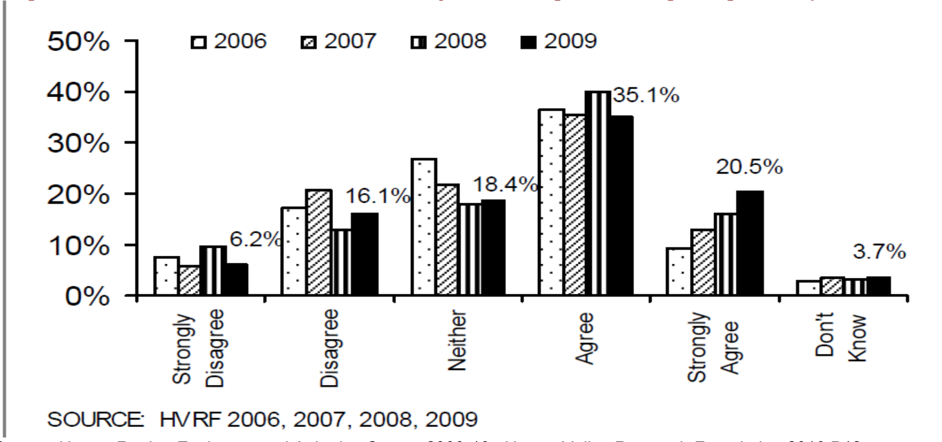
The Hunter Region has a long history in coal mining. With the extension of mining into the Upper Hunter, there are now a significant numbers of residents employed in the mining sector or in linked industries.

There is a strong recognition of the importance of the sector to the broader regional economy. The Hunter Valley Research Foundation has conducted regular research on attitudes to mining. The HVRF 2009 Environmental Survey showed an increase in the share of the community, who believe that: *the benefits to the Hunter Region of the coal industry outweigh the negative impacts* (eg. in 2006 - 46% agreed or agreed strongly with the statement; and in 2009 - 56% agreed or agreed strongly).

35 ABS Census 2006, Working Population Data.

36 Whitehaven Coal employs around 500 persons at two mines in the Narrabri area in the North West. It operates the Sunnyside Mine about 15km west of Gunnedah and the Rocglen mine 25km to Gunnedah's north. Expansion of coal mining is expected in the Caroona and Watermark areas 40km to Gunnedah's south east. BHP Billiton and China's Shenhua Energy have acquired exploration licenses (ELs) and expect to commence mining around 2012 - 2015. Each EL has an estimated coal reserve of about 500 million tonnes each, with both operations expected to be underground long wall mining.

Figure 12. Benefits of the Coal Industry for Our Region Outweigh Negative Impacts -2006-09



Source: Hunter Region Environmental Attitudes Survey 2009-10 Hunter Valley Research Foundation 2010 P12

It is also recognised, that in the Upper Hunter Region, there concerns in the agriculture, equine and wine sectors about issues of competing land use and the loss of agricultural land.

A key issue for the long- term future for the Upper Hunter is the transition to new activities, as mines in the region reach the end of their production.

5.3 Power Generation

5.3.1 Generation Capacity

The power generation industry in the Hunter Region produces around 80% of New South Wales' electricity supply and employs around 2200 people.

Within the Hunter Region (Upper and Lower Hunter Region), four generating companies operate six coal-fired power stations, which are supplying power to the national energy market. [37] Of the saleable coal sourced from the Hunter Region coalfields, around 20% is being consumed primarily by the region's coal-fired power stations.

Macquarie Generation is Australia's largest electricity generator (generating around 40% of New South Wales electricity). It owns and operates the Liddell and Bayswater power stations, located between the towns of Singleton and Muswellbrook. Macquarie Generation is also the largest domestic buyer of Hunter Valley coal and employs around 610 people, most of whom live in the Upper Hunter. The corporation is undertaking a range of developments aimed at: meeting the increasing need for power; making environmental improvements; and developing renewable energy options.[38]

Table 27. Electricity Generation in the Hunter Region

Operator	Power Station	Location	Capacity (MW)	Average Annual Output (GWhs)
Macquarie Generation	Bayswater Power Station	Singleton-Muswellbrook	2640	17000
	Liddell Power Station	Singleton-Muswellbrook	2000	10000
Eraring Energy	Eraring Power Station	Lake Macquarie	2640	17530
Delta Electricity	Vales Point Power Station	Lake Macquarie	1320	Not Available
	Munmorah Power Station	Lake Macquarie	600	Not Available
	Redbank Power Station	20kms from Singleton	151	Not Available

Source: Hunter Investment Prospectus 2009, HEDC P53 HEDC has been replaced by Regional Development Australia – Hunter (RDA Hunter)

37 Hunter Investment Prospectus 2009, Hunter Economic Development Corporation (HEDC)
38 Hunter Investment Prospectus 2009, Hunter Economic Development Corporation (HEDC)

5.3.2 Development Projects

Macquarie Generation sites have seen several major investment projects in recent years. As well as a $50 million water treatment plant upgrade at Bayswater and Liddell Power Stations, Liddell will also undergo a turbine upgrade to provide additional capacity and reduce greenhouse gas emissions. In late 2008 the proposed construction of pipelines to supply methane gas as supplementary fuel to Liddell Power Stations was announced. This project would give Liddell the means to dispose of methane gas thereby reducing the greenhouse gas effect of the coal mining process. Macquarie would have the ability to recycle this gas for further electricity generation, and this would eliminate 41 million tonnes of greenhouse gases by 2020. It would be the first known, large scale implementation of supplementary methane gas fuel in an Australian coal-fired power station. The other developments in the sector are detailed below.

Table 28. Development Projects - Power Generation

Operator	Sites	Investment	Development	Purpose	Stage
Macquarie Generation	Bayswater	$50 m	Water treatment plant upgrade	Improved efficiency and reliability	Announced in October 2006
	Liddell	$100 m	Turbine upgrade	Provide additional capacity and reduce greenhouse gas emissions	Under Development
	Antiene	$100 m	Rail unloading facility	Access to reserves of coal	Construction Commenced
	Liddell		Methane gas supply lines	Reduce greenhouses gas emissions and increase energy output	Announced October 2008
Eraring Energy	Eraring PS		Upgrade all four generating units Cooling water attemperation reservoir	Enhance contribution to supply security for NSW	Seeking Approval
Delta Electricity	Vales Point	$7 m	Water Recycling Scheme	Save 230 million litres of drinking water each year	Under Development
	Munmorah	$5 m	Pilot Carbon Capture Plant	Capture greenhouse gas emissions	Under Development
	Vales Point	$55 m	Installation of fabric filters	Reduce greenhouse gas emissions	Under Development
	Munmorah		New 660 MW capacity gas-fired power station	Increase energy supply	Announced May 2007

Source: Based on information obtained from Hunter Investment Prospectus 2009, Hunter Economic Development Corporation (HEDC) HEDC has been replaced by Regional Development Australia – Hunter (RDA Hunter)

5.3.3 Sale of Energy Assets

The New South Wales Labor Government conducted a sale of energy assets in the second half of 2010, including: the retail arms of energy corporations Energy Australia, Integral Energy and Country Energy; power-station development sites; and the electricity trading rights for nine state-owned power stations. It was announced in December 2010 that the various energy assets are being acquired by two companies: TRUenergy and Origin Energy.

These transactions were completed in March 2011, with the sale of Energy Australia's retail business to TRUenergy and the sale of Integral Energy's and Country Energy's retail businesses to Origin Energy. Origin Energy paid $3 billion for these retail assets and for the electricity trading rights for Eraring Energy. TRUenergy paid $2 billion for Energy Australia, for trading rights for Delta West, and for access to three power station development sites. The new NSW Government has initiated an inquiry into the sale process.

5.4 Gas Projects

Gas is important for power generation and industrial development. Gas produces less than half the CO2 emissions of coal and is one of the cheapest primary energy sources, and will become an increasing component of electricity generation.

Gas has the potential to attract new industries to regional New South Wales and this includes activities like food processing, fertilisers production, chemical production, kiln firing, glass manufacturing and metal production.

There are two major coal seam gas (CSG) projects impacting on the Hunter Region (including the Upper Hunter), and these are: the Eastern Star Gas - Narrabri to Wellington Gas Pipeline and Coolah to Newcastle Gas Pipeline; and the AGL Gloucester Coal Seam Gas (CSG) Project.

From an environment perspective coal seam gas is a relatively ‘clean’ energy source compared to other hydrocarbons, burning much more efficiently than coal or oil and generating approximately 50% less greenhouse emissions than conventional electricity generation. The path of the pipelines through areas of the Upper Hunter open up opportunities for industrial activities, requiring gas and for future gas fired power generation.

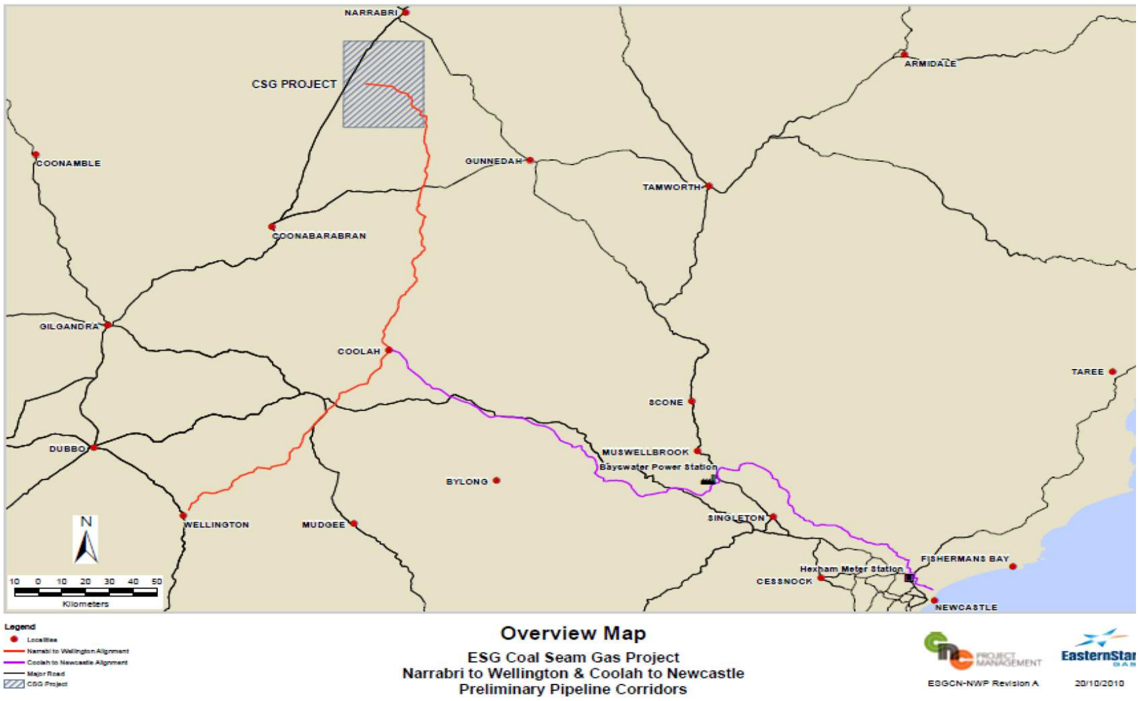
5.4.1 Eastern Star Gas Project

The Eastern Star pipelines will:

- Supply natural gas via a high pressure gas pipeline from the Narrabri Coal Seam Gas Project (NCSGP) to ERM Power’s proposed Wellington Gas Fired Power Station. The joint venture between Eastern Star Gas and Santos Ltd. aims to increase the robustness of the NSW power supply network in response to peak energy demand.
- Supply natural gas via a high pressure gas pipeline from Coolah, via the Bayswater Power Station and Hexham, to its proposed Liquefied Natural Gas (LNG) plant and export facility on Kooragang Island, Newcastle.[39]

The proposed 280km pipeline transects a number of LGAs in sequential order from Coolah: Warrumbungle, Upper Hunter, Muswellbrook, Singleton, Maitland, Port Stephens and Newcastle. The gas fields and new pipeline would be capable of supplying the growing Newcastle and Sydney markets, the Bayswater Power Station and a number of gas fired power generators that are being investigated for the Newcastle/Hunter Region. Gas will also be exported as LNG. It is estimated that the pipeline will employ approximately 150 workers in the construction phase as well as employment in the ongoing maintenance and management of the pipeline and its facilities.

Figure 13. Eastern Star Gas – Coolah to Newcastle Gas Pipeline



Source: Coolah to Newcastle Gas Pipeline Preliminary Environmental Assessment, November 2010 CNC Project Management

39 Coolah to Newcastle Gas Pipeline Preliminary Environmental Assessment, November 2010 CNC Project Management

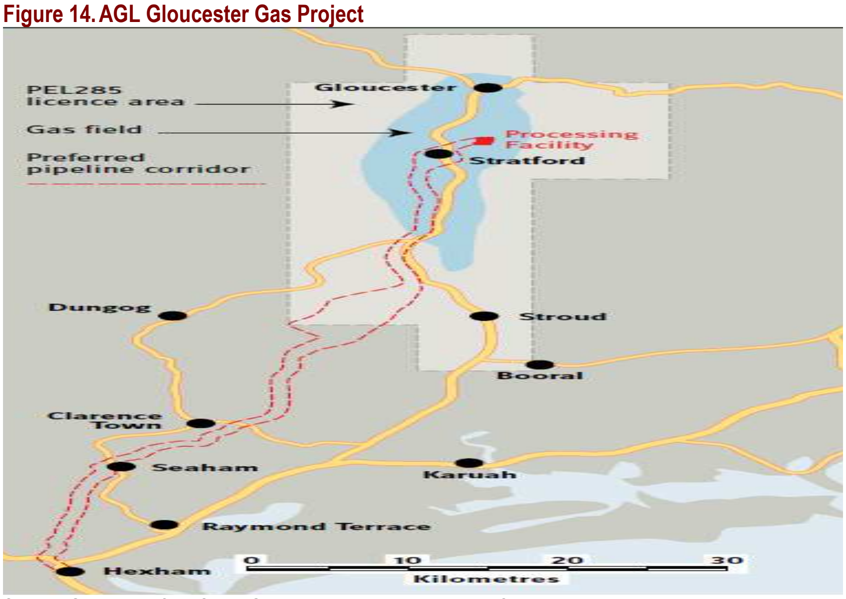
5.4.2 AGL Gas Project

The Gloucester Coal Seam Gas (CSG) Project involves the development of coal seam gas in the Gloucester area. The project includes: the installation of gas wells; the construction of a central processing facility; and the construction of a high-pressure pipeline to transport the gas. The project is being implemented by AGL, which also has other gas projects in the Hunter Region, Central Coast Region and the Sydney Region. The gas will supply a growing market in Sydney and Newcastle and the Hunter Region.[40] Gas from Gloucester will be delivered into the existing New South Wales gas market through the pipeline connection into the existing Newcastle/Sydney gas network at Hexham.

Pilot drilling of wells, testing and exploration has been undertaken since 2008. The central gas processing facility is adjacent to the Gloucester Coal processing plant at Stratford and will be part of the Stratford Industrial Park. Permanent employment is estimated by AGL at 30-40 ongoing jobs, when the project is operational. There are also current contractor jobs associated with exploration and pilot testing, and there will be jobs associated with the construction of the gas plant and the pipelines.[41]

Availability of gas opens up opportunities in the Gloucester area, including a small scale gas fired power station at the site.

Figure 14. AGL Gloucester Gas Project



Source: Gloucester Coal Seam Gas Project Factsheet - Project Overview

40 CSG is a relatively 'clean' energy source compared to other hydrocarbons, burning much more efficiently than coal or oil and generating approximately 40% less greenhouse emissions than conventional electricity generation. Gloucester Coal Seam Gas Project Factsheet – Project Overview; Gloucester Coal Seam Gas Project Factsheet – Frequently Asked Questions.

41 Gloucester Gas Project – Environmental Assessment. November 2009. Volume 1. Main Report. AECOM, P20-7 (P391).

5.4.3 Hunter Region Energy Projects

The response to environmental challenges has seen investment in energy efficiency; development of renewables (wind and solar); extension of gas fired generation; carbon capture; clean coal projects; biomass; and geo-thermal options in the Hunter Region.

Newcastle is home to CSIRO's Energy Centre, which has a research focus on sustainable energy: the environmental impacts of energy; and fossil fuel research and development. The University of Newcastle also has a specialisation in energy research. This research capability provides a regional strength in alternative energy research and in energy efficiency improvements.

Table 29. Energy Projects in the Upper Hunter Region

Energy Source	Operator	Site	Development	Stage
Geothermal	Geodynamics Ltd	Muswellbrook/Bulga	Geothermal Energy Plant	Investigation Stage
Solar	Macquarie Generation in association with Solar Heat and Power	Liddell Power Station	Integration of solar technology with a coal-fired power station	Under Development
Solar research	Australian Solar Institute	Newcastle	$ 100 million institute to be based at CSIRO's Newcastle facility.	In Service
Biomass	Macquarie Generation	Liddell Power Station	Biomass co-firing program	In service
	Delta Electricity	Vales Point Power Station	Biomass co-firing program	In service
Hydro	Macquarie Generation	Servicing Liddell and Bayswater Power Stations	Hydroelectric Generator	In service
	Delta Electricity	Chichester Dam	Hydroelectric Generator	In service
		Dungog Water Treatment Plant	Hydroelectric Generator	In service
Kyoto Energy Park (near Scone)	Pamada	Scone	Construction and operation of a renewable energy generating facility with a total generating capacity of up to 137 megawatts and associated infrastructure, including the following components: 42 wind turbines with a total generating capacity of up to 126 megawatts; 3-10 megawatt capacity solar photovoltaic array; 1 megawatt closed loop hydro plant. Includes a visitors centre.	Project Approved
Wind	Renewable Energy Precinct	LGAs of Upper Hunter, Dungog, and Warrumbungle part of the Upper Hunter Precinct	One of six Renewable Energy Precincts	Projects under investigation

Source: Based on information obtained from Hunter Investment Prospectus 2009, Hunter Economic Development Corporation (HEDC)

5.4.4 Renewable Energy in the Upper Hunter

The NSW Government has taken action in response to the national renewable energy target (RET) of 20% by 2020. It is expected that initially most of the renewable energy supply will be met by the expansion of wind energy sites. A major focus has been on fast tracking renewable energy projects.

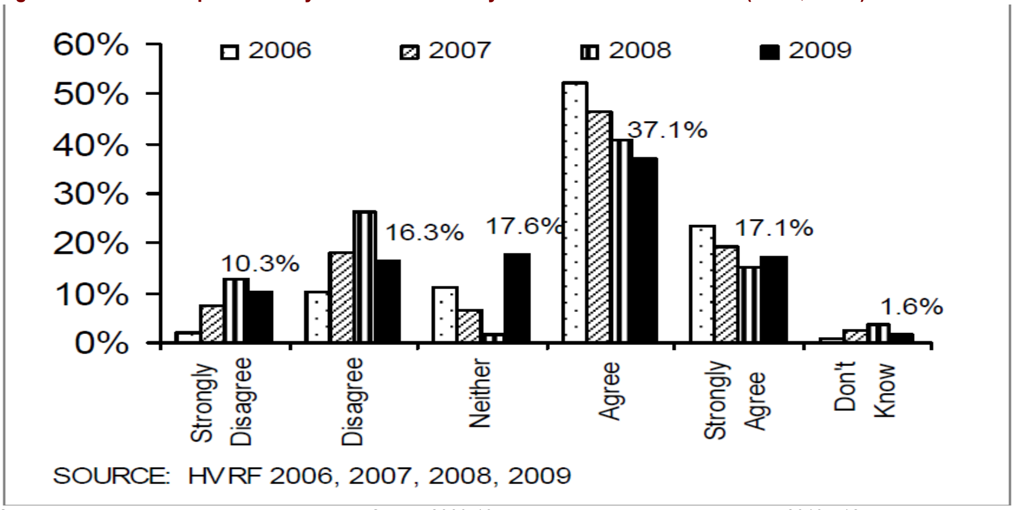
The *Renewable Energy Development Program* under the NSW Climate Change Fund provides $40 million over five years to support projects which are expected to lead to large scale greenhouse gas emission savings in NSW by: demonstrating renewable energy technologies in NSW; and supporting the early commercialisation of renewable energy technologies in NSW. The program supports energy sourced from hydro, wind, solar, wave,

The Climate Institute has recently release several reports.[42] The Institute's *Clean Energy Jobs in Regional Australia* report suggests that around 34,000 jobs could be created across regional Australia by 2030 if a price is put on carbon and if a range of clean energy policies are implemented. The report also suggests that by 2030 around 43% of Australia's electricity could be produced from clean energy, up from about 12% currently.
Parts of the Upper Hunter Region comprise one of the NSW Government's six *Renewable Energy Precincts*. The recent report for the Upper Hunter Region (Upper Hunter Shire; Warrumbungle and Dungog), indicates that the region has relatively large renewable energy resource covering: wind with 880 mw planned for development (in five commercial scale projects) and with potential for another 1000mw. The region is also seen as having potential for large-scale solar, bio-energy and geothermal energy production.[43]

Newcastle is the major location for the Smart-Grid Smart-City project. In addition Scone and Muswellbrook have been included as a location for trials (to run from 2011-2013), which will create infrastructure and enable renewable opportunities for the region to be assessed.[44]

The Hunter Valley Research Foundation's 2009/10 survey shows the levels of regional support for *"green power",* although these levels have declined since 2006. In 2009, just over half of the community either agreed (37%) or strongly agreed (17%) that they would be prepared to pay more for electricity if it was generated from renewable sources, such as solar or wind. However the shares of the population, which is prepared to pay more has declined in the period since 2006.

Figure 15. Prepared to Pay More for Electricity from Renewable Sources (Wind, Solar) 2006-09



Source: Hunter Region Environmental Attitudes Survey 2009-10, Hunter Valley Research Foundation 2010 P12

42 *Clean Energy Jobs in Regional Australia, The* Climate Institute February 2011; Clean Energy Jobs in Regional NSW - Upper Hunter Snapshot , The Climate Institute February 2011
43 Clean Energy Jobs in Regional NSW - Upper Hunter Snapshot , The Climate Institute February 2011 P2
44 Energy Australia, which is based in the Hunter Region successfully bid for the $100 million Australian Government *Smart Grid, Smart City* program. The program is expected to deliver Australia-wide advances in energy efficiency. The main demonstration site is Newcastle and trials are being conducted in Scone, Muswellbrook, Homebush, Kuring-Gai and Sydney CBD.. *Smart Grid, Smart City* involves the use of smart technologies across existing grids to better deliver consumer information on energy use and costs to allow residents to manage their energy use.

The Climate Institute Report identifies a number of projects in the Upper Hunter Region.

Table 30. Commercial Scale Renewable Energy Projects in the Upper Hunter Precinct

Status	Owner	Technology	Location	Size MW
Committed (approved or proposed)	Pamada	Wind	Kyoto Energy Park	86
	GHG & GREP	Wind	Murrurundi	35
	Epuron	Wind	Coolah	400
	Wind Lab	Wind	Coolah	110
	Wind Prospect	Wind	Not specified	250
	Private land holder group	Wind	Coolah	Not specified
Additional inferred capacity		Wind		1000
		Geothermal		Unknown – further assessment needed
		Bio-energy		Unknown – further assessment needed
		Large and Medium Scale Solar		Unknown – further assessment needed

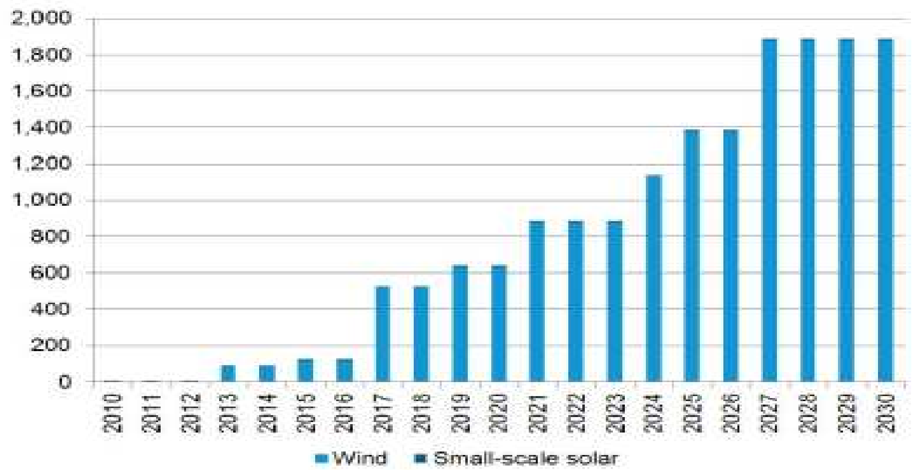
Source: Clean Energy Jobs in Regional NSW - Upper Hunter Snapshot, The Climate Institute, February 2011 P2

A key issue is the potential for commercial development of these renewable projects and the timing of this development. The consultant's reports (E&Y) indicated that not all opportunities may be taken up in the medium term due to relative costs and to other areas being more competitive for energy projects.

It also needs to be recognised that the future generation capacity would be a matrix of: new technology coal fired generation; gas fired generation; and renewables.

Development would require *an aggressive strategy* to develop the estimated 1800MW of wind capacity between now and 2030. To assess the impacts, the Climate Institute developed a hypothetical *'enhanced scenario'* for renewable energy development in the Upper Hunter precinct between now and 2030. This assumed that the region's full renewable energy resource can be developed over the next 20 years.[45]

Figure 16. Projected Renewable Energy Development in the Upper Hunter (Enhanced Renewables Scenario) – MW



Source: Clean Energy Jobs in Regional NSW - Upper Hunter Snapshot, The Climate Institute, February 2011

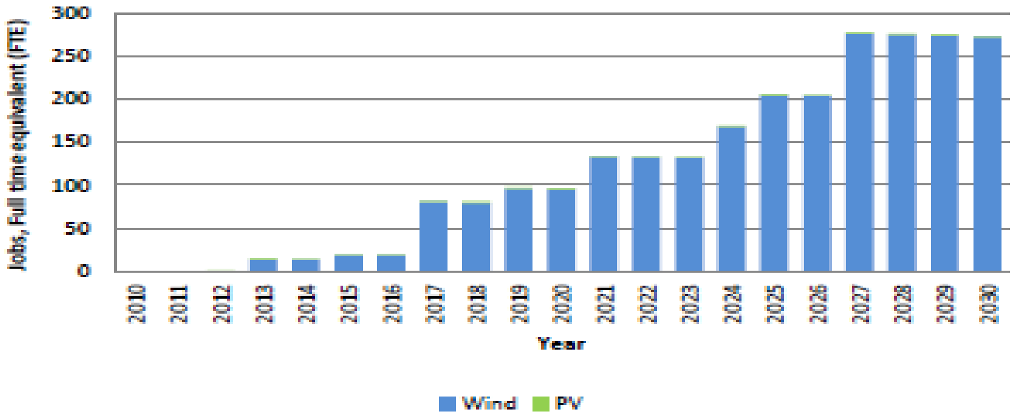
This scenario was assessed by Ernst & Young in its *Roadmap Report.*[46] While major components of wind turbines and solar panels are imported, there are a number of local requirements in terms of installation and construction, operations and maintenance.[47] The development was seen as creating new opportunities in operations and maintenance jobs, and

45 Clean Energy Jobs in Regional NSW - Upper Hunter Snapshot , The Climate Institute February 2011 P3
46 Clean Energy Jobs in Regional NSW: A Roadmap for the Upper Hunter, Ernst & Young January 2011 (study funded by NSW Department of Environment, Climate Change and Water)
47 Clean Energy Jobs in Regional NSW: A Roadmap for the Upper Hunter, Ernst & Young P7

in support jobs during the construction and installation phase. Some potential for the region to support new manufacturing jobs in the clean energy sectors was seen as a possibility.

The full scenario is seen as creating around 100 permanent jobs by 2020 and over 270 by 2030 (these comprise mainly engineers, electricians, technicians and other workers). A maximum of around 550 construction jobs could be created peaking in 2015-16 and 2023-2026. The majority of these jobs will require electricians, technicians, general labourers and engineers.[48] Potential competition from the mining sector for labour was identified as an issue, because of the high wage rates in the mining sector.

Figure 17. Operational & Maintenance Employment (Enhanced Renewables Scenario) Upper Hunter Precinct.



Source: Clean Energy Jobs in Regional NSW: A Roadmap for the Upper Hunter, Ernst & Young January 2011 P9

Other opportunities in the renewables supply chain include: components for solar panel installations and wind farms (however limits were seen on the capacity to attract this due to the engineering capacity in the Lower Hunter); research and development; specialist consultancies; and education and training.

Other potential renewable opportunities identified in the E&Y report include: on site generation for commercial farms in the region, which use a significant amount of electricity (eg. for pumping activities); opportunities for small to mid-scale electricity generating facilities (eg. wind turbines and bio-energy production from farm wastes); and the potential for distributed generation (eg. co-and tri-generation and bio-energy from waste).[49]

A number of areas for further research were identified by E&Y and these included: primary research into the quality of the renewable resource in the precinct (wind/solar/geothermal/biomass mapping); analysis and comparison of different renewable technologies (including smaller scale distributed generation); modelling of the full renewables potential; and reviewing the future workforce, skills pathways, skill requirements and training needs.[50]

In summary, the key energy sector issues for the future are: the application of clean coal technologies; the expansion of gas fired generation; the development of renewable energy projects; the configuration of coal, gas and renewables in an electricity generation matrix; and the future employment associated with these energy sources.

48 Clean Energy Jobs in Regional NSW: A Roadmap for the Upper Hunter, Ernst & Young P1
49 Clean Energy Jobs in Regional NSW: A Roadmap for the Upper Hunter, Ernst & Young January 2011 P6
50 Clean Energy Jobs in Regional NSW: A Roadmap for the Upper Hunter, Ernst & Young January 2011 P27

6 Key Industry Sectors

6.1 Agricultural Industries

6.1.1 Overview

The major agricultural sectors in the Upper Hunter Region are: beef, equine, dairy, poultry and wine. Taken together, these sectors account for in excess of $400 million in annual production and employ over 5,000 persons or 13% of the regional workforce.[51]

Table 31. Overview of Agriculture – Upper Hunter Region

Upper Hunter Region Industry	Estimates Output Value	Estimates Employment	
Agriculture			
Equine Industry	$100 million (industry revenue)	886 < direct>	2009 Estimates
Agriculture(other) mainly beef, dairy and some crops(not including fish)	$248 million (farm gate value of production)	3753 <direct and support.	2009 Estimates
Wine (and grapes)	$50-60 million (revenue)	400 <direct>	2009 Estimates

Source: Buchan Consulting Estimates based on analysis of ABS data and industry data

The broader Hunter Region has traditionally been an important agricultural region, with production in wheat, sorghum, barley and other grain cereals, vegetables, grapes, olives, sheep, cattle, pigs, horses, poultry, eggs and milk. Agricultural output from the total Hunter Region has been estimated at around $1 billion per year.[52] Along with the traditional areas of agriculture, some niche businesses have emerged and these include: exotic stud cattle, native and fresh flowers, herbs, chillies, essential oils, viticulture, and Asian vegetables.[53] Some of these operators are developing export markets for their products.

Table 32. Value of Agricultural Production Upper Hunter Region 2006

	Cluster 1			Cluster 2		Cluster 3	
Agriculture	Singleton	Muswellbrook	Upper Hunter	Dungog	Gloucester	Great Lakes	Total UH
Total gross value of agricultural production 2006 $M <Excludes equine and wine and fish>	37.1	34.0	71.6	41.7	23.8	39.9	248.1
Area of agric. Land 2006, ha'000	156	122	647	123	152	73	1 273

Source: Buchan Consulting Estimates based on analysis of ABS data

The main supply of water into the Hunter Catchment comes from coastal catchments supplemented by the Goulburn River catchment to the west, and the region is generally seen as having good security of water supply.[54]

The recent industrial hemp study provides some important observations about irrigated water in the region. In the Upper Hunter there is greater usage of available water, but still a high proportion of licenses are not fully utilised or not used at all (State Water estimates 60% of licenses are active).[55] The majority of irrigation water is used for growing pastures (dairying, horse studs), lucerne for hay production, for limited cropping (eg. maize for silage/dairying) and for smaller areas of other crops (eg. vegetables, vines, turf) in the region. Some pastures are irrigated for beef cattle production, but this is not economic at current beef returns. A considerable amount of water rights are held by mining companies having been part of farm purchases of '*buffer land'*. Some of this water has been made available to lessees of the land and in other cases is kept as reserves for potential use at mine sites.[56]

The study notes that soils suitable for regular crop cultivation are generally alluvial soils and those with a basaltic influence, which occur more toward western zones of the Hunter Valley (eg. Scone, Merriwa & Murrurundi) and high quality alluvial soils occur along the Hunter River,

51 This includes fisheries and aquaculture, agribusiness support and food processing.
52 In 2005-06, livestock numbers for the Hunter Region included 262,399 sheep, 4,203,615 chickens for meat, 1,002,882 laying chickens, 266,246 turkeys, 447,371 meat cattle, 49,060 dairy cattle, 7,654 goats and 3,475 pigs.
53 Brands include, Hunter Belle Cheese at Muswellbrook,- a producer of high-quality gourmet cheeses ; and the Gloucester Gourmet Foods Co-operative, markets high-quality beef grown in the Dungog/Gloucester area under the Barrington Beef label
54 Crops for Hunter - Feasibility of Growing Industrial Hemp in the Hunter Valley, Neil Nelson Agvice Pty Ltd, September 2010, P20.
55 Crops for Hunter - Feasibility of Growing Industrial Hemp in the Hunter Valley, Neil Nelson Agvice Pty Ltd, September 2010, P20.
56 Crops for Hunter - Feasibility of Growing Industrial Hemp in the Hunter Valley, Neil Nelson Agvice Pty Ltd, September 2010, P20-21.

Pages River, Goulburn River, Paterson River and Williams Rivers and major tributaries.[57] The following table shows employment in each sector in the Upper Hunter Region.

