Weathering the Storm: The Case for Transforming the Hunter Valley

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1. Background

• Economic impact on the Hunter and particularly Muswellbrook and Singleton if/when the world acts on climate change and the Sustainable Development Goals
  – Under a do nothing approach
  – Under a strong transition plan
1. Background

- International Energy Agency’s Sustainable Development (SD) scenario

- 55% reduction in demand for thermal coal by 2040
1. Background

• Model the impact of the SD scenario on Muswellbrook and Singleton LGAs

• Using Input-Output (IO) analysis
  – ABS National Accounts
  – Models interactions amongst industries such as mining, construction, manufacturing and electricity
  – Static
  – Not a prediction. A representation of the impact.
2. Impact of a fall in coal demand

• Convert national IO tables to regional IO tables using Place of Work data (remplan.com.au)

• Impact was always going to be large given the lack of diversity
  – Figure 1

• That is what we found under the do nothing approach
  – Table 1
Figure 1 – A lack of diversity
Table 1 – Impact under the do nothing approach

<table>
<thead>
<tr>
<th>Impact Summary</th>
<th>Direct Effect ($M)</th>
<th>Supply-Chain Effect ($M)</th>
<th>Consumption Effect ($M)</th>
<th>Total Effect ($M)</th>
<th>Type 1 Multiplier</th>
<th>Type 2 Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output ($M)</td>
<td>-$4,797</td>
<td>-$930</td>
<td>-$696</td>
<td>-$6,424</td>
<td>1.194</td>
<td>1.339</td>
</tr>
<tr>
<td>Employment (Jobs)</td>
<td>-5,199</td>
<td>-2,190</td>
<td>-2,477</td>
<td>-9,866</td>
<td>1.421</td>
<td>1.898</td>
</tr>
<tr>
<td>Wages and Salaries ($M)</td>
<td>-$706</td>
<td>-$205</td>
<td>-$153</td>
<td>-$1,064</td>
<td>1.291</td>
<td>1.508</td>
</tr>
</tbody>
</table>
2. Impact of a fall in coal demand

• In terms of those people living and working in the region
  – Direct employment falls by 2,064 jobs
  – Wages and salaries by $280m

• Business as usual is not an option
3. Identifying growth industries

- Looked at transition plans which don’t plan for transition
  - Assume business as usual with coal
  - Thus support coal and coal-support industries
  - Some good industries identified

- We used several other methods
  - Key industries and gap analysis
  - Shift-share analysis and location quotients
  - Industries using similar labour skills
3.1 Key industries and gap analysis

- Based on import patterns
  - Identify products (inputs) that support the region’s main industries and that currently the region imports
  - The mining sector imports a lot
  - But focus on industries that mining and other industries import into the region
    - Professional, scientific and technical services
    - Construction
    - Technical equipment manufacturing
    - Transport
3.2 Shift-share analysis and location quotients

• Based on the theory of comparative advantage
  – Shift-share
    • Remove the influence of national, state and general industry growth
    • See if the local growth is unique
    • Due to some special characteristic of the local economy
  – In the Upper Hunter LGA’s
    • Grape growing, horse farming, poultry farming
    • Electricity
    • Manufacturing (electricity and other equipment)
    • Meat processing
    • Transport and Warehousing
3.2 Shift-share analysis and location quotients

• Location quotients
  – Industries that represent a larger share in the local economy than the region or state
  – In Muswellbrook and Singleton
    • Wine
    • Agriculture
    • Electricity
    • Manufacturing
    • Food processing
    • Construction
    • Rail Transport
3.3 Industries that use the same kind of labour

• Diversify in a way that the skills of workers in current industries are also needed in new industries
  – Mining – Figure 2

• Where are machinery operators and drivers needed?
  – Figure 3

• Where are technicians and trade workers needed?
  – Figure 4
Figure 2 – Jobs in mining

- Managers
- Professionals
- Technicians and Trades Workers
- Clerical and Administrative
- Community and Personal Service
- Sales Workers
- Machinery Operators And Drivers
- Labourers
- Not stated - Inadequately...
Figure 3 – Industries needing machinery operators and drivers

- Transport, Postal, Warehousing
- Manufacturing
- Construction
- Retail Trade
- Mining
- Wholesale Trade
- Public Administration, Safety
- Educational Training
- Rental, Hiring, Real Estate Services
- Other Services
- Health Care, Social Assistance
- Agriculture, Forestry, Fishing
- Administrative Support Services
- Accommodation, Food Services
- Electricity, Gas, Water, Waste Services
- Financial, Insurance Services
- Professional, Scientific, Technical Services
- Information Media, Telecommunications
- Arts, Recreation Services
- Education, Training
- Arts, Recreation Services
- Other Services
Figure 4 – Industries needing technicians and trade workers

