

Bowen and Galilee Basins non-resident population projections, 2019 to 2025

Introduction

The resource sector in regional Queensland utilises fly-in/fly-out and drive-in/drive-out (FIFO/DIDO) workers as a source of labour supply. These non-resident workers live in the regions only while on-shift. The Australian Bureau of Statistics' (ABS) official population estimates and the Queensland Government's population projections for these areas only include residents.

To support planning for population change, the Queensland Government Statistician's Office (QGSO) publishes, for selected regions, annual estimates of the non-resident population and a set of population projections. This report provides a range of projections on non-resident workers on-shift for local government areas (LGAs) in the Bowen and Galilee Basin regions (Figure 1), from 2019 to 2025.

Projections in this report are derived from surveys conducted by QGSO in 2018 and other sources. Four projection series presented in this report represent various scenarios, based on the status of projects in the regulatory and financial approval process. Series A is based on existing operations, projects that are currently under construction and upcoming projects that have received all the regulatory approvals and have reached financial close. Series B, C and D projections are based on projects that are at earlier stages of the approvals process. Data tables to supplement the report are available on the QGSO website (www.qgso.qld.gov.au).

Key points

For the Bowen Basin region:

- The non-resident population was 18,410 persons in June 2018, up from 15,150 persons in June 2017.
- All four projection series project that the non-resident population will decline between June 2018 and June 2019.
- According to Series A, the region's non-resident population is projected to decrease to 15,700 persons in 2019, and fall to 15,260 persons by 2025 after fluctuating during the intervening years.
- Series B, C and D all project non-resident population growth in the region from 2019. Under Series D, the non-resident population is expected to peak at 19,500 persons in 2024.
- The LGA of Isaac (R) will continue to have the largest non-resident population in the Bowen Basin over the projections period.
- From 12,080 persons in 2018, Isaac's (R) non-resident population is projected to decline under Series A to 10,250 persons by June 2019, and fall further to reach 10,100 persons by 2025. Under Series C, the non-resident population of Isaac (R) is projected to reach a peak of 12,720 persons in 2023.

For the Galilee Basin region:

- Series A assumes the region's non-resident population will be stable at 20 persons for the next seven years.
- Under Series B, the non-resident population is projected to increase from 2021 to peak at 1,460 persons in 2024, then decline to 810 persons in 2025.

Figure 1 Bowen and Galilee Basins



In this publication, the Bowen Basin comprises the LGAs of Banana (S), Central Highlands (R), Isaac (R) and Whitsunday (R) (Bowen only)¹. The Galilee Basin is defined as the LGA of Barcardine (R).

¹ Whitsunday (R) (Bowen only) comprises the statistical areas level 2 (SA2s) of Bowen and Collinsville, which cover the area of former Bowen Shire.



Bowen and Galilee Basins – future influences

The Bowen Basin is Queensland's major coal mining region, containing 43 active coal mining operations and two metalliferous mines as at December 2018 (Table 7, pages 10–11). The region had an estimated non-resident population of 18,410 persons in June 2018, up from 15,150 persons in June 2017. This change was driven by increased production activity and planned maintenance at existing operations, as well as activity at new and reopened mines. The construction of infrastructure and renewable energy projects also contributed to non-resident population growth (QGSO, 2018).

The following proposed resource industry projects moved through the approvals pipeline in 2018:

- Carabella Resources secured funding for **Bluff Coal Project**, a truck and shovel operation targeting one million tonnes per annum (Mtpa) of PCI coal (Bluff PCI Management, 2018; MACA Limited, 2018). First exports are expected in early 2019.
- In November, Adani Australia announced that its **Carmichael Coal Project** and **Carmichael Rail Network** will be 100% financed through the Adani Group's resources (Adani Australia, 2018b). The revised project plan is for a 27.5 Mtpa open cut mine and a new narrow gauge rail design linking to the existing network (Adani Australia, 2018a).
- The **China Stone Project** gained approval from the Queensland Coordinator-General in November (MacMines Austasia, 2018). The company has applied for mining leases to allow the 38 Mtpa project to proceed and is considering options for enabling rail infrastructure.
- The **Clarke Creek Wind and Solar Farm Project**, which does not require an EIS, was signed off by the State and Commonwealth Governments during the year and is in the feasibility phase (DoEE, 2018a; DoEE, 2018c; Queensland Government, 2018a).
- The **Ironbark No.1 Project** (previously known as 'Ellensfield Coal Mine Project') received a mining lease in November and is expected to begin production of coking coal in early 2020 (Queensland Government, 2018b).
- New Hope Group plans to develop the **Lenton Joint Venture Burton Mine**, a combined project including the former Burton mine and New Hope's neighbouring Lenton Project (New Hope Group, 2018). Operational readiness planning is underway, with first coal estimated for 2019, subject to rail and port access.
- The **North Galilee Water Scheme**, which involves the construction and operation of a 110 km water supply pipeline and supporting infrastructure for the Carmichael Coal Project, does not require an EIS and is being assessed under the Environment Protection and Biodiversity Conservation Act (DoEE, 2018b).
- The draft EIS for the **Olive Downs Project** was released for public consultation in September (DSDMIP, 2018). Pembroke Resources plans to develop an open-cut coking coal mine producing up to 20 Mtpa and expects to begin production in 2020, subject to approvals.
- The final terms of reference for the **Walton Coal Project** EIS were issued by the Queensland Department of Environment and Science in May (DES, 2018). Aquila Resources now has two years to prepare an EIS for the 2 Mtpa coal mine east of Emerald.

Projection methodology

QGSO's non-resident population projection methodology comprises four different series, which represent a range of possible outcomes arising from the future development of resource projects and operations in the Bowen and Galilee Basins. Each series estimates the non-resident population that would be present in each LGA at 30 June of each year from 2019 to 2025, should the listed operations and projects proceed according to advised timeframes and workforce numbers.

The four projection series represent the estimated non-resident workforces of existing operations and future projects. Projects are categorised according to their standing in the approvals pipeline, including stages of the environmental impact statement (EIS) process², and progress towards achieving financial close.