- Equine industry - is concentrated in Upper Hunter LGA (around Scone) and in Muswellbrook (and Singleton) and employs almost 900 ongoing employees. When support activities and seasonal employment are taken into account, the equine industry is one of the main growth sectors in the area. The sector has continued to expand, with substantial investment occurring in properties in the region, which has been estimated at around $1 billion over the last 10 years.
- Beef - the major concentrations are in Upper Hunter LGA, Gloucester, Dungog with properties also located in the other LGAs. The beef industry is centred on Scone, Muswellbrook, Merriwa, Singleton, Maitland, Dungog and Gloucester.
- Dairy - the sector has undergone major restructuring over the last decade, with falls in the number of dairy farmers, but holdings and herds are much larger due to consolidation among those continuing to operate. Most of the dairy activity is now centred on Dungog and Gloucester.
- The lamb industry is in Upper Hunter LGA, and mainly located around Merriwa and Murrurundi.
- Forestry and timber is now concentrated in Great Lakes, with Dungog and Gloucester being affected by closure of timber milling operations in recent years.
- Wine - the wine sector is mainly focused in the areas around Singleton and Muswellbrook, with some smaller operations located in the other LGAs.
- Other agriculture - there is some production grains (mainly in Upper Hunter LGA), and some flower production across the LGAs. Vegetable production is concentrated around Singleton, however there have been initiatives in Upper Hunter LGA, Singleton and Gloucester to develop this production.
- Fisheries are located at Great Lakes (both offshore commercial fishing and aquaculture).
- Poultry and egg production is concentrated in Great Lakes and Dungog.

While the latest local area employment data is for 2006, and there will have been some declines in employment in several sectors since then, this data provides an indication of the overall structure and scale of agriculture and its location across the Upper Hunter Region.

57 Crops for Hunter - Feasibility of Growing Industrial Hemp in the Hunter Valley, Neil Nelson Agvice Pty Ltd, September 2010, P10.

Table 33. Upper Hunter Region Residents Employed in Agribusiness 2006 (Persons)

Sector/LGA	Singleton		Muswellbrook		Upper Hunter		Dungog		Gloucester		Great Lakes		Total – Upper Hunter Region	
	no	%	no	%	no	%	no	%	no	%	no	%	no	%
Agribusiness														
Beef	190	23.1	166	17.7	456	26.4	211	35.2	246	55.2	160	19.6	1265	25.1
Sheep	7	0.8	11	1.2	201	11.6	4	0.7	6	1.3	0	0.0	223	4.4
Dairy	112	13.6	81	8.6	43	2.5	121	20.2	69	15.5	37	4.5	416	8.3
Other Livestock	5	0.6	6	0.6	3	0.2	4	0.7	0	0.0	6	0.7	24	0.5
Equine	58	7.0	274	29.2	490	28.3	32	5.3	8	1.8	24	2.9	886	17.6
Poultry	5	0.6	23	2.4	9	0.5	52	8.7	3	0.7	67	8.2	156	3.1
Wine	160	19.4	171	18.2	44	2.5	15	2.5	3	0.7	10	1.2	400	7.9
Fruit & Vegetables	58	7.0	6	0.6	12	0.7	13	2.2	3	0.7	18	2.2	107	2.1
Grains	20	2.4	22	2.3	71	4.1	4	0.7	0	0.0	12	1.5	129	2.6
Flowers	14	1.7	10	1.1	3	0.2	10	1.7	6	1.3	17	2.1	60	1.2
Forestry & Timber	9	1.1	3	0.3	3	0.2	39	6.5	50	11.2	124	15.2	184	3.7
Fishing & Aquaculture	0	0.0	0	0.0	3	0.2	0	0.0	4	0.9	216	26.5	219	4.3
Other Agriculture	17	2.1	31	3.3	39	2.3	19	3.2	3	0.7	21	2.6	127	2.5
Agriculture Support	74	9.0	90	9.6	93	5.4	36	6.0	23	5.2	21	2.6	317	6.3
Food Processing	95	11.5	45	4.8	259	15.0	39	6.5	22	4.9	82	10.1	526	10.4
Total Agribusiness	**824**	**100.0**	**939**	**100.0**	**1729**	**100.0**	**599**	**100.0**	**446**	**100.0**	**815**	**100.0**	**5039**	**100.0**

Source: Buchan Consulting Analysis of ABS Census 2006, Resident Population Data

6.1.2 Equine Industry

The equine industry is a major activity in the Upper Hunter and is centred on Scone in the Upper Hunter LGA and extends into the Muswellbrook, Murrurundi and Singleton areas (and there are some operations in Dungog). The industry produces racing thoroughbreds, quarter horses and stock horses. The Upper Hunter produces around 70% of Australia's thoroughbred foals and accounts for over $100 million in yearling sales annually. With the continued growth, the area is now recognised as the second largest thoroughbred nursery outside of Kentucky in the USA.

Investment in the sector has been estimated at $1 billion, over the last decade. For example the Woodlands Stud at Denman was acquires for $460 million in 2008 to become part of the Darley global breeding operation. There are now around 65 studs located in the area and these include Alabama Stud (Aberdeen), Arrowfield (Scone), Coolmore Stud (Jerrys Plains), Craidon Park Stud (Wybong), Darley (Denman and Aberdeen), Emirates Park (Murrurundi), Widden Stud (Denman) and Yarraman Park (Scone).

The following table shows ABS data on the number of residents directly employed in equine activities. This data does not include persons employed in support activities and seasonal employment.

Table 34. Upper Hunter Region Residents Employed in Equine Industry 2006 (Persons)

Equine Industry LGAs	Singleton	Muswellbrook	Upper Hunter	Dungog	Gloucester	Great Lakes	Total UH Region
Horse Farming	36	209	362	15	3	3	628
Horse Racing Administration and Track Activities	0	3	3	0	0	0	6
Other Horse Racing Activities	4	30	59	0	0	3	96
Total Equine	**40**	**242**	**424**	**15**	**3**	**6**	**730**

Source: Buchan Consulting Analysis of ABS Census 2006, Resident Population Data

The support infrastructure for the sector includes: training and racing facilities; the Hunter Valley Equine Research Centre at Scone; equine-related education facilities as part of Hunter Institute of TAFE; and a specialist veterinary hospital complex. Data in a 2006 industry study by the Hunter Valley Research Foundation indicated that the industry employed more than 900 full-time, part-time and casual employees (with around 60% of employees living on the properties).There are strong industry linkages through supply chains covering: feed, veterinary services, machinery and equipment maintenance, farrier, fuel, transport and fertilisers.[58]

More recent information from the *Hunter Valley Thoroughbred Horsebreeders Association* indicates that there are now 77 thoroughbred stud farms located in the Hunter Valley. Direct employment on the 77 Hunter Valley thoroughbred studs has increased from 560 in 2000 to 1065 in 2006. Other employment is linked to the sector and covers growers of lucerne, horse transport, equipment providers and maintenance services. The sector is an export industry with 60% of studs selling to overseas buyers.[59]

The sector has major continuing concerns about the expansion of mining activity and issued a major policy statement in 2007, which expressed concern about the impact of mining on: the equine industry; on other agriculture (including wine); and on the associated tourism activities. The statement expressed concern about the scale of proposed expansion of new coal mines in the Upper Hunter and its impacts on prime agricultural land and investment in agriculture in the region. The statement indicated that balanced development is needed to maintain the economic and social diversity and ecological sustainability in the Hunter Region.

6.1.3 Beef Industry

Beef cattle production remains a major agricultural industry in the Upper Hunter Region (and in the Mid North Coast). Many of the beef cattle holdings in the Hunter Region tend to be smaller as a result of rural subdivision, the higher cost of land and the popularity of cattle for owners of small, rural lifestyle lots.

Beef production in the Hunter Valley Region has a number of different production systems due to the region's diverse topography and variations in both rainfall and soil type.[60] Production systems range from large-scale breeding operations for the production of store cattle, through to smaller properties focused on finished cattle production, based on irrigated alluvial river and creek flats. The sector also supports a number of farm support businesses in the region.

The major concentrations of beef properties are around Scone, Muswellbrook, Singleton, Dungog and Gloucester. Consultations with the beef cattle sector indicate that while there are still a significant number of small scale producers in the region, the majority of producers now average 200 head of cattle, and there are now a number of larger producers with herd sizes of 600-700 head.

The major assets of the region are land quality, rainfall and the existing operations and a reputation as a clean green area; and proximity to the Newcastle market and metropolitan markets. There have been some efforts to develop regional brands (eg. *Barrington Beef* brand in Gloucester). The current market situation of the industry includes: squeezes on margins with input cost rising and beef prices not increasing to the same extent; and market fluctuations in demand and price.

The following table shows the number of residents employed in beef farming (and joint activities) in the Upper Hunter Region. It also includes the numbers of persons employed in related processing activities.

58 Hunter Investment Prospectus 2009, Hunter Economic Development Corporation (HEDC) P62

59 Hunter Valley Thoroughbred Horsebreeders Association Statement on Mining 2007.

60 Recent beef production and management system trends in NSW, Lloyd Davies, NSW Department of Primary Industries, Released/reviewed: 23 Jan 2006, http://www.dpi.nsw.gov.au/agriculture/farm-business/budgets/livestock/beef/info/production-trends, accessed 24 June 2010

Table 35. Upper Hunter Region Residents Employed in Beef Industry 2006 (Persons)

Beef Industry LGAs	Singleton	Muswellbrook	Upper Hunter	Dungog	Gloucester	Great Lakes	Total UH Region
Beef Farming							
Beef Cattle Farming (Specialised)	190	166	453	211	246	160	1,262
Beef Cattle Feedlots (Specialised)	0	0	3	0	0	0	3
Sheep, Beef Cattle and Grain Farming, nfd	0	0	3	0	3	0	3
Sheep-Beef Cattle Farming	4	6	149	0	3	0	159
Grain-Sheep or Grain-Beef Cattle Farming	3	8	36	0	0	3	50
Total Beef Farming	**197**	**180**	**644**	**211**	**252**	**163**	**1477**
Related Activities							
Leather Tanning, Fur Dressing and Leather Product Manufacturing	3	9	39	0	0	0	51
Meat Processing	40	13	88	6	0	6	150
Cured Meat and Small goods Manufacturing	0	19	113	3	0	0	135
Total Beef Related Industry	**43**	**41**	**240**	**9**	**0**	**6**	**336**

Source: Buchan Consulting Analysis of ABS Census 2006, Resident Population Data

6.1.4 Dairy Industry

The Upper Hunter Region has a history in the dairy sector. Deregulation during the 1990's has resulted in a major decline in the number of operators and the consolidation into much larger holdings and herd sizes. There are some limitations on further consolidation due to constraints on land availability (due to the growth in mining leases and lifestyle blocks/hobby farms). There is a squeeze on margins due to the combination of static milk prices and continuing increases in input costs.

At a national level, Australia's dairy industry had a farm gate value of $4.0 billion in 2008/09 and ranks third behind the beef and wheat industries. Dairy ranks fourth in agricultural exports (with exports of $2.9 billion). It is estimated that approximately 40,000 people are directly employed on dairy farms and manufacturing plants. The number of dairy farms has halved over the past two decades to 7,920 in 2009. This is also reflected in herd sizes which have increased from an average herd size of 85 cows in 1980 to over 200 in 2008/09. A 2008 survey showed that 8% of farms had herd sizes above 500 cows and these accounted for 25% of total Australian production.[61] Improvements in genetics, pasture management and supplementary feeding regimes have seen yield per cow double from 2,850 litres a year to around 5,750 litres over the last 30 years. The combination of increased yields per cow and large herd sizes has seen the average annual milk production per farm increase from 247,000 litres to 1,185,000 litres over this period.[62]

In 2008/09 there were 860 registered dairy farms in New South Wales down from 2220 in 1988/90. All States have a dairy sector supplying drinking milk or milk for manufacturing. The New South Wales dairy sector supplies 65% of its milk to the drinking milk market, while the Victorian dairy producers supply 92% of their production to the manufacturing market. The overall national industry split is 24% in drinking milk and 76% in manufactured products (eg. cheese, dairy spreads and yogurt).[63]

The Southern and Central NSW Region has a significant and diverse industry servicing the regional fresh milk and dairy products markets. Milk processors have a preference for reliable local supply to maximise shelf-life and for minimising transport costs. The dairy industry in the Southern and Central NSW Region employs around 1050 persons in 580 farms. The average size of a holding in the region is now 316 cows on an average 140 ha. Regional milk production was an estimated 590-600 million litres of milk in 2008/09 (representing around 6% of national milk output), and the estimated value of farm milk production in the region in 2007/08 was $285 million.[64] There were an estimated 1475 persons employed in the processing sector in the region.

61 Dairy 2010 Situation and Outlook, Dairy Australia, May 2010 P11
62 Dairy 2010 Situation and Outlook, Dairy Australia, May 2010 P11
63 Imports account for 22% of domestic cheese consumption and 15% of domestic butter consumption in 2008/09
64 Dairy in Southern & Central NSW, Regional Profile from Dairy 2009: Situation and Outlook, Dairy NSW P2

There are a number of factors affecting the industry and these include: water availability; rising land prices which impact on expansion; and lifestyle properties and hobby farms encroaching on dairy regions. Other factors include low growth in the drinking milk market; competition between dairy manufacturers for supply; retail level competition from house brands (and the new milk discounting by the major supermarket chains) is affecting manufacturing margins and this is being reflected in contract prices and supply volumes. These market pressures and price volatility impact significantly on younger farmers who have less equity in their farms.[65]
The following table shows the number of Upper Hunter Region residents employed in dairy farming and dairy related activities. The dairy sector accounts for around 8% of persons employed in agribusiness in the region.

Table 36. Upper Hunter Region Residents Employed in Dairy Industry 2006 (Persons)

Dairy LGAs	Singleton	Muswellbrook	Upper Hunter	Dungog	Gloucester	Great Lakes	Total UH Region
Dairy Cattle Farming	109	75	40	118	66	33	397
Milk and Cream Processing	0	3	0	0	0	3	6
Cheese and Other Dairy Product Manufacturing	0	3	0	3	3	0	6
Dairy Produce Wholesaling	3	6	3	3	3	4	19
Total	**112**	**87**	**43**	**124**	**72**	**40**	**428**

Source: Buchan Consulting Analysis of ABS Census 2006, Resident Population Data

6.1.5 Wine Industry

The Hunter Valley is one of Australia's major wine producing regions, with around 4,500 hectares of vineyards. In the Lower Hunter the wine sector is centred on Pokolbin, near Cessnock, and in the Upper Hunter is mainly located in the local government areas of Singleton and Muswellbrook.[66] In all there are over 100 wineries located in the Hunter Region, with around half of these in the Upper Hunter Region (mainly in the Singleton and Muswellbrook LGAs).

Many of the larger labels have been traditionally based in the Hunter Region including: Tyrrell's, McWilliams, Lindemans, McGuigan, Draytons, Brokenwood, Wyndham Estate and Hope Estate. There has been a clustering of smaller wineries and these clusters include: the Broke - Fordwich Wine Region vineyards group; and in the Upper Hunter, a cluster centred on the Denman. There are also some wineries in other LGAs including Gloucester, Great Lakes and Dungog.

The farm gate value of wine and grape production from the Upper Hunter Region was estimated at $45-55 million in 2009.[67] Wine tourism is important to the wine sector in the region. This is evidenced by the extent of cellar door sales, with the overall viability of many vineyards and wineries being based on these visitors. The following table shows the number of residents employed in the wine sector. There is also a significant seasonal labour force employed in the sector at harvest and at other peak times.

Table 37. Upper Hunter Residents Employed in Wine Industry 2006 (Persons)

Wine Industry LGAs	Singleton	Muswellbrook	Upper Hunter LGA	Dungog	Gloucester	Great Lakes	Total UH Region
Grape Growing	63	54	11	4	3	4	136
Wine and Other Alcoholic Beverage Manufacturing	91	117	30	7	0	6	251
Total Wine	**154**	**171**	**41**	**11**	**3**	**10**	**387**

Source: Buchan Consulting Analysis of ABS Census 2006, Resident Population Data

65 Dairy in Southern & Central NSW, Regional Profile from Dairy 2009: Situation and Outlook, Dairy NSW P3
66 The Hunter Region Wine Industry: 2003-04 Estimates of Grape and Wine Production the Value of the Industry to the Regional Economy", Hunter Valley Research Foundation 2005.
67 Buchan Consulting Estimates based on analysis of ABS data and industry data.

6.1.6 Poultry Industry

The Australian poultry industry is divided into several sectors: chicken meat; egg production; and turkey and game bird production (smaller scale). The poultry industry is located mainly in rural-urban fringe areas which provide access to markets and labour. The Australian poultry meat and egg industries are heavily oriented toward the domestic market, with less than 3 % of the poultry meat produced being exported.[68]

The chicken meat industry is predominantly vertically integrated with individual companies owning almost all aspects of production (eg. breeding farms, multiplication farms, hatcheries, feed mills, some broiler growing farms, and processing plants). Two large integrated national companies supply more than 70% of Australia's broiler chickens - Inghams Enterprises and Baiada (following the acquisition of Bartter/Steggles by Baiada in mid-2009).[69] Inghams and Baiada are privately owned, with farming and processing operations in most States. The balance of the market is supplied by another six medium-sized, privately owned companies, and by a number of smaller processors.

Approximately 800 contract chicken growers produce 80% of Australia's meat chickens under contracts with processing companies. Other meat chickens are produced on large company farms, or on farms owned and managed by 'intermediary' companies which own a number of farms, each managed by a farm manager, and who enter into contracts with processing companies to grow out chickens on a larger scale. Contract growers own the farm and provide the management, shedding, equipment, labour, bedding and other inputs to rear chickens. The processing company provides (and owns) the chickens and provides feed, medication and technical advice. The largest producing States are New South Wales (35% of production) and Victoria (29%) followed by Queensland (17%).[70]

Source: Australian Chicken Meat Foundation, http://www.chicken.org.au/page.php?id=3

ABS data indicate that New South Wales is the largest egg producing state (with 29% of production), followed by Victoria (28%), Queensland (21%), South Australia (9%), and Western Australia (8%).[71] The main market for eggs produced in Australia is the domestic shell egg market, accounting for around 80-85% of all eggs consumed, with most eggs being sold through retail supermarket chains.[72] There have been major changes in production methods over the last decade, with barn-laid eggs and free-range eggs having increased their share of the market. Caged eggs make up around 63% of sales in the supermarket sector, with barn laid -8%, free-range -27% and organic - 2%.[73]

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68 ABARE Poultry, http://www.abare.gov.au/interactive/ausNZ_ag/htm/au_poultry.htm
69 Structure and Ownership, ACMF, http://www.chicken.org.au/page.php?id=2
70 Geographical Distribution of Farms, ACMF, http://www.chicken.org.au/page.php?id=3
71 Australian Egg Industry – DAFF, http://www.daff.gov.au/agriculture-food/meat-wool-dairy/ilg/industries/australian_egg_industry
72 Victoria's Chicken Egg Industry Summer 2011, http://new.dpi.vic.gov.au/agriculture/animals-and-livestock/poultry/egg-industry
73 Annual Report 2010, AECL

Poultry meat activity in the Hunter Valley Region is concentrated in the Great Lakes, Dungog and Port Stephens LGAs. Other poultry operations in NSW are located in: outer areas of the Sydney metropolitan area; Mangrove Mountain / Central Coast; Newcastle; Tamworth; Griffith; and Casino.[74] The Beresfield processing plant in the Hunter Valley (Baiada) processes chickens and turkeys from various farms in the Hunter and the Central Coast Regions and employs approximately 600-700 people.[75] In the Upper Hunter Region, poultry farming for meat and eggs account for 104 jobs with a further 52 jobs in the poultry processing sector.

Table 38. Upper Hunter Region Residents Employed in Poultry Industry 2006 (Persons)

Poultry	Singleton	Muswellbrook	Upper Hunter	Dungog	Gloucester	Great Lakes	Total UH Region
Poultry Farming (Eggs)	0	0	3	9	3	17	29
Poultry Farming (Meat)	0	3	0	15	0	8	26
Poultry Farming, nfd	0	0	0	17	0	32	49
Poultry Processing	5	20	6	0	11	10	52
Total	**5**	**23**	**9**	**41**	**14**	**67**	**156**

Source: Buchan Consulting Analysis of ABS Census 2006, Resident Population Data

6.1.7 Fishing and Aquaculture Industry

Fishing and aquaculture is a major sector employing almost 300 residents, in Great Lakes LGA. With ever increasing pressure on wild fisheries (many commercial species are now classified as fully or over-exploited) commercial fishing has seen a decline in recent years. Aquaculture is a rapidly developing industry and is currently worth about one third of total Australian fisheries production. The aquaculture industry in New South Wales is dominated by offshore aquaculture, in particular oyster farming. In Great Lakes, oyster farming is a significant activity, with a number of oyster farms including Barclays Oyster Farm in Forster, (the southern hemisphere's largest producer of Sydney rock oysters).

Future opportunities involve expanding the sector in the region; developing direct to market links for products; and developing new seafood restaurants in Forster.

Table 39. Upper Hunter Residents Employed in Fishing Industry 2006 (Persons)

Industry	Singleton	Muswellbrook	Upper Hunter	Dungog	Gloucester	Great Lakes	Total UH Region
Fishing	0	0	0	0	0	82	82
Fish and Seafood Wholesaling	0	0	0	0	0	22	22
Fishing, Hunting and Trapping, nfd	0	0	0	0	0	49	49
Fishing, nfd	0	0	0	0	0	17	17
Other Fishing	0	0	0	0	0	3	3
Prawn Fishing	0	0	0	0	0	4	4
Offshore Caged Aquaculture	0	0	0	0	0	0	0
Offshore Long line and Rack Aquaculture	0	0	0	0	0	100	100
Onshore Aquaculture	0	0	0	0	0	5	5
Aquaculture, nfd	0	0	0	0	0	4	4
Rock Lobster and Crab Potting	0	0	0	0	0	5	5
Total Fishing	**0**	**0**	**0**	**0**	**0**	**291**	**291**

Source: Buchan Consulting Analysis of ABS Census 2006, Resident Population Data

74 Australian Chicken Meat Foundation, http://www.chicken.org.au/page.php?id=3
75 The Newcastle Herald, http://www.theherald.com.au/news/local/news/general/30-jobs-lost-at-steggles-in-beresfield/1581842.aspx, Jul y30 2009.

6.2 Tourism Industry

Tourism is a major activity across areas of the Upper Hunter Region. The LGAs in the study are covered by two tourism regions – *Hunter Tourism Region* (5 of the Upper Hunter LGAs) and *Mid North Coast Tourism Region* (Great Lakes LGA).[76] Tourism in the Upper Hunter Region is divided into two different marketing brands that encompass different areas: Upper Hunter Country (Singleton, Muswellbrook, Denham, Aberdeen, Scone, Murrurundi and Lake St Clair) and Barrington Tops (parts of Gloucester and Dungog).[77] Great Lakes is part of the coastal tourism area of the Mid North Coast Tourism Region. The area provides attractions of a coastal environment, lakes, boating and national park areas.

Tourism is important for the Upper Hunter. The key assets are based on the natural environment, rural lifestyle and agribusiness industries. The tourism market has major potential for future development.

The latest data available from Tourism Research Australia (TRA) was released in 2008/09.[78] It shows that there was an average of 1.037 million domestic overnight visitors to the region each year (accounting for 3.132 million domestic visitor nights) and for expenditure of $353 million across the six LGAs. Around half of these visits were to Great Lakes (511,000 overnight visitors) and Singleton had the next highest domestic overnight visitors (144,000 visits for 327,000 room nights). Across the six LGAs the number of day visitors totals around 1 million visitors.
There are some differences between tourism across the region. Great Lakes is the dominant location as a coastal destination, which captures the major holiday periods (December through to Easter and school holidays). As a result the average stay is longer (3.6 days). The inland LGAs tend to have both fewer visitors for shorter average stays. A major issue in the mining areas of Singleton and Muswellbrook is the impact of *business tourism.* Motels and other accommodation in these areas have high occupancy rates due to the major expansion in mining activity and the large number of mine workers, mine contractors and construction contractors staying in this accommodation during week days.

The following table provides estimates of employment in the tourism sector for each of the LGAs. It is based on estimation from employment data using tourism-intensity of various industries as reported in the *Tourism and Transport Forum's* most recent *National Tourism Employment Atlas*.[79] The estimates take account of the direct areas of employment (eg. accommodation and restaurants etc.) and the tourist expenditure impacts on other sectors (eg. the retail spending of visitors).

It indicates that: tourism accounted for over 2000 direct jobs in the Upper Hunter Region or 5% of jobs in the region; the largest cluster was in Great Lakes with 745 jobs (7% of employed residents) or 37% of Upper Hunter Region tourism jobs; Singleton was the next largest area with 480 tourist jobs; and Muswellbrook had 331 jobs.[80] It should be noted that this data is based on the total number of jobs and includes both part-time and full time jobs. In addition jobs numbers are in mid-year and do not take account of casual seasonal employment during peak summer periods. This seasonal employment could add another 30% to job numbers (up to 600 jobs across the Upper Hunter Region) during the peak periods.[81]

76 Hunter Tourism Region covers the following LGAs: Lake Macquarie, Newcastle, Maitland, Cessnock, Upper Hunter Shire, Singleton, Muswellbrook, Gloucester and Dungog. http://tourismhunter.com.au/about-us Mid North Coast Tourism Region covers: Coffs Coast, Bellingen, Nambucca Valley, Macleay Valley Coast, Greater Port Macquarie, Manning Valley, Great Lakes, and Port Stephens. http://www.midnorthcoasttourism.com.au/
77 Upper Hunter Country: This market promotes its potential to visitors for outdoor activities (including boating, waterskiing and fishing in the rivers), driving tours, vineyard and cellar door tours, horse activities (based in particular around Scone); Barrington Tops: This visitor market is based around Barrington Tops National Park, an area of approximately 1200 km2, which includes an area of World Heritage-listed wilderness. The focus is on nature tourism opportunities.
78 Tourism Research Australia – Tourism Profiles for Local Government Areas in Regional Australia – New South Wales 2009
79 TTF National Tourism Atlas 2008 P2.
80 TTF data indicates that 4.7% of the NSW workforce was employed in tourism jobs. (TTF National Tourism Atlas 2008 P3)
81 On an FTE basis this 600 casual jobs would translate into an additional 100-150 FTE or a regional total of around 2200 jobs.

Table 40. Estimated Tourism Related Jobs by Sector - Upper Hunter Region

Sector	Singleton	Muswell brook	Upper Hunter LGA	Dungog	Gloucester	Great Lakes	Total UH Region	Tourism intensity - Share of Sector (%)
Agriculture	14.9	14.4	34.6	12.3	9.4	13.6	99.2	2.8
Manufacturing	24.2	15.1	12.1	2.7	4.5	14.3	72.9	2.8
Retail	81.8	56.7	39	14.8	14.2	109.7	316.2	7.7
Accommodation	105.3	60.5	52.7	44	24.4	272.7	559.6	78.6
Food and beverage services	132.5	119.3	65.4	32.1	26.2	239.4	614.9	28.2
Transport	35	21.3	17.2	10.7	6.6	25.8	116.6	9.8
Education and training	5.4	3.9	4	2.2	1.3	6.9	23.7	1.0
Arts and recreation	6	6.4	11.9	2.1	1.2	21.6	49.2	11.3
Personal services	74.9	33.9	13.7	7.9	6.4	40.6	177.4	11.3
Total Tourism Jobs	**480**	**331**	**251**	**129**	**94**	**745**	**2030**	
Total Jobs in Area	**12368**	**7887**	**4697**	**2038**	**1737**	**9093**	**37820**	
Tourism Jobs Share (%)	**3.9**	**4.2**	**5.3**	**6.3**	**5.4**	**8.2**	**5.4**	
LGA Share of Regional Tourism Jobs (%)	**23.6**	**16.3**	**12.3**	**6.3**	**4.6**	**36.7**	**100.0**	

Source: ABS Census 2006 Working Population Data. Buchan Consulting Estimates using TTF tourism industry shares in National Tourism Atlas 2008 P2.

Key issues for the sector are: developing the tourism product; improving infrastructure (including accommodation); and taking a regional approach to marketing and market development. There is also a need for improved market research.

6.3 Services Industry

By and large the size of the in-person service sector in each area is driven by the scale of the population.

- However in the Upper Hunter Region there is some leakage of retail spending from Singleton and Muswellbrook to Maitland and Newcastle for specialised retail and other services. There is also retail leakage to these larger centres from the other areas.
- Great Lakes is largely a service economy with over 70% of local jobs in services. In all 60% were in-person services jobs: comprising retail 16%; accommodation and food services 13%; health care and social assistance 12%; and 8% education and training.
- All of the Upper Hunter LGAs have a relatively low share of jobs in knowledge and business services. The jobs in this segment are mainly professional, scientific and technical services (which includes accounting, legal and consulting services. Some of the higher order specialist services are concentrated in the Lower Hunter, including Newcastle.

Table 41. Service Jobs in Upper Hunter Region 2006

Industry Sectors - Services	Singleton	Share %	Muswellbrook	Share %	Upper Hunter LGA	Share %	Dungog	Share %	Gloucester	Share %	Great Lakes	Share %	Total Upper Hunter Region	Share %
A. Knowledge and Business Services														
Information media and telecommunications	60	0.5	44	0.6	13	0.3	14	0.7	15	0.9	62	0.7	208	0.5
Financial and insurance services	144	1.2	105	1.3	65	1.4	24	1.2	18	1.0	178	2.0	534	1.4
Rental, hiring and real estate services	210	1.7	140	1.8	36	0.8	24	1.2	23	1.3	283	3.1	716	1.9
Professional, scientific and technical services	461	3.7	326	4.1	178	3.8	89	4.4	65	3.7	336	3.7	1,455	3.8
Administrative and support services	320	2.6	120	1.5	53	1.1	39	1.9	21	1.2	209	2.3	762	2.0
Total A	**1195**	**9.7**	**735**	**9.3**	**345**	**7.3**	**190**	**9.3**	**142**	**8.2**	**1,068**	**11.9**	**3,675**	**9.7**
B. In-Person Services														
Retail trade	1,062	8.6	736	9.3	506	10.8	191	9.4	184	10.6	1,425	15.8	4,104	10.9
Accommodation and food services	604	4.9	503	6.4	299	6.4	170	8.3	124	7.1	1,196	13.3	2,896	7.7
Public administration and safety	766	6.2	354	4.5	209	4.4	132	6.5	94	5.4	465	5.2	2,020	5.3
Education and training	543	4.4	390	4.9	402	8.6	220	10.8	128	7.4	692	7.7	2,375	6.3
Health care and social assistance	559	4.5	520	6.6	387	8.2	155	7.6	187	10.8	1,113	12.4	2,921	7.7
Arts and recreation services	53	0.4	58	0.7	105	2.2	19	0.9	11	0.6	191	2.1	437	1.2
Other services	663	5.4	300	3.8	120	2.6	71	3.5	57	3.3	359	4.0	1,570	4.2
Total B	**4250**	**34.4**	**2861**	**36.3**	**2028**	**43.2**	**958**	**47.0**	**785**	**45.2**	**5,441**	**60.4**	**16,323**	**43.2**
Total (A+B)	**5445**	**44.0**	**3596**	**45.6**	**2373**	**50.5**	**1148**	**56.3**	**927**	**53.4**	**6509**	**72.3**	**19998**	**52.9**
Total All Jobs	**12368**		**7888**		**4698**		**2039**		**1737**		**9,004**		**37823**	

Source: ABS Census 2006 Working Population Data

Key issues for the services sector are: reducing leakage to other areas; expanding the range of service businesses in the region (particularly in the larger centres); and improving the town centres as retail and service centres.

7 Directions for the Upper Hunter

7.1 Overview - Directions for the Region

Chapter 2 examined recent economic trends in the Upper Hunter Region, and highlighted the different performance of the individual local government areas and the impact of mining on the region.

Drivers

The following table shows the major drivers in each of the areas and illustrates the structure of each of the local government areas.

The major regional growth factor over the past 5 years has been the expansion in mining activity, and this has driven jobs growth in mining operations and in associated support services (in Singleton and Muswellbrook). The smaller LGAs have experienced limited employment growth, or in the case of Dungog, a major decline in local jobs.

Those areas experiencing population growth (eg. Great Lakes) have seen increases in activity and jobs in population-related services (eg. retail, health, education, and other services). The more recent stronger population growth in several of the other LGAs is beginning to have impacts on services demand.

Agricultural activity has been impacted by continued sector consolidation and by price/cost squeezes experienced by producers. While in general agribusiness output has increased, the number of persons working in the sector has continued to decline.

Skill shortages and the competition for employees with the mining sector have impacted on a range of industries in the Upper Hunter Region.

Table 42. Major Current Economic Drivers (Key Sectors) in Each Local Government Area

	Cluster 1			Cluster 2		Cluster 3
Major Drivers Rank	Singleton	Muswellbrook	Upper Hunter	Dungog	Gloucester	Great Lakes
1	Coal Mining	Coal Mining	Equine	Agriculture-beef, dairy	Agriculture-beef, dairy	Population Services – retail/services
2	Mining Support	Power generation	Agribusiness-beef, dairy, crops, food processing	Population Services – retail/services	Population Services – retail/services	Tourism
3	Power generation	Mining Support	Population Services – retail/service	Tourism	Health & Aged Care	Health & Aged Care
4	Population Services - retail/services	Equine	Tourism	Education	Tourism	Building and construction
5	Agriculture - beef, dairy	Wine	Education		Education	Education
6	Defence	Agriculture – beef, dairy			Coal Mining	Agribusiness – aquaculture, fishing, beef, timber
7	Wine	Population Services – retail/services				
8	Tourism	Tourism				
9	Education	Education				

Source: Buchan Consulting analysis based on ABS Census 2006 data (industry of employment of residents and jobs located in the LGA)

It is recognised that the economic circumstances and the outlooks for growth differ between each of the LGAs. In particular, the smaller LGAs of Gloucester and Dungog face more challenges because of issues including population trends (slower growth), industry mix and location.