- Construction
- Other Services
- Retail Trade
- Professional, Scientific Technical Services
- Manufacturing
- Accommodation Food Services
- Public Administration Safety
- Retail Trade
- Administrative Support Services
- Information Media Telecommunications
- Health Care Social Assistance
- Mining
- Electricity, Gas, Water Waste Services
- Wholesale Trade
- Education Training
- Arts Recreation Services
- Transport, Postal Warehousing
- Agriculture, Forestry Fishing
- Financial Insurance Services
- Rental, Hiring Real Estate Services
### 3.4 Growth industries in other reports

<table>
<thead>
<tr>
<th>Growth areas and opportunities</th>
<th>Region</th>
<th>Muswellbrook</th>
<th>Singleton</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Power generation and support</td>
<td>Mining support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Renewable energy and support</td>
<td>Power Generation and support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Equine industry growth and development</td>
<td>Engineering</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Services to mining industry</td>
<td>Agribusiness – horticulture, wine, beef, new crops</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Engineering</td>
<td>Tourism</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Education and training</td>
<td>Logistics hub</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tourism</td>
<td>Renewable energy and support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Professional and technical services</td>
<td>Engineering training centre</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Government services</td>
<td>Government services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use of mining sites</td>
<td>Business services</td>
</tr>
</tbody>
</table>
4. Modelling transition

• Given our focus on the SD scenario we focussed on the growth industries identified previously within the following broad areas
  – Renewable energy
  – Environmental rehabilitation
  – Agriculture and food processing
  – Tourism
  – Transport, postal and warehousing

• First, we modelled known future investment and known growth rates (Table 3)
Table 3 – Impact under transition scenario 1

<table>
<thead>
<tr>
<th>Impact Summary</th>
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<th>Type 2 Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output ($M)</td>
<td>-$3,649</td>
<td>-$537</td>
<td>-$518</td>
<td>-$4,703</td>
<td>1.147</td>
<td>1.289</td>
</tr>
<tr>
<td>Employment (Jobs)</td>
<td>-2,028</td>
<td>-1,017</td>
<td>-1,840</td>
<td>-4,885</td>
<td>1.501</td>
<td>2.409</td>
</tr>
<tr>
<td>Wages and Salaries ($M)</td>
<td>-$531</td>
<td>-$146</td>
<td>-$114</td>
<td>-$790</td>
<td>1.274</td>
<td>1.488</td>
</tr>
</tbody>
</table>
4. Modelling transition

What would be needed to get a positive result?

– A renewable energy supply sector that exports to other regions and countries
– Built off known local demand (key industries) with heavy government support
– Table 4
## Table 4 – Impact under transition scenario 2

<table>
<thead>
<tr>
<th>Impact Summary</th>
<th>Direct Effect</th>
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<th>Consumption Effect</th>
<th>Total Effect</th>
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<th>Type 2 Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output ($M)</td>
<td>-$1,416</td>
<td>-$281</td>
<td>-$224</td>
<td>-$1,921</td>
<td>1.198</td>
<td>1.356</td>
</tr>
<tr>
<td>Employment (Jobs)</td>
<td>1,831</td>
<td>-438</td>
<td>-798</td>
<td>595</td>
<td>0.761</td>
<td>0.325</td>
</tr>
<tr>
<td>Wages and Salaries ($M)</td>
<td>-$205</td>
<td>-$88</td>
<td>-$49</td>
<td>-$343</td>
<td>1.431</td>
<td>1.671</td>
</tr>
</tbody>
</table>
4. Modelling transition

• Output still falls but remember this is going to foreigners
  – Total employment positive
  – Wages and salaries of locals in Muswellbrook and Singleton
    • +$35m
5. Government intervention is needed

• Independent transition process overseeing the following:
  – Subsidies/incentives for renewable energy supply industries
  – Collaboration between government and mining companies and AGL Macquarie to ensure rehabilitation and renewable energy investment goes ahead
5. Government intervention is needed

• Reviewing all mining titles and licenses and cancelling those impeding growth industries such as wine and equine
• Coal mining companies levied to ensure their workers have new skill development
• Support for the container terminal at Post of Newcastle to encourage transport and warehousing sector and utilising train transportation