- **Series A** projection is based on the number of non-resident workers on-shift who were engaged in existing resource operations at June 2018. The projection takes into account future changes to those operational workforces as advised by company sources, as well as the estimated construction and operational workforces of Category A projects (i.e. those that are approved and have reached financial close).
- **Series B** projection includes the Series A projection plus projected growth in the non-resident population arising from Category B projects (those that are approved but have yet to reach financial close).

² The projections also include some projects where an EIS is not or may not be mandatory. Such projects are still subject to other statutory approvals.

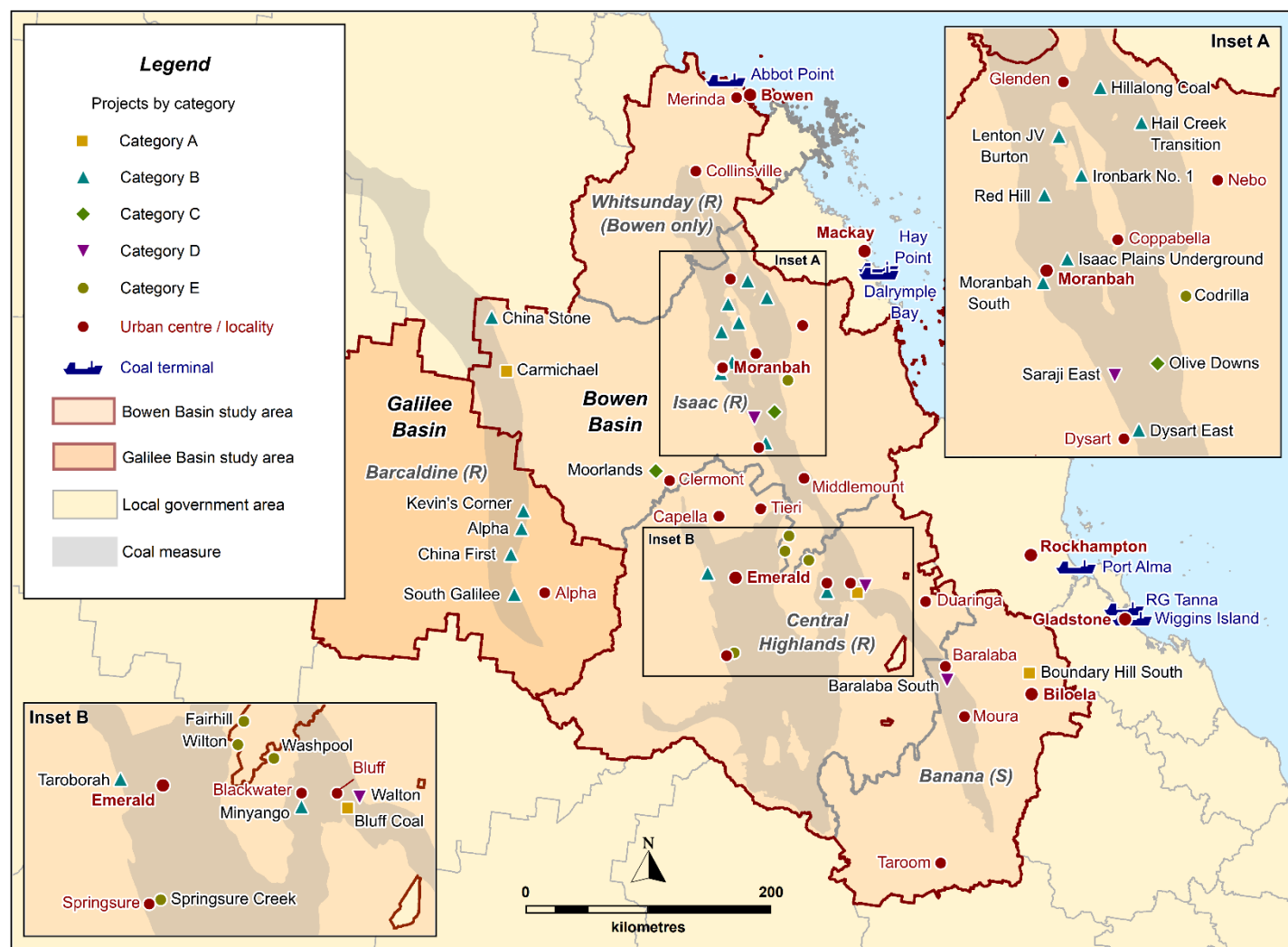
- **Series C** projection includes the Series A and B projections, plus projected growth in the non-resident population arising from Category C projects (those that have lodged an EIS, but have yet to proceed through to final approval).
- **Series D** projection includes the Series A, B and C projections, plus projected growth in the non-resident population from Category D projects (those that have yet to publish an EIS, including projects that have lodged an initial advice statement (IAS), as well as projects that have yet to begin the approvals process).

Where financial close for an approved project has been delayed indefinitely, or where it is not possible to give consideration to indicative workforce data or sequencing, the project is designated as **Category E** and is not included in any of the four projection series. Other projects that are dependent on Category E projects in order to commence are also designated as Category E, and are excluded from consideration in the projections.

Users of these projections should note that there is a degree of uncertainty about the likelihood of these projects proceeding as assumed and, as such, the projections should be regarded as being indicative scenarios rather than probabilistic predictions. QGSO does not advocate any of the projection series as being the most likely or favoured outcome. See caveats on page 12 of this report for further details.

A full list of existing operations and projects included in each category is available in Table 7 (pages 10–11), and a map of selected projects in the Bowen and Galilee Basins is shown in Figure 2.

Figure 2 Coal projects^(a), Bowen and Galilee Basins



(a) Does not include other projects or existing operations. Project locations shown in map are indicative only. Project status is current as at December 2018. See Table 7 (pages 10–11) for a full list of existing operations and projects by project category.

Source: QGSO, 2018

Projected non-resident population, Bowen Basin

The Bowen Basin had a non-resident population of 18,410 persons in June 2018, up from 15,150 persons in June 2017 (Figure 3). Recent non-resident population increases have been largely due to workforces associated with expanded production activities and projects to sustain ongoing operations, as many operators responded to high coal prices (QGSO, 2018). Other factors contributing to non-resident population growth in 2017–18 included maintenance activities, new and reopened mines, and temporary construction workforces for infrastructure and renewable energy projects.