Each of the Councils is currently pursuing economic development strategies of various levels of comprehensiveness.[82] While there are differences in the elements of these strategies, there are several common themes. These themes are: a need to maintain and increase the resident population in their area; concerns about a weakening of traditional agricultural activities; concerns about future jobs (eg. mining and energy sector) and their sustainability; a recognition of the need to strengthen existing industries, to undertake some diversification and to develop new sustainable activities; and a requirement to revitalise the main town centres as service centres.

There are concerns about constraints including: the major pressures being created by a mining boom in the mining areas, which include competing land use and resource use issues; major ongoing skilled labour shortages; the creation of a two-speed economy; cost pressures on the housing market and on the local cost of living. There are also major economic infrastructure and community infrastructure issues (eg. roads, town infrastructure, sewer and water, serviced industrial land, town centres), which impact on future development prospects of specific locations.

From a planning perspective, only two of the LGAs had completed new *Local Environment Plans (LEPs*) - Gloucester and Muswellbrook, with LEPs for the others currently being in development. All of the LEPs that are currently in operation make provision for industry growth (rural and industrial) and for the development of a variety of housing options (from lifestyle blocks, increased housing densities and seniors housing in town centres).[83] The research and planning studies conducted for the development of new LEPs, generally highlight these population and industry issues.

Strategic Directions

The directions report assessed the current economic situation and identified the future growth prospects for the Upper Hunter Region and for individual LGAs.[84] There are a number of components to future growth and diversification:

- Increasing local populations to build ongoing critical mass for service industries and associated jobs.
- Building on specific industry strengths and local advantages and leveraging these as a foundation for future industry diversification and growth.
- Developing new areas of industry that are based on emerging opportunities (eg. renewables and logistics based on improved highway access).
- Developing other local employment as mines reach the end of their economic life.
- Developing knowledge intensive activities. This includes the development of renewable energy support activities; education and training activities; and research and development.

In pursuing economic diversification in the Upper Hunter, there will be a need for strategic regional planning, industry policy support, and infrastructure funding from the New South Wales Government.

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82 The most recent are those developed for Gloucester, Upper Hunter Shire and Singleton and each of these cover demographic, area, resources and industry development issues.

83 *Dungog Local Environmental Plan 2006, new LEP being developed;* Gloucester Local Environmental Plan (GLEP) 2010; *Great Lakes Local Environmental Plan (GLLEP) 1996 development of new LEP commenced; Singleton Local Environmental Plan 1996, development of new LEP commenced; Muswellbrook Local Environmental Plan (MLEP) 2009; Upper Hunter Shire* three plans from previous Shires (Merriwa LEP 1992, Murrurundi LEP 1993, and Scone LEP 1986) development of new *LEP has commenced..*

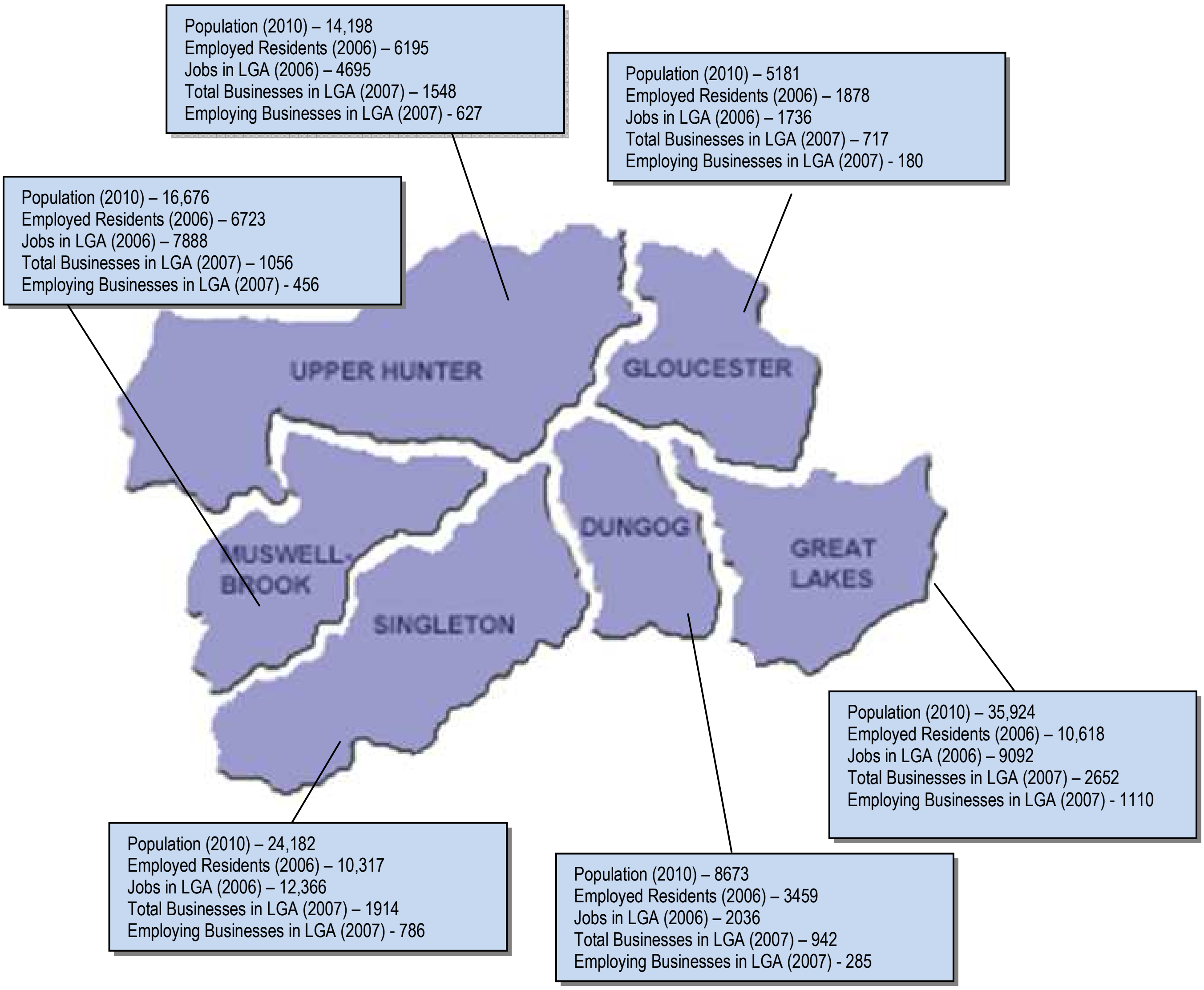
84 Upper Hunter Economic Diversification Project, Report 2: Directions and Opportunities Report, February 2011; Upper Hunter Economic Diversification Project, Report 1: Upper Hunter Regional Economy and Industry Report , January 2011

7.2 Context for Economic Diversification

7.2.1 Regional Characteristics

The individual LGAs differ in terms of: their population size and trends; industry mix and scale; current economic situation; and future drivers of activity. The following map provides an overview of the region in terms of population, businesses, jobs in each LGA and employed residents.

Figure 18. Regional Characteristics



The Upper Hunter Region (including Great Lakes) had a population of 104,834 in 2010. An analysis of the regional economy shows that the LGAs can be clustered into sub-regions.

- Cluster 1: Mining influenced LGAs of Singleton and Muswellbrook and the adjacent Upper Hunter LGA (area has an agriculture focus).
- Cluster 2: The inland rural areas of Dungog LGA and Gloucester LGA.
- Cluster 3: The coastal economy of Great Lakes LGA (and its rural hinterland).

There are different dynamics at play in each of the local government areas.

- Population growth in Great Lakes is being mainly driven by sea change moves to the coast for retirement and for lifestyle change.
- Singleton has the second largest population in the region and is experiencing growth, which has largely been associated with the expansion of mining in the region.
- The recent population growth in the 2006-2010 period in Muswellbrook is largely due to similar factors.
- In the case of the Upper Hunter LGA, recent growth can be attributed to the continued expansion of the equine industry and to some mining employees choosing to live in the LGA.
- In the smaller rural LGAs (i.e. Dungog and Gloucester), population growth has been much slower, due to industry restructuring in the agricultural sector and to some loss of local jobs. Achieving future population growth is the major challenge for these two areas.

7.2.2 Industry and Regional Issues

The following are major issues for the future which shape the context for the diversification strategy, and for the development of new opportunities.

Industry Issues

There are major industry issues in the region and these include the following.

- Structure of industry - a reliance on a narrow industry base with the major sectors linked to a local resources nexus (eg. mining and agriculture). Outside of the mining sector (and mining support activities), most businesses are small, with 75% of businesses employing less than 10 persons.
- Ongoing pressures of a dual-speed economy- with the continued rapid growth in mining and its impacts on other local industries and on local communities.
- Competing land use and resource issues. There are identified issues in terms of land and access to water, in the light of expanded mining activity. The future growth of existing key sectors (agriculture) and diversification options are dependent on maintaining critical mass in several key industry sectors (eg. equine, wine, beef etc.).
- The future long term horizons of coal mining in the Upper Hunter and the pattern and levels of employment over the next 25-35 years is an issue. There will be a number of local jobs to replace over long term horizons (although mobile workforces are continuing to cover the current rapid growth). This issue is mainly focused on the populations of Singleton, Muswellbrook and to a lesser extent Upper Hunter LGA. The other LGAs generally have more limited links to the mining sector, and fewer residents employed in the sector (due to the travel distances to mines).
- Over shorter time periods there is: the potential for some cyclical variations in export coal demand; and the local area impacts on employment and the mix of jobs as some mines reach the end of their production life. In the nearer term carbon taxes and other policies will have some impacts on the sector.

Export markets for coal are expected to remain strong over both medium term and long term horizons. Over these same periods, developments with new coal technologies will reduce emissions and will have the potential to extend market horizons for coal use and for exports.

Population and Jobs

There are a number of issues in relation to population and jobs.

- There is an increasing integration of regional labour markets with Upper Hunter residents travelling to jobs in the Lower Hunter and in adjacent areas; and residents from the Lower Hunter employed in jobs in the Upper Hunter. The nexus between job location and residence is weakening in areas where commuting is possible. The Upper Hunter is benefiting from the strong jobs growth in the Lower Hunter, as some residents look for a combination of rural lifestyles with accessibility to these jobs.
- A recognition of the link between jobs and future population growth. Future growth and diversification in area populations is dependent on the availability of local jobs or ready access to jobs which are within commutable distances.
- Larger area populations will deliver threshold demand levels for local services and see an increase service sector jobs.
- The ageing of the population highlights the need to develop accommodation and services for seniors, and this will create some future jobs in aged services.

Environment

Environmental issues are important for the region and these include the following.

- Environmental management issues, including: the potential impacts of climate change on regions and sub-regions; any impacts of a proposed carbon tax and a future emissions trading scheme on the mining and power generation sectors; and future opportunities for carbon trading and carbon sequestration.
- Availability of water to service growing populations and industries (eg. mining, power generation, new agribusiness, and process manufacturing).
- Land use - the securing of suitable land for agricultural development and the maintenance of buffers between mines and rural operations.

Competitive Position

The Upper Hunter Region has a number of advantages that will underpin future development.

- In an overall sense, the Upper Hunter Region has a number of major advantages including: access to a major port; national road and rail networks; well-located industrial land; a growing population; workforce skills; access to a major regional airport; a significant defence presence; access to large regional markets; and proximity to the Sydney market.
- Upgrades of regional highways are also improving the position: the Mid North Coast is a major growth area and the Pacific Highway upgrades are improving access; and the extension of the F3 to Branxton and improvements to the New England Highway will make the Upper Hunter Region more accessible as an industry location.

From an industry attraction perspective, the Upper Hunter is competing with other locations including: the Lower Hunter; the Mid North Coast; the Central Coast; and centres in Western New South Wales (eg. Dubbo, Tamworth and Parkes).

At an individual LGA level, some of these regional advantages will deliver more benefits to locations like Singleton, Muswellbrook and the Upper Hunter.

Future Development

Future development and diversification will involve a number of elements.

- Building on areas of clear competitive strengths in the region (eg. equine industry, mining support/engineering, power generation, renewables, tourism, and agribusiness).
- A key focus for the strategy is on building on advantages through a supply chain approach that captures the value adding, support activities and the knowledge components of these industry sectors (eg. research, education, and training).
- Encouraging innovation- there is potential for innovation in the region including: low-emissions coal initiatives; clean energy technologies; renewable energy; agriculture (eg. wine, cattle, equine, intensive horticulture); and environmental management (research, training, services). Much of this innovation involves the development and expansion of industry/university linkages.
- Boosting skill levels - there are increasing skill requirements in most sectors and there is a need to deliver more vocational education and training in the region, with the active involvement of regional businesses.
- Acting on regionally linked industry opportunities and on specific opportunities in a particular local government area – through a strategic approach to industry development and investment attraction.

Infrastructure

Infrastructure for the region is critical for future diversification and development and has a number of aspects.

- Improvements in key strategic infrastructure including: roads, rail, water, sewer, industrial land, town centres and broadband.
- A regional approach, which is required for the planning and for the funding of this infrastructure.
- Development of broadband will improve business operations, including enabling telecommuting. Broadband access is an issue for some locations in Great Lakes, Upper Hunter LGA and in parts of Dungog and Gloucester. The NBN rollout and its timing is a major issue for the region’s development.
- Development of industrial estates to provide for specialist industry requirements and for the location of light industrial activities, which are servicing local and regional markets.

7.3 Horizons and Directions

The future development of the region requires the generation of sustainable jobs, which are based around both building on current advantages, and creating new areas of advantage.

7.3.1 Growth Horizons

There are several horizons in an economic diversification strategy:

- Horizon 1: 1-5 years - where the economic structure and regional advantages are largely fixed and current planned infrastructure and development projects are underway and will deliver some benefits. A major issue in this horizon is addressing mining industry pressures and other constraints on development.
- Horizon 2: 6-20 years - where it is possible to significantly reshape the local economy, create new areas of strategic advantage; influence the development of new industries (emerging sectors); develop new infrastructure; and increase regional populations. Some of the area planning strategies start to have impacts in this time period.
- Horizon 3: beyond 20 years - in this period the threshold levels of activity for continued growth in new industries start to be reached and they move from being emerging sectors to become core industries. Over this horizon, some other industries start to reach the end of their lifecycle.

While the diversification strategy is for a 20-25 year period, an immediate focus needs to be on the next 5 years and on actions that can be taken: to deal with immediate economic issues in the region; and to develop activities and jobs, which build on current industries or which create foundations for growth of emerging industries (in the Upper Hunter Region and in the individual LGAs). Some of these required actions include: acting on employment skills issues; creating a positive environment for investment; encouraging innovation; and facilitating small business development.

Many of these more immediate actions are linked to: leveraging current industries (eg. mining, mining support, engineering); developing the foundations for new areas (eg renewables, new agriculture); and addressing the major regional constraints that have been identified. As outlined in Chapter 4, environmental issues will be major considerations in shaping the future patterns of living and working in the region.

There are several factors that will be important for the success of a diversification strategy and these include: targeting programs to specific industry sectors; piloting new innovative programs in the Upper Hunter; taking a regional clustering approach in key industry sectors (including tourism and agriculture); and having regional cooperation and industry cooperation on workforce planning, skills development and business attraction.

The *Diversification Strategy* recognises that there are infrastructure and planning requirements for future jobs growth, including: the revitalisation of the town centres; the provision of commercial space (for business services); and the further development industrial areas and employment zones in the region. This will require a clear understanding of the particular requirements of the targeted industries and types of employment (eg. provision of larger lots, location requirements, infrastructure needs). It will also require a responsive local planning system, which can deliver these requirements in an environment where the Upper Hunter Region will be competing with other locations (including the Lower Hunter and the Central Coast) for investment and jobs.

A major issue is that many of the future businesses that will emerge will not be of the scale of the mining related businesses. There is a major requirement to support the development of micro-businesses and small businesses in the region, and to encourage the growth of medium-sized businesses.

A key issue for the future is taking a regional approach, as there will continue to be interrelationships between the LGAs and between the Upper Hunter Region and the Lower Hunter Region. These interrelationships relate to: industry supply chains; regional markets for businesses; and the operation employees in broader regional labour markets.

In pursuing economic diversification for the Upper Hunter Region, there will be a need for strategic regional policy support and industry policy and program support from the New South Wales Government. There are also development requirements in terms of the funding for key infrastructure.

7.3.2 Key Directions

This strengthening and the diversification of the Upper Hunter regional economy has a number of components:

- Increasing the population in and around the main town centres in each LGA, to increase services demand.[85] Facilitating growth in those employment areas that are linked to regional population growth, and this includes developing workforce skills and ensuring that employment lands are available.
- Building on the current industries that are driven by resource advantages of the region. These include: electricity generation, mining support, renewal of traditional regional agriculture, equine industries, and tourism.
- Developing new areas including: intensive agriculture; and renewable energy and support activities.

85 Achieving population growth is a major imperative for the smaller LGAs, so they can maintain sustainable communities..

- Creating new areas of advantage in knowledge based activities associated with agribusiness (research, education and training); tourism (education and training); environmental services (centre of excellence); renewable energy (support services, education and training, research); and mining support (education and training).
- A major feature needs to be a regional cluster and industry cluster approach (eg. in industry development, workforce planning and infrastructure development), which also involves recognition of the areas of specialisation and the specific competitive advantages of each of the LGAs that make up the Upper Hunter Region.

7.4 Diversification Strategy

7.4.1 Strategy Elements

The following diagram summarises the elements of the economic diversification strategy.

7.4.2 Major Themes

The key themes for the Upper Hunter Region are a regional economy that is sustainable, integrated (regional clusters, industry clusters and supply chain linkages) and innovative.

Knowledge and industry innovation will be important foundations: for the long term strengthening of the Upper Hunter Region; for developing new areas of advantage; and for generating new sustainable businesses and jobs. The longer term horizon allows for the building of new areas of competitive advantage and specialisation. There are important infrastructure elements that are required to underpin this future and this includes: improvements in roads; revitalisation of town centres; development of industrial lands; and development of housing.

There are a number of features of a diversified economy.

- A regional economy with economically and environmentally *sustainable* industries and employment structures (including more high skill local jobs and larger enterprises). It will be maximising the number of skilled jobs through: building on current industries; developing key industry clusters; and encouraging new activities. The region will remain as an important power generation area, through the new technologies in base load generation and through the development of renewable energy.
- The region will be *connected* with improved transport links and telecommunications. It will have a stronger external focus, with a greater number of businesses servicing broader regional and national markets (and some global markets).
- *Innovation* – there would be more research and development and innovation in local businesses, industry clusters and in industry research centres (with links to universities and to TAFE). There would be increased regional and local delivery of education and training for jobs in key industry sectors.
- From a social perspective, major inroads would be made into reducing unemployment/underemployment and in increasing workforce participation rates and skill levels of employees.
- The region would maintain its key environmental assets (both coastal and inland) and would be recognised for best practice in resources management, area rehabilitation and in town planning and design.
- There would be a stronger regional integration of economic development and planning processes and infrastructure delivery, to ensure that the region can capture and develop new opportunities, which are generated by population growth and by industry diversification. Funding for infrastructure would take account of: the specific situation of mining regions and the adjacent areas; and the linkage of infrastructure needs to the potential for future industry diversification.
- There would be strong partnerships (industry, government and community) and an industry cluster approach, which is focused on economic diversification and growth.

The region has opportunities to shape future development in ways, which are sustainable from an economic, environmental and community perspective, and that take account of the changes that are being created by climate change and the associated environmental policy responses.

7.4.3 Opportunities and Sectors

A major part of the strengthening of the regional economy for the future is a focus on sectors with growth potential and ensuring that the development requirements for each sector are met (eg. skills, industrial sites, and infrastructure).

The major long term challenge is to ensure that diversification processes begin early rather than waiting for mining activity to slow or to scale back in particular locations. This is because:

- The development of new activities and reaching critical mass takes time.
- There is a need for planning and for infrastructure decisions to take account of requirements of emerging industry sectors (eg. land, resources, infrastructure needs, investment funds, skill needs).
- There is a need for action on the current pressures and constraints that are being generated by the current mining boom (eg. workforce skills, housing and accommodation, infrastructure etc.).

The following summarises opportunities in several categories: population driven growth; building on current industries and advantages; developing new areas of advantage; creating new knowledge based activities; and potential attraction targets.

In broad terms there is no single sector or a narrow band of sectors that will deliver future jobs in the Upper Hunter Region. The diversification strategy has several elements: targeting development in key sectors; implementing regional industry cluster initiatives; and taking action at a regional and at a local level. A regional approach is likely to deliver greater returns, as it is built on recognition of the clear areas of advantage and specialisation that exist across the Upper Hunter Region. Opportunities are classified into a number of categories.

- Category 1: Facilitating future jobs growth in those sectors that will be driven by population growth in the region/LGA. This includes broadening the markets of existing SMEs to link them to growth in the broader Hunter Region. These services include: retail and other services, health, aged care, business services, building and construction, and education and training.
- Category 2: Building on current areas of regional advantage through an integrated supply chain approach to deliver sustainable businesses and jobs. (Priorities are electricity generation, mining support, renewal of traditional agriculture, equine industries and tourism).
- Category 3: Developing new areas including: renewable energy and support activities; logistics (based on improved road access and rail); and new agriculture.
- Category 4: Developing new areas of industry specialisation, which provide the opportunity for an increase in knowledge sector jobs. This includes knowledge based activities that are associated with: agribusiness (research, education and training, technical services); tourism (education and training); environmental services (research and training); and renewable energy (support services, education and training, research); mining support (education and training, consulting services). With the extent of green fields development and new housing (particularly in the coastal region of Great Lakes), there is an opportunity to apply new planning, environmental systems and green technologies in the development of new housing and other buildings and facilities.
- Category 5: Attraction targets: covering government services and business services.

The sectors identified have a number of characteristics, and these include: providing direct jobs and some indirect jobs through cluster and supply chain relationships; generally having a higher knowledge and skills requirement; and being sustainable in the longer term in a changing regional environment.
The development of these opportunities will vary between the LGAs based on: their location; and accessibility; population base and market size; resource base; industry structures; and infrastructure.

While a successful strategy will maintain and increase the number of local jobs in the Upper Hunter Region, there will be a continued increase in commuting to jobs between adjacent LGAs and into the Lower Hunter, due to: the operation of regional product and service markets and regional labour markets; and the housing location preferences of residents.

Potential opportunities by local government area are outlined in the next section, with detailed information on local areas contained in the Appendices to this report.

Table 43. Opportunities for Upper Hunter Region 2010-2031

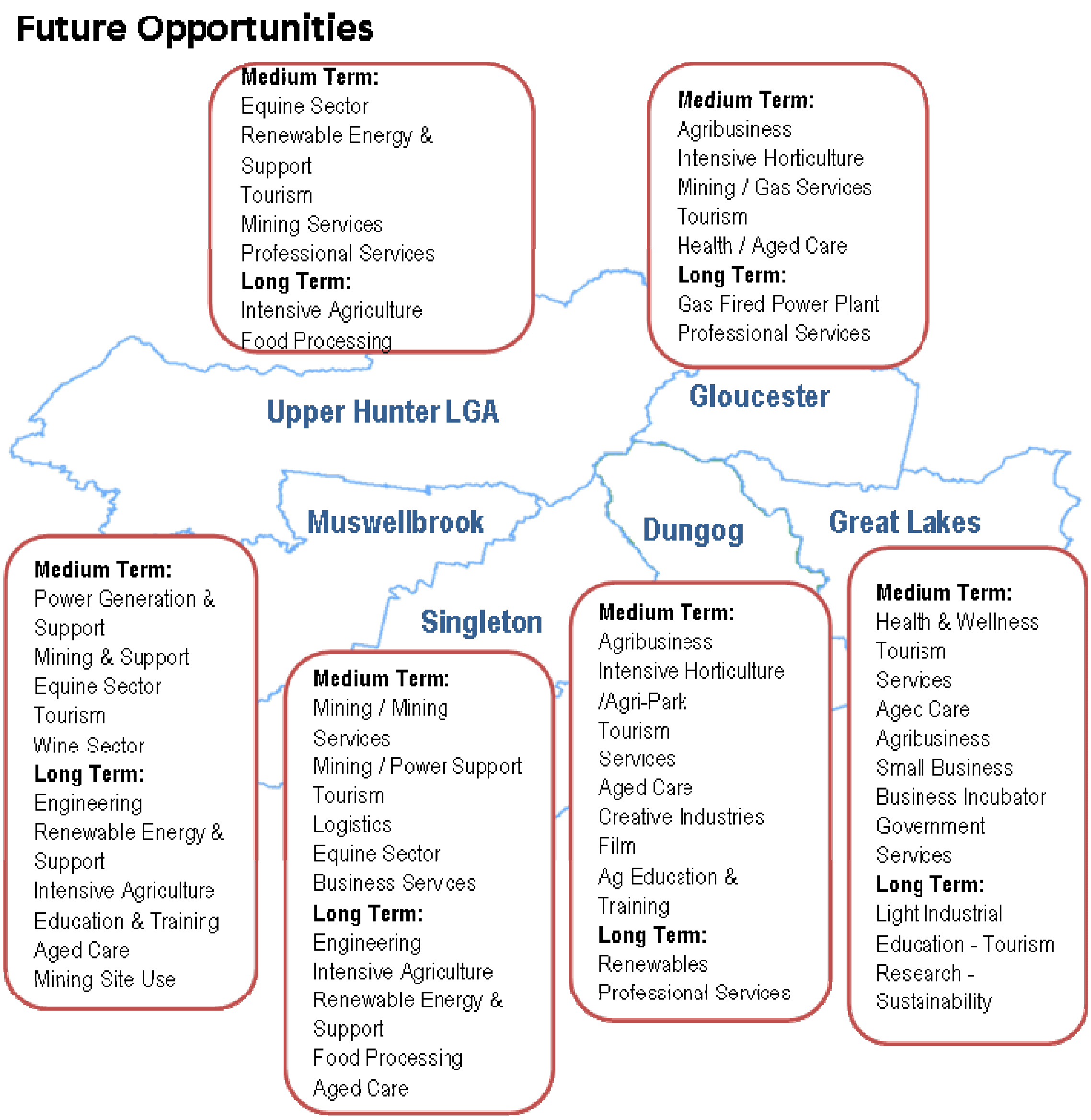
Category 1: Population/ Market Driven	Category 2: Building on Current Industries	Category 3: Developing New Areas	Category 4: Creating New Advantages - Knowledge Based	Category 5: Other Attraction Targets
These sectors will be driven by local and regional population growth.	These are based on sustainable advantages linked to current industries. Priorities for action are: power generation, mining support, renewal of traditional regional agriculture, equine industries, wine and tourism.	This is based on new and emerging sectors including: renewable energy and support activities; logistics (based on improved road access and rail); and new agribusiness.	These are based on activities with higher knowledge content. Includes knowledge based activities associated with key sectors eg. agribusiness (research, education and training); tourism (education and training); environmental services, and renewable energy (support services, education and training, research); mining support (education and training); building and construction new environmental systems green technologies.	These sectors will deliver service jobs and need to be targets for attraction, in several LGAs.
Retail: food retail and specialty retail **Hospitality**: cafes and restaurants	**Mining support:** development as centre of industry excellence**;** servicing of broader mining markets.	**Renewable Energy Cluster:** generation facilities, support industries, technical services, research, training.	**Education:** expanded sectoral delivery of VET, including health, agribusiness, mining support, tourism in specialist regional training centres). Development of higher education delivery in regional centres	**Business Services:** back office functions, support centres.
Health and Community Services: health services, aged care, community support services.	**Power generation**: upgrades and new technologies, support services to the sector.	**Logistics**: distribution centres, intermodal hubs, warehousing and storage, and road transport services, associated education and training.	**Building and construction**: housing design, modular components, green building construction, and engineering.	**Government:** government agencies – regional headquarters, administrative offices, regional service centres.
Education: from early learning to VET and some higher education delivery	**Equine industries**: thoroughbred sector, vet services, technical services, support services, education and training, research	**Intensive agriculture:** development of specialist food production through intensive horticulture (market gardens, glass house production). Support activities, education and research.	**Environmental services cluster**: environmental R&D, water management, sustainable energy; architecture, urban planning.	
Construction: housing, industrial and commercial and building service trades.	**Regional agriculture:** beef, dairy, cropping**.** Strengthening through consolidation and new market channels.		**Business services :** business services, technical services, professional services., consulting services	
Business and professional services: financial, legal, employment, technical services.	**Wine sector;** maintenance of sector and improve links to wine tourism.		**Creative industries**: film industry - residential film school (Dungog); art and music Muswellbrook	
	Tourism: (short breaks market), conferences, eco-tourism, sports tourism, adventure tourism, nature based. Accommodation, hospitality, cultural services, and retail.			

7.5 Opportunities in Local Areas

7.5.1 Overview - Opportunities

The future opportunities identified for each local government area are based on a detailed analysis of the economic base, industry structure and the resources of each area. There are some common sector opportunities and also specific ones for each LGA. Some opportunities can be facilitated by the actions of one Council, but many will require regional cooperation. Further detail on each area is contained in appendices to this report.

The following diagram summarises the medium term and long term opportunities for each local government area.



7.5.2 Future Opportunities

This report analyses the future growth prospects for the Upper Hunter Region and for the six individual LGAs. There are a number of elements to the strategy for future growth and diversification and these include:

- Increasing local populations to build ongoing critical mass for service industries and for associated jobs.
- Building on specific industry strengths and local advantages and leveraging these as a foundation for future industry diversification and growth.

- Developing new areas of industry that are based on emerging opportunities (eg. logistics based on improved highway access).
- Developing knowledge intensive activities, and this includes the development of: renewable energy support activities; education and training activities; and expanding industry research and development.

The sectors and the horizons for action are identified. While action is required by each Council on economic development, because of the inter-relationships between areas and sectors, there are major benefits from a region wide and regional cluster approach.

Clustering and regional cooperation is discussed in Section 9, which outlines the implementation of the diversification strategy.

Table 44. Opportunities Summary – Upper Hunter LGAs

Regional Cluster 1			Regional Cluster 2		Regional Cluster 3
Singleton	**Muswellbrook**	**Upper Hunter**	**Dungog**	**Gloucester**	**Great Lakes**
Medium Term	**Medium Term**	**Medium Term**	**Medium Term**	**Medium Term**	**Medium Term**
Mining support Mining services Power Generation and support Tourism Logistics hub Engineering training centre Government services Business services	Mining Mining support and services Power generation and support Equine industry growth and development. Tourism Wine industry development Professional and technical services Cultural and creative industries (visual art and music) [86] Business services Government services [87]	Equine industry growth and development. Tourism Renewable energy and support , education and research Services to mining industry Professional services	Agriculture revitalisation Intensive agriculture and development of an agribusiness park Agribusiness education and training (regional role) – extend Tocal College programs into Dungog Film sector – development of a residential film school, capitalising on film festival Tourism – market segment development Aged care	Agribusiness revitalisation Intensive agriculture and development using Gloucester Growers Cluster Wine sector Mining and gas support – engineering services Tourism : market segment development – short breaks - adventure, nature based, agri-tourism Retail revitalisation <Potential for regional partnering with Dungog on tourism and agriculture> Health and Aged care	Forster Tuncurry Crown Harbour Project Health services - extend and develop broader health and wellbeing focus Aged care Small business development and incubator Agriculture revitalisation – existing sectors and intensive agriculture Tourism: continue market segment development - active tourism/lifestyle, adventure sports, water based; eco-tourism and nature-based tourism. Building and construction – environmental focus Small business development and incubator Professional and technical services Government services
Long Term	**Long Term**	**Long Term**	**Long Term**	**Long Term**	**Long Term**
Engineering Agribusiness – intensive horticulture, wine , beef Food processing Renewable energy and support Aged care	Renewable energy and support Engineering Education and training Use of mining sites Aged care	Agriculture revitalization -Intensive horticulture Food processing expansion	Renewables - part of Hunter Renewable Energy Precinct : some limited opportunities for wind and solar generation Professional and technical services	Power generation (small gas fired plant) Industrial Park Professional and technical services	Light industrial – develop businesses in industrial area Environmental services (Centre of Excellence– in sustainability - research and training) Tourism training centre

7.5.3 Opportunities by Local Government Area

The following table shows the potential opportunities for the Upper Hunter Region and the locations (LGAs) where they can be developed. There are some opportunities that apply in all LGAs and there are others that are specific to one or two areas. In the following tables,

86 Muswellbrook has the Muswellbrook Regional Arts Centre and the Upper Hunter Conservatorium of Music.
87 Muswellbrook is the Upper Hunter Regional centre for Police, Correctional Services, Hospital, Roads and Traffic Authority, and TAFE.

opportunities are: identified by LGA; grouped into industry clusters; classified by category (Category 1: Population / Market Driven; Category 2: Building on Current Industries; Category 3: Developing New Areas; Category 4: Creating New Advantages - Knowledge Based; Category 5: Attraction Targets); and ranked as priorities for economic development in each of the local government areas (Priorities 1-3).

The horizons for development are outlined in the appendices to this report, which detail the opportunities for each of the six local government areas that were included in this study.

