Housing studies in CQ

- Non-linear/neural housing demand modelling (Surat Basin)
- Demand modelling and accommodation impacts (Grosvenor Mine)
- Demand forecasting and supply analysis (Coppabella, Codrilla, Boulder Steel and Eagle Downs)
- Assessing Housing and Labour Market Impacts of Mining (Bowen Basin)
- Ensuring sustainable benefits from Boom Periods: long term housing policy in the Bowen Basin

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Housing in the Bowen Basin: supply & demand challenges

- Timing
- Costs
- Variability
- Role of government & private sector
- Community attitudes and expectations
Housing issues: flow-on effects

- Housing affects all socio-economic brackets
- Low affordability degrades liveability and easily transits to other parts of economy
- Housing shortages mean trouble in attracting skilled labour

.... poor ‘regionalisation’ outcomes
How to predict housing need: key issues

• Population challenges
  (estimating growth; non-resident workforce)
• Changing socio-demographics
• Workforce locations
• Number and scale of major projects
  (cumulative effects)
Bowen Basin Regional Housing (BBRH) Model

The Model

**Stage 1**: Baseline information
(Population by age, sex, family type, dwelling type)

**Stage 2**: Identify and add cumulative impacts

**Stage 3**: Linear extrapolation of variables based on 1996, 2001 and 2006 census data. Correlate the rate of changes of the demographic variables with the housing characteristics.

**Stage 4**: Predict housing need by dwelling type to 2036
**Bowen Basin Regional Housing (BBRH) Model**

**Application of the model on Moranbah**

<table>
<thead>
<tr>
<th>Housing demand by dwelling type</th>
<th>2006</th>
<th>2011</th>
<th>2016</th>
<th>2021</th>
<th>2026</th>
<th>2031</th>
<th>2036</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separate house</td>
<td>2,031</td>
<td>2,221</td>
<td>1,792</td>
<td>1,842</td>
<td>1,948</td>
<td>1,942</td>
<td>1,938</td>
<td>-93</td>
</tr>
<tr>
<td>Semi-detached /townhouse</td>
<td>43</td>
<td>97</td>
<td>121</td>
<td>123</td>
<td>129</td>
<td>128</td>
<td>128</td>
<td>85</td>
</tr>
<tr>
<td>Flat/ unit</td>
<td>85</td>
<td>190</td>
<td>229</td>
<td>234</td>
<td>244</td>
<td>243</td>
<td>243</td>
<td>158</td>
</tr>
<tr>
<td>Other</td>
<td>208</td>
<td>211</td>
<td>171</td>
<td>155</td>
<td>150</td>
<td>141</td>
<td>135</td>
<td>-73</td>
</tr>
<tr>
<td>Total private dwellings</td>
<td>2,366</td>
<td>2,719</td>
<td>2,313</td>
<td>2,354</td>
<td>2,470</td>
<td>2,454</td>
<td>2,443</td>
<td>76</td>
</tr>
<tr>
<td>Separate house as % of total</td>
<td>86%</td>
<td>82%</td>
<td>77%</td>
<td>78%</td>
<td>79%</td>
<td>79%</td>
<td>79%</td>
<td></td>
</tr>
</tbody>
</table>
### Bowen Basin Regional Housing (BBRH) Model