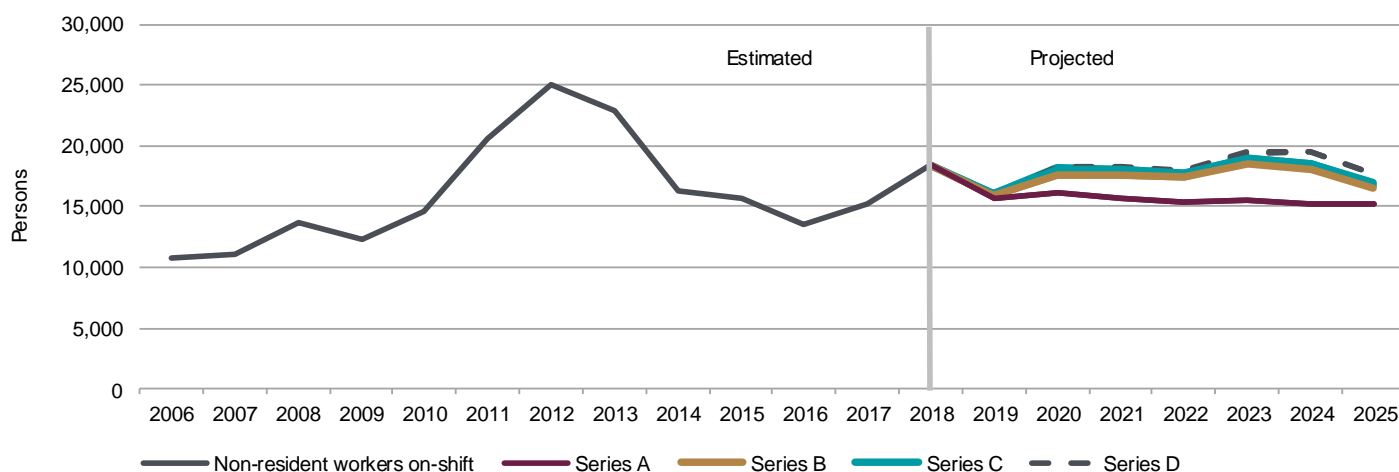
Four projection series are presented for the Bowen Basin (Table 1). All four series anticipate the non-resident population will decline from June 2018 to June 2019. According to the Series A projection, the region's non-resident population will vary throughout the projections period, settling at 15,260 persons by 2024. This series reflects changes to the non-resident production workforces of existing operations, as well as workforces of projects under construction or that have reached financial close but are yet to begin construction.

The Series B, C and D projections expect the region's non-resident population to decrease between June 2018 and June 2019, before increasing to June 2020 and peaking towards the end of the projections period. Series B projects an increase to 18,640 persons in 2023, before decreasing to 16,640 persons in 2025. This series factors in the impact of several proposed mines that have been approved but have yet to reach financial close, as well as the Clarke Creek Wind and Solar Farm and several infrastructure projects associated with Galilee Basin mining projects (Table 7, pages 10–11).

The Series C projection takes into account the additional influence of two coal projects that have lodged an EIS. Series C projects the Bowen Basin's non-resident population will increase to 18,940 persons in 2023, then fall to 16,940 persons by 2025. The Series D projection, which includes a further three coal projects in preliminary planning stages, expects the region's non-resident population will grow to 19,500 persons in 2024, before decreasing to 17,590 persons in 2025.

Although the Series B, C and D projections indicate growth in the region's non-resident population over the projection period, it is expected to remain below the 25,040 persons recorded at the peak of the resources boom in 2012.

Figure 3 Past and projected non-resident population, Bowen Basin



Source: QGSO estimates, 2006 to 2018; QGSO projections, 2019 to 2025

Table 1 Projected non-resident population, Bowen Basin

Projection series	Number of non-resident workers on-shift at 30 June							
	Estimated		Projected					
	2018	2019	2020	2021	2022	2023	2024	2025
Series A	18,410	15,700	16,140	15,640	15,310	15,530	15,260	15,260
Series B	18,410	15,910	17,530	17,590	17,490	18,640	18,220	16,640
Series C	18,410	16,060	18,150	18,030	17,790	18,940	18,520	16,940
Series D	18,410	16,060	18,200	18,120	17,880	19,370	19,500	17,590

Figures in all tables have been rounded to the nearest 10; see Notes at end of report for details.

Source: QGSO estimates, 2018; QGSO projections, 2019 to 2025

Banana (S)

The LGA of Banana (S) contained three active coal mining operations, a gold mine and a coal-fired power station in December 2018. The area also contained coal seam gas (CSG) operations, which produce gas for export and domestic markets (Table 7, pages 10–11).

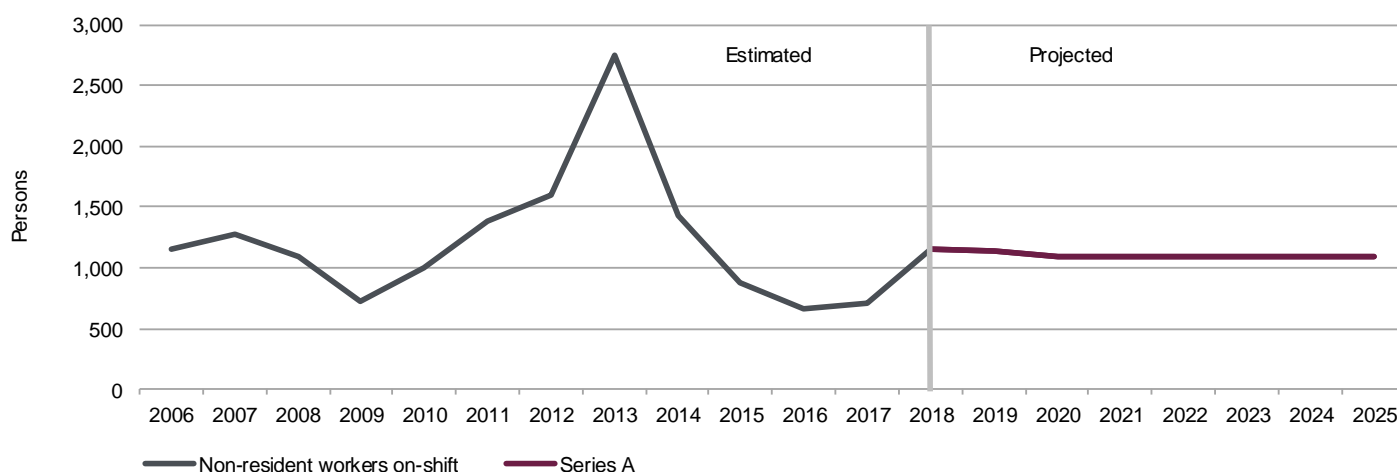
The non-resident population of Banana (S) grew to 1,150 persons in June 2018, up from 710 persons in the preceding year, driven by additional workers at existing mines and one reopened coal mine (QGSO, 2018). Despite this increase, the non-resident population in 2018 was much lower than the peak of 2,750 persons in June 2013, when CSG pipeline and gas field construction was underway (Figure 4).