Future Opportunities by Local Government Area - Summary

Upper Hunter Region	Future Opportunities Clusters	Regional Cluster 1			Regional Cluster 2		Regional Cluster 3
		Singleton	Muswellbrook	Upper Hunter	Dungog	Gloucester	Great Lakes
Priorities= 1-3							
Category 1: Population / Regional Market Driven							
Population & Housing	**Category 1**						
Population growth	Need for population growth for services growth and strengthened town centres	Continuing strong growth	Stronger Growth	Growth	Slow growth	Slow growth	Continuing strong growth
Population growth	Residential growth - associated with mining employees	1	1	1			
Lifestyle living	Attract population - lifestyle blocks and precincts	1	1	1	1	1	1
Housing land	Develop additional housing land/ affordable housing (families)	1	1	1	2	2	1
Seniors	**Category 1**						
Seniors living	Seniors housing and facilities	2	2	2	1	1	1
Supporting an ageing population	Aged care facilities and services in the LGA	2	2	2	1	1	1
Town Centre	**Category 1**						
Revitalisation	Main town centres	1	1	1	1	1	1
	Retail and services			2		1	
Health	**Category 1**						
Health services	Maintain/develop local services	1	1	1	1	1	1
	Extend specialist services					1	1
Category 2: Building on Current Industries							
Mining and Support	**Category 2:**						
Mining	Expansion of existing mines	1	1				
Mining support industries	Extend mining support activities and markets	1	1	3		2	
Centre of Excellence (mining)	Develop as a centre of excellence in mining support	1					
Rehabilitated sites	Assess future mining site use – regional technical/business assessment (eg. waste – clean fill)	1	1			3	

Future Opportunities by Local Government Area - Summary

Upper Hunter Region	Future Opportunities Clusters	Cluster 1			Cluster 2		Cluster 3
		Singleton	Muswellbrook	Upper Hunter	Dungog	Gloucester	Great Lakes
Priorities= 1-3							
Power Generation	**Category 2**						
Generators	Investment in capacity.	1	1				
	Clean coal technologies	1	1				
	Coal seam gas developments	1	1			1	
Power generation	Small gas fired power station					1	
Support industries	Continuation of support industries - contractors	1	1				
Agriculture	**Category 2**						
Wine/viticulture	Maintain sector and critical mass/develop sector	1	1	1		2	2
Existing agriculture	Maintain/consolidate beef, dairy, cropping	1		1	1	1	2
Vegetable/fruit production	Develop intensive agriculture	2		2	1	1	
Food processing	Develop food processing operations	2		1			
Equine Sector	Expand activity and support	2	1	1			
Fishing and Aquaculture	Maintain and develop the sector. Extend tourism links						1
Poultry (major sector)	Maintain and develop sector. Extend product range to meet niche market demand.						1
Tourism	**Category 2**						
Sector	Maintain and develop sector	2	2	1	2	1	1
Wine/food/agri-tourism	Extend wine tourism	1	1	1	3	1	2
Adventure/nature based				1	1	1	
Equine related			1	1			
Ecotourism				1	1	1	1
Wellness market				2		3	1
Conference market				2			2
Infrastructure	Accommodation development		1	1	1	2	2
Category 3: Developing New Areas							
Industry	**Category 3:**						
Engineering <diversify>	Build on engineering base – mining, power, construction Engineering capability – support, fabrication, construction engineering , technical services	1	1				
Logistics Centre or Intermodal Transport Hub	Develop as a logistics hub – road/rail access.	1				3	2
Building and construction	Extension of markets and green design/construction/services	2	2				1
Light industrial	Expansion to service regional industry and population	1	1	1	1	1	1

Future Opportunities by Local Government Area - Summary

Upper Hunter Region	Future Opportunities Clusters	Cluster 1			Cluster 2		Cluster 3
		Singleton	Muswellbrook	Upper Hunter	Dungog	Gloucester	Great Lakes
Priorities= 1-3							
Category 4: Creating New Advantages - Knowledge Based							
Renewables	**Category 4:**						
Renewables	Solar, wind, geothermal and support activities	1	2	1	2		
Solar	Development of new solar plants	2		1			
Services	**Category 4**						
Professional and technical services	Attraction of professionals for lifestyle changes	1	1	1	1		1
Environmental services	Development of support services			1			1
Education and Training	**Category 4**						
Education centre	Extended delivery of TAFE	1	1				1
	Local delivery of higher education	2					2
Specialist Training Centres							
Equine Sector	Extend programs and delivery			1			
Creative industries	Film School				1		
Creative industries	Visual arts and music (building on existing facilities)		1				
Agribusiness	Extend Tocal College Programs				1		
Health	Nursing and allied health training delivery					1	1
Tourism	Develop regional training centre - tourism and hospitality						1
Engineering. and mining support	Develop regional delivery	1					
Research and Development	**Category 4**						
Renewables	Research and development			2			
Power industry	Research and development		1				
Environmental Sustainability (Centre of Excellence)	Coastal environments research						1
Equine	Expanded research activity/research centre			1			
Engineering and mining support	Research and development	1					
Attraction	**Category 5: Attraction Targets**						
Government Services	Administrative offices, regional service centres	2	1				1
Business services	Back office functions, support centres	1	1				1

8 Development Requirements

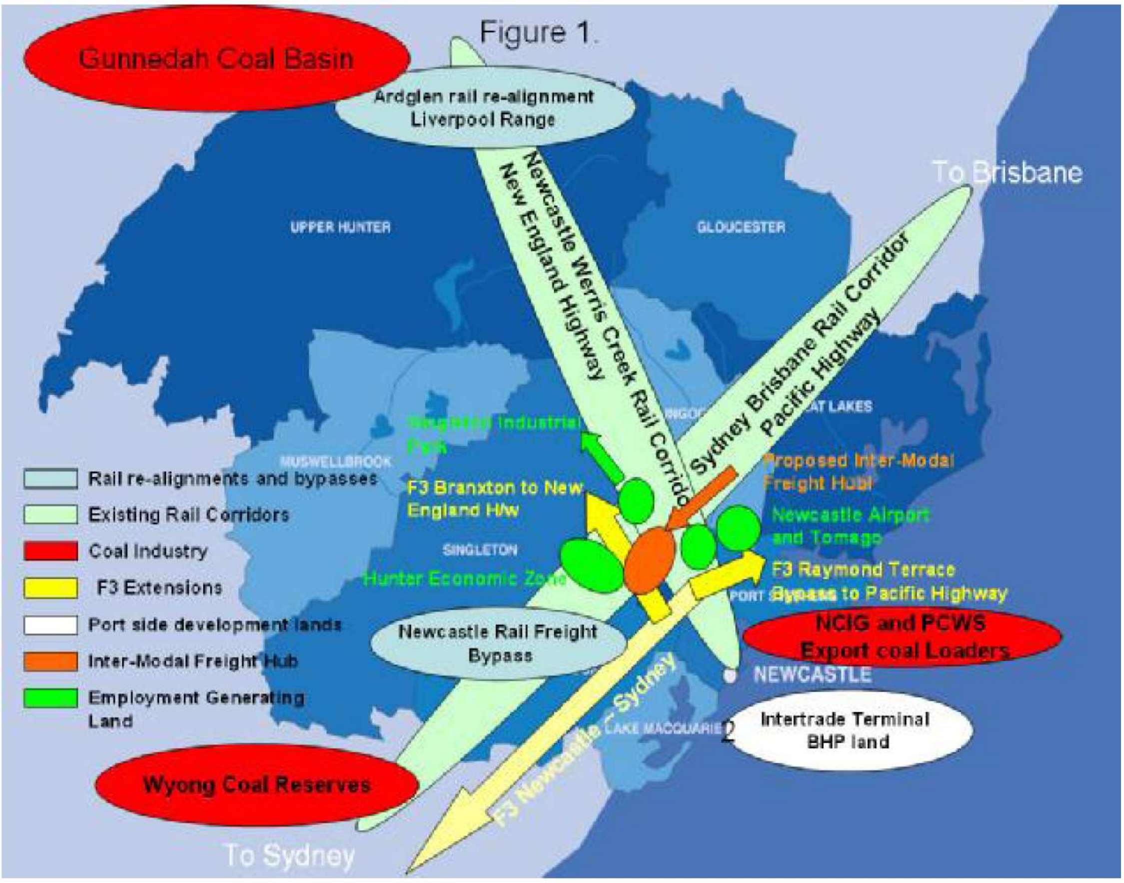
8.1 Overview - Development Requirements

There are a number of requirements to support the long term economic diversification and growth in the Upper Hunter Region. This includes: improved telecommunications with the development of broadband; investment in roads and other strategic regional infrastructure; and the development of employment lands. Another major issue is the funding of these investments, including options for a regional royalties program. The development of a skilled regional workforce is also a key development requirement.

8.2 Mapping Regional Infrastructure Requirements

There are a number of requirements to support economic development and diversification in the Upper Hunter Region. Infrastructure is a key issue for the Region.

The *Hunter Infrastructure Alliance* has highlighted the strategic significance of infrastructure for the future development of both the Lower Hunter and the Upper Hunter Regions and has mapped the key infrastructure requirements. The priorities identified by the *Hunter Alliance*, align with the key infrastructure needs in the Upper Hunter, which were identified in this diversification project.



Source: Nationally Significant Infrastructure priorities for the Hunter Region, Hunter Infrastructure Alliance P4

In 2009 an extensive review was undertaken of infrastructure requirements and priorities in each of the six local government areas in the Upper Hunter Region. The *Upper Hunter Infrastructure Project* was an initiative of the former Hunter *Economic Development Corporation (HEDC)* now *Regional Development Australia - Hunter (RDA-Hunter).*[88] The priorities identified by each Council are identified in the table below.

Table 45. Upper Hunter Region - Council Infrastructure Priorities 2009

	Sub-group 1			Sub-group 2		
Priority	**Singleton LGA**	**Muswellbrook LGA**	**Upper Hunter LGA**	**Dungog LGA**	**Gloucester Shire**	**Great Lakes LGA**
1	Gowrie Gates underpass	Muswellbrook Bypass	Water supply from Glenbawn Dam to Scone	Regional Road Network (Dungog LGA Access Routes)	Barrington Township Sewage and water upgrade	Maintenance of existing infrastructure-bridges
2	Streetscape of Singleton CBD	Sewage of industrial estate	Rail overpass New England Highway in Scone	Common Rd Industrial Estate Infrastructure	Funding for road improvements for various project. (local roads are 60% unsealed)	Rehabilitation and sealing of roads-Regional Roads, urban and rural roads
3	Upper Hunter Environmental Health Study	Sub Regional Waste facility	Water supply to Murrurundi and Aberdeen	Bridges (Replacements)	Visitors Information Centre Gloucester	Memorial Drive/Little Street boardwalk and foreshore cycleway
4	Sewage Infrastructure provided at Mt Thorley Industrial Estate	Sewage relocation Muswellbrook township	Upgrade Airstrip at Scone Airport	Sewage of Villages in the LGA. Eg Paterson.	Upgrade of amenities at sporting field complex (toilet and shower blocks etc.) located in the District Park of Gloucester Township	Forster Civic Precinct project
5	Commercial Gas reticulation provided to Industrial	Water Treatment and pipeline at Aberdeen	Main Road 62 to allow heavy vehicle B Double access	Sports Fields Clarence Town	Gloucester reservoir, water supply lines and associated infrastructure	Sand dredging of Wallis Lake, Myall River and Forster Keys.
6	Planning of Singleton Bypass i.e. identify a corridor	Rail Realignment and identification of suitable corridor for a rail freight and coal bypass	Heavy vehicle bypass around Scone (western side) Medium to Long term 10-20 years	Tourism related infrastructure (3 projects)	Sealing of Scone Rd over Barrington Tops	Sporting facilities - various projects
7	Water alliance		Scone Medical Practice extensions		Completion of sealing of Bundook Road	Extension of cycleways and footpaths network
8						Maintenance of existing public infrastructure -halls
9						Taree Airport upgrade

Source: Upper Hunter Infrastructure Project Summary Report October 2009, Regional Development Australia – Hunter P8

These infrastructure issues were largely confirmed in discussions held with Councils in late 2010 as part of this diversification project. In addition a number of other issues were identified in relation to development of housing land and industrial land.[89] The following table provides a brief overview of the key infrastructure requirements related to economic development in each of the local government areas.

Some of the major related planning issues have been identified in a working paper prepared as part of this project.[90]

88 Upper Hunter Infrastructure Project Summary Report October 2009, Regional Development Australia – Hunter
89 Overview of Land Use Planning Issues in Upper Hunter Shire, Working Paper for UH Diversification Project, TCG Planning December 2010
90 Overview of Land Use Planning Issues in Upper Hunter Shire, Working Paper for UH Diversification Project, TCG Planning December 2010

Table 46. Overview of Development Requirements – Upper Hunter Region

Regional Cluster 1			Regional Cluster 2		Regional Cluster 3
Singleton	**Muswellbrook**	**Upper Hunter**	**Dungog**	**Gloucester**	**Great Lakes**
Development requirements: road; rail overpass; industrial areas; town centre.	Development requirements: road improvements - including bypass; sewer to industrial estates; development of industrial areas; town centre revitalisation; water.	Development requirements: road; rail overpass; industrial areas; town centre; water; broadband; Scone airport improvements.	Development requirements: road improvements; development of an industrial estate; new tourist accommodation; broadband.	Development requirements: road improvements; development of the Stratford Industrial Park; new tourist accommodation; town centre development; Multipurpose Gateway Centre; broadband.	Development requirements: Forster Tuncurry Crown Harbour Project; development of industrial estates; small business incubator; road improvements; town centre revitalisation; broadband.

Source: Buchan Consulting area consultations October/November 2010

8.3 Freight Infrastructure

A number of reports have highlighted the importance of improving the efficiency of freight movements, both within and through the region. These issues were identified in the *Lower Hunter Regional Strategy (2006),* in submissions by the *Hunter Infrastructure Alliance Group*; and the *Upper Hunter Infrastructure Project Report 2009*. Major drivers are the population and employment growth in the Hunter Region and the growth in road freight traffic on the Sydney-Brisbane interstate corridor placing increased demand on the road system. A key regional requirement is for intermodal facilities linking road and rail.

These issues are important in the Upper Hunter and the West East Rail Corridor, with the movement of coal, grain, ore and other commodities to the Port of Newcastle for export. Movements on this corridor are increasing with coal movements from the Gunnedah Region and from the Upper Hunter.[91] These are infrastructure significant issues, particularly for Scone and Singleton.

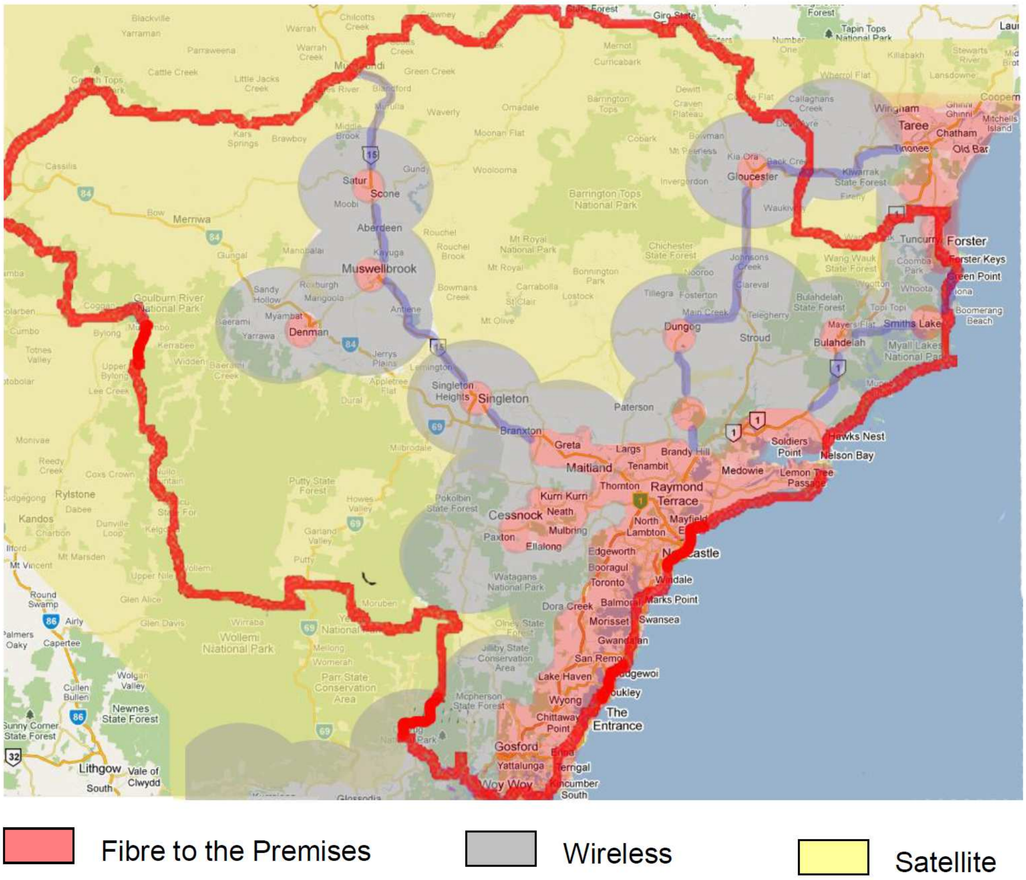
- Scone Rail Overpass Proposal: with larger coal trains and increase frequencies the township is being affected by crossing closures. The *Lower Hunter Transport Needs Study* highlighted this issue, with Scone being the only remaining operational level crossing on the north-south in-land route of the Sydney to Brisbane strategic corridor.
- Singleton *'Gowrie Gates'*: The *Upper Hunter Infrastructure Project in 2009* and the *Lower Hunter Transport Needs Study* identified the consequences of disrupted freight movements to the Port of Newcastle with rail and highway closure, in the event of an accident causing major structural damage to this substandard rail underpass.
- Roads: the construction of F3 Freeway to Branxton and the Raymond Terrace links would have significant impacts on reducing traffic movements through the towns in the Lower Hunter and along the New England Highway. These links are important for connecting agricultural and minerals producing regions to the port. The F3 to Branxton will also open up the new residential and employment lands identified in the *Lower Hunter Regional Strategy* and will open up opportunities for new industrial development (eg. manufacturing, logistics etc.) in Singleton (Singleton Industrial Park).[92]

91 Nationally Significant Infrastructure priorities for the Hunter Region, Hunter Infrastructure Alliance. Rail freight movements from the west to the port are mainly coal from the Upper Hunter (around 80 trains per day). Developing coal reserves in the Gunnedah Basin will need improved access to the Port of Newcastle over the medium tem (5 years) as coal volumes increase.
92 The Hunter Nationally Significant Infrastructure priorities for the Hunter Region, Hunter Infrastructure Alliance P8

8.4 Communications - Broadband

Regional Development Australia Hunter (RDA Hunter) has taken a lead role on the NBN in the Hunter Region and the Central Coast Region.[93] The major focus has been on securing the Hunter and Central Coast as a priority region for the roll-out and on capturing regional employment and training opportunities associated with the NBN construction and the regional roll out.

Hunter and Central Coast NBN Coverage



Source: Taking Geography out of the Equation Super-Fast Broadband. Hunter and Central Coast National Broadband Network Project, RDA Hunter (based on NBNco coverage map)

The NBN will address a number of current service gaps in the Upper Hunter and enable a wide range of new activities. Outside of the major rural towns and larger villages in the Upper Hunter, only around 68% of the population have broadband ADSL coverage. A recent report on farming sectors by the *Australian Communications and Media Authority (ACMA)* indicated that a survey showed that 39% of farmers were still on dial-up modems Australia wide. This is in line with the situation in the Hunter Region.[94] While all of the major rural towns in the Hunter now have ADSL enabled exchanges, this covers a radius of approximately 4km from these exchanges. Better and faster broadband, wireless or satellite service is particularly important to those areas in the Upper Hunter with telecommunication access difficulties.

Broadband opens up major opportunities for regional areas and it takes geography out of the equation.[95] There are a number of benefits from the development of high speed broadband, for

93 The National Broadband Network (NBN) is a fibre to the premises (FTTP) network under construction in Australia. The Australian government has established a government business enterprise, NBN Co. Ltd, to design, build and operate an Open Access Network providing download speeds of up to 1 Gigabit per second to 93% of Australian homes and businesses

94 Nationally Significant Infrastructure priorities for the Hunter Region, Hunter Infrastructure Alliance, 2009

95 Taking Geography out of the Equation Super Fast Broadband., Hunter and Central Coast National Broadband Network Project , James Vidler RDA Hunter

households, for businesses and for education and health providers. This includes home entertainment and communication; e-government; e-health; smart grids; e-education; cloud computing; and teleworking.[96] Broadband creates major advantages for business located in regional areas. For agriculture, farmers can have access to a range of real time market and other information and can set up remote monitoring and control systems.

- E-health: while large hospitals are generally well serviced with broadband, the NBN will provide this to smaller hospitals and medical centres. This will allow for applications like: tele-health and electronic consultation; real time in home monitoring of patients or elderly persons; and training and support for health professionals in remote areas.
- E-education: will be enabled and will include: enhanced remote education; shared delivery of classes across schools; online real time classes; video conferencing; real time interactive learning in classrooms, businesses or homes.
- E-government: provision of information and transaction services for businesses and residents.
- Cloud computing: this is an Internet based technology which stores information in servers and provides information access as an on-demand service; and provides access to high level computing capacity. This has major applications for businesses.
- Smart grids: this is important for real time monitoring of energy and water use through smart meters. It will also allow for remote monitoring and management systems (eg. farm operations).
- Tele-working: will be enhanced through access to large file transfer capacity, videoconferencing and real time interaction from home sites to offices.

CountryTELL is a *Regional Telecommunications Infrastructure Carrier* that deploys last mile wireless based networks for communities in rural and remote locations. It was formed in August 2002 from the *ICT Committee of the Murray Regional Development Board* as Murray *River Regional Telecommunications Company (MRRTC)* (trading as *CountryTELL*).[97] The company's broadband program involves establishing communications infrastructure for wireless broadband for populations of less than 5,000 people. The company's major focus is sustainability of regional areas through the provision of business services to local government, businesses and the community (i.e. providing more than just internet service provision). *CountryTELL's* expertise lies in wireless technology's using WiMax equipment. The company's wireless service has a 20 km reach from the base station. The company is involved in the LGAs of Singleton, Muswellbrook, Upper Hunter, Dungog and Great Lakes in the Upper Hunter Region, and other options are being explored for Gloucester. CountryTELL's pilot site is in Wellington NSW and began in February 2011.[98] The Hunter Valley is the next phase and infrastructure construction in the Hunter is expected to begin in mid-2011. CountryTELL's network operating centre is located in the Hunter Region.[99]

Nationally a workforce of 25,000 will be involved in the rollout and commissioning of the network over an 8 year period.[100] At a regional level the NBN provides new opportunities for a skilled workforce involved in installation and maintenance, and this has been a major focus of RDA Hunter. The major skill areas are: civil construction workers; telecoms workers for cables; network engineers; electricians; and power linespersons. *RDA Hunter* and *RDA Central Coast* have been working on developing a coordinated '*NBN Ready'* regional skills development strategy that will provide a skilled workforce.[101]

In summary, for the Upper Hunter the NBN is an enabling infrastructure, which can: generate improvements in existing businesses; remove distance factors for businesses; deliver an array of online and real time services; and enable businesses to operate in any location and still have

96 Valuing Broadband Benefits: A selective report on issues and options , Richard Hayes, Melbourne Business School, The University of Melbourne December 2010

97 Submission by the Murray Regional ICT Committee CountryTELL consortium to DCITA discussion papers, Broadband Connect Clever Networks, 2006, P8.

98 Pilot takes off, Wellington Times, Feb 7 2011, http://www.wellingtontimes.com.au/news/local/news/general/pilot-takes-off/2068533.aspx

99 Company consultation, March 2011.

100 Skills Strategy Workshop, Hunter and Central Coast National Broadband Network Project RDA Hunter 2010

101 This has involved working with: the Local Employment Coordinator (LEC) for the Hunter and Central Coast the Department of Education, Employment and Workplace Relations; the NSW Department of Education and Training; State Training Services; the Hunter Institute; and with local RTOs and Group Training Organisations

access to high-speed communications. Broadband access will underpin a number of diversification opportunities in all sectors, including agribusiness, tourism, education, health and business services.

Major issues for the immediate future are: making the Hunter Region, including the Upper Hunter a priority for roll out; continuing with the strategy of developing a local workforce, which can operate in the broader region; and building awareness in business and the community of the online applications and the opportunities provided by high speed broadband.

8.5 Employment Lands

Employment lands are important for future development of the region. The following highlights current industrial estates within each of the LGAs, and the mix of industries located in them. Future growth will require investment in infrastructure in existing estates and the development of new areas in several of the local government areas.

Table 47.Industrial Estates in the Upper Hunter Region

Industrial Estates	Type of Business	Size	Major Businesses
Cluster 1			
Singleton LGA			
McDougall Business Park	Transport, Mining, Engineering and Agricultural Support Services	65 Ha	Entire Concrete, Hunter Valley Buses, Industrial Canvas, Cox's Plant Hire, TNT Transport, Whitmore Workshop
Maison Dieu Industrial Estate	Coal Mining Support Services	50 Ha	Birrana Engineering, Blackwoods, Boon Logistics, Bradken, CCI FluidTech, CCI POPE, Consolidated Bearing Company, Enzed, Fanquip, Garland Engineering, LEGRA, Lubritene Australia, Marathon Equipment, MTU Detroit Diesel Australia, MVD Australia, Outbye Engineering, PowerServe, Sandvik Surface Mining Division, Tefol, TradeLink, Tri-Steel and Wormald Fire Systems.
Mt Thorley	Coal Mining Support Services	130 Ha	Allen Precision Engineers, Ellavale Engineering, Firefly International, Gough & Gilmore, Hedweld Engineering, Hunter Frame & Truss, Komatsu, Leibherr, Marathon Tyres, SGS Australia, Terex Mining, Total Fire Solutions and Westrac
Muswellbrook LGA			
Thomas Mitchell Industrial Estate		20 lots	
Muswellbrook Industrial Park	Generally coal mining support services	31 lots	A & D Lifting, Atlas Copco, Bell Scaffolding, Bradken, Bro-Built Engineering, Coates Hire, Convatech, Cummins, Ellavale Engineering, Enzed, G & S Engineering, Goodyear Hunter Valley, H & M Engineering & Construction, Hall Constructions, Hitachi Construction Machinery, John Holland, Laing O'Rourke, LeTourneau, Mitchell Drilling Contractors, Muswellbrook Bearing Centre, Muswellbrook Steel, Phillips Engineering, Reliable Conveyor Belt, Sandvik Materials Handling, Thomas & Coffey, Titan Wheel & Rims Pty Ltd, Valley Longwall Hydraulics and Wild Excavations.
Upper Hunter LGA			
Merriwa Industrial Estate	Mainly light industrial		Mainly light industrial businesses servicing local markets, and several businesses servicing broader markets
Scone Industrial Subdivision	Mainly light industrial		Mainly light industrial businesses servicing local markets, and several businesses servicing broader markets
Scone Industrial Park	Light Industrial/Special Business Zone Land	35Ha	Zoned for light industrial and special business
Cluster 2			
Dungog LGA			
Dungog Industrial Estate	Mainly light industrial	na	Light industrial businesses servicing local markets
Gloucester LGA			
Gloucester Industrial Estate	Mainly light industrial	na	Mainly light industrial businesses servicing local markets, and several businesses servicing broader markets
Stratford Industrial Park	Rezoned for Heavy Industry		Rezoning for gas plant and other activities at mine site Development of an industrial park or energy park by Gloucester Coal.
Cluster 3			
Great Lakes LGA			
Tuncurry Industrial Area	Mainly light industrial	26.5 Ha	Mainly light industrial businesses servicing local markets, and several businesses servicing broader markets.
Forster Industrial Area	Mainly light industrial	20 Ha	The majority of the area is used for industrial purposes of varying intensities with a number of lots in the SE occupied by bulky goods premises.
Tea Gardens Light Industrial Area	Mainly light industrial	16 Ha	Mainly light industrial businesses servicing local markets, and several businesses servicing broader markets

Source: Hunter Investment Prospectus 2009 HEDC, Forster-Tuncurry Employment Lands Strategy, and Buchan Consulting Research.

The Councils in their planning strategies have identified requirements in terms of developing industrial estates and other business parks. Hunter Development Corporation has also assessed the demand and supply of employment in the Lower Hunter and Upper Hunter.[102]

Table 48. Industrial Land Development Issues in the Upper Hunter Region

LGA	Issue	Impacts	Action Required	Stage
Cluster 1				
Singleton LGA				
	Lack of a reticulated sewage infrastructure in Mt Thorley Estate.	Constrains full use of developable land and limits further development and business attraction.	Improved sewage infrastructure at Mt Thorley Industrial Estate.	Emerging Project
	Inadequate gas supply to Industrial Parks.	Some loss of investment to other locations.	Commercial Gas reticulation provided to Industrial Parks.	Emerging Project
	Singleton Industrial Park	Opportunity to develop industrial land with the F3 extension.	Implement the F3 extension.	Key project
Muswellbrook LGA				
	Inadequate water and sewer systems servicing industrial areas.	No larger manufacturing or servicing can take place in Muswellbrook Industrial area as there are restrictions due to sewage infrastructure. Limits capacity to capture additional mining service activity.	Improved sewage system in Industrial Estate.	Emerging Project
			Rezoning additional land as industrial.	Under Consideration
Upper Hunter LGA				
	Lack of data on which to accurately base estimated industrial land use requirements.	Makes it difficult to ensure enough industrial land supply is available to meet future demand.	Need to assess future land requirements.	Strategy developed as part of Upper Hunter LGA Land Use Strategy
	No land set aside for heavy industrial uses.	Limits future development possibilities for the Shire.	Identify potential areas to be investigated for possible industrial use.	Strategy developed as part of Upper Hunter LGA Land Use Strategy
Cluster 2				
Dungog LGA				
	The lack of a reticulated sewage and waste water infrastructure.	Major inhibitor of growth in villages of Paterson, Vacy, Gresford and Clarence Town	Improve sewage in the villages.	Emerging Project
	Poor road infrastructure	Deters large scale industrial businesses from locating in the area.	Upgrade of road access routes.	Emerging Project
			Replacement of timber bridges to cope with increased traffic.	Emerging Project
Gloucester LGA				
	Development of industrial area.	Need to attract new businesses to the area.	Rezoning of Stratford Industrial Park land for Heavy Industry.	Approved
			Master planning of site.	
			Proposed rezoning of land at Cemetery Road for Light Industry.	Under Consideration
Cluster 3				
Great Lakes LGA				
	Lack of adequate employment lands given growth projections for the population.	Inability to cope with future demand generated by population growth. Impacts on the ability to retain and attract industry.	Major rezoning to industrial land at South Forster to cope with growth projections in the medium and long term.	Being Processed
	Inadequate gas supply to Industrial Parks.	Some loss of businesses to other locations, and difficulties in attracting businesses.	Commercial Gas reticulation provided to Industrial Parks.	Emerging Projects

Source: TCG and Buchan Consulting: Overview of Land Use Planning Issues 2010, Regional Development Australia Upper Hunter Infrastructure Project 2009

102 Hunter Region Employment Lands, Market and Context Review, Report for HDC, ADW Johnson, November 2010; Hunter Region Employment Lands, Hunter Development Corporation December 2010.

8.6 Funding Regional Economic Development

A key issue is that the funding of these major infrastructure needs in the Upper Hunter Region is beyond the capacity of local government. At present: several of the LGAs in the Upper Hunter are being impacted by the expansion of the mining sector, which is placing current pressures on community infrastructure; there are delays in funding of major strategic road projects; and local roads and other town infrastructure requires upgrading.

Councils in the region (in partnership with the *Association of Mining Related Councils)* have developed a proposal, which draws on the experience of Western Australia. Western Australia has implemented a *Royalties for Regions* program, which recognises the specific infrastructure needs of mining regions and communities and also the need to encourage future economic diversification.

There is the potential to develop a similar program for funding strategic projects in mining regions in New South Wales, including projects and infrastructure to support diversification of the regional economies (in mining areas and adjacent areas). Significant work has been undertaken by the *Association of Mining Related Councils (*with input from some of the Upper Hunter Councils) on a *Royalties for Regions* program: to assist communities being impacted by mining and their requirements in terms infrastructure; and to support communities where mining is beginning to down size. The proposal seeks 30% of NSW Mining Royalties to be allocated to regions.[103]

Two funds are proposed: a *Regional Funding Pool* ($200 million) - available to businesses, government agencies, community groups and local government; and a *Local Government Funding Poo*l ($100 million) - for local government initiated projects only.

> ***"The primary objective of the Scheme is to improve economic and community infrastructure and services in the mining regions through funding projects that will assist in attracting investment and increasing jobs and help to improve the quality of life in the region."***
> **Source: Royalties for Regions Proposal, Association of Mining Related Councils, November 2010 P3**

Some lessons are drawn from the WA Scheme.[104] Funding for projects under the proposed *Local Government Fund* would have a focus on developing regional employment opportunities, including post-mining opportunities in the regions. Many of these strategic projects would cover more than one local government area.

8.7 Skills for the Future

Skill shortages and skill gaps have been identified as a key issue in the region. In the current environment, the demands of a growing mining workforce are placing major pressures on other industries. This is exacerbating the ongoing skill shortages in a number of skilled trades, a major problem that the Upper Hunter shares will a number of other regional areas and some metropolitan centres.

At the same time, there are concerns about the access to higher education and VET programs in the region and the level of business engagement with the training system.

The industries that have been identified in this diversification strategy have a higher knowledge and skills component. This means that there will be a need to develop workforce skills in the region for these industries. This requires *a regional workforce plan* in both the short term (to deal with current skills pressures) and in the medium term to develop skills for emerging industry sectors. This plan would build on some of the work that has been already undertaken in the region. For example, Muswellbrook has been working with the mining companies on the training of local apprentices.

The diversification strategy highlights the need to provide for the local delivery of education and training, with the establishment of several specialist centres in the region. These centres would deliver education and training programs for key industry sectors, including: apprenticeship programs in the skilled trades; and a range of upgrade training programs. The centres would be delivering a range of TAFE programs and ACE programs.

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103 Royalties for Regions Proposal, Association of Mining Related Councils, November 2010

104 Royalties for Regions Progress Report December 2008 – June 2009, Western Australia Government 2009

9 Implementing the Strategy

9.1 Overview

Sections 7 and 8 have outlined the elements of the diversification strategy and the opportunities and actions required at an LGA level and at a regional level. It also highlights the need for an integrated regional cluster approach and an industry cluster approach to development of these new opportunities.

The strategy has both short term/medium term requirements and longer term horizons. However action on the longer term also requires actions now: to build on current industries; to encourage emerging industries; and to develop the foundations for sustainable regional economies and jobs.