**Application of the model on Moranbah**

– incorporating cumulating impacts

#### Housing demand by dwelling type

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2011</th>
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<th>2021</th>
<th>2026</th>
<th>2031</th>
<th>2036</th>
<th>Change</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separate house</td>
<td>2,087</td>
<td>3,185</td>
<td>4,096</td>
<td>4,287</td>
<td>4,391</td>
<td>4,389</td>
<td>4,387</td>
<td>2,300</td>
<td>110</td>
</tr>
<tr>
<td>Semi-detached /townhouse</td>
<td>62</td>
<td>194</td>
<td>393</td>
<td>412</td>
<td>422</td>
<td>422</td>
<td>422</td>
<td>360</td>
<td>582</td>
</tr>
<tr>
<td>Flat / unit</td>
<td>81</td>
<td>253</td>
<td>563</td>
<td>568</td>
<td>568</td>
<td>558</td>
<td>550</td>
<td>469</td>
<td>575</td>
</tr>
<tr>
<td>Other</td>
<td>90</td>
<td>136</td>
<td>194</td>
<td>200</td>
<td>203</td>
<td>202</td>
<td>201</td>
<td>111</td>
<td>124</td>
</tr>
<tr>
<td>Total private dwellings</td>
<td>2,320</td>
<td>3,768</td>
<td>5,245</td>
<td>5,467</td>
<td>5,584</td>
<td>5,570</td>
<td>5,560</td>
<td>3,240</td>
<td>140</td>
</tr>
<tr>
<td>NPD (including SPQ)</td>
<td>995</td>
<td>2,129</td>
<td>4,237</td>
<td>4,441</td>
<td>4,553</td>
<td>4,553</td>
<td>4,553</td>
<td>3,557</td>
<td>357</td>
</tr>
<tr>
<td>Separate house as % of total</td>
<td>90%</td>
<td>85%</td>
<td>78%</td>
<td>78%</td>
<td>79%</td>
<td>79%</td>
<td>79%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
BBRH model outcomes

The Bowen Basin can expect:

- Moderate demand for private separate housing
- High demand for SPQs and temporary accom.
- More options between these options

- There is a need to consider non-residents, family and dwelling type(s) in future predictions
- Figures agree favourably with surveys of community/mining employees
Commitment to living in Moranbah

How long will you continue to live in Moranbah?

<table>
<thead>
<tr>
<th>Duration</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 yr</td>
<td>10</td>
</tr>
<tr>
<td>1 to 2 yrs</td>
<td>15</td>
</tr>
<tr>
<td>3 to 4 yrs</td>
<td>20</td>
</tr>
<tr>
<td>5 to 6 yrs</td>
<td>10</td>
</tr>
<tr>
<td>7 to 10 yrs</td>
<td>5</td>
</tr>
<tr>
<td>11 to 15 yrs</td>
<td>0</td>
</tr>
<tr>
<td>Rest of my life</td>
<td>0</td>
</tr>
</tbody>
</table>

How long will you continue to live in Moranbah?
Addressing housing issues

- Understand housing careers better
- Stimulate private market development where possible
- Local govt and proponents to assist by:
  - speeding up approvals
  - providing longer term certainty about demand

- Addressing workcamp issues:
  - Construction versus operational camps
  - Vary accommodation options
  - Encourage graduation from one to another
Sustainable housing and climate change
Regional climate change – physical impacts

- New housing stock should last 50+ yrs
- Regional predictions indicate key trends to 2030 but …

little or no information about physical threat (bushfire, sea level rise, storm surge)
Climate implications for ‘Seaspray’

- Fit with State policies
- Compliance with the local Planning Scheme

- Nexus of population growth, ‘seachange’, less available land +/- markets/attitudes

- Seaspray as a model for **sustainable regional** (coastal) **housing**
  (= climate adapted, resource efficient, lower emissions?)
What does ‘sustainable coastal housing development’ really mean …?

*For the land and housing stock….*

- Climate adaptation & mitigation through
  - safety from physical threat
  - building styles (e.g., energy efficiency) for new homes
  - retrofit of existing stock
  - Considering the optimum density of homes for whole-of-estate footprint

… what about the residents?
Housing affordability is a key determinant in influencing population change.

Targeted population attraction .....which socio-demographic groups are desirable?

- aged, sole occupant cf families?
- wealthy?
- renters or owners?

Social context
A need for more information

- Detailed mapping of physical threats
- Calculating emissions at the whole-of-development level
  - modelling dwelling type: resource efficiency
  - benchmarking
- How to improve environmental performance without impacting on affordability / social outcomes…
  (achieving ‘sustainable regionalisation’)