Just one projection series is presented for Banana (S) (Table 2). According to Series A, the non-resident population will decrease slightly to 1,090 persons by 2020 and remain at this level to 2025. This series reflects the ongoing non-resident workforces at existing mining and gas operations, including an extension of the Callide mine known as the Boundary Hill South project. Series A also includes temporary maintenance workers for the Callide power station.

There are no Series B or Series C projections for Banana (S), as there are no future projects in these categories. One Series D project in Banana (S) – Baralaba South – is included in the Series D projections for the Bowen Basin region (Table 1), but is not published at the LGA level in order to preserve data confidentiality.

The projection series for Banana (S) does not include consideration of the Nathan Dam and Pipeline project, which is classified as Category E (refer Table 7, pages 10–11).

Figure 4 Past and projected non-resident population, Banana (S)



Source: QGSO estimates, 2006 to 2018; QGSO projections, 2019 to 2025

Table 2 Projected non-resident population, Banana (S)

Projection series ^(a)	Number of non-resident workers on-shift at 30 June							
	Estimated			Projected				
	2018	2019	2020	2021	2022	2023	2024	2025
Series A	1,150	1,140	1,090	1,090	1,090	1,090	1,090	1,090

(a) There are no Series B or Series C projections for Banana (S). Series D projections for Banana (S) are not published.

Source: QGSO estimates, 2018; QGSO projections, 2019 to 2025

Central Highlands (R)

There were 12 coal mining operations and a coal seam gas operation active in Central Highlands (R) in December 2018 (Table 7, pages 10–11). Central Highlands (R) had a non-resident population of 4,050 persons in June 2018, up from 3,360 persons in June 2017 (Figure 5). This growth was due to increased activity at existing mines, one new mine and one reopened mine, and two solar projects that were under construction in June 2018 (QGSO, 2018).

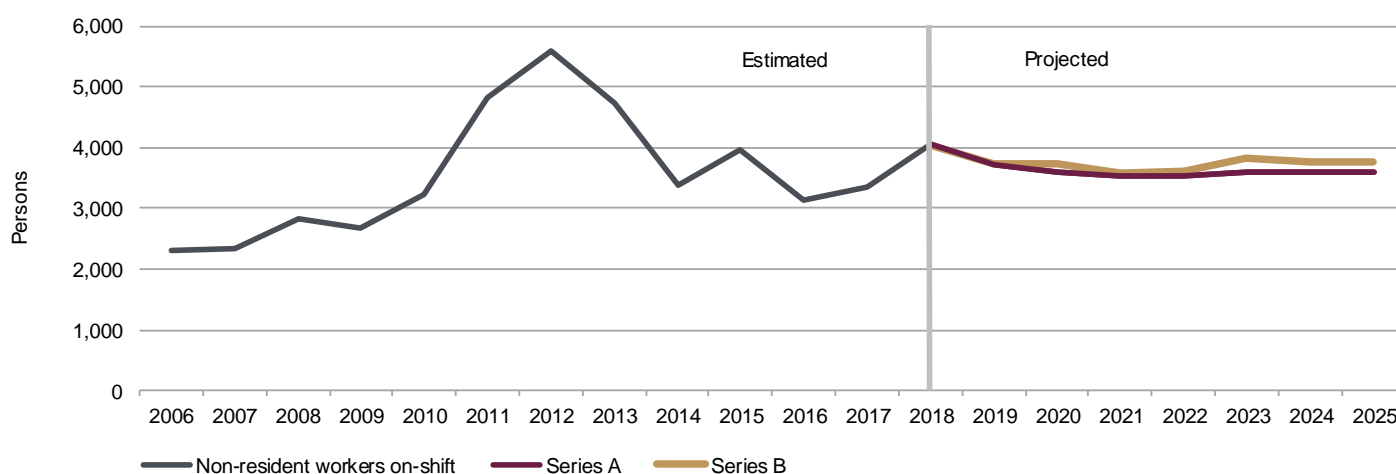
Two projection series are presented for Central Highlands (R) (Table 3). Series A anticipates the non-resident population will fall to 3,600 persons by 2020 then remain at around this level to 2025. This series takes into account the non-resident workforces of existing coal operations in the LGA, as well as the construction and production workforces of the Bluff Coal Project.

According to Series B, the non-resident population of Central Highlands (R) will follow a similar trajectory to Series A until 2022, before increasing to 3,800 persons in 2023 and then tapering down to 3,720 persons by 2025. This series factors in the non-resident population impacts of projects that have been approved but are yet to reach financial close, namely the Mynyango and Taroborah coal projects.

There is no Series C projection for Central Highlands (R), as there are no future projects in this category. One Series D project in Central Highlands (R) – Walton Coal Project – is included in the Series D projections for the Bowen Basin region (Table 1), but is not published at the LGA level in order to preserve data confidentiality.

None of the projection series for Central Highlands (R) include consideration of the Galilee Basin Transmission Project or the Fairhill, Springsure Creek, Washpool and Wilton coal projects, which are classified as Category E (refer Table 7, pages 10–11).