The long term involves: identifying and acting on long term sustainable economic development opportunities for the Upper Hunter Region, which are based on competitive advantages of the region and the strengths of the individual local government areas; the replacement of some mining jobs as job locations shift and activity levels change in specific areas; and encouraging regional population growth to underpin the development of local markets and services.

The short term/medium term focus is on addressing the current impacts of the mining boom on other industries and communities in the Upper Hunter and acting on some of the enabling infrastructure issues, which will provide foundations for future regional growth.

9.2 Strategy Implementation

This report identifies the future growth prospects for the Upper Hunter Region and for the individual LGAs. There are a number of components to future growth and diversification which are identified in this report.

- Increasing local populations to build ongoing critical mass for service industries and for the associated jobs.
- Building on specific industry strengths and local advantages and leveraging these as a foundation for future industry diversification and growth.
- Developing new areas of industry that are based on emerging opportunities (eg. renewable energy; and logistics based on improved access).
- Developing knowledge intensive activities. This includes the development of renewable energy support activities; education and training activities; and research and development activities.

The key sectors where action is required and the horizons for acting on sector development initiatives are identified. While action is required by each Council on economic development, because of the inter-relationships between areas and sectors there are major benefits from a region-wide and regional cluster approach. There are distinct current industry clusters in the region, and these reflect the current and emerging patterns of industry specialisation.

As a consequence of these inter-linkages, many of the recommendations on implementation focus on a regional approach to many of the actions and the development requirements. This regional approach may involve all of the LGAs or in other cases a cluster of 2 or 3 LGAs, covering the areas where a specific industry is located.

There is already significant cooperation among Councils through *Hunter Councils Inc.,* and the *Upper Hunter Directions Forum*. There is also cooperation between Councils on specific projects (eg. *Crops for the Hunter*, involving Upper Hunter, Singleton and Muswellbrook).

Great Lakes is in a different situation from the other LGAs included in this study, as from a planning perspective, it is part of the *Mid North Coast Regional Strategy* and for tourism is part of the *Mid North Coast Tourism Region*. In relation to some coastal issues, Great Lakes is more likely to partner with these other coastal councils. On other industry development issues, it may partner with several of the Upper Hunter Councils.

9.3 Short and Medium Term - Dealing with Growth Pressures

The current major pressures of the mining sector boom in the region are on accommodation, regional workforces, and infrastructure. There is a need for a planned approach to address the accommodation and workforce issues.

9.3.1 Accommodation and Housing Plan

Due to the pressure of the mining sector on housing markets in Singleton and Muswellbrook, there is a need for the development of a mining regions' accommodation plan. This would examine future demand with the expansion of mining activity and the supply options, including mining accommodation and rental housing. The plan should be a jointly developed with the mining companies, the Councils, and government agencies led by the Department of Trade and Investment (DTI).

	Recommendation	Partners Involved	Suggested Lead
A. Short and Medium Term - Dealing with Growth Pressures			
Accommodation Plan	Recommendation 1: That an accommodation and housing review be conducted and a plan be developed for the three LGAs (Singleton, Muswellbrook, Upper Hunter) affected by the expansion in mining activity.	Task Group comprising: Local Government; Mining Industry; Department of Planning and Infrastructure.	Singleton, Muswellbrook, Upper Hunter Councils / Department of Premier & Cabinet

9.3.2 Regional Workforce Plan

The growth of the mining sector is impacting on skill availability in the region, across a number of sectors. There is a need for improved regional workforce planning to ensure that the labour market and the training system can deal with these regional and industry workforce requirements.

An *Upper Hunter Region Industry Workforce Plan* should be developed – this would assess labour demand and labour supply issues over a 5 year horizon and a 10 year horizon. The plan would focus on recruitment, retention and skills development across the mining sector, and in other key industries in the region. It should also take account of the initiatives being pursued at a local level on apprentice hiring and training (eg. Muswellbrook) and other skill issues.

This regional plans approach has been implemented in Victoria by *Skills Victoria* with the development of *Regional Workforce Development Strategies* covering key industries (eg. power generation, agriculture, food processing, civil construction, transport and logistics, building and construction, ICT) in major regional areas (eg. Eastern Gippsland, Latrobe Valley, Ballarat Region). In New South Wales, a comprehensive review was conducted of future skill requirements in the Central Coast Region as part of preparing the *Regional Economic Development and Employment Strategy (REDES).*[105]

The plan and associated sector studies would enable a detailed assessment of employment and skills issues and provide direction for the delivery of education and training in the region to meet medium term needs in existing sectors and to provide required skills for emerging sectors.

Development of the plan should involve a task group comprising: Department of Education and Communities; Department of Trade and Investment; Regional Development Australia (Hunter); the two TAFE Institutes with coverage of the Upper Hunter Region (and Mid North Coast); and industry representatives from the sectors covered in the plan.

105 Smarter Central Coast Project 2007/08, including a major report by Buchan Consulting.

	Recommendation	Partners Involved	Suggested Lead
A. Short and Medium Term - Dealing with Growth Pressures			
Regional Workforce Plan	Recommendation 2: That an Upper Hunter Region Industry Workforce Plan be developed with coverage of the mining sector and other key industry sectors (including SMEs) in the region. The plan should cover a 5 year outlook and a 10 year outlook.	Task group comprising: Department of Education and Communities; Department of Trade and Investment; Regional Development Australia (Hunter); TAFE Institutes; and industry representatives.	Department of Education and Communities / Department of Premier & Cabinet

9.4 Strategic Reviews

There are several areas where information is required to enable an evidence based development of future opportunities and the implementation of the diversification strategy. These information needs cover: agricultural diversification in the region; and the potential future uses of rehabilitated mining sites.

9.4.1 Agribusiness Review

There is a need for a technical review of the future potential of new agribusiness in the Upper Hunter Region. This would include a technical assessment of locations that would be suitable for more intensive agriculture and the types of production that are feasible in specific sub-regions. It would also cover processing opportunities. There is a major gap as a number of the sector studies of rural industries in the Upper Hunter were produced almost a decade ago and since then there has been a major extension of mining activity in several of the LGAs. The study could also examine supply chain linkages and the potential for processing operations to be developed.

A first step in this analysis has been undertaken with the recent release of the *Crops for the Hunter* feasibility study on the potential for industrial hemp production.[106] The review should involve a task group comprising: Department of Primary Industries; Department of Trade and Investment; Office of Environment and Heritage; Office of Water; Local Government; and agriculture sector representatives.

	Recommendation	Partners Involved	Suggested Lead
A. Short and Medium Term - Dealing with Growth Pressures			
B. Strategic Reviews			
Agribusiness Review	Recommendation 3: That an agribusiness study be conducted to provide a practical guide to diversification options in the agriculture sector in the Upper Hunter.	Task group comprising: Department of Primary Industries; Department of Trade and Investment; Office of Environment and Heritage; Office of Water; Upper Hunter Region Councils; and agriculture sector representatives.	Department of Primary Industries / Department of Premier & Cabinet

106 Crops for Hunter - Feasibility of Growing Industrial Hemp in the Hunter Valley, Neil Nelson Agvice Pty Ltd, September 2010

9.4.2 Future use of Mining Sites

Site rehabilitation is a requirement of mining licences and environmental rehabilitation plans are prepared and ongoing progress is monitored. However in discussions in the region, there appears to be lack of agreement on the potential uses of rehabilitated mining sites and the timing of sites becoming available.

As part of long term regional planning there is a need for a technical and business review to assess these issues. The study should involve: Department of Primary Industries; Department of Trade and Investment; Office of Environment and Heritage; Local Government; Office of Water; Hunter Development Corporation; Department of Premier and Cabinet; and mining sector representatives.

	Recommendation	Partners Involved	Suggested Lead
A. Short and Medium Term - Dealing with Growth Pressures			
B. Strategic Reviews			
Future use of Mining Sites	Recommendation 4: That a technical and business review be undertaken of future uses of rehabilitated mining sites in the Upper Hunter Region.	Department of Trade and Investment; Office of Environment and Heritage; Councils; Office of Water; Hunter Development Corporation; Minerals & Energy and mining sector representatives.	Department of Primary Industries / Department of Premier & Cabinet

9.5 Regional Planning and Infrastructure

9.5.1 Regional Planning

For longer term planning, there is a current gap due to the absence of a formal regional strategy document for the Upper Hunter Region.

There is a need to prepare an *Upper Hunter Regional Strategy*, which is equivalent to the Lower Hunter Strategy. Such a strategy would develop a common vision of the future of the region and address long term planning and development in an integrated way. The development of the strategy would include a new set of population projections for the region and for the individual local government areas. The components that are important for the regional plan are outlined below.

An Upper Hunter Strategy can be prepared within a shorter time span, as a number of studies have been conducted by the *Hunter Development Corporation* and by Councils as part of new LEP processes. Analysis has also been conducted as part of this diversification project. The development of the strategy document should involve: Department of Planning and Infrastructure; Hunter Development Corporation; Department of Premier and Cabinet; Local Government; Department of Transport; Office of Environment and Heritage; Department of Trade and Investment; Department of Primary Industries; and Regional Development Australia (Hunter).

The *NSW Department of Planning and Infrastructure* has taken the first step, in announcing the preparation of a *Strategic Regional Land Use Plan* for the Upper Hunter Region (and other areas). The plan which is to be completed by mid-2012, will identify the best places for a range of land uses covering: agriculture (including cropping, viticulture, and thoroughbred breeding), mining, coal seam gas extraction, conservation and urban development. [107]

107 Strategic Regional Land Use: A new approach to planning for resources and our regions. Facts Sheet May 2011 NSW Department of Planning & Infrastructure. The initial plans are for the mining affected areas of Upper Hunter (including Gloucester); New England North West (including Gunnedah and Liverpool Plains); Central West; and the Southern Highlands.

	Recommendation	Partners Involved	Suggested Lead
C. Regional Planning and Infrastructure			
Regional Planning	Recommendation 5: That an Upper Hunter Regional Strategy be prepared. This strategy would provide a framework for regional development and set priorities.	Department of Planning and Infrastructure; Hunter Development Corporation; Department of Premier and Cabinet; Upper Hunter Region Councils; Department of Transport; Office of Environment and Heritage; Department of Trade and Investment; Department of Primary Industries; Regional Development Australia (Hunter)	Department of Planning and Infrastructure

9.5.2 Upper Hunter Region Infrastructure Plan

Section 8 has highlighted a number of regional infrastructure requirements that will influence economic development in the medium term and long term.

There is a need for a regional plan because of: the current impacts of the current mining expansion on several of the LGAs; the inter-linkages between areas in the Upper Hunter Region; and the importance of infrastructure improvements to future area development, industry growth and diversification opportunities. The development of the plan would enable an assessment of critical infrastructure projects and the setting of priorities. The requirements for each local government area are outlined in Section 8.2.

Development of the plan should involve: Department of Planning and Infrastructure; Hunter Development Corporation; Department of Premier and Cabinet; Local Government; Department of Transport; Office of Environment and Heritage; Department of Trade and Investment; Department of Primary Industries; and Regional Development Australia (Hunter).

A major element of regional infrastructure relates to logistics and freight infrastructure. A number of regional studies have identified the importance of improving the efficiency of freight movements both within and through the region. These issues are important in the Upper Hunter and the West East Rail Corridor, with the movement of coal, grain, ore and other commodities to the Port of Newcastle for export. Movements on this Corridor are growing with coal movements from the Gunnedah Region and from the Upper Hunter.[108]

These issues are discussed in Section 8.3. Three key projects have been identified and these are: Rail - Scone Rail Overpass Proposal and Singleton 'Gowrie Gates' and Roads - the construction of F3 Freeway to Branxton. This extension will open up the new residential and employment lands identified in the Lower Hunter Regional Strategy and will create opportunities for new industrial development (eg. manufacturing, logistics etc.) in Singleton (Singleton Industrial Park).[109]

While development of the Rail - Scone Rail Overpass has now been indicated as a project to be funded in future by the NSW Government, Upper Hunter Council has highlighted the need to speed up the development of this infrastructure.

108 Nationally Significant Infrastructure Priorities for the Hunter Region, Hunter Infrastructure Alliance. Rail freight movements from the west to the port are mainly coal from the Upper Hunter (around 80 trains per day). Developing coal reserves in the Gunnedah Basin will need improved access to the Port of Newcastle over the medium term (5 years) as coal volumes increase.
109 Nationally Significant Infrastructure priorities for the Hunter Region, Hunter Infrastructure Alliance P8

	Recommendation	Partners Involved	Suggested Lead
C. Regional Planning and Infrastructure			
Upper Hunter Region Infrastructure Plan	Recommendation 6: That an Upper Hunter Region Infrastructure Plan be developed and set priorities for infrastructure development in the region.	Department of Planning and Infrastructure; Hunter Development Corporation; Department of Premier and Cabinet; Department of Transport; Office of Environment and Heritage; Department of Trade and Investment; Department of Primary Industries; Regional Development Australia (Hunter); Hunter Development Corporation; Upper Hunter Region Councils; and Hunter Councils Inc.	Department of Premier and Cabinet / Hunter Councils Inc.
Freight Infrastructure	Recommendation 7: That the regional freight infrastructure projects (connecting the Upper Hunter to Newcastle Port) be identified as priority infrastructure and a delivery timetable be developed. This process should be linked to the NSW Freight Working Group's activities.	Hunter Development Corporation; Department of Planning and Infrastructure; Department of Premier and Cabinet); Department of Transport; Office of Environment and Heritage; Regional Development Australia (Hunter); Upper Hunter Region Councils; Hunter Councils Inc.; Newcastle Port Corporation, Hunter Valley Coal Chain Coordinator (as required)	Department of Premier and Cabinet

9.5.3 National Broadband Network

For the Upper Hunter, the NBN is enabling infrastructure, which can: generate improvements in existing businesses; remove distance factors for businesses; delivery an array of online and real time services; and enable businesses to operate in any location and still have access to high speed communications. Broadband access will underpin a number of diversification opportunities in all sectors, including agribusiness, tourism, education, health and business services.

Major issues for the immediate future are: making the Hunter Region, including the Upper Hunter a priority area for roll out; developing a local workforce which can deliver the regional installation; and promoting the online applications and opportunities across industry, particularly to smaller businesses. RDA Hunter (and RDA Central Coast) has been working with key agencies on a *'NBN Ready'* regional skills development strategy. This has involved agencies including: the Local Employment Coordinator (LEC) for the Hunter and Central Coast, the Department of Education, Employment and Workplace Relations, the then NSW Department of Education and Training, State Training Services, Hunter Institute, local RTOs and Group Training Organisations.

Regional Development Australia- Hunter **has taken the lead on this project and should continue advocacy with the ongoing support of Councils, government agencies and businesses organisations in the region.**

	Recommendation	Partners Involved	Suggested Lead
C. Regional Planning and Infrastructure			
National Broadband Network	Recommendation 8: That the Hunter Region be designated as a priority region for the NBN rollout.	Regional Development Australia (Hunter) with support of: Upper Hunter Region Councils; Hunter Councils Inc.; Department of Trade and Investment; Office of Education; and regional business organisations.	Regional Development Australia (Hunter)
National Broadband Network	Recommendation 9: That the development of a regional workforce for the roll out continue to be a priority project in the Hunter Region.	Regional Development Australia (Hunter) with support of Upper Hunter Region Councils; Hunter Councils Inc.; Department of Trade and Investment; Office of Education; Department of Education Employment and Workplace Relations; and training providers.	Regional Development Australia (Hunter)

9.5.4 Employment Lands

Employment lands are important for future development in the region. The analysis in Section 8.5 highlights current industrial estates (within each of the LGAs) and the mix of industries located in them. Future growth requires investment in infrastructure in existing estates and the development of new areas in several of the local government areas. The *Hunter Development Corporation* has examined future requirements across the Upper Hunter and Lower Hunter in several recent studies.[110]

There is a need to establish a regional delivery plan that sets priorities for development in the region. The development of the plan should involve: Department of Premier and Cabinet; Hunter Development Corporation; Department of Planning and Infrastructure; Department of Trade and Investment; and Local Government.

	Recommendation	Partners Involved	Suggested Lead
C. Regional Planning and Infrastructure			
Employment Lands	Recommendation 10: That an employment lands delivery plan be developed for the Upper Hunter Region, which includes priorities for infrastructure funding. This would be based on the frameworks provided by an Upper Hunter Regional Strategy and by a Regional Infrastructure Plan.	Department of Premier and Cabinet; Hunter Development Corporation; Department of Planning and Infrastructure; Department of Trade and Investment; Upper Hunter Region Councils.	Department of Premier and Cabinet Hunter Development Corporation

110 Hunter Region Employment Lands, Market and Context Review, Report for HDC, ADW Johnson, November 2010; Hunter Region Employment Lands, Hunter Development Corporation December 2010.

9.5.5 Funding Regional Infrastructure

There is a need to assess funding requirements and options for regional infrastructure. This assessment should give consideration to a *royalties for regions* type program.

This program could be along the lines of that being proposed by the *Association of Mining Related Councils* or could draw on other aspects of the Western Australian model.[111] The Western Australian model includes funding in several categories: for mining project related infrastructure; for community infrastructure to service larger regional populations; and for economic diversification projects, which will assist future industry development.

	Recommendation	Partners Involved	Suggested Lead
C. Regional Planning and Infrastructure			
Funding Regional Infrastructure	Recommendation 11: That a *royalties for regions* program be considered for mining affected regions and for the funding of projects related to key infrastructure and regional diversification. Given the industry inter-linkages of the Upper Hunter, coverage should include the adjacent LGAs.	Association of Mining Related Councils; Hunter Councils Inc.; Minerals Council NSW; Upper Hunter Region Councils.	Hunter Councils Inc.

9.6 Local Area Implementation

Diversification opportunities have been identified for each local government area in the Upper Hunter Region. The local diversification opportunities identified in Section 7 provide guidance to each of the Councils on priorities for economic development and diversification. Some opportunities are focused on single LGAs, while a number involve several areas acting together.

Development of these will require regional cooperation between local government and industry and the strategic use of government regional and industry and programs. The opportunities and actions identified should be integrated into Council economic development strategies and planning strategies.

	Recommendation	Partners Involved	Suggested Lead
D. Diversification Implementation			
Local Area Implementation	Recommendation 12: That the diversification opportunities identified in this study be integrated into individual Council economic development and planning strategies.	Upper Hunter Region Councils ; Department of Trade and Investment; Department of Primary Industries.	All Councils

111 Royalties for Regions Proposal, Association of Mining Related Councils, November 2010

9.7 Regional and Industry Cooperation

9.7.1 Interrelationships and Linkages

This report identifies the key sectors where action is required and the horizons for acting on specific sector development initiatives. While action is required by each Council, because of the inter-relationships between areas and sectors, there are major benefits from a region-wide and regional cluster approach.

This regional cooperation would enable: a more strategic and integrated approach to industry development and infrastructure issues; better use of Council economic development and planning resources; coordination in business attraction activities; and improved business cases for accessing New South Wales Government and Australian Government industry programs and small business development programs.
There are distinct current industry clusters in the region, and these reflect the pattern of industry specialisations and future opportunities.

Table 49. Industry Clusters – Upper Hunter Region

Sector	Locations (LGAs)
Mining and Mining Support	Singleton, Muswellbrook
Power Generation	Muswellbrook, Singleton
Renewables	Upper Hunter, Singleton
Equine	Upper Hunter, Muswellbrook, Singleton
Wine	Singleton, Muswellbrook, Upper Hunter, (Gloucester and Great Lakes)
Other agriculture	Is distributed across the Upper Hunter Region with some differences in scale of particular sectors.
Nature based and adventure tourism	Dungog, Gloucester, Upper Hunter, Great Lakes
Coastal tourism	Great Lakes

	Recommendation	Partners Involved	Suggested Lead
D. Diversification Implementation			
Interrelationships and Linkages	Recommendation 13: That a focus in implementing the diversification strategy be on regional cooperation on industry development and diversification opportunities and on related infrastructure requirements.	Upper Hunter Region Councils; Hunter Councils Inc.; Department of Trade and Investment; Department of Premier and Cabinet; Department of Primary Industries.	All Councils

9.7.2 Industry/Regional Clusters

A range of industry clusters have been identified covering: mining and energy related sectors; renewables; agriculture; wine; equine industry; and tourism.

The sub-regional specialisations and location clustering of industries provide the foundation for regional cooperation on economic development and diversification. This includes developing operational industry clusters involving key businesses from each sector and local industry and business organisations (eg. chambers and specialist associations -equine sector, wine sector).

This clustering reflects the way businesses see the world (industry and regions rather than individual local government areas) and the inter-linkages that exist between businesses and markets across the Upper Hunter. The key industry clusters that should be developed would include the following.

Table 50. Future Industry Development Clusters

Clusters	Locations (LGAs)
Agribusiness cluster 1 (Gloucester Growers extension)	Cooperation between Gloucester, Dungog and Great Lakes
Agribusiness cluster 2 (Crops for the Hunter)	Cooperation Upper Hunter , Singleton, Muswellbrook
Renewable Energy cluster	Upper Hunter Singleton, Muswellbrook Dungog and Great Lakes
Mining and Mining Support	Singleton, Muswellbrook, Upper Hunter
Wine	Singleton, Muswellbrook, Upper Hunter
Equine cluster	Upper Hunter, Muswellbrook, Singleton
Tourism Cluster 1	Singleton, Muswellbrook
Tourism Cluster 2	Upper Hunter , Dungog, Gloucester

The clusters would involve business representatives and Council representatives from each of the locations that are involved in the sector.

- Clusters should have a clear objectives and defined tasks.
- A *cluster action plan* would be developed to guide development in each of the sectors.
- Support for clusters should be sought from Department of Trade and Investment cluster programs and other Australian Government Programs.

This regional cooperation would enable: a more strategic and integrated approach to industry development issues, and in the case of tourism, would involve cooperation in product development and marketing.

	Recommendation	Partners Involved	Suggested Lead
E. Industry/Regional Clusters			
Industry Clusters	Recommendation 14: That regional industry clusters (identified in this report); with active business participation, be formed to drive industry diversification and economic development projects within relevant sub-regions of the Upper Hunter Region.	Upper Hunter Region Councils; Hunter Councils Inc.; HunterNet; Department of Trade and Investment; Local Chambers	Department of Trade and Investment
Industry Clusters	Recommendation 15: That detailed action plans be developed for each of the industry clusters.	Upper Hunter Region Councils; Hunter Councils Inc.; Department of Trade and Investment; Local Chambers	Department of Trade and Investment

9.7.3 Strategic Projects

Within the region, there are a number of strategic projects that have been identified or are under development, which will shape the future for specific areas. These projects include the following.

Table 51. Strategic Projects

Projects	
Renewable Energy Projects (eg. Kyoto Park) and the RE Precincts	Power sector - future investment in generating capacity and technologies
Forster Tuncurry Harbour development	Housing projects – Singleton and Muswellbrook
F3 Extension and Singleton Industrial Park	Agriculture diversification extension of Crop for Hunter and Gloucester Growers Projects
Regional Centres of Excellence	

It will be important that resources are applied to deliver these projects as they all have strategic importance for the future of the Upper Hunter Region. A focus needs to be on commencing those projects that will delivery results in terms of industry growth and new employment in the medium term.

	Recommendation	Partners Involved	Suggested Lead
F. Strategic Projects			
Strategic Projects	Recommendation 16: That in implementing the diversification strategy, there is a focus on facilitating those key local/regional development projects, which will deliver medium-term outcomes for the region.	Upper Hunter Region Councils; Hunter Councils Inc.; Hunter Development Corporation; Department of Primary Industries, Department of Premier and Cabinet; Department of Trade and Investment.	All Councils

9.8 Future Skills

Skills development is fundamental to future opportunities for the region and key issue is having greater local delivery of programs.

The industries identified in this diversification strategy have a higher knowledge and skills component, and this means that there will be a need to develop workforce skills in the region for these industries. This requires a regional workforce plan in both the short term (to deal with current skills pressures) and in the medium term to develop skills for emerging industry sectors. There is a need to develop delivery of education and training in the region, with the establishment of several specialist centres delivering a range of TAFE programs and ACE programs.

There is also a need to develop more knowledge based activities. In the medium term, the current industry specialisations and emerging capability provide the potential to develop centres of excellence in education and training. These centres would be located in one local government area but would service the broader region. There is also potential to develop centres which combine education and research. One such proposal is for the development of a *Centre for Environmental Sustainability* in Forster Tuncurry (Great Lakes).[112] This would be a partnership with University of Newcastle.

Table 52. Centres of Excellence

Centres of Excellence	Locations (LGAs)
Regional tourism	Great Lakes
Equine	Upper Hunter (developing)
Mining Support and Engineering	Singleton
Power Generation/Support	Muswellbrook
Mining	Muswellbrook (existing centre)
Renewables	Upper Hunter
Agribusiness	Dungog (based on extension of Tocal College programs)
Health and Aged Care Services	Great Lakes
Environmental Sustainability	Great Lakes

Development of the centres would involve Department of Education and Training; Regional Development Australia Hunter (RDA Hunter); the two TAFE Institutes with coverage of the Region; and industry representatives from the sectors. It is likely that the mining related centres would be the first to be developed.

	Recommendation	Partners Involved	Suggested Lead
G. Skills Development			
Future Skills	Recommendation 17: That regional industry centres of excellence for education and training be established in the Upper Hunter in the medium term, with strong business participation in the development and delivery of skills programs. This would also include the potential to develop research centres.	Upper Hunter Region Councils; Office of Education; Department of Primary Industries; Regional Development Australia (Hunter); the TAFE Institutes; University of Newcastle; and industry representatives.	A Council to take the lead role in each specialisation

112 Forster - Tuncurry Employment Land Implementation Strategy Hill PDA November 2009 P153-155.

9.9 Partnerships

Partnerships should be a focus of the sector development and economic diversification initiatives.

Implementing the diversification strategy will require a partnership approach involving industry, government and the education sector.

These partnerships would involve Councils, industry associations and chambers, NSW government agencies, TAFE and University of Newcastle and key businesses in each of the industry sectors. These partnerships should also involve the mining companies (who are the largest employers in the region). These mining companies are already strongly supportive of the local communities they operate in, through contributions for projects and sponsorships of community groups. As part of a ***partnership for the future***, the provision of support by mining companies for industry development and diversification initiatives and projects should be explored.

	Recommendation	Partners Involved	Suggested Lead
H. Partnerships			
Partnerships	Recommendation 18: That a partnership approach involving government (at all levels) and industry be utilised in implementing the diversification strategy.	Upper Hunter Region Councils; Hunter Development Corporation; Department of Planning and Infrastructure; Department of Trade and Investment; Department of Premier and Cabinet; Department of Transport; Office of Environment and Heritage; Department of Primary Industries; Regional Development Australia (Hunter) ; Hunter Councils Inc.; TAFE and University of Newcastle; industry associations/chambers; and key businesses(mining and other sectors).	Department of Premier and Cabinet

9.10 Economic Diversification Projects Fund

Consideration should be given to establishing an *Economic Diversification Projects Fund*. The fund would be used to support innovative diversification projects in the region. As part of a regional partnerships approach funding could be provided by the government (through Department of Trade and Investment project funding); from Council contributions; and from contributions from mining companies.[113]

A special projects fund could be established for industry diversification projects with contributions from government and industry.

	Recommendation	Partners Involved	Suggested Lead
I Diversification Projects Fund			
Economic Diversification Projects Fund	Recommendation 19: That an Upper Hunter Economic Diversification Projects Fund be established for regional industry diversification projects and programs.	Funding could be provided by the NSW Government (through Department of Trade and Investment project funding); from Council contributions; NSW Minerals Council, private sector funding opportunities and from contributions from mining companies.	Hunter Councils Inc. / Regional Development Australia

113 The mining companies are active in each of their communities providing sponsorship and funding support to a range of community initiatives.

9.11 Upper Hunter Diversification Group

A group comprising government and industry representatives is required to direct the diversification strategy and to monitor progress.

There is a need for a mechanism to drive the regional diversification strategy. This would involve the formation of a task group. The group would comprise: Hunter Councils Inc.; Representatives of the six Councils in the Region; Industry representatives covering key sectors including: mining, power generation; engineering, agriculture, tourism, and services; Government agency representatives including: Department of Planning and Infrastructure, Department of Premier and Cabinet, Department of Transport, Office of Environment and Heritage, Hunter Development Corporation, Department of Primary Industries, Department of Trade and Investment, and Regional Development Australia (Hunter).

	Recommendation	Partners Involved	Suggested Lead
J. Implementation Group			
Upper Hunter Diversification Group	Recommendation 20: That an Upper Hunter Diversification Group be formed to direct delivery of the diversification strategy and its programs and to monitor progress.	Upper Hunter Region Councils; Hunter Councils Inc. Department of Planning and Infrastructure; Department of Premier and Cabinet; Department of Transport; Office of Environment and Heritage; Hunter Development Corporation; Department of Primary Industries; Department of Trade and Investment; Regional Development Australia (Hunter); and industry representatives (from key sectors).	Department of Premier and Cabinet.

10. Recommendations

This report has outlined the elements of the diversification strategy and the actions that are required at a local government area level and at the regional level. It also highlights the need for an integrated regional approach and an industry cluster approach to the development of new opportunities.

The strategy has both short term/medium term requirements and longer term horizons. However action on the longer term also requires actions now: to build on current industries; to encourage emerging industries; and to develop the foundations for sustainable regional economies and jobs. Specific diversification opportunities are identified earlier in this report.

The short term/medium term focus is on addressing the current impacts of the mining boom on industry and communities in the Upper Hunter and acting on some of the enabling infrastructure issues.

In summary, the long term involves: acting on the identified long term economic development opportunities for the Upper Hunter Region, which are based on the competitive advantages of the region and the specific strengths of the individual local government areas; the replacement of mining jobs as job locations shift and activity levels change; and encouraging regional population growth to underpin local markets and services.

Implementation will require action on enabling infrastructure and a partnership approach - involving government and industry.

	Recommendation	Partners Involved	Suggested Lead	Page
A. Short and Medium Term - Dealing with Growth Pressures				
The continued growth in the mining sector is generating pressures on regional housing and labour markets, there is a need for medium term plans to be developed for housing and employment.				
Accommodation Plan	Recommendation 1: That an accommodation and housing review be conducted and a plan be developed for the three LGAs (Singleton, Muswellbrook, Upper Hunter) affected by the expansion in mining activity.	Task Group comprising: Upper Hunter Region Councils; Mining Industry; Department of Trade and Investment; Department of Planning and Infrastructure.	Singleton, Muswellbrook, Upper Hunter Councils / Department of Premier and Cabinet	98
Regional Workforce Plan	Recommendation 2: That an Upper Hunter Region Industry Workforce Plan be developed with coverage of the mining sector and other the key industry sectors (including SMEs) in the region. The plan should cover a 5 year outlook and a 10 year outlook.	Task group comprising: Department of Education and Communities; Department of Trade and Investment; Regional Development Australia (Hunter);TAFE Institutes; and industry representatives	Department of Education and Communities / Department of Premier and Cabinet	99
B. Strategic Reviews				
For future diversification in the region, more detailed assessments are needed on agribusiness options and on future use of rehabilitated mining sites.				
Agribusiness Review	Recommendation 3: That an agribusiness study be conducted to provide a practical guide to diversification options in the agriculture sector in the Upper Hunter.	Task group comprising: Department of Primary Industries; Department of Trade and Investment; Office of Environment and Heritage; Office of Water; Upper Hunter Region Councils; and agriculture sector representatives.	Department of Primary Industries / Department of Premier and Cabinet	99
Future use of Mining Sites	Recommendation 4: That a technical and business review be undertaken of future uses of rehabilitated mining sites in the Upper Hunter Region.	Department of Trade and Investment; Office of Environment and Heritage; Upper Hunter Region Councils; Office of Water; Hunter Development Corporation;Minerals & Energy; and mining sector representatives.	Department of Primary Industries / Department of Premier and Cabinet	100

	Recommendation	Partners Involved	Suggested Lead	Page
C. Regional Planning and Infrastructure				
The Upper Hunter Region does not have a comprehensive regional strategy equivalent to the Lower Hunter Strategy, to guide infrastructure and planning decisions. As well as an overarching strategy, linked plans are required for improvements in and for the funding of key infrastructure at a regional level and at a local level.				
Regional Planning	Recommendation 5: That an Upper Hunter Regional Strategy be prepared. This strategy would provide a framework for regional development and set priorities.	Department of Planning and Infrastructure; Hunter Development Corporation; Department of Premier and Cabinet; Councils; Department of Transport; Office of Environment and Heritage; Department of Trade and Investment; Department of Primary Industries; Regional Development Australia (Hunter).	Department of Planning and Infrastructure	101
Upper Hunter Region Infrastructure Plan	Recommendation 6: That an Upper Hunter Region Infrastructure Plan be developed and set priorities for infrastructure development in the region.	Department of Planning and Infrastructure; Hunter Development Corporation; Department of Premier and Cabinet; Department of Transport; Office of Environment and Heritage; Department of Trade and Investment; Department of Primary Industries; Regional Development Australia (Hunter) Hunter Development Corporation; Upper Hunter Region Councils; Hunter Councils Inc.	Department of Premier and Cabinet / Hunter Councils Inc.	102
Freight Infrastructure	Recommendation 7: That the regional freight infrastructure projects (connecting the Upper Hunter to Newcastle Port) be identified as priority infrastructure and a delivery timetable be developed. This process should be linked to the NSW Freight Working Group's activities.	Hunter Development Corporation; Department of Planning and Infrastructure; Department of Premier and Cabinet); Department of Transport; Office of Environment and Heritage; Regional Development Australia (Hunter); Upper Hunter Region Councils; Hunter Councils Inc.; Newcastle Port Corporation, Hunter Valley Coal Chain Coordinator (as required).	Department of Premier and Cabinet	102

	Recommendation	Partners Involved	Suggested Lead	Page
C. Regional Planning and Infrastructure				
National Broadband Network	Recommendation 8: That the Hunter Region be designated as a priority region for the NBN rollout.	Regional Development Australia (Hunter) with support of: Upper Hunter Region Councils; Hunter Councils Inc.; Department of Trade and Investment; Office of Education; and regional business organisations.	Regional Development Australia (Hunter)	103
National Broadband Network	Recommendation 9: That the development of a regional workforce for the roll out continue to be priority project in the Hunter Region.	Regional Development Australia (Hunter) with support of Upper Hunter Region Councils; Hunter Councils Inc.; Department of Trade and Investment; Office of Education; Department of Education Employment and Workplace Relations; and training providers.	Regional Development Australia (Hunter)	103
Employment Lands	Recommendation 10: That an employment lands delivery plan be developed for the Upper Hunter Region, which includes priorities for infrastructure funding. This would be based on the frameworks provided by an Upper Hunter Regional Strategy and by as Regional Infrastructure Plan.	Department of Premier and Cabinet; Hunter Development Corporation ; Department of Planning and Infrastructure; Department of Trade and Investment; Upper Hunter Region Councils.	Department of Premier and Cabinet Hunter Development Corporation	103
Funding Regional Infrastructure	Recommendation 11: That a *royalties for regions* program be considered for mining affected regions and for the funding of projects related to key infrastructure and regional diversification. Given the industry inter-linkages of the Upper Hunter, coverage should include the adjacent LGAs.	Association of Mining Related Councils; Minerals Council NSW; Upper Hunter Region Councils.	Hunter Councils Inc.	104

	Recommendation	Partners Involved	Suggested Lead	Page
D. Diversification Implementation				
Diversification opportunities have been identified for each LGA in the Upper Hunter Region. Development of these will require regional cooperation between local government and industry and strategic use of government regional and industry and programs.				
Local Area Implementation	Recommendation 12: That the diversification opportunities identified in this study be integrated into individual Council economic development and planning strategies.	Upper Hunter Region Councils; Department of Trade and Investment; Department of Primary Industries.	All Councils	104
Interrelationships and Linkages	Recommendation 13: That a focus in implementing the diversification strategy be on regional cooperation on industry development and diversification opportunities; and on related infrastructure requirements.	Upper Hunter Region Councils; Hunter Councils Inc.; Department of Trade and Investment; Department of Premier and Cabinet; Department of Primary Industries.	All Councils	105
E. Industry/Regional Clusters				
A range of industry clusters have been identified covering: mining and energy related sectors; renewables; agriculture; wine and tourism.				
Industry Clusters	Recommendation 14: That regional industry clusters (identified in this report); with active business participation, be formed to drive industry diversification and economic development projects within relevant sub-regions of the Upper Hunter Region.	Upper Hunter Region Councils; Hunter Councils Inc.; HunterNet; Department of Trade and Investment; Local Chambers.	Department of Trade and Investment	106
Industry Clusters	Recommendation 15: That detailed action plans be developed for each of the industry clusters.	Upper Hunter Region Councils; Hunter Councils Inc.; Department of Trade and Investment; Local Chambers.	Department of Trade and Investment	106
F. Strategic Projects				
A focus needs to be on commencing those projects that will deliver results in terms of industry growth and new employment in the medium term.				
Strategic Projects	Recommendation 16: That in implementing the diversification strategy, there is a focus on facilitating those key local/regional development projects that will deliver medium-term outcomes for the region.	Upper Hunter Region Councils; Hunter Councils Inc.; Hunter Development Corporation; Department of Premier and Cabinet; Department of Trade and Investment.	All Councils	107

	Recommendation	Partners Involved	Suggested Lead	Page
G. Skills Development				
Skills development is fundamental to future opportunities for the region and key issue is having greater local delivery of programs				
Future Skills	Recommendation 17: That regional industry centres of excellence for education and training be established in the Upper Hunter in the medium term, with strong business participation in the development and delivery of skills programs. This would also include the potential to develop research centres.	Upper Hunter Region Councils. Office of Education; Department of Primary Industries; Regional Development Australia (Hunter); the TAFE Institutes; University of Newcastle; and industry representatives.	A Council to take the lead role in each specialisation	107
H. Partnerships				
Implementing the diversification strategy will require a partnership approach involving industry, government and the education sector.				
Partnerships	Recommendation 18: That a partnership approach involving government (at all levels) and industry be utilised in implementing the diversification strategy.	Local Government; Hunter Development Corporation; Department of Planning and Infrastructure; Department of Trade and Investment; Department of Premier and Cabinet; Department of Transport; Office of Environment and Heritage; Department of Primary Industries; Regional Development Australia (Hunter) ; Hunter Councils Inc; TAFE and University of Newcastle; industry associations/chambers and key businesses (mining and other sectors)..	Department of Premier and Cabinet	108
I. Diversification Projects Fund				
A special projects fund could be established for industry diversification projects with contributions from government and industry.				
Economic Diversification Projects Fund	Recommendation 19: That an Upper Hunter Economic Diversification Projects Fund be established for regional industry diversification projects and programs.	Funding could be provided by the NSW Government (through Department of Trade and Investment; project funding); from Council contributions; NSW Minerals Council, private sector funding opportunities and from contributions from mining companies.	Hunter Councils Inc. / Regional Development Australia (Hunter)	108

	Recommendation	Partners Involved	Suggested Lead	Page
J. Implementation Group				
A group comprising government and industry representatives is required to direct the diversification strategy and to monitor progress.				
Upper Hunter Diversification Group	Recommendation 20: That an Upper Hunter Diversification Group be formed to direct delivery of the diversification strategy and its programs and to monitor progress	Upper Hunter Region Councils; Hunter Councils Inc.; Department of Planning and Infrastructure; Department of Premier and Cabinet; Department of Transport; Office of Environment and Heritage; Hunter Development Corporation; Department of Primary Industries; Department of Trade and Investment; Regional Development Australia (Hunter); and industry representatives (from key sectors).	Department of Premier and Cabinet.	109

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Appendix A - Singleton LGA Opportunities

A.1 Overview – Singleton LGA

Singleton is the second largest LGA in terms of population size. Singleton is a major centre for mining and mining support activity and for power generation in the Upper Hunter. Other key sectors include engineering, defence, agriculture (beef cattle, dairy, wine/viticulture, horticulture) and population services. The LGA has a strong industrial heritage because of the dominance of regional jobs in mining, power generation and in industries linked to these two major sectors. The LGA had an estimated population of 24,182 in 2010.[114]

Table 53. Population Characteristics by Major Centres – Singleton LGA 2006

Urban Centre Singleton	Population no	Total Labour Force no	Full Time Employ no	Full Time Employ %	Not in Labour Force no	Unemployed no	Unemployed %
Singleton	13665	6500	4116	63.3	3228	306	4.7
Branxton-Greta	4678	2098	1293	61.6	1228	125	6.0
Broke	222	117	59	50.4	62	8	6.8
Total Urban Centre Population	18565	8715	5468	62.7	4518	439	5.0
Total Rural Balance Population	3372	2052	1336	65.1	440	14	0.7
Total LGA Population	**21937**	**10767**	**6,804**	**63.2**	**4958**	**453**	**6.7**

Source: ABS Census 2006 Resident Population Data <Labour force and not in labour force are persons aged 15 years and over>

Population growth has been relatively strong over the last decade and this has been largely associated with the continued expansion of mining and related jobs in the region. A major focus of planning has been on developing quality housing estates and community facilities to provide for industrial employees, working in jobs in the area and in the adjacent LGAs of Muswellbrook, Maitland or Cessnock.

Mining and associated support activities dominate the jobs in the LGA (direct employment in mining accounts for 31% of jobs) and a significant number of residents are employed in the electricity generation sector. Coal mining activity is driven by strong continued demand from export markets, with 20 mines located in the area.[115] Two of Australia's largest coal-fired power stations, Liddell and Bayswater, are located on the border of the Singleton and Muswellbrook LGAs, and the Redbank Power Station is located in Singleton LGA. A pilot plant at Liddell is also trialling new solar thermal technology.

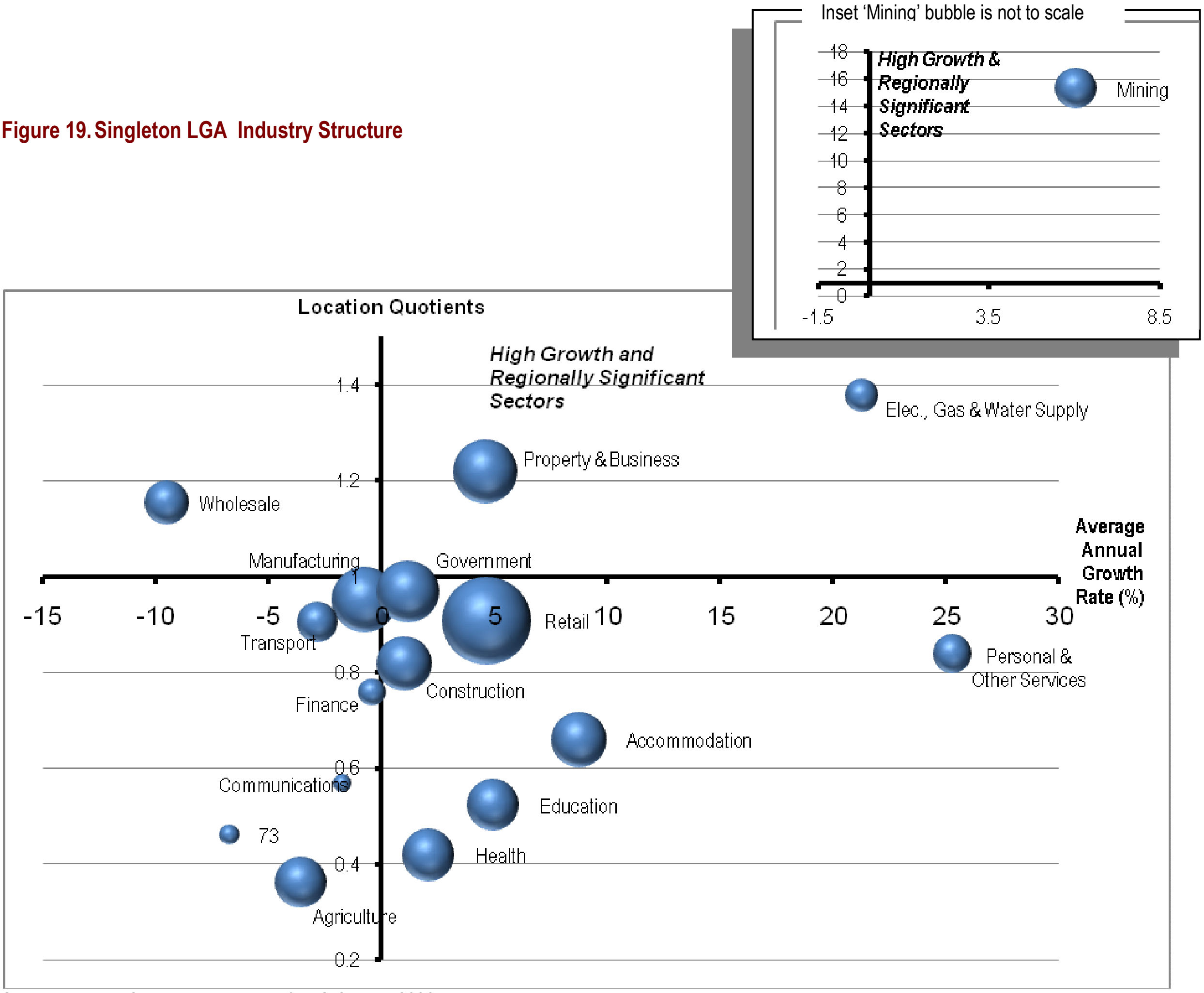
This combination on mining and power generation has means that Singleton has an engineering specialisation, in terms of a range of engineering businesses and the occupations of residents (tradespersons and professional engineers).

Defence is a major activity with the Singleton Infantry Centre employing around 300 permanent staff. The rural component of the local economy still remains significant and covers cattle and dairy sectors some market gardening and citrus growing and mushrooms, and viticulture.[116]

The following chart shows location quotients (a comparison of employment shares by industry for the LGA and the average for non-metropolitan New South Wales – LQ of more than 1 means that the LGA has a higher share of jobs in that sector), and the average annual growth rate in jobs located in the LGA between 2001 and 2006. It shows the dominance of the mining and energy sector and the relative under-supply of health and education services (although both sectors have experienced some employment growth).

114 ABS Cat No. 3218.0 Regional Population Growth, 31 March 2011, Population Estimates by Statistical Local Area, 2001 to 2010.
115 Economic Strategy Singleton - "A progressive community of excellence and sustainability". 2010 Singleton Council
116 Hunter Investment Prospectus 2009, Hunter Economic Development Corporation (HEDC) P90

Figure 19. Singleton LGA Industry Structure



Source: Buchan Consulting analysis of ABS Census 2006 data

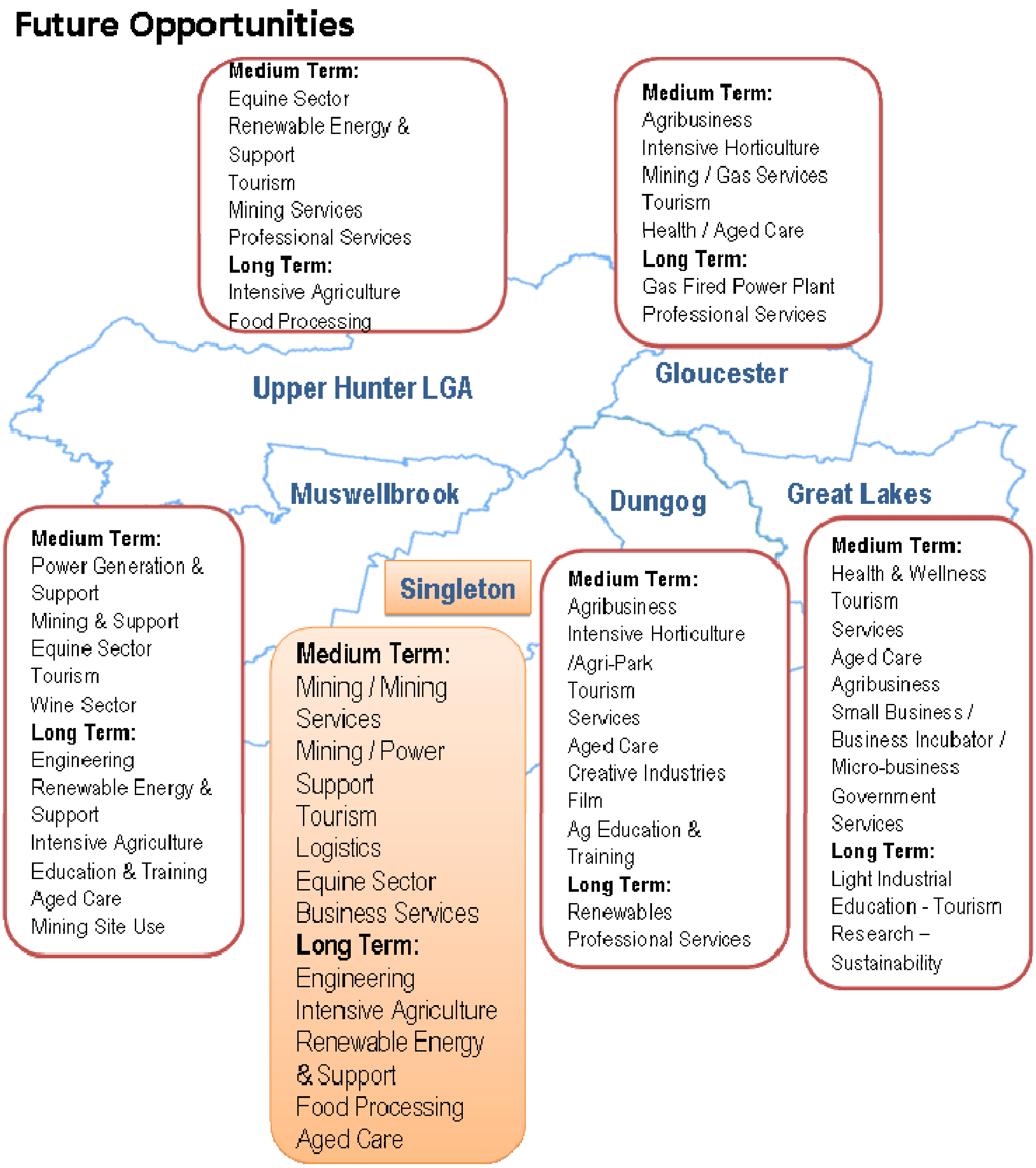
The LGA has been impacted by the mining boom, particularly over the last five years. These impacts have been reflected in: skill shortages; turnover and recruitment difficulties in other lower wage sectors; pressures on the housing market (prices and rents); rising costs and infrastructure issues.

The area is well serviced with industrial estates, with several areas being developed by private developers.[117] There is potential for further future development with the extension of the F3, which will open up access and create opportunities for expanded industrial and transport and logistics activities. Singleton being adjacent to the Lower Hunter also provides access to markets and jobs of the larger and fast growing areas of Cessnock and Maitland.

The mix of industrial skills, location, population growth and agriculture provides significant opportunities for future diversification in Singleton.

117 These are Hunter Land and Buildev, who both specialise in the development of industrial estates and business parks.

A.2 Future Opportunities



The following tables outline the future opportunities in Singleton.

Singleton – Overview of Opportunities
Medium Term
Mining support Mining services Power Generation and support Tourism Logistics hub Engineering training centre Government services Business services
Long Term
Engineering Agriculture - intensive horticulture, wine , beef Food processing Renewable energy and support Aged care

Singleton LGA	Opportunities - Priorities
Category 1: Population / Market Driven	Population: Continued population growth will drive services demand in the LGA. Its strategic location provides continued opportunities for persons working in adjacent LGAs. There is potential to develop more lifestyle housing developments. Population growth is necessary to underpin town centre revitalisation and other services. Seniors: Relative to other locations in the region, the LGA has younger population structure (families with children). In the medium term there is requirement to extend housing and age care facilities and services.
Category 2: Building on Current Industries	Mining and mining support – these sectors have a horizon of 15 -20 years. Singleton because of the scale of support industries can develop as a centre of excellence for broader mining and non-mining markets. Power generation: the sector will continue to remain a major source of employment with investment in capacity and in other technologies (coal seam gas, clean coal) and renewables Agriculture: remains important to the region, with the potential for revitalisation across existing sectors (beef, wine); and the extension of more intensive horticulture, including industrial hemp.[118] Food processing: given the location, accessibility and the future development of agriculture there is the potential to develop a food processing operation. Tourism: maintain and develop the sector, covering short breaks, wine tourism and events.
Category 3: Developing New Areas	Major opportunities relate to: the development of engineering capability to service other (non-mining) sectors; development of a logistics hub; extension of building and construction; and development of new areas of light industrial activities servicing regional markets.
Category 4: Creating New Advantages - Knowledge Based	Developing more knowledge intensive activities is a priority for the future. Relative to other areas of the Lower Hunter, Singleton is underrepresented in these activities. Opportunities include: further development of renewables (eg. solar) and associated industry support and research and development; development of engineering R&D; extension of regional delivery of education (VET and Higher Education) and the development of an engineering training centre; and the development of professional and technical services.
Category 5: Attraction Targets	Two areas of business attraction targets are: business back office functions and support centres; and government regional service offices.

118 Crops for Hunter - Feasibility of Growing Industrial Hemp in the Hunter Valley, Neil Nelson Agvice Pty Ltd, September 2010

Future Opportunities Singleton

Singleton LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	
Category 1: Population / Regional Market Driven						
Population & Housing	**Category 1**					**1**
Population growth	Need for population growth for services growth and strengthened town centres					Continuing strong growth
Population growth	Residential growth - associated with mining employees					**1**
Lifestyle living	Attract population - lifestyle blocks and precincts (eg. Golf Course Estate)					**1**
Housing land	Develop additional housing land/ affordable housing (families)					**1**
Seniors	**Category 1**					**2**
Seniors living	Seniors housing and facilities					**2**
Supporting an ageing population	Aged care facilities and services in LGA					**2**
Town Centre	**Category 1**					
Revitalisation	Main town centre (Singleton)					**1**
	Retail and services					**1**
Health	**Category 1**					**1**
Health services	Maintain/develop local services					**1**
	Extend specialist services					
Category 2: Building on Current Industries						
Mining and Support	**Category 2:**					**1**
Mining	Expansion of existing mines					**1**
Mining support industries	Extend mining support activities and markets (eg. Hunter, Gunnedah and Queensland, international).					**1**
Centre of Excellence	Develop as a centre of excellence in mining support					**1**
Rehabilitated sites	Assess future mining site use – regional technical/business assessment (eg. waste – clean fill)					**1**

Future Opportunities Singleton

Singleton LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	Singleton
Power Generation	**Category 2**					1
Generators	Investment in capacity.					1
	Clean coal technologies					1
	Coal seam gas developments					1
Support industries	Continuation of support - contractors					1
Agriculture	**Category 2**					2
Wine/viticulture	Maintain sector and critical mass/develop sector					1
Existing agriculture	Maintain/consolidate Beef, dairy, horticulture					1
Vegetable/fruit production	Develop intensive agriculture					2
	Trials					
	Commercial Production					
Food processing	Develop food processing operations					2
Equine Sector	Expand activity					2
Tourism	**Category 2**					1
Sector	Maintain and develop sector – short breaks					2
Wine/food/agritourism	Extend wine tourism					1
Infrastructure	Accommodation development					
Category 3: Developing New Areas						
Industry	**Category 3:**					
Engineering <diversify>	Build on engineering base – mining, power, construction Engineering capability – support, fabrication, construction engineering , technical services					1
Logistics Centre or Intermodal Transport Hub	Develop as a logistics hub – road/rail access and F3 extension					1
Building and construction	Extension of markets					2
Light industrial	Expansion to service regional industry and population					1

Future Opportunities Singleton

Singleton LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	Singleton
Category 4: Creating New Advantages - Knowledge Based						
Renewables	**Category 4:**					
Renewables	Solar, wind, geothermal and support activities					1
Solar	Further development of solar generation capacity.					2
Services	**Category 4**					
Professional and technical services	Attraction of professionals for lifestyle changes					1
Education and Training	**Category 4**					1
Education centre	Extended delivery of TAFE					1
	Local delivery of higher education					2
Specialist Training Centres						
Engineering and mining support	Develop regional delivery					1
Research and Development	**Category 4**					
Engineering and mining support	Research and development					1
Category 5: Attraction Targets						
Government Services	Administrative offices, regional service centres					2
Business services	Back office functions, support centres					1

A.3 Supporting Regional Development

To realise future development opportunities will require investment in supporting infrastructure. Singleton has identified its needs and these include: road and highway improvements, including a by-pass; a new rail overpass; development of industrial areas; and town centre development.

As a major mining centre, Singleton faces some immediate pressures arising from the mining expansion, and these include pressures on housing and accommodation. These issues need to be addressed in a planned way involving Council, the NSW Government and mining companies. Infrastructure requirements need to be assessed on a regional basis as part of a regional infrastructure plan. This plan needs to also consider funding options, including a share of mining royalties.

In addition strategic support will be required for industry development initiatives including tourism development, small business development and agriculture. This would include securing support from government agency programs, including those of the NSW Department of Trade and Investment DTI) and Tourism New South Wales. There is already some current DTI support being provided for *Crops for the Hunter*, an agriculture initiative involving Singleton, Muswellbrook and Upper Hunter Councils. A recent feasibility study on commercial growing of industrial hemp has been completed as part of this initiative. [119]

Strategic projects for funding could include: a review of opportunities for developing the logistics sector; and funding for a mining support industries cluster.

119 Crops for Hunter - Feasibility of Growing Industrial Hemp in the Hunter Valley, Neil Nelson Agvice Pty Ltd, September 2010

Appendix B Muswellbrook LGA Opportunities

B.1 Overview – Muswellbrook LGA

Muswellbrook had a population of 16,391 in 2009 (ABS), with the town of Muswellbrook (10,500) being the major centre and Denman the second centre with a population of around 1,500 people. The LGA has an agricultural sector (beef, dairy, wine), including a growing equine sector (in total these sectors account for around 9% of jobs in the LGA).[120]
The LGA had an estimated population of 16,676 in 2010. [121]

Table 54. Population Characteristics by Major Centres – Muswellbrook LGA 2006

Urban Centre Muswellbrook LGA	Population no	Total Labour Force no	Full Time Employ no	Full Time Employ %	Not in Labour Force no	Unemployed no	Unemployed %
Muswellbrook	10222	4678	2865	61.2	2471	298	6.4
Denman	1385	654	397	60.7	388	23	3.5
Total Urban Centre Population	11607	5332	3262	61.2	2859	321	6.0
Total Rural Balance Population	4784	1,770	1,192	67.3	929	61	3.4
Total LGA Population	**16391**	**7,102**	**4454**	**62.7**	**3788**	**382**	**5.4**

Source: ABS Census 2006 Resident Population Data <Labour force and not in labour force are persons aged 15 years and over>

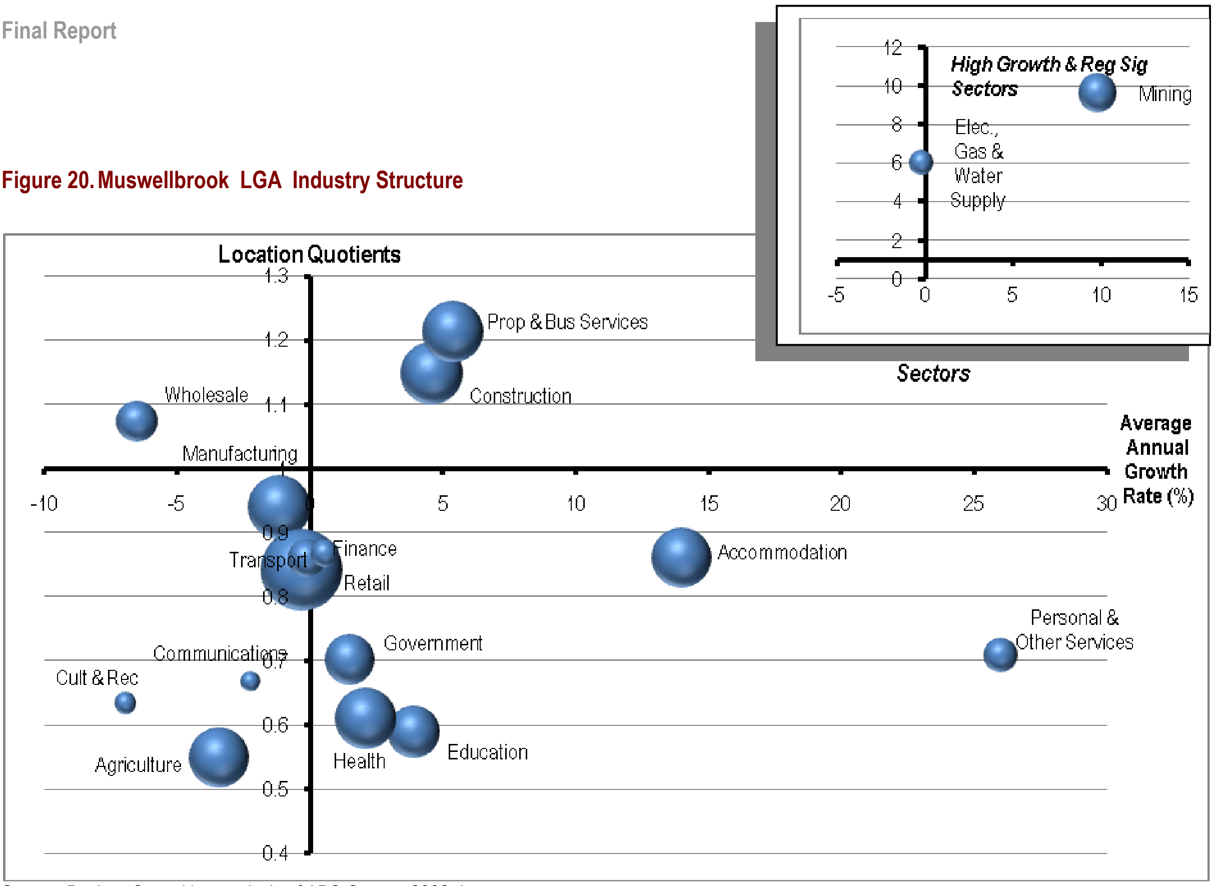
The industrialisation of the LGA has been driven by the energy sector. Muswellbrook is the main centre for New South Wales' power generation capacity. The area has also become a major centre of Upper Hunter coal mining, with the expansion of mines over the last decade (and the acceleration in the last 5 years). There are businesses supporting both the coal sector and power sector located in Muswellbrook. In 2006 the mining sector accounted for almost 20% of the jobs in the region, and this had increased further with the growth in the sector that has occurred in the period since.

While mining is now the largest industry of employment of local residents, there are major concerns in relation to the impacts of continued mining expansion. This includes: competing land use and impacts on other industries (eg. equine, viticulture and other agriculture); impacts on housing costs and availability; wage cost pressures on other industry sectors; other cost pressures on the community and on low income households; environmental impacts and pressures; effects on tourism; and the impacts on local infrastructure. These issues are seen as critical factors affecting the regional economy and its future prospects. There are concerns that Muswellbrook is now at the centre of a *two speed economy*. The cumulative impact of mining on infrastructure and the town centre (eg. traffic and congestion) and the inability of local government to fund necessary infrastructure is also a concern.

The following chart shows location quotients (a comparison of employment shares by industry for the LGA and the average for non-metropolitan New South Wales –LQ of more than 1 means that the LGA has a higher share of jobs in that sector), and the average annual growth rate in jobs located in the LGA between 2001 and 2006.
It shows the importance of mining, electricity, construction and the relative smaller scale of health, education and government services (although these sectors have experienced some employment growth). Growth has been occurring in these sectors, along with accommodation and personal services.

120 Data refers to working population data from the 2006 Census and is the share of jobs located in the LGA.
121 ABS Cat No. 3218.0 Regional Population Growth, 31 March 2011, Population Estimates by Statistical Local Area, 2001 to 2010.

Figure 20. Muswellbrook LGA Industry Structure

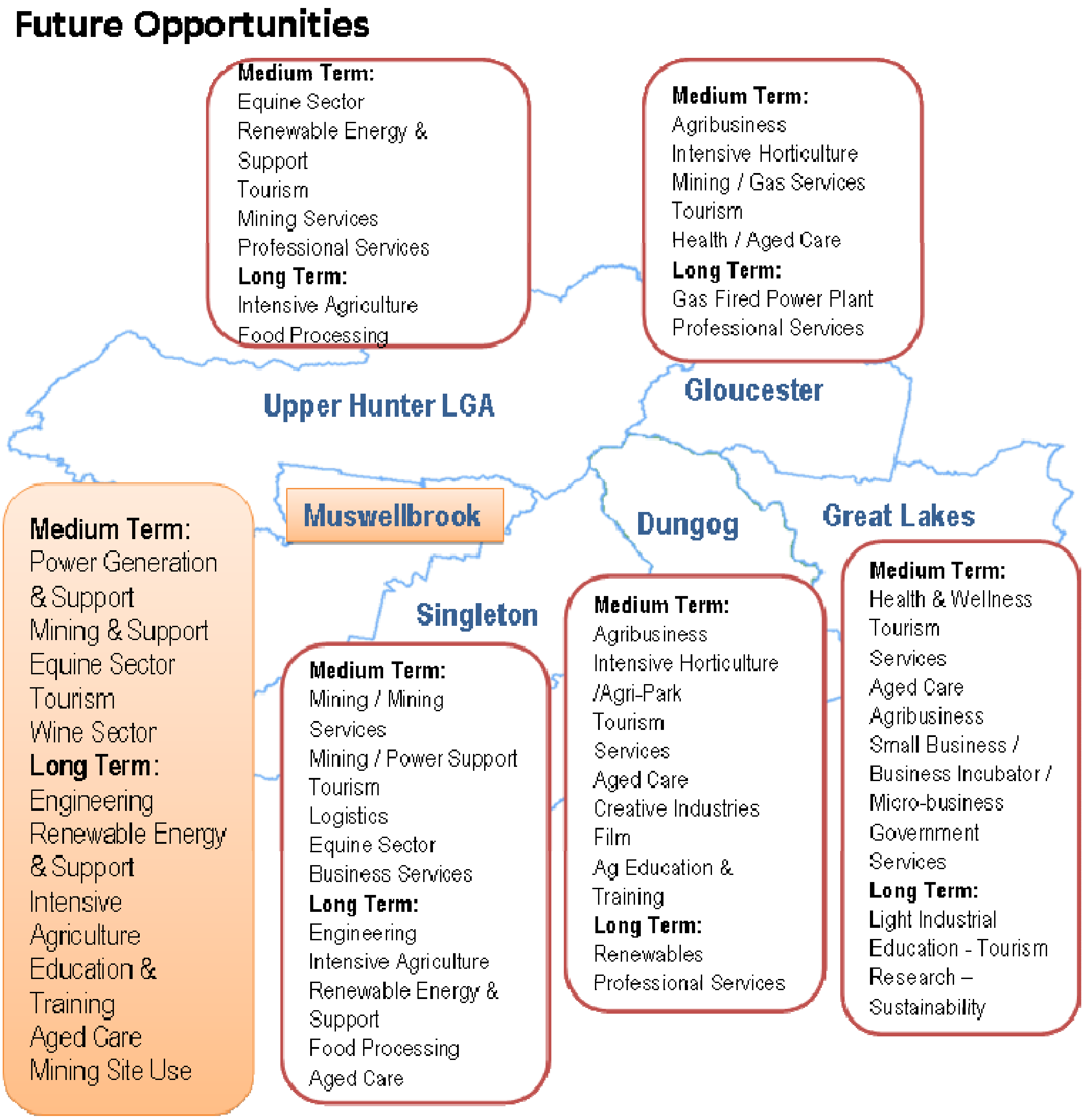


Source: Buchan Consulting analysis of ABS Census 2006 data

Looking to the medium to long term future there are concerns regarding mining being a finite industry and the need to find an alternative future for the area beyond the coal economy. This also relates to the narrow economic base and the need to maintain and develop other sectors such as agriculture and services. Underlying these issues is concerns about future population growth, the ageing of the resident population, persons exiting agriculture, and young people leaving the area.