Figure 5 Past and projected non-resident population, Central Highlands (R)



Source: QGSO estimates, 2006 to 2018; QGSO projections, 2019 to 2025

Table 3 Projected non-resident population, Central Highlands (R)

Projection series ^(a)	Number of non-resident workers on-shift at 30 June							
	Estimated		Projected					
	2018	2019	2020	2021	2022	2023	2024	2025
Series A	4,050	3,700	3,600	3,530	3,530	3,600	3,600	3,600
Series B	4,050	3,720	3,690	3,550	3,570	3,800	3,740	3,720

(a) There are no Series C projections for Central Highlands (R). Series D projections for Central Highlands (R) are not published.

Source: QGSO estimates, 2018; QGSO projections, 2019 to 2025

Isaac (R)

As at December 2018, 26 of the 43 active coal operations in the Bowen Basin were located in Isaac (R), along with four other resource operations (Table 7, pages 10–11). Isaac (R) had a non-resident population of 12,080 persons in June 2018, up from 10,580 persons in June 2017 (Figure 6). This growth was influenced by expanded production and scheduled maintenance activities at existing mines, activity at one new mine and one reopened mine, and three projects that were under construction (QGSO, 2018).

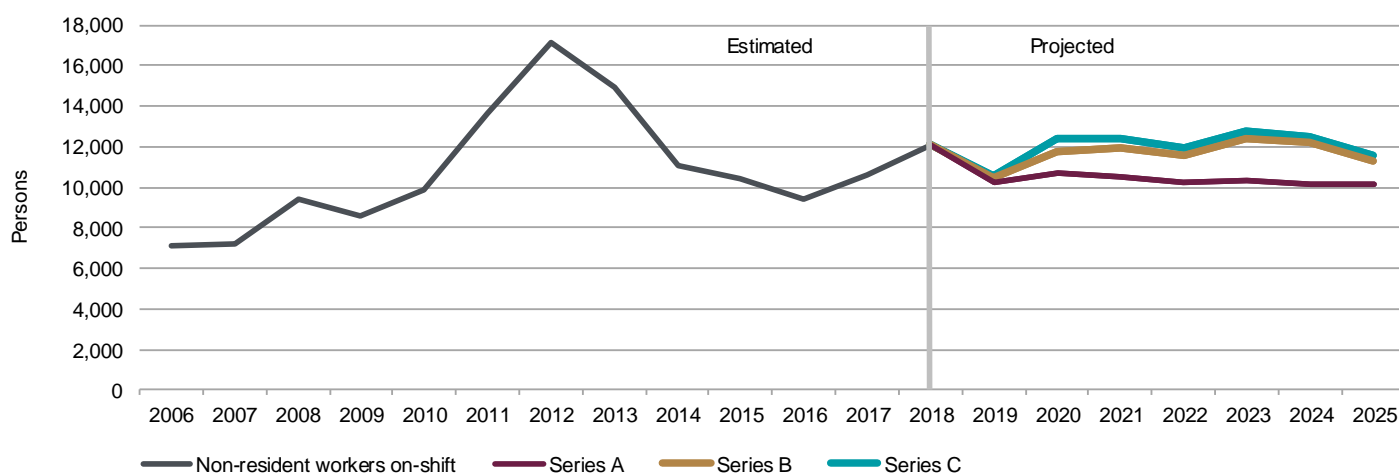
Three projection series are presented for Isaac (R) (Table 4). Series A expects the non-resident population will decrease to 10,250 persons in 2019, before increasing to 10,730 persons in 2020, then declining to 10,100 persons by 2024. This series takes into account the non-resident workforces of all active resource operations, as well as workforces for the Carmichael Coal Project and Carmichael Rail Network, which have reached financial close but have yet to begin construction.

Series B projects the non-resident population of Isaac (R) will decline to 10,450 persons in 2019. It is expected to peak at 12,420 persons in 2023 before decreasing to 11,260 persons by 2025. This series factors in the construction and production workforces of two rail projects and nine coal projects, including China Stone, Ironbark No.1 and Red Hill Mining Lease Project, which have been approved but are yet to reach financial close.

The Series C projection takes account of the additional impacts of two coal projects, Moorlands and Olive Downs, that have lodged an EIS but have yet to receive approval. Under this scenario, the non-resident population of Isaac (R) will follow a similar trajectory to Series B, peaking at 12,720 persons in 2023 before falling to 11,560 persons by 2025.

One Series D project in Isaac (R) – Saraji East Mining Lease Project – is included in the Series D projections for the Bowen Basin region (Table 1), but is not published at the LGA level in order to preserve data confidentiality. None of the projection series for Isaac (R) include consideration of the Arrow Bowen Pipeline, Bowen Gas Project, Codrilla, Fairhill or Wilton projects, which are classified as Category E (refer Table 7, pages 10–11).

Figure 6 Past and projected non-resident population, Isaac (R)



Source: QGSO estimates, 2006 to 2018; QGSO projections, 2019 to 2025

Table 4 Projected non-resident population, Isaac (R)

Projection series ^(a)	Number of non-resident workers on-shift at 30 June							
	Estimated	Projected						
	2018	2019	2020	2021	2022	2023	2024	2025
Series A	12,080	10,250	10,730	10,530	10,210	10,360	10,100	10,100
Series B	12,080	10,450	11,790	11,940	11,600	12,420	12,220	11,260
Series C	12,080	10,600	12,410	12,380	11,900	12,720	12,520	11,560

(a) Series D projections for Isaac (R) are not published.

Source: QGSO estimates, 2018; QGSO projections, 2019 to 2025

Whitsunday (R) (Bowen only)