Relative to the other LGAs in the Upper Hunter Region, agriculture in Muswellbrook is subject to more constraints on future development due to the scale of operational mining expansion and the extent of land acquisition for exploration leases.

B.2 Future Opportunities



The following tables outline the future opportunities in the region.

Muswellbrook – Overview of Opportunities
Medium Term
Mining Mining support and services Power generation and support Equine industry growth and development. Tourism Wine industry development Professional and technical services Cultural and creative industries (visual art and music) [122] Business services Government services
Long Term
Renewable energy and support Engineering Education and training Use of mining sites Aged care

Muswellbrook LGA	Opportunities - Priorities
Category 1: Population / Market Driven	Population: Continued population growth is required to drive services demand in the LGA. Proposed housing development is required to provide affordable housing. Seniors: Compared with other locations in the Upper Hunter, the LGA has younger population structure (families with children). In the medium term there are requirements to extend seniors housing and age care facilities and services. Town centre: there is a need for revitalisation and development of services, including health services.
Category 2: Building on Current Industries	Mining and mining support – these sectors have a current horizon of 25-30 years, with shifts in employment levels over this period. There is a need to maximise number of employees who reside in the area. Muswellbrook has potential to extend its support activities, providing industrial land requirements and infrastructure can be resolved. Mine site rehabilitation there is a need for a regional technical and business assessment of future uses of mining sites. Power generation: the sector will continue to remain a major source of employment with future investment in capacity and in other technologies (coal seam gas, clean coal) and the growth in renewables. There is potential to expand support activities (engineering, technical services, maintenance). Agriculture: remains important to the region, however it is under pressure due to mining expansion (land use and water). Key sectors are the expansion of the equine sector in Muswellbrook and Upper Hunter LGA; and maintenance and development of the wine sector. Beef will undergo change with continued consolidation into larger holdings. The potential for more intensive agriculture may be limited due to availability of alluvial land (outside of mining leases). Intensive agriculture needs to be the subject of an Upper Hunter Region wide technical study. Forestry: assess the potential for forestry development on rehabilitated land (including carbon credits). Tourism: maintain and develop sector based on short breaks, events and the wine sector and equine industry. Muswellbrook and Denman to act as focal towns for tourism. Development requirements include a need for resort style accommodation, improved workforce skills and sub-regional integration of markets and products (eg. regional trails).
Category 3: Developing New Areas	Future opportunities relate to: the development of engineering capability to service other (non-mining) sectors; and the development of light industrial activities servicing regional markets.
Category 4: Creating New Advantages - Knowledge Based	Developing more knowledge intensive activities is a priority for the future. Relative to other areas in the Lower Hunter, Muswellbrook is underrepresented in these activities. Opportunities include: development of professional and technical services servicing regional markets; power industry research and development; renewables and extension of regional delivery of education (VET) utilising the mining training centre. Cultural Services: build on current services and facilities in visual arts and music.
Category 5: Attraction Targets	Two areas of business attraction targets are: business back office functions and support centres; and government regional service offices. Muswellbrook is a centre for regional services.

122 Muswellbrook has the Muswellbrook Regional Arts Centre and the Upper Hunter Conservatorium of Music.

Future Opportunities Muswellbrook

Muswellbrook LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	Muswellbrook
Category 1: Population / Regional Market Driven						
Population & Housing	**Category 1**					**1**
Population growth	Need for continued population growth for services growth and strengthened town centres.					Growth
Population growth	Residential growth - associated with mining employees					**1**
Housing land	Develop proposed additional housing land/ affordable housing (attraction of families)					**1**
Seniors	**Category 1**					**2**
Seniors living	Seniors housing and facilities in town centres					**2**
Supporting an ageing population	Develop aged care facilities and services in LGA in line with demand					**2**
Town Centre	**Category 1**					
Revitalisation	Muswellbrook town centre					**1**
	Improve retail and services					**1**
Health	**Category 1**					**1**
Health services	Maintain and develop local services					**1**
Category 2: Building on Current Industries						
Mining and Support	**Category 2:**					**1**
Mining	Expansion of existing mines and associated employment. Encourage more local employees and training of apprentices					**1**
Mining support industries Covers engineering, fabrication, construction services, technical services	Extend mining support activities and markets Some expansion in mining support activities. Opportunity to extend markets as mines moves north- west (Gunnedah) or to service Queensland. <Requires industrial sites>					**1**
Rehabilitated sites	Assess future mining site use – regional technical/business assessment of uses (eg. land fill and waste treatment, carbon offsets tree planting)					**1**

Future Opportunities Muswellbrook

Muswellbrook LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	Muswellbrook
Category 2: Building on Current Industries						
Power Generation	**Category 2**					1
Generators	Investment in capacity.					1
	Clean coal technologies					1
	Coal seam gas developments					1
Support industries	Continuation of support industries to power sector. <Strong engineering base supporting the mining and power sector>					1
Agriculture	**Category 2**					1
	Major pressures on available productive land due to extension of mining leases and operating mines					
Equine Sector	Key sector - expand activity and support industries					1
	Ensure that buffers are maintained					1
	Maintain and develop the sector < mainly Muswellbrook & Upper Hunter LGA>					1
	Expand support services					1
Wine/viticulture	Need to maintain sector to ensure critical mass Ensure buffers are maintained Develop sector Improve wine tourism					1
Beef	Maintain and develop the sector, including consolidation					2
Intensive Agriculture <major constraints>	More intensive agriculture requires alluvial land and access to water. < A constraint due to 70% of land is owned by mining companies on the Hunter River flats between Muswellbrook and Denman>					2
Forestry	Assess potential for forestry development on rehabilitated land.(including carbon credits)					2
Tourism	**Category 2**					1
Sector	Maintain and develop sector LGA Tourism focused on Denman – wine and equine sector					2
Wine/food/agritourism	Extend wine tourism.					1
Equine	Develop equine related tourism					1
Regional integration	Greater regional integration of tourism (eg. Upper Hunter trails).					1
Skills	Need to improve skills and training in sector					2
Accommodation	Constraints -pressures on motel accommodation due to mining workforce					
	Resort style accommodation needed					1

Future Opportunities Muswellbrook

Muswellbrook LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	Muswellbrook
Category 3: Developing New Areas						
Industry	**Category 3:**					
Engineering <diversify>	Build on engineering base – mining, power, construction Engineering capability – support, fabrication, construction engineering , technical services					1
Light industrial	Expansion to service regional industry and population					1
Renewable Energy	Development of renewable energy					2
Category 4: Creating New Advantages - Knowledge Based						
Services	**Category 4**					
Professional and technical services	Attraction of professionals for lifestyle changes					1
Education and Training	**Category 4**					1
Specialist Training Centre	Specialist TAFE mining centre located in Muswellbrook					
	Extend range of programs at the centre					1
Cultural Industries						
Visual arts and music	Building on current creative activities and facilities (gallery and conservatorium)					1
Research and Development	**Category 4**					
Power industry	Research and development					1
Category 5: Attraction Targets						
Government Services	Administrative offices, regional service centres					1
Business services	Back office functions, support centres					1

B.3 Supporting Regional Development

Realising these medium term and long term opportunities requires strategic infrastructure improvements covering: road improvements (including the bypass); sewering of the industrial areas; development of other industrial areas in Muswellbrook and Denman; and a revitalisation of the Muswellbrook town centre.

As the area in the centre of the rapid mining expansion, there are specific current pressures that need to be addressed in relation to roads, the town centre and housing needs. Water is an issue in relation to the long term availability for rural and industrial uses due to issues in relation to competing industry uses (mining and agriculture) and past over-allocation issues.

The funding of infrastructure is beyond the capacity of local councils to fund. Muswellbrook has taken a lead with other mining related councils on developing options for program and project funding through a regional share of mining royalties.

In addition strategic support will be required for industry development initiatives including tourism development, town centre development; industry clusters; agriculture diversification; and feasibility studies. This would include securing regional support from government agency programs, including those of the NSW Department of Trade and Investment (DTI) and Tourism New South Wales.

As a major mining region, an approach should be made to the mining companies in relation to providing support for economic diversification and new industry development initiatives.[123] This could be by way of establishing an *Economic Diversification Projects Fund*. This would be a joint activity involving Upper Hunter Councils, the New South Wales Government and mining companies.

Strategic projects for funding could include: an economic development strategy for Muswellbrook; and funding for a power generation industry cluster.

123 The mining companies are active in each of their communities providing sponsorship and funding support to a range of community initiatives.

Appendix C Upper Hunter LGA Opportunities

C.1 Overview - Upper Hunter LGA

In broad terms the Upper Hunter LGA is a rural area with productive agricultural land, available water supplies, and a strong national/international reputation for its equine industry. It is also becoming a centre for renewable energy with the large scale investment in the Kyoto Energy Park. Environment and rural lifestyle are major assets of the area. The area has a quality natural environment with access to national parks and lakes and rivers and a scenic rural environment.

The population has been growing over the last decade and this has been largely associated with the expansion in the equine sector; the expansion of mining and related jobs in the Muswellbrook area; and persons moving in to the area for lifestyle changes. While some population projections show a stable population over the longer term, recent indicators from the Council show an acceleration in population growth. The area offers potential for continued growth, particularly in the area around Scone. The LGA had an estimated population of 14,198 in 2010. [124]

Table 55. Population Characteristics by Major Centres – Upper Hunter LGA 2006

Urban Centre Upper Hunter LGA	Population no	Total Labour Force no	Full Time Employ no	Full Time Employ %	Not in Labour Force no	Unemployed no	Unemployed %
Scone	4624	2257	1438	63.7	1275	97	4.3
Aberdeen	1791	867	548	63.2	461	44	5.1
Merriwa	946	414	219	52.9	309	26	6.3
Murrurundi	805	309	183	59.2	309	31	10.0
Total Urban Centre Population	8166	3847	2388	62.1	2354	198	5.1
Total Rural Balance Population	4810	2640	1741	65.9	1004	90	3.4
Total LGA Population	**12976**	**6487**	**4,129**	**63.7**	**3,358**	**288**	**4.4**

Source: ABS Census 2006 Resident Population Data <Labour force and not in labour force are persons aged 15 years and over>

Upper Hunter LGA has a specialisation in agriculture and is designated as the national centre of the equine industry (*Horse Capital of Australia*).

The area has experienced growth in agriculture. The local economy relies on agriculture (beef, grains, and sheep), meat processing, the equine industry and tourism, retail and services. The equine industry includes thoroughbred studs, horse events and infrastructure including an equine research centre and a TAFE campus specialising in rural and equine studies.
Agriculture and related processing accounts for around 26% of jobs in the LGA and this covers the equine industry, beef cattle, sheep and some crops. A large meat processing facility (Primo) is located in Scone, and this is the major manufacturing activity in the LGA. Reflecting the scale of the sector, the LGA accounts for around 35% of agriculture jobs in the Upper Hunter Region. Other key sectors are in-person services (eg. retail, education and health) and professional services.[125]

Significant growth is occurring in the equine sector, although the industry has major concerns about competing land use and the extension of mining into areas that are adjacent to horse operations (in Muswellbrook and around the Scone area).

The LGA is a designated Renewable Energy Precinct, and has a major renewables project being developed (Kyoto Energy Park).

While not a mining area (like Muswellbrook and Singleton), the Upper Hunter LGA has experienced some of the pressures with skill shortages in other sectors due to recruitment of existing trained employees to the mining sector and the high wages paid relative to other

124 ABS Cat No. 3218.0 Regional Population Growth, 31 March 2011, Population Estimates by Statistical Local Area, 2001 to 2010.
125 It should be noted that ABS jobs data for 2001 for the Upper Hunter LGA is not available to enable analysis of location quotients and jobs growth.

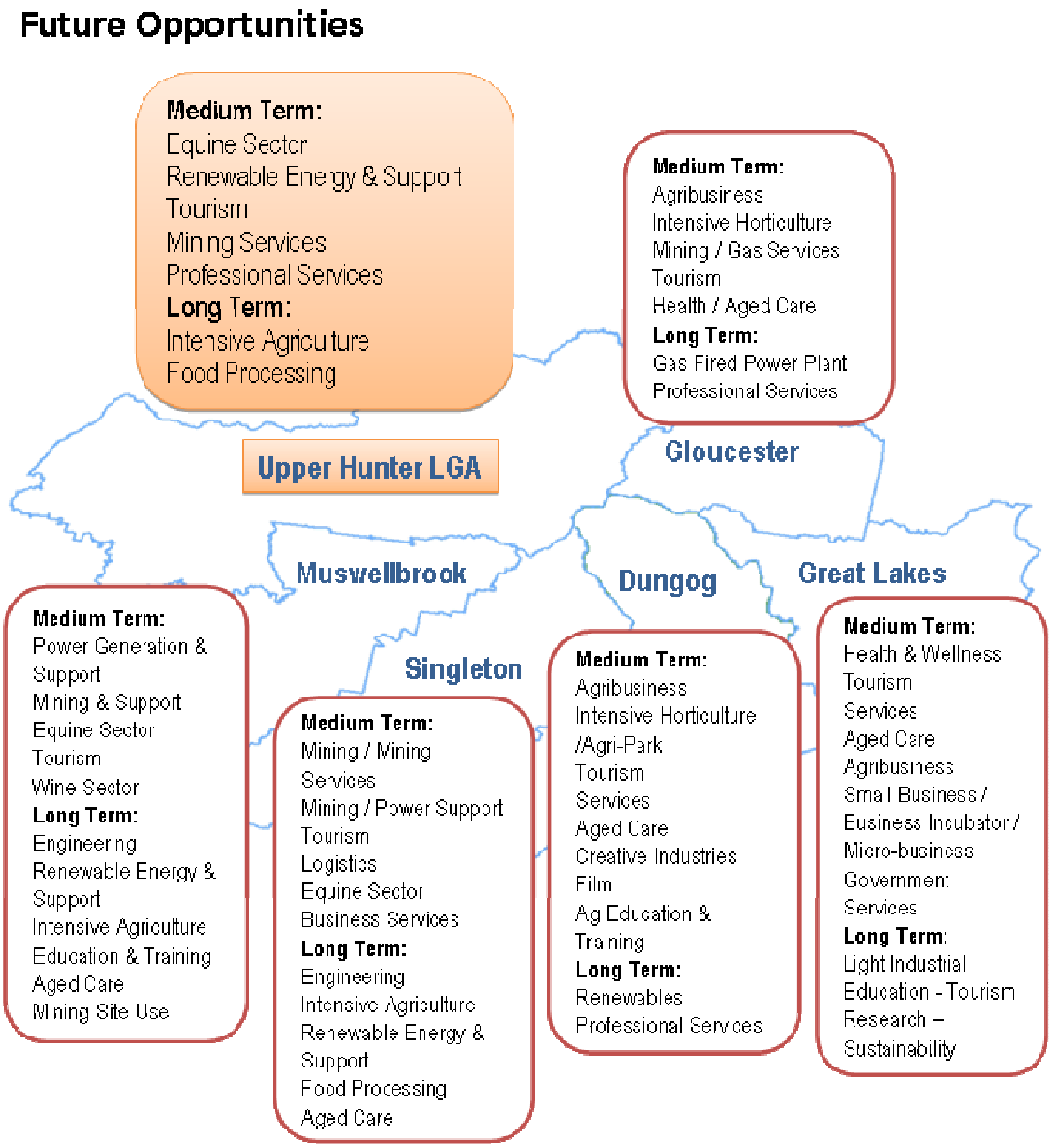
sectors. There are also issues in relation to coal trains through the town and cumulative time delays at the rail crossing. Like other regional areas there is a loss of younger persons to capital cities and regional cities for post school education and employment.

An *Economic Development and Tourism Strategic Plan 2010* has been developed by Upper Hunter Council. The focus is on: building on the current reputation that Scone and the Upper Hunter enjoys as the "Horse Capital of Australia"; and capitalising on the potential for green industries (energy park and support industries) and the natural environment, highly productive agricultural and clean air and plentiful water. [126]

Future long term growth in the area is likely to be based around: further development of the equine sector; other agribusiness, including processing operations; renewable energy; tourism; and population services. The potential for the development of services to mining has been identified based on: the location is in proximity to the new mining developments in the Gunnedah Basin; the closeness to the Muswellbrook mines; and the road and rail access to the west and to Newcastle. The area has affordable land for commercial, industrial and residential uses. Access will be improved with the future extensions of the F3.

126 Draft Economic Development & Tourism Strategic Plan - Revised 8 September 2010, Upper Hunter Council P4

C.2 Future Opportunities



The following tables outline the future opportunities in the region.

Upper Hunter LGA – Overview of Opportunities
Medium Term
Build on strengths in equine and emerging renewables sector.
Equine industry growth and development. Tourism Renewable energy and support , education and research Services to mining industry Professional services
Long Term
Agriculture revitalisation Intensive horticulture

Upper Hunter LGA	Opportunities - Priorities
Category 1: Population/Market Driven	Population: Continued population growth will drive services demand in the LGA. Its strategic location provides continued opportunities for persons working in jobs in adjacent LGAs. There is potential to develop more lifestyle housing developments. Population growth is necessary to underpin the future growth of Scone and the services sector, and needs to be based on development affordable housing options. Seniors: The age structure indicates an ageing population. This requires the development of seniors housing and continued development of aged care facilities in line with emerging demand levels.
Category 2: Building on Current Industries	Equine: strengthening of equine industry, via expansion of research and development, education, service industries and exports. Agriculture: remains important to the region, with the potential for revitalisation across existing sectors (beef, wine, crops); and the development of more intensive horticulture. Food processing: is one of the largest employers and there is potential for further development and expansion, and the potential to attract other businesses. Tourism: this is a major area for potential growth in short breaks market, built around equine sector, nature/adventure tourism, and wellness. Some infrastructure needs to develop the sector including accommodation and conference facilities.
Category 3: Developing New Areas	Major opportunities relate to: development of some mining support activities; and development of new areas of light industrial activities servicing regional markets.
Category 4: Creating New Advantages - Knowledge Based	Developing more knowledge intensive activities is a priority for the future. Renewable energy: Upper Hunter LGA has major advantages in renewable energy (Kyoto Energy Park and the LGA is a designated Renewable Energy Precinct). More wind farms are likely to be developed. There are opportunities to develop support activities and services and as a regional research, education & training hub for the sector. Other areas include the development of professional and technical services (business, agribusiness, and renewables) through persons being attracted for lifestyle and regional market opportunities. Education: extend equine industry education and training. Research: extend equine industry research and development and develop renewables research.
Category 5: Attraction Targets	Two areas of business attraction targets are: business back office functions and support centres; and government regional service offices.

Future Opportunities Upper Hunter LGA

Upper Hunter LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	Upper Hunter
Category 1: Population / Regional Market Driven						
Population & Housing	**Category 1**					**1**
Population growth Potential for further growth	Need for population growth for services growth and strengthened town centre					Growth
Population growth	Residential growth - associated with mining employees					**1**
Lifestyle living	Attract population - lifestyle blocks and precincts					**1**
Housing land	Develop additional housing land/ affordable housing (families)					**1**
Seniors	**Category 1**					**2**
Seniors living	Seniors housing and facilities, services					**2**
Supporting an ageing population	Aged care facilities and services in LGA					**2**
Town Centre	**Category 1**					
Revitalisation	Town centre (Scone)					**1**
	Retail and services					**2**
Health	**Category 1**					**1**
Health services	Maintain/develop local services					**1**

Future Opportunities Upper Hunter LGA

Upper Hunter LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	Upper Hunter
Category 2: Building on Current Industries						
Agriculture	**Category 2**					**1**
Equine Industry Major sector and national competitive advantage	Strengthening of Equine Industry –research and education , service industries, exports					**1**
	Maintain buffers to preserve sector.					
	Develop regional cluster with Muswellbrook					**1**
Wine/viticulture	Maintain sector and critical mass/develop sector					**1**
Existing agriculture	Maintain/consolidate Beef, dairy, cropping					**1**
Develop intensive agriculture	Develop intensive horticulture/food production.					**2**
	Growing Trials					**2**
	Commercial Production					**2**
Food processing	Further development of meat processing (vertical integration)					**1**
	Attract other processing operations					**1**
Tourism	**Category 2**					**1**
Expand sector	Taking a targeted approach in developing product , brand and infrastructure					**1**
Market focus	Short breaks market linked to national parks, lake, agritourism, and equine sector.					
Wine/food/agritourism	Extend wine tourism					**1**
Adventure/nature based	Develop (with Dungog & Gloucester)					**1**
Equine related	Develop activities					**1**
Wellness market	Develop facilities					**2**
Conference market	Facilities development and marketing					**2**
Infrastructure	Accommodation development					**1**
	Tourism Education and Training					**1**
Category 3: Developing New Areas						
Industry	**Category 3:**					
Mining support industries	Development of mining related service industries due to central location between Hunter and Gunnedah. Based on affordability and road rail access.					**2**
Light industrial	Expansion to service regional industry and population					**1**

Future Opportunities Upper Hunter LGA

Upper Hunter LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	
Category 4: Creating New Advantages - Knowledge Based						
Renewables	**Category 4:**					1
Developing sector Solar, wind, geothermal and support activities	Kyoto Energy Park,					1
	Renewables Precinct developments					1
	Develop support industries					1
	Develop a regional research , education & training hub					1
Services	**Category 4**					1
Professional and technical services	Professional services delivery to regional and national markets – lifestyle changers					1
Environmental services	Development of support services					1
Education and Training	**Category 4**					1
Specialist Training Centres						
Equine Sector	Extend programs and delivery					1
Research and Development	**Category 4**					
Renewables	Research and development					2
Equine	Expanded research activity/centre					1

C.3 Supporting Regional Development

Realising these medium and long term opportunities requires action on strategic infrastructure. For Upper Hunter LGA this infrastructure investment includes: road improvements, the Scone rail overpass, expansion of industrial areas, town centre development, water and sewer, broadband access, and Scone airport improvements. Water is an issue in relation to long term availability for rural and industrial uses.

A key issue is prioritising these requirements with a focus on those that will deliver the best returns in the medium term. Funding of infrastructure remains a major issue for Councils in the region.

In addition strategic support will be required for industry development initiatives including tourism development, town centre development; industry clusters; agriculture diversification; and feasibility studies. This would include securing regional support from government agency programs, including those of the NSW Department of Trade and Investment (DTI) and Tourism New South Wales. There is already some current DTI support being provided for *Crops for the Hunter*, an agriculture initiative involving Singleton, Muswellbrook and Upper Hunter Councils. A recent feasibility study on commercial growing of industrial hemp has been completed as part of this initiative. [127]

Strategic projects for funding could include: a review of infrastructure requirements for the development of the tourism industry in the Upper Hunter; and funding for a renewable energy cluster.

127 Crops for Hunter - Feasibility of Growing Industrial Hemp in the Hunter Valley, Neil Nelson Agvice Pty Ltd, September 2010

Appendix D Dungog LGA Opportunities

D.1 Overview - Dungog LGA

Dungog is a rural LGA with an estimated population of 8673 in 2010.[128] Dungog town is the major centre with a population of around 2100, and the area has several other villages and townships.[129]

Table 56. Population Characteristics by Major Centres –Dungog LGA 2006

Urban Centre Dungog LGA	Population no	Total Labour Force no	Full Time Employ no	Full Time Employ %	Not in Labour Force no	Unemployed no	Unemployed %
Dungog	2102	825	461	55.9	779	61	7.4
Gresford East and West	289	129	64	49.6	87	4	3.1
Clarence Town	794	331	175	52.9	243	32	9.7
Paterson	345	172	99	57.6	90	12	7.0
Total Urban Centre Population	3530	1457	799	54.8	1199	109	7.5
Total Rural Balance Population	4532	2181	1288	59.1	1147	64	2.9
Total LGA Population	**8062**	**3638**	**2087**	**57.4**	**2346**	**173**	**4.8**

Source: ABS Census 2006 Resident Population Data <Labour force and not in labour force are persons aged 15 years and over>

Dungog has a more traditional industry structure, which has been driven by agriculture - beef, dairy and timber and the servicing of these industries and the local resident population. The restructuring of these agriculture sectors has led to a major fall in the number of local jobs.

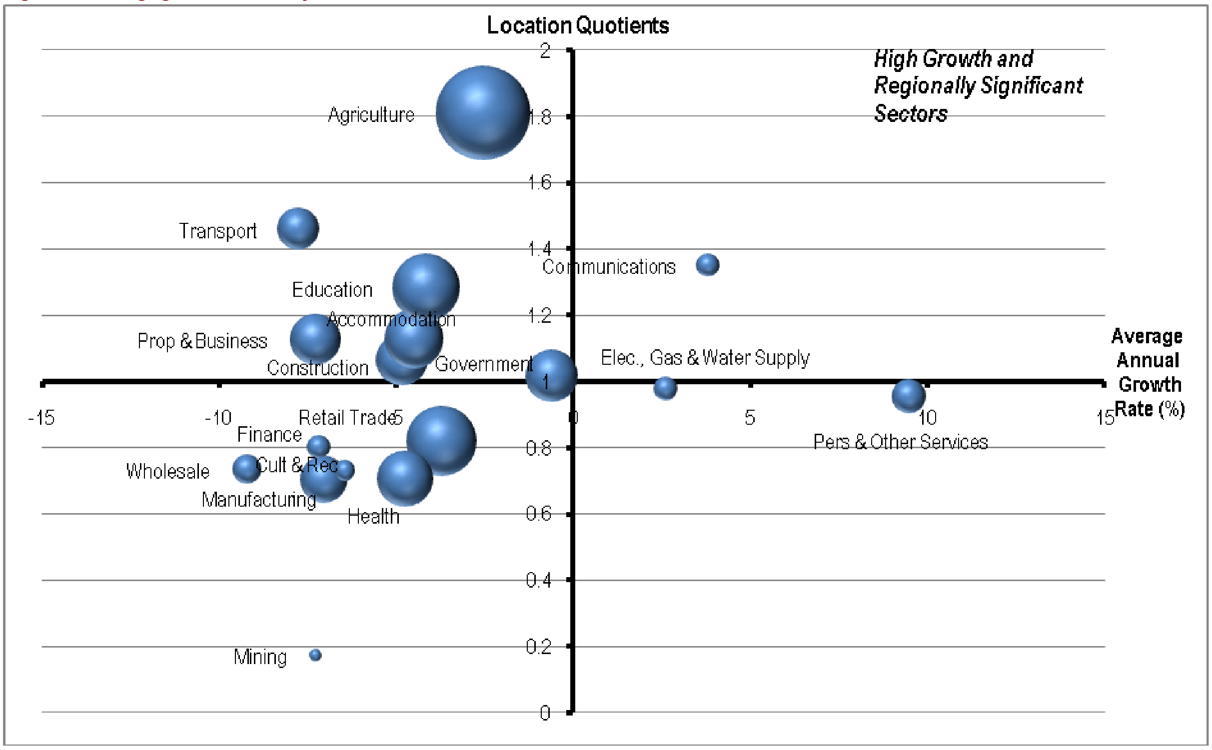
In 2006 the LGA had a total of 2039 jobs, with around 22% of these being in agriculture and almost half of the jobs being in-person services (which are servicing the local population). An analysis of data between 2001 and 2006 shows that the LGA had a decline of 532 jobs. A major concern is that these falls in employment were spread across most sectors of employment, including agriculture, local in-person services and professional services. Since then, there has been a further reduction in timber industry jobs and little jobs growth occurring in other sectors.

The following chart shows location quotients (a comparison of employment shares by industry for the LGA and the average for non-metropolitan New South Wales –LQ of more than 1 means that the LGA has a higher share of jobs in that sector), and the average annual growth rate in jobs located in the LGA between 2001 and 2006.

It highlights the declines that have occurred across many sectors and the continued importance of agriculture and population driven services.

128 ABS Cat No. 3218.0 Regional Population Growth, 31 March 2011, Population Estimates by Statistical Local Area, 2001 to 2010.
129 Tillegra Dam Situational Analysis, Planning Workshop Australia August 2008 P12

Figure 21. Dungog LGA Industry Structure



Dungog offers lifestyle benefits, and the more recent pattern has been for residents to access jobs in growth areas in locations in the Lower Hunter, and this trend will continue. However from a local economy perspective there is a need: to build population to support the local town economy and services; to diversify and develop new areas of agriculture; and to develop the tourism sector. Dungog LGA is also included as part of the *Hunter Renewable Energy Precinct*, with possibilities identified for wind energy, although most of the future wind farm development is likely to be in the Upper Hunter LGA.

Major issues affecting the region and its future are: an ageing population; loss of some services (eg. health, education) due to centralisation; structural change in agriculture and forestry; water availability issues; limited public transport access; and the mismatch between current housing types and future requirements.

There has been a steady decline in jobs in agriculture and some small increases in population-related services and tourism related jobs. The LGA is very much a small business economy with most businesses being owner operated or employing less than four people. The larger businesses are concentrated in health and community services; tourism (accommodation, cafes and restaurants); education; and property and business services. Despite the sectoral changes agriculture remains the major area of employment.

The recent situational analysis observed that: "*The community is in transition from a detached rural community to an economy that is more integrated with regional growth*."[130]

The development of the Tillegra Dam would have offered substantial tourism development benefits. In the absence of the dam there is a need to refocus tourism development and to deal with the major constraint of accommodation. There are opportunities to build this sector in the short breaks market, including nature based tourism, adventure tourism and agri-tourism.

From a population perspective, there will be a continuing trend for a significant percentage of residents to choose the Dungog lifestyle, but have their employment (particularly for professionals, technical workers, health workers and tradespersons) in the Lower Hunter. This pattern will maintain the LGAs population over the medium term. With an ageing population,

130 Dungog LGA Situation Analysis September 2008, planning workshop Australia P4

there are opportunities to create seniors living housing options in the Dungog township. In overall terms, a growing population is important in maintaining local service jobs in the centres.

From a diversification perspective the future for Dungog will involve: maintaining productive agriculture and associated support activities; developing more intensive farming options (eg. food growing operations); and developing the short break tourism market (nature based, adventure and agritourism).

D.2 Future Opportunities

The following tables outline the future opportunities in the region.

Dungog – Overview of Opportunities
Medium Term
Agriculture revitalization (including partnering with Gloucester) Intensive agriculture and development of an agribusiness park Agribusiness education and training (regional role) – extend Tocal College programs into Dungog Film sector – development of a residential film school, capitalising on film festival Tourism – market segment development (including partnering with Gloucester and Upper Hunter) Aged care
Long Term
Renewables - part of Hunter Renewable Energy Precinct : some limited opportunities for wind and solar generation Professional and technical services

Dungog LGA	Opportunities - Priorities
Category 1: Population / Market Driven	Population: Population growth is needed to drive services demand in the LGA. Dungog LGA is attracting persons who work in adjacent LGAs (eg. working in Thornton, Tomago, Maitland, Williamtown) but who want a rural lifestyle. This pattern needs to continue, with development of lifestyle blocks and affordable housing options. Seniors: The LGA has an ageing population and limited care facilities. There is a need to develop seniors housing and aged care facilities. Dungog town centre – there is a need to revitalise and to continue its role as the main service centre.
Category 2: Building on Current Industries	Beef: remains important to the region, with the potential for revitalisation across the existing beef sector, through consolidation. Intensive agriculture: development of more intensive horticulture, including development of an ***agribusiness park*** for trial development of crops. Diversification activities could be in partnership with the Gloucester LGA (Gloucester Growers Cluster). Equine: encourage expansion of the sector. Food processing: extension of poultry industry supply chain. Tourism: this sector has potential for growth in short breaks market, built around, nature/adventure tourism; eco-tourism and agri-tourism (food and wine). There are major tourism infrastructure needs in terms of accommodation and development of infrastructure in national park areas. There are benefits from a taking a sub-regional marketing approach (eg. regional visitor trails and links with Gloucester).
Category 3: Developing New Areas	There is potential to light industrial activities servicing local and regional markets. This will require the development of the industrial estate.
Category 4: Creating New Advantages - Knowledge Based	Developing more knowledge intensive activities is a priority for the future for all regions. Creative industries – develop residential film school Renewables: development as part of the *Hunter Renewable Energy Precinct* (wind and solar), but development this is likely to be limited as other locations are more suitable. Business and technical services: development of professional and technical services (business, agribusiness, environmental) through persons attracted to Dungog for lifestyle changes and for broader regional market opportunities. Education: expansion of Tocal College programs into the region (agribusiness education and training for Dungog and the Upper Hunter Region)

Future Opportunities Dungog LGA

Dungog LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	Dungog
Category 1: Population / Regional Market Driven						
Population & Housing	**Category 1**					**1**
Population growth	Need for population growth for services growth and strengthened town centre. LGA is attracting persons who work in adjacent LGAs (eg. working in Thornton, Tomago, Maitland, Williamtown, and Singleton).					Slow growth
Lifestyle living	Attract population - lifestyle living with jobs in areas of Lower Hunter.					**1**
Housing land	Rezone additional housing land for - rural residential Develop additional housing land/ affordable housing (families).					**1**
Seniors	**Category 1**					**1**
Seniors living	Seniors housing and facilities, services in town centre.					**1**
Supporting an ageing population	Develop aged care facilities and services in Dungog.					**1**
Town Centre	**Category 1**					
Revitalisation	Improve centres/villages - with Dungog as the main service centre.					**1**
	Improve retail mix, services & cafes/restaurants.					**1**
Health	**Category 1**					**1**
Health services	Maintain/develop local services.					**1**
Category 2: Building on Current Industries						
Agriculture	**Category 2**					**1**
Beef	Maintain and develop the sector including consolidation.					**1**
Agricultural diversification	Develop intensive agriculture.					
	Partnership with Gloucester Growers Cluster.					**1**
	Trials – develop an Agribusiness Park.					**1**
	Commercial Operations.					**1**
Equine Sector	Stud thoroughbred activity is expanding – support growth.					**1**
Food processing	Extension of poultry processing-supply chain.					**2**

Future Opportunities Dungog LGA

Dungog LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	Dungog
Category 2: Building on Current Industries						
Tourism	**Category 2**					1
Sector	Maintain and develop sector – short breaks.					2
Wine/food/agritourism	Extend wine tourism.					3
Adventure/nature based	Focus on nature based tourism and access to Tops (with other Councils – Gloucester & Upper Hunter).					1
Eco-tourism	Maintain sector.					2
Film Festival	Develop on film festival – extend activities and events.					1
Greater sub- regional integration of tourism	Develop regional visitor trails to extend product offer.					1
Infrastructure - tourism	Accommodation development Improve accommodation availability for visitor market – motel and caravan park.					1
	National Parks/State Forests – need for investment in tourist facilities.					1
Category 3: Developing New Areas						
Industry	**Category 3:**					
Light industrial	Expansion to service regional industry and population.					1
Category 4: Creating New Advantages - Knowledge Based						
Renewables	**Category 4:**					1
Renewables	Development as part of the Hunter Renewable Energy Precinct – wind and potential for solar.					1
Services	**Category 4**					1
Professional and technical services	Attraction of professionals for lifestyle changes.					1
Environmental services	Development of support services.					2
Education and Training	**Category 4**					1
Specialist Training Centres						
Agribusiness	Expansion of Tocal College – agribusiness education & training into Dungog and for the Upper Hunter Region.					1
Creative industries	Develop residential film school.					1

D.3 Supporting Regional Development

Key infrastructure needs for Dungog are: regional access road improvements; development of an industrial estate; and the development of new tourist accommodation. The expansion of nature based tourism will require the development of facilities in the National Park areas.

For a smaller rural LGA, a broader regional approach is needed to industry sector development (in agriculture and tourism), and this could involve partnering with Gloucester on specific regional economic development initiatives (and with Gloucester and Upper Hunter Council on tourism).

The infrastructure needs are beyond the capacity of local Councils to fund. There is a need for a regional plan which looks at priority projects and funding options, including options in relation to mining royalties and other strategic projects funding.

In addition strategic support will be required for industry development initiatives including tourism development, town centre development; industry clusters; agriculture diversification; and feasibility studies. This would include securing regional support from government agency programs, including those of the NSW Department of Trade and Investment (DTI) and Tourism New South Wales. There is already some current DTI support being provided for *Crops for the Hunter*, an agriculture initiative involving Singleton, Muswellbrook and Upper Hunter Councils, and for the *Gloucester Growers Group*.

Strategic projects for funding could include: a feasibility study on the development of an *Agribusiness Park* for horticulture; and a review of tourism infrastructure needs in the region.

Appendix E Gloucester LGA Opportunities

E.1 Overview - Gloucester LGA

As a regional economy, Gloucester maintains a specialisation in agriculture (mainly beef and dairy) and in services for the Shire's population. There has been growth in the mining and gas sector (in the last 5 years), associated with some extension of coal mining and coal seam gas. The region has a growing tourism sector that is focused on nature and adventure tourism and access to the Barrington Tops.

Gloucester is one of the smallest economies in the Upper Hunter Region. In 2006 there were 1737 jobs in the Shire, with agriculture accounting for almost 20% of jobs and manufacturing 8% of jobs. Over 45% jobs are servicing the local population, with retail and health services being the major areas of local employment. Compared with other LGAs in the Upper Hunter Region, Gloucester has a significant local health sector due to the presence of the Gloucester Hospital.

The population is experiencing slow growth and is ageing (it has one of the oldest population structures in the Upper Hunter Region). Employment levels have largely been stable in recent years, with a decline in persons employed in beef and dairy, being offset by some growth in services employment. The LGA had an estimated population of 5181 in 2010. [131]

Table 57. Population Characteristics by Major Centres –Gloucester LGA 2006

Urban Centre Gloucester LGA	Population no	Total Labour Force no	Full Time Employ no	Full Time Employ %	Not in Labour Force no	Unemployed no	Unemployed %
Gloucester	2445	888	491	55.3	993	73	8.2
Total Urban Centre Population	2445	888	491	55.3	993	73	8.2
Total Rural Balance Population	2357	1115	656	58.8	750	48	4.3
Total LGA Population	**4802**	**2003**	**1147**	**57.3**	**1743**	**121**	**6.0**

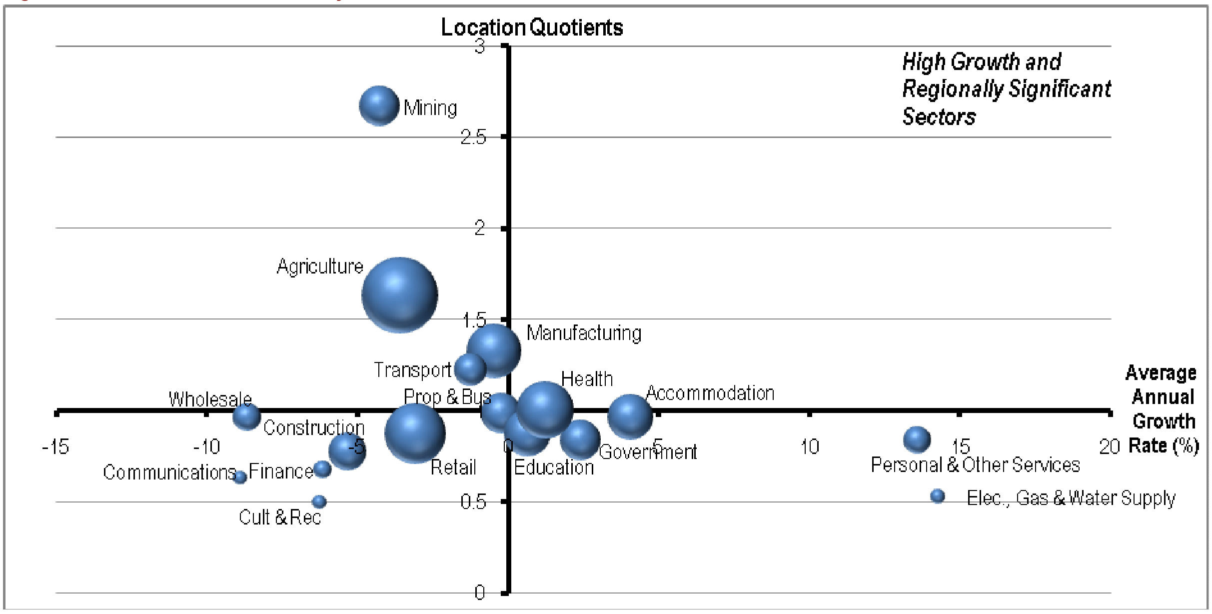
Source: ABS Census 2006 Resident Population Data <Labour force and not in labour force are persons aged 15 years and over>

The following chart shows location quotients (a comparison of employment shares by industry for the LGA and the average for non-metropolitan New South Wales –LQ of more than 1 means that the LGA has a higher share of jobs in that sector), and the average annual growth rate in jobs located in the LGA between 2001 and 2006.

It highlights that the share of jobs in services (eg, health, education, business services etc.) is broadly in line with the average for non-metropolitan New South Wales. Employment has generally been stable with some limited growth in education and accommodation services.

131 ABS Cat No. 3218.0 Regional Population Growth, 31 March 2011, Population Estimates by Statistical Local Area, 2001 to 2010.

Figure 22. Gloucester LGA Industry Structure

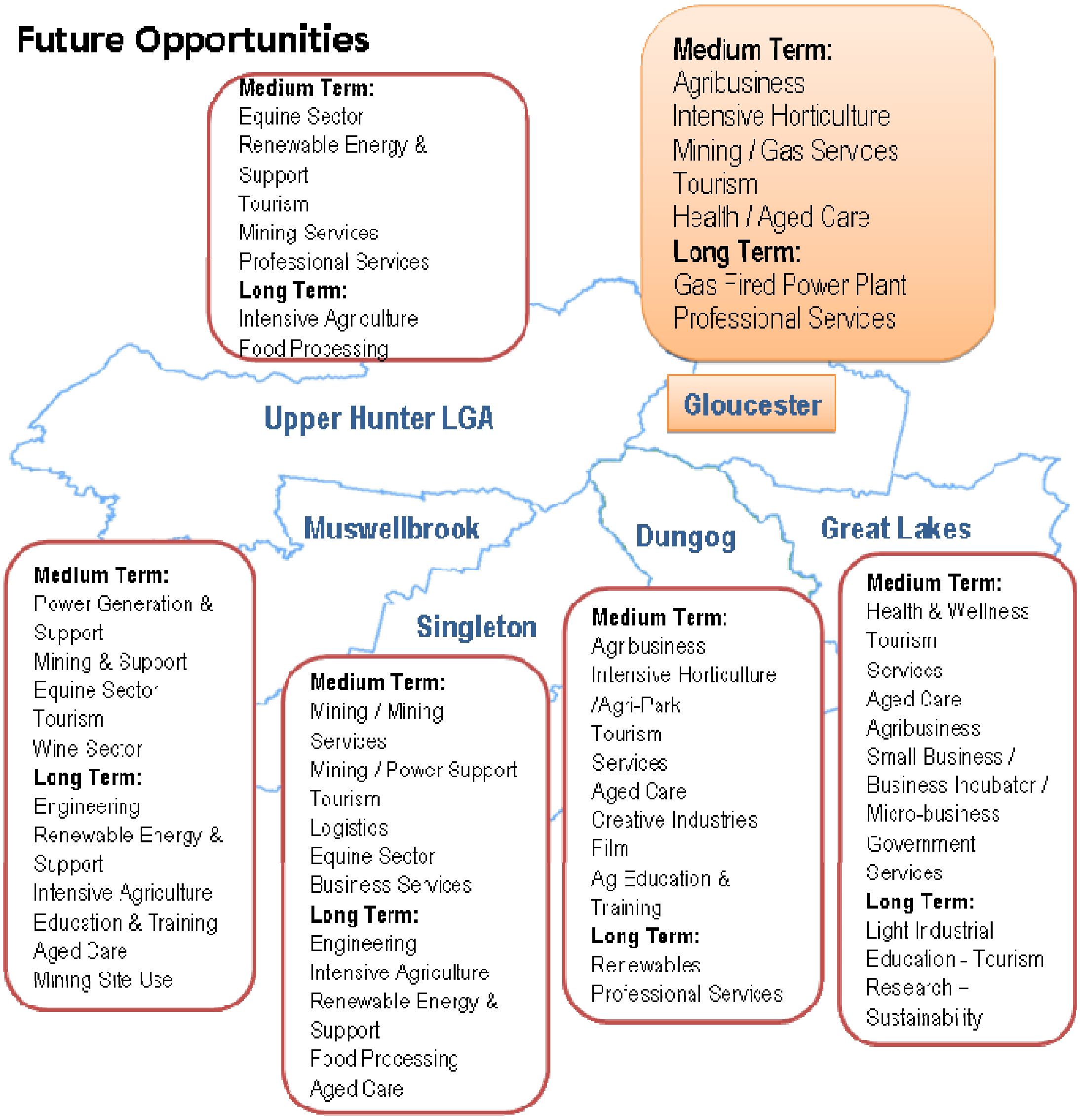


Future economic development strategies for the area are focused on diversifying agricultural activities, developing tourism and strengthening light industrial activities and the service sector. There are also opportunities related to the Stratford Industrial Estate and the development of mining support, gas services and power generation. Gloucester Council has been active on economic development initiatives in relation to agribusiness diversification, through the establishment of an industry cluster (*Gloucester Growers Cluster*). Proposed new investment in the retail sector will contribute to a revitalisation of the town centre.[132]

A constraint to future agricultural development is the take up of land in the area by mining exploration leases.

132 Economic Development Strategy for Gloucester Local Government Area, Report 3: Economic Development Strategy, Buchan Consulting, December 2010.

E.2 Future Opportunities



The following tables outline the future opportunities in the region.

Gloucester – Overview of Opportunities
Medium Term
Agriculture revitalisation Intensive agriculture and development using Gloucester Growers Cluster Wine sector Mining and gas support – engineering services Tourism : market segment development – short breaks - adventure, nature based, agri-tourism Retail revitalisation Health and Aged care <Potential for regional partnering with Dungog on tourism and agriculture>
Long Term
Power generation (small gas fired plant) Industrial Park Professional and technical services

Gloucester LGA	Opportunities - Priorities
Category 1: Population / Market Driven	Population: Population growth is needed to drive services demand and a stronger Gloucester town centre. A major component of current growth is lifestyle changers and retirees. Broader growth is required through lifestyle blocks, town precincts and affordable housing. Seniors: The Shire has an ageing population and there is a need to develop seniors housing in Gloucester town and to maintain and expand aged care facilities and services. Gloucester town centre – there is a need to revitalise and expand its role as the service centre and as a visitor destination.
Category 2: Building on Current Industries	Mining support industries: Extend mining support activities (Stratford) Beef: remains important to the region, with the potential for revitalisation across the existing beef sector, through consolidation. Major consolidation has occurred in dairy. Intensive agriculture: Encourage the development of intensive horticulture (food products) and channels to market.(via the Growers Cluster) Wine/viticulture: Encourage sector development through links to Growers Cluster and regional tourism. Tourism: This sector has potential for growth in the short breaks market, built around, nature/adventure tourism; and agri-tourism (food and wine) and the wellness market. There are major infrastructure needs in terms of accommodation and development of a Multipurpose Gateway Centre. There are benefits from a taking a regional marketing approach (eg. regional visitor trails and links with Dungog and with Upper Hunter LGA).
Category 3: Developing New Areas	Engineering: support activities to the mining and gas plant (Stratford). Power generation: potential for the development of a small gas fired power station. Logistics: development of a Small Logistics Centre or Intermodal Transport Hub. Light industrial - expansion to service regional industry and the regional population, and to provide support services to regional agriculture.

Future Opportunities Gloucester LGA

Gloucester LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	Gloucester
Category 1: Population / Regional Market Driven						
Population & Housing	**Category 1**					**1**
Population growth	Need for population growth for services growth and a strengthened Gloucester town centre					Slow growth
Lifestyle living	Attract population - lifestyle blocks and town precincts					**1**
Housing land	Develop additional housing land/ affordable housing (families)					**2**
Seniors	**Category 1**					**1**
Seniors living	Develop housing options in Gloucester Town Centre					**1**
Supporting an ageing population	Maintain and develop age care facilities and services					**1**
Town Centre	**Category 1**					
Revitalisation	Revitalisation of Gloucester Town Centre					**1**
	Improve retail and services					**1**
Health	**Category 1**					**1**
Health services	Hospital and health services - Maintain and develop services					**1**
Category 2: Building on Current Industries						
Mining and Support	**Category 2:**					**3**
Mining support industries	Extend mining support activities (Stratford)					**2**
Rehabilitated sites	Assess future mining site use – regional technical/business assessment (eg. waste – clean fill)					**3**
Agriculture	**Category 2**					**1**
Beef and dairy	Maintain and develop through consolidation					**1**
Diversification – Intensive agriculture	Development of intensive horticulture (food products)					**1**
	Trials					
	Commercial operations					
Growers cluster	Diversification, trials, market development and agritourism Partner with Dungog					**1**
Wine/viticulture	Encourage sector development through links to Growers Cluster and regional tourism					**2**

Future Opportunities Gloucester LGA

Gloucester LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	Gloucester
Category 2: Building on Current Industries						
Tourism	**Category 2**					1
Sector	Maintain and develop sector Targeted market development – short breaks and events					1
Wine/food/agritourism	Develop agritourism					1
Adventure/nature based	Continue to develop the market					1
Wellness market	Encourage in resort					3
Infrastructure	Multipurpose Gateway Centre					1
	Accommodation development					1
Category 3: Developing New Areas						
Industry	**Category 3:**					
Engineering <diversify>	Support to mining and gas plant (Stratford)					1
Power generation	Small gas fired power station					1
Small Logistics Centre or Intermodal Transport Hub	Develop as a logistics hub – road/rail access					3
Light industrial	Expansion to service regional industry and population Support services to agriculture					1
Category 4: Creating New Advantages - Knowledge Based						
Education and Training	**Category 4**					1
Skills	Extended local delivery of VET programs					2

E.3 Supporting Regional Development

Key infrastructure needs for Gloucester are: access road improvements; the development of the Stratford Industrial Park; new tourist accommodation; town centre revitalisation; and construction of a *Multipurpose Gateway Centre*.

In terms of a regional approach to industry sector development (in agriculture and tourism), there is the potential for partnering with Dungog.

The overall infrastructure needs are beyond the capacity of local Councils to fund, action is needed on future funding options including the use of mining royalties to support diversification and industry development. In addition strategic support will be required for industry development initiatives including tourism development, town centre development; industry clusters; agribusiness diversification; and feasibility studies.

This would include securing regional support from government agency programs, including those of the NSW Department of Trade and Investment (DTI) and Tourism New South Wales. There is already some current DTI support being provided for *Gloucester Growers Group*, an agribusiness initiative involving Gloucester businesses.

Strategic projects for funding could include: the Gateway Centre; industry attraction to the Stratford Industrial Park; a regional tourism survey and an assessment of tourism infrastructure in the broader region; and an extension of the agribusiness project (Gloucester Growers).

Appendix F Great Lakes LGA Opportunities

F.1 Overview - Great Lakes LGA

The Great Lakes LGA extends along the Mid North Coast, and is 200 kms north of Sydney and 70 kms north of Newcastle. The main population centres are Forster/Tuncurry in the north and Tea Gardens/Hawks Nest in the south, with the smaller inland villages of Stroud, Nabiac and Bulahdelah. As a coastal location it has developed as both a retirement destination and as a tourism centre, and this is reflected in the structure of the regional economy.

Great Lakes has experienced strong population growth and this growth is projected to continue. Much of this growth has been driven by retirement and lifestyle living, and as a consequence Great Lakes has the oldest age structure in the Upper Hunter Region. The LGA had an estimated population of 35,924 in 2010. [133]

Table 58. **Population Characteristics by Major Centres –Great Lakes LGA 2006**

Urban Centres Great Lakes	Population no	Total Labour Force no	Full Time Employ no	Full Time Employ %	Not in Labour Force no	Unemployed no	Unemployed %
Forster Tuncurry	18372	6243	3046	48.8	8527	642	10.3
Tea Gardens	1978	600	319	53.2	1065	32	5.3
Hawks Nest	1027	314	146	46.5	572	30	9.6
Bulahdelah	1093	443	232	52.4	380	26	5.9
Nabiac	590	250	119	47.6	166	22	8.8
Stroud	669	256	135	52.7	256	15	5.9
Pacific Palms-Blueys Beach	673	277	131	47.3	226	18	6.5
Total Urban Centre Population	24402	8383	4128	49.2	11192	785	9.4
Total Rural Balance Population	8364	3324	1573	47.3	3041	303	9.1
Total LGA Population	**32766**	**11,707**	**5,701**	**48.7**	**14,233**	**1,088**	**9.3**

Source: ABS Census 2006 Resident Population Data <Labour force and not in labour force are persons aged 15 years and over>

From a regional planning perspective, Great Lakes is included in the NSW Government's *Mid-North Coast Regional Strategy 2008*, and is identified as a coastal area that will continue to experience significant population growth.[134] The regional strategy defines Forster - Tuncurry as a major town and Bulahdelah and Tea Gardens/Hawks are defined as towns. Stroud and Nabiac are defined as inland villages and all other centres (Green Point, Pacific Palms, Smiths Lake, and Coomba Park) are defined as coastal villages.[135] Recent planning studies project continued growth, particularly in the main centre of Forster-Tuncurry.[136]

Compared with the rest of the Upper Hunter Region, Great Lakes has a much older population; lower labour force participation rates; and a much higher incidence of part-time service industry employment. Overall there is a relative narrow base of employment (agriculture in the inland areas, and services and tourism on the coast). Unemployment levels have declined but remain higher than other areas in the Upper Hunter. The area lacks the broader mix of local job opportunities to enable the attraction of more families. From an economic development perspective there are major concerns about these demographics and a recognised priority is the requirement to broaden the business base of the region.

The major sectors of employment are retail trade, accommodation, cafes and restaurants, health and community services, education, agriculture, fisheries and construction. In 2006, there were over 9000 jobs in the LGA, with in-person services accounting for around 60% of jobs (mainly in retail -16%, accommodation and food services -13% and health 12%). Agriculture only accounted for 486 jobs or 5% of jobs, with manufacturing accounting for 6% of jobs. Due to the

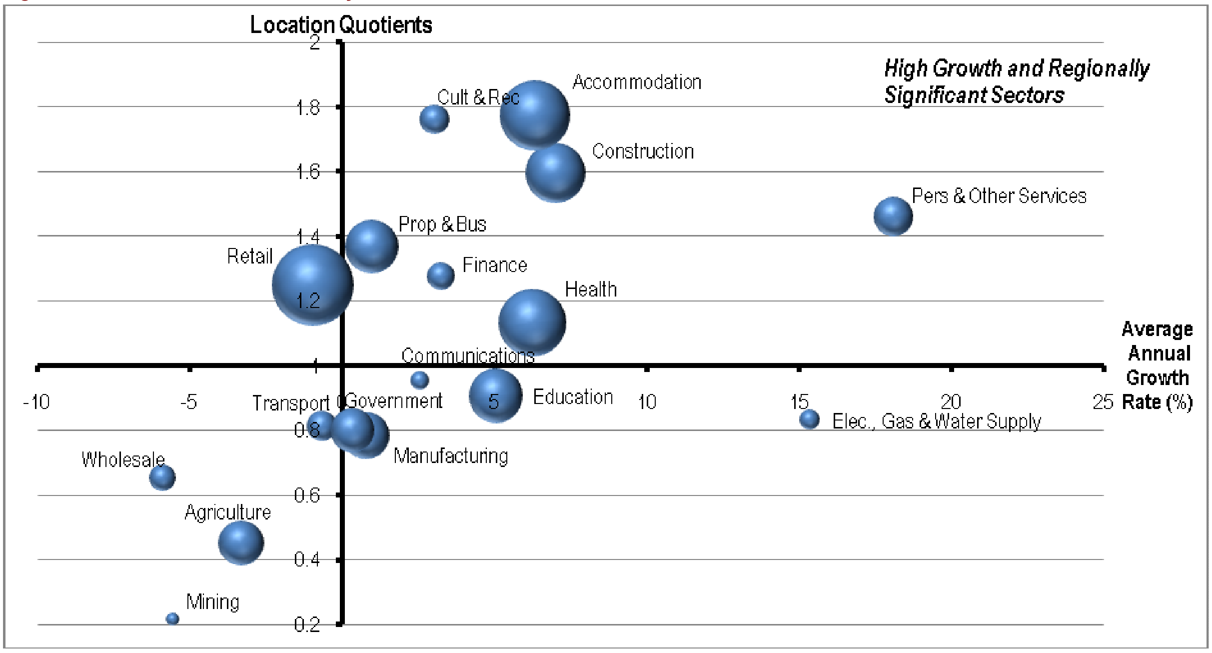
133 ABS Cat No. 3218.0 Regional Population Growth, 31 March 2011, Population Estimates by Statistical Local Area, 2001 to 2010.
134 The strategy covers the eight local government areas of Clarence Valley, Coffs Harbour, Port Macquarie–Hastings, Greater Taree and Great Lakes.
135 Forster - Tuncurry Employment Land Implementation Strategy Hill PDA November 2009 P61
136 The employment lands study indicates that Foster – Tuncurry population is projected to increase from 18,372 in 2006 to 26,500 in 2031, Forster - Tuncurry Employment Land Implementation Strategy Hill PDA November 2009 P11

continued strong population growth and housing development, construction was one of the larger sectors, accounting for 864 jobs (10% of jobs).[137] Knowledge and business services accounted for 1068 jobs or 12% of jobs in the LGA.

Tourism is one of the largest sectors, with Great Lakes having almost one million visitors and annual tourist expenditure of around $243 million. Primary production is focused in beef cattle, fishing and oyster production and wine. There has been some growth in specialist food products sold via local retail, farm gate sales and restaurants.

The following chart shows location quotients (a comparison of employment shares by industry for the LGA and the average for non-metropolitan New South Wales -a LQ of more than 1 means that the LGA has a higher share of jobs in that sector), and the average annual growth rate in jobs located in the LGA between 2001 and 2006. It highlights the importance of population services and tourism to the region.

Figure 23. Great Lakes LGA Industry Structure



Forster-Tuncurry is the major centre of services and employment and accounted for almost 5800 jobs or 64% of all jobs in the LGA. In the twin towns, the major employment sectors were; retail trade (1,038 jobs or 19% of jobs); accommodation and food services (704 or 12% of jobs); health care and social assistance (885 or 13% of jobs); construction (416 or 7% of jobs); education and training (437 or 7% of jobs); and public administration and safety (380 or 7% of jobs).

Future opportunities are based around building on current industries (eg. tourism), combined with a diversification to create a broader based local economy, including higher value knowledge based services (education, research, technical services)and the development of health and wellness services. With an attractive coastal environment, Forster Tuncurry has the potential to develop as an innovative industry hub. One initiative indentified in an earlier report is the proposal for a Centre for Environmental Sustainability (research and education) in Forster Tuncurry (Great Lakes).[138] This would be a partnership with University of Newcastle.

F.2 Future Opportunities

137 Of the jobs in construction in 2006, around 200 were estimated to be civil and road construction with an increase these numbers with the upgrade work on the Pacific Highway.
138 Forster - Tuncurry Employment Land Implementation Strategy Hill PDA November 2009 P153-155.

Future Opportunities

The following table outlines the future opportunities that can be developed for the region.

Great Lakes LGA – Overview Opportunities
Medium Term
Forster Tuncurry Crown Harbour Project Health services - extend and develop broader health and wellbeing focus Aged care Agriculture revitalisation – existing sectors and intensive agriculture Tourism: continue market segment development - active tourism/lifestyle, adventure sports, water based; eco-tourism and nature-based tourism. Building and construction , with an environmental focus Small business development and a business incubator Professional and technical services Government services
Long Term
Light industrial - develop businesses in industrial areas Environmental services -Centre of Excellence (in sustainability covering research and training) Tourism training centre

Great Lakes LGA	Opportunities – Priorities
Category 1: Population / Market Driven	Population: Population growth needs to be broader based to develop a more diversified local economy. A key issue is development of a combination of lifestyle blocks and affordable housing options (for families). Seniors: Continue seniors' housing development around service precincts and town centres; and further develop aged care facilities in line with predicted demand. Forster Tuncurry Crown Harbour Project: Strategic harbour and waterfront project which will provide a range of recreational, commercial retail and tourism related experiences/facilities. There is a need to develop investor interest in the project. Health services: Extend services and develop a broader health and wellbeing focus, with synergies between health, wellbeing, natural therapies and lifestyle.
Category 2: Building on Current Industries	Commercial Fishing and Aquaculture: Maintain and develop the sectors. Develop direct to market channels. Beef: Maintain the sector and encourage consolidation, and develop new market channels to improve yields. Wine: Encourage sector development through links to regional tourism and agritourism. Diversification: Explore potential for intensive horticulture (food) production, through links with Gloucester Growers Cluster. Tourism: Is a major sector, and there is a need to continue to broaden markets to deal with seasonality and yield issues. Continue to develop activities, experiences and packages within target market segments and the events program. Additional marketing support is needed for the tourism sector. Segments for continued development include: active tourism/lifestyle, National Parks, adventure sports, water based; eco-tourism and nature-based tourism (eg. eco-tours, wildlife and whale watching); develop wellness market segment, with links to health; and conferences. Small business: Encourage growth in small businesses (including home based micro-businesses and businesses in commercial precincts).
Category 3: Developing New Areas	Logistics/transport hub: Potential to develop a distribution facility to make use of the Pacific Highway extension. Building and construction: Extension of markets for further development of green design/construction/services. Light industrial: Build on the engineering/light industrial/marine capability to service regional industry (agriculture, aquaculture and marine sectors) and a growing population. This will require development of industrial land and some business attraction. Small business: Extend business support services for new businesses and business start-ups through the establishment of a business incubator. Encouragement of micro-businesses and home based businesses.
Category 4: Creating New Advantages - Knowledge Based	Developing of more knowledge intensive activities is a priority for the future for all regions. Professional and technical services: Attraction of professionals servicing – local, regional and broader national markets (lifestyle changers) Environmental services: Development of environmental support services and research. Education and training: Improve and expand local delivery of vocational training (learning centre and online). Develop a Regional Campus – Create shared facilities (for Higher Education, VET, and ACE providers) – covering health, environment, tourism, trades. Tourism: Develop a regional centre of excellence in tourism training (tourism and hospitality). Health: Expand local delivery of nursing and allied health training. Research: Develop a centre of excellence in environmental management and sustainability, with links to University of Newcastle.
Category 5: Attraction Targets	Government services: Attract administrative offices, and regional service centres Business services: Attract support centres and back office functions.

Future Opportunities –Great Lakes LGA

Great Lakes LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	
Sustainability	Focus on sustainability in all dimensions: economic, social, environmental. Employment growth is needed to attract broader population and retain younger persons in region.					
Category 1: Population / Regional Market Driven						
Population & Housing	**Category 1**					1
Population growth	Need for broader population growth for a sustainable economy and strengthened services.					Continuing strong growth
Lifestyle living	Attract population - lifestyle blocks and precincts.					1
Housing land	Develop additional housing land/ affordable housing (families).					1
Seniors	**Category 1**					1
Seniors living	Continue seniors' housing development around service precincts and town centres.					1
Aged care: link services to growing demand and requirements	Further develop aged care facilities and services (including home services) in line with predicted demand.					1
Town Centre	**Category 1**					
Precincts	Improvement in retail and commercial centres in the town centres.					1
Forster Tuncurry Crown Harbour Project	Strategic Harbour and waterfront project providing a range of recreational, commercial retail and tourism related experiences/facilities. Need to engage developers on the project.					1
Population services	Continued growth in retail and population services drive by continued growth. Particularly in Forster Tuncurry.					1

Future Opportunities –Great Lakes LGA

Great Lakes LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	
Category 1: Population / Regional Market Driven						
Health	**Category 1**					**1**
Health services	Build on strength in health services Develop medical technology, medical imaging and radiography.					**1**
	Develop health and wellbeing focus, with synergies between health, wellbeing, natural therapies and lifestyle					**1**
Category 2: Building on Current Industries						
Agriculture	**Category 2**					**1**
Commercial Fishing and Aquaculture	Maintain and develop the sectors. Develop direct to market channels.					**1**
Beef	Maintain the sector and encourage consolidation. Develop new market channels to improve yields.					**2**
Wine	Encourage sector development through links to regional tourism.					**1**
Diversification – more intensive agriculture	Explore potential for intensive horticulture (food) production, through links with Gloucester Growers Cluster.					**2**
Poultry sector	Maintain and develop sector. Extend product range to meet niche market demand.					**1**
Tourism	**Category 2**					**1**
Tourism is a key sector – now and in the future	Continue to develop activities, experiences and packages within targeted market segments. Secure more active business involvement. Develop improved facilities.					
Need to continue to broaden market to deal with seasonality and yield issues.	Continue to broaden market to deal with seasonality and yield issues. Continue to develop activities, experiences and packages within market segments and events program. Marketing - additional marketing support					**1**
Aquaculture	Encourage links between aquaculture and tourism (eg restaurant and oyster bar).					**1**
Active tourism	Continue to develop sector around active tourism /lifestyle National Parks, adventure sports, water sports.					**1**
Ecotourism	Continue to develop nature-based tourism (eg. eco-tours, wildlife and whale watching).					**1**
Wellness market	Develop wellness market segment, with links to health.					**1**
Conference market	Develop conference facilities.					**2**
Accommodation	Upgrades of accommodation.					**1**

Future Opportunities –Great Lakes LGA

Great Lakes LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	
Category 2: Building on Current Industries						
Industry	**Category 2**					**1**
Building and construction	Extension of markets and green design/construction/services.					**1**
Light industrial	Build on engineering/light industrial/marine – servicing regional industry (agriculture, aquaculture, and marine sectors) and growing population. Requires development of industrial land and business attraction.					**1**
Small business	Encourage growth in small businesses (home based and in commercial centres).					**1**
	Extend business support services for new businesses and business start-ups. Establish a business incubator.					**1**
Category 3: Developing New Areas						
Industry	**Category 3:**					
Logistics Centre	Logistics/transport hub – distribution facility to make use of the Pacific Highway extension. Requires development of industrial land.					**2**
Category 4: Creating New Advantages - Knowledge Based						
Services	**Category 4**					**1**
Professional and technical services	Continue to actively attract professionals servicing – local, regional and broader national markets (lifestyle changers).					**1**
Environmental services	Development of environmental support services.					**1**
Education and Training	**Category 4**					**1**
Training	Improve and expand local delivery of vocational training (learning centre and online). Greater collaboration between business and training organisations.					**1**
Regional delivery	Develop a Regional Campus – shared facilities (for Higher Education, VET, ACE) – health, environment, tourism, trades.					**2**

Future Opportunities –Great Lakes LGA

Great Lakes LGA	Future Opportunities Clusters	Horizon				Priority
		5	10	15	20	
Category 4: Creating New Advantages - Knowledge Based						
Education and Training	**Category 4**					**1**
Specialist Training Centres						
Tourism	Develop a regional centre of excellence in tourism training (tourism and hospitality).					**1**
Health	Nursing and allied health training delivery.					**1**
Research and Development	**Category 4**					
Environmental Sustainability	Develop research centre in environmental management and sustainability.					**2**
Category 5: Attraction Targets		**Attraction**				**1**
Governments Services	Administrative offices, regional service centres.					**1**
Business services	Back office functions, support centres.					**1**

F.3 Supporting Regional Development

Key infrastructure needs for the Great Lakes area include: road and bridge upgrades; special projects such as the Forster Tuncurry Crown Harbour Project; the development of new industrial areas; creation of a small business incubator; and the development of an education centre.

Additional support will be required for strategic industry development projects. This would include securing regional support from government agency programs, including those of the NSW Department of Trade and Investment (DTI) and Tourism New South Wales.

Priorities for funding could include: industry feasibility studies; an employment lands study for areas outside of Forster-Tuncurry; tourism market development; the small business incubator; and a feasibility study on the centre of excellence in environmental management/sustainability.

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