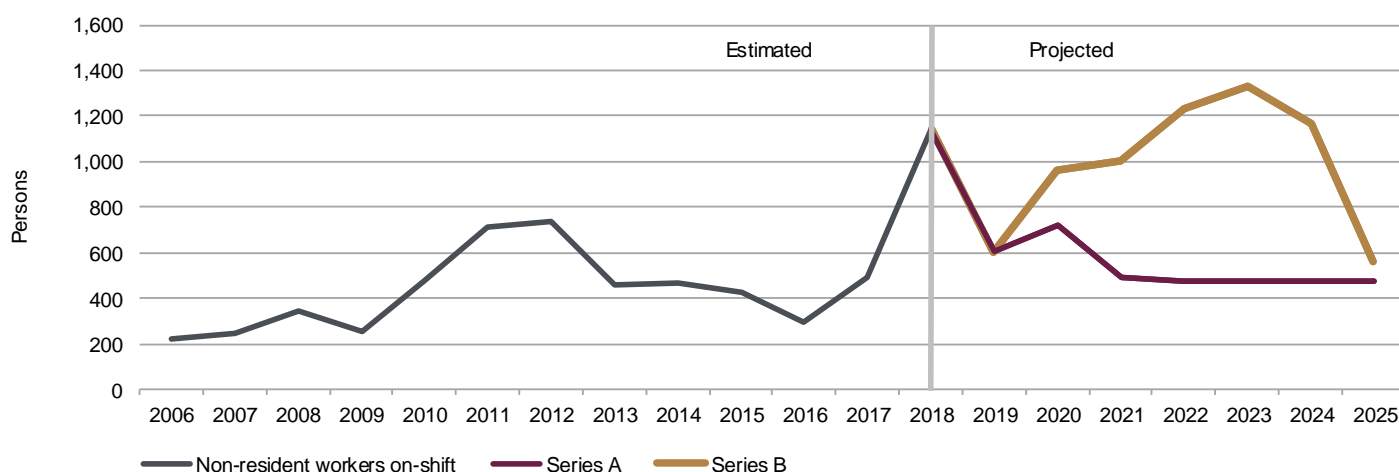
In December 2018, the LGA of Whitsunday (R) (Bowen only) contained two active coal mining operations, a gold mine, and the Port of Abbot Point (Table 7, pages 10–11). The area had a non-resident population of 1,140 persons in June 2018, up from 490 persons the previous year (Figure 7). This growth was primarily due to the large, temporary construction workforces of solar projects under construction at the time (QGSO, 2018).

Two projection series are presented for Whitsunday (R) (Bowen only) (Table 5). According to the Series A projection, the LGA's non-resident population will decrease to 480 persons by 2022, and remain at this level until 2025. This series includes the anticipated non-resident workforces of existing operations and the Carmichael Rail Network.

Substantial growth is predicted under the Series B projection, which reflects the influence of FIFO/DIDO construction workforces for rail components of two Galilee Basin coal projects and development projects at the Port of Abbot Point. The Series B projection anticipates the LGA's non-resident population will increase from 600 persons in 2019 to a peak of 1,330 persons in 2023, before falling to 560 persons by June 2025. As operational workforces for these projects will be predominantly resident, the non-resident population of Whitsunday (R) (Bowen only) will decline as project construction winds down and large temporary construction workforces depart.

There are no Series C or Series D projections for Whitsunday (R) (Bowen only), as there are no future projects in these categories.

Figure 7 Past and projected non-resident population, Whitsunday (R) (Bowen only)



Source: QGSO estimates, 2006 to 2018; QGSO projections, 2019 to 2025

Table 5 Projected non-resident population, Whitsunday (R) (Bowen only)

Projection series ^(a)	Number of non-resident workers on-shift at 30 June							
	Estimated	Projected						
	2018	2019	2020	2021	2022	2023	2024	2025
Series A	1,140	600	720	500	480	480	480	480
Series B	1,140	600	960	1,000	1,230	1,330	1,170	560

(a) There are no Series C or Series D projections for Whitsunday (R) (Bowen only).

Source: QGSO estimates, 2018; QGSO projections, 2019 to 2025

Projected non-resident population, Galilee Basin

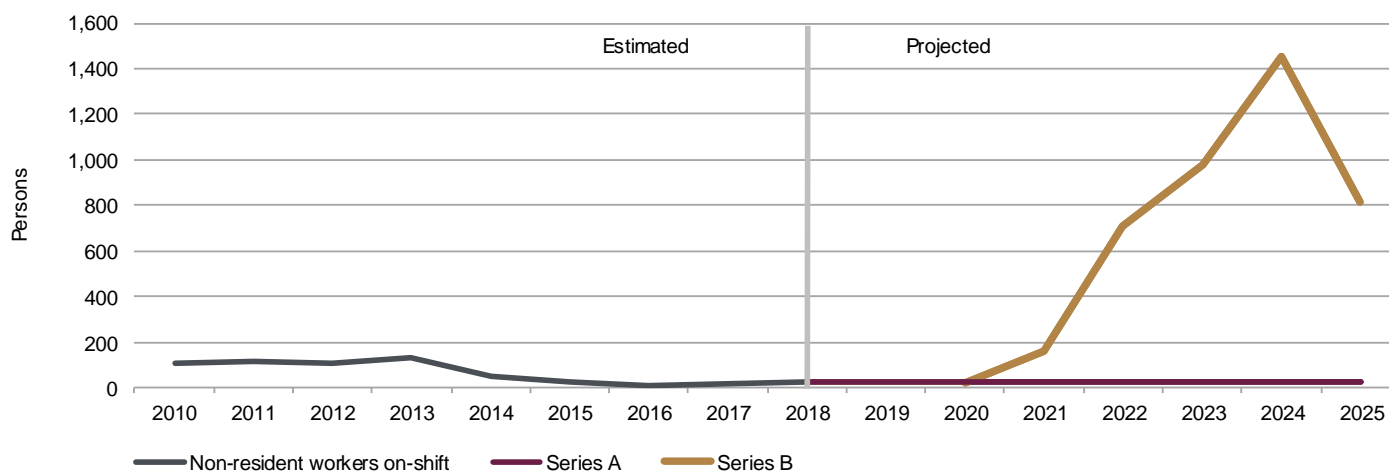
The Galilee Basin coal measure spans a number of LGAs, including Barcaldine (R) to the south and the Bowen Basin LGA of Isaac (R)³ to the east (Figure 2). While there are no coal mines currently operating or under construction in the Galilee Basin, several large mines and associated rail projects are planned for the area covered by both LGAs. The following projections refer only to the non-resident population impacts of Galilee Basin mine and rail projects that will occur in Barcaldine (R).

Two projection series are presented for Barcaldine (R). The Series A projection reflects the baseline non-resident population, which stood at 20 persons in June 2018 (Figure 8, Table 6). This small population, which usually includes FIFO/DIDO workers engaged in resource exploration activities, is not expected to increase substantially prior to commencement of any major project.

The Series B projection, which includes all projects that have an approved EIS but have yet to reach financial close, anticipates that Barcaldine (R)'s non-resident population will increase to 1,460 persons by June 2024, before decreasing to 810 persons in 2025 (Table 6). This projected non-resident population includes the construction and production workforces of six projects – the Alpha Coal mine and rail project, China First mine and rail project, Kevin's Corner and South Galilee Coal. As these projects become operational, large temporary construction workforces will be replaced by smaller ongoing production workforces.

There are no Series C or Series D projections for Barcaldine (R), as there are no future projects in these categories. Neither of the projection series for Barcaldine (R) include consideration of the Galilee Basin Transmission Project, which is classified as Category E (refer Table 7, pages 10–11).

Figure 8 Past and projected non-resident population, Barcaldine (R)



Source: QGSO estimates, 2010 to 2018; QGSO projections, 2019 to 2025

Table 6 Projected non-resident population, Barcaldine (R)

Projection series ^(a)	Number of non-resident workers on-shift at 30 June								
	Estimated			Projected					
	2018	2019	2020	2021	2022	2023	2024	2025	
Series A	20	20	20	20	20	20	20	20	20
Series B	20	20	20	170	710	980	1,460	810	

(a) There are no Series C or Series D projections for Barcaldine (R).

Source: QGSO estimates, 2018; QGSO projections, 2019 to 2025

³ For the purposes of this publication and population projections, the Galilee Basin is defined as Barcaldine (R). Where the population impacts of Galilee Basin projects will occur in Isaac (R) and Whitsunday (R) (Bowen only), they are included in projections for the Bowen Basin.

**Table 7 Resource operations and projects, Bowen and Galilee Basins**

Category ^(a)	Project / operation name	Company name	LGA
<i>Active operations^(b)</i>			
A	Abbot Point Bulk Coal	Adani Australia	Whitsunday (R) (Bowen only)
A	Baralaba North	Baralaba Coal Company	Banana (S)
A	Blackwater	BHP	Central Highlands (R)
A	Blair Athol	TerraCom	Isaac (R)
A	Broadmeadow	BHP	Isaac (R)
A	Byerwen	Byerwen Coal	Isaac (R)
A	Callide	Batchfire Resources	Banana (S)
A	Callide Power Station	CS Energy	Banana (S)
A	Capcoal Surface Operations	Anglo American	Isaac (R)
A	Carborough Downs	Fitzroy Australia Resources	Isaac (R)
A	Caval Ridge	BHP	Isaac (R)
A	Clermont	Glencore Coal	Isaac (R)
A	Collinsville	Glencore Coal	Whitsunday (R) (Bowen only)
A	Cook	Bounty Mining	Central Highlands (R)
A	Coppabella	Peabody Energy	Isaac (R)
A	Coppabella Train Loadout Facility	Pacific National	Isaac (R)
A	Cracow Gold Mine	Evolution Mining	Banana (S)
A	Curragh	Coronado Coal	Central Highlands (R)
A	Daunia	BHP	Isaac (R)
A	Dawson	Anglo American	Banana (S)
A	Ensham	Ensham Resources	Central Highlands (R)
A	Foxleigh	Middlemount South	Isaac (R)
A	GLNG Drilling and Completions	GLNG ^(c)	Banana (S), Central Highlands (R)
A	GLNG Surat Operations and Gas Gathering	GLNG ^(c)	Banana (S), Central Highlands (R)
A	Goonyella Riverside	BHP	Isaac (R)
A	Grasstree	Anglo American	Isaac (R)
A	Greater Meridian SeamGas Drilling and Completions	WestSide Corporation	Banana (S)
A	Greater Meridian SeamGas Operations and Gas Gathering	WestSide Corporation	Banana (S)
A	Grosvenor	Anglo American	Isaac (R)
A	Hail Creek	Glencore Coal	Isaac (R)
A	Isaac Plains Complex	Stanmore Coal	Isaac (R)
A	Jellinbah East	Jellinbah Group	Central Highlands (R)
A	Jellinbah Plains	Jellinbah Group	Central Highlands (R)
A	Kestrel	Kestrel Coal Resources	Central Highlands (R)
A	Lake Vermont	Jellinbah Group	Isaac (R)
A	Meteor Downs South	Sojitz Coal Mining	Central Highlands (R)
A	Middlemount	Middlemount Coal	Isaac (R)
A	Millennium	Peabody Energy	Isaac (R)
A	Minerva	Sojitz Coal Mining	Central Highlands (R)
A	Moorvale	Peabody Energy	Isaac (R)
A	Moranbah Ammonium Nitrate Plant	Incitec Pivot	Isaac (R)
A	Moranbah Gas Project	Arrow Energy	Isaac (R)
A	Moranbah North	Anglo American	Isaac (R)
A	Mt Carlton Gold Mine	Evolution Mining	Whitsunday (R) (Bowen only)
A	Nebo Rail Maintenance Facility	Pacific National	Isaac (R)
A	Newlands	Glencore Coal	Isaac (R)
A	North Goonyella	Peabody Energy	Isaac (R)
A	Oaky Creek	Glencore Coal	Central Highlands (R)
A	Peak Downs	BHP	Isaac (R)



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A	Poitrel	BHP	Isaac (R)
A	QCoal Northern Hub	QCoal Group	Whitsunday (R) (Bowen only)
A	Rolleston	Glencore Coal	Central Highlands (R)
A	Saraji	BHP	Isaac (R)
A	South Walker Creek	BHP	Isaac (R)
A	Yarrabee	Yancoal Australia	Central Highlands (R)
<i>Projects</i>			
A	Bluff Coal	Carabella Resources	Central Highlands (R)
A	Boundary Hill South	Batchfire Resources	Banana (S)
A	Carmichael	Adani Australia	Isaac (R)
A	Carmichael Rail Network	Adani Australia	Isaac (R), Whitsunday (R) (Bowen only)
B	Abbot Point Coal Terminal (T0)	Adani Australia	Whitsunday (R) (Bowen only)
B	Abbot Point Coal Terminal (T3)	GVK Hancock Coal	Whitsunday (R) (Bowen only)
B	Abbot Point Growth Gateway	North Qld Bulk Ports Corporation	Whitsunday (R) (Bowen only)
B	Alpha Coal – mine	GVK Hancock Coal	Barcaldine (R)
B	Alpha Coal – rail	GVK Hancock Coal	Barcaldine (R), Isaac (R), Whitsunday (R) (Bowen only)
B	China First – mine	Waratah Coal	Barcaldine (R)
B	China First – rail	Waratah Coal	Barcaldine (R), Isaac (R), Whitsunday (R) (Bowen only)
B	China Stone	MacMines Austasia	Isaac (R)
B	Clarke Creek Wind and Solar Farm	Lacour Energy	Isaac (R)
B	Dysart East Coal	Bengal Coal Company	Isaac (R)
B	Hail Creek Transition Project	Glencore Coal	Isaac (R)
B	Hillalong Coal	Shandong Energy Australia	Isaac (R)
B	Ironbark No. 1	Fitzroy Australia Resources	Isaac (R)
B	Isaac Plains Underground	Stanmore Coal	Isaac (R)
B	Kevin's Corner	GVK Hancock Coal	Barcaldine (R)
B	Lenton Joint Venture Burton Mine	New Hope Group	Isaac (R)
B	Minyango	Bounty Mining	Central Highlands (R)
B	Moranbah South	Anglo American	Isaac (R)
B	North Galilee Water Scheme	Adani Australia	Isaac (R)
B	Red Hill Mining Lease Project	BHP	Isaac (R)
B	South Galilee Coal	AMCI	Barcaldine (R)
B	Taroborah	Shenhua International Group	Central Highlands (R)
C	Moorlands Project	Huaxin Energy	Isaac (R)
C	Olive Downs Project	Pembroke Resources	Isaac (R)
D	Baralaba South	Baralaba Coal Company	Banana (S)
D	Saraji East Mining Lease Project	BHP	Isaac (R)
D	Walton Coal Project	Aquila Resources	Central Highlands (R)
E	Arrow Bowen Pipeline	Arrow Energy	Isaac (R)
E	Bowen Gas Project	Arrow Energy	Isaac (R)
E	Codrilla	Peabody Energy	Isaac (R)
E	Fairhill	Futura Resources	Central Highlands (R), Isaac (R)
E	Galilee Basin Transmission Project	Powerlink	Barcaldine (R), Central Highlands (R)
E	Nathan Dam and Pipeline Project	SunWater	Banana (S)
E	Springsure Creek	Springsure Creek Coal	Central Highlands (R)
E	Washpool Coal	Aquila Resources	Central Highlands (R)
E	Wilton	Futura Resources	Central Highlands (R), Isaac (R)

(a) The five categories include active operations, and projects grouped according to their status in the approvals process as at December 2018. See methodology (page 2) and caveats (page 12) for further details.

(b) Operations that are in care and maintenance or that have ceased production are not included in this list or in the projections. These include Crinum and Gregory in Central Highlands (R) and Broadlea, Newlands Underground and Norwich Park in Isaac (R).

(c) Santos Gladstone LNG (GLNG) is a joint venture between Santos, PETRONAS, Total and KOGAS.

Source: QGSO, 2018



Caveats

QGSO's non-resident population projections provide an estimate of the number of non-resident workers on-shift by LGA. They are based on the on-shift non-resident worker population estimates established in previous years and consider future workforce growth arising from resource industry and infrastructure projects planned for the region, as reported directly by resource companies.

Projections are based on the best available data and advice at the time of preparation. Non-resident populations are projected for the period to 2025 only, as it is considered that the reliability of information regarding future projects diminishes considerably beyond that point. Projected numbers of non-resident workers on-shift presented in this report represent an estimate for 30 June of the indicated year. Temporary peaks and falls in project workforces may occur in between these mid-year estimates for successive years.

The four projection series represent a range of possible outcomes based on the status of projects in the EIS process at the time of production in December 2018 (see the projection methodology, page 2, for further details). These outcomes are subject to change over time as projects proceed through the approvals process. Projections reflect the cumulative impacts of multiple projects at a given point in time, and changes to any individual project will affect the projected cumulative outcome.

Series D projections include projects that are in the early stages of planning and that have yet to proceed to a published EIS. Workforce data and indicative start dates provided to QGSO for these projects are preliminary company estimates, which may not be publicly available. Both estimated workforce numbers and project timeframes are subject to change during the course of project planning. As such, Series D projections should be regarded as having a higher degree of uncertainty than the other three series.

Category E comprises projects that have completed the approvals process but where financial close has been delayed indefinitely; projects where it is not possible to give consideration to indicative workforce data or sequencing; and other projects that are dependent on the commencement of projects in this category. These projects could not be allocated to a projection series at the time of preparation. Changes in the status of these projects could substantially alter any or all of the possible outcomes represented by the four projection series.

The projections reflect certain assumptions about the likelihood of projects advancing according to advised commencement dates, sequencing of project stages and timing of workforce peaks. Changes to any of these factors can make a significant difference to the cumulative non-resident workforce at a given point in time, particularly during construction phases. Short-term influences such as extreme weather events, industrial action and supply chain delays can all result in changes to project scheduling and to these projections.

QGSO does not advocate any one series as being the most likely or favoured outcome and users should consider the assumptions affecting each potential scenario. Given the volatile nature of the resource sector and the inherent uncertainty about the likelihood of projects proceeding as indicated, these projections should be considered as being indicative of the range of potential outcomes rather than literal accounts of future growth.

Notes

(R) – Regional Council (S) – Shire

Non-resident workers are people who fly-in/fly-out or drive-in/drive-out (FIFO/DIDO) to work and live in the area temporarily while rostered on, and who have their usual place of residence elsewhere. Non-resident workers include FIFO/DIDO mining and gas industry employees and contractors, construction workers and associated sub-contractors. Figures in this report refer to the number of non-resident workers on-shift, or present in the area at a given point in time, and should not be confused with total non-resident workforce numbers.

The population impacts of Galilee Basin projects located in Isaac (R) are included in projections for the Bowen Basin rather than the Galilee Basin. Similarly, most of the rail and port construction and operations activities for the Galilee Basin projects will take place in the Bowen Basin LGAs of Isaac (R) and Whitsunday (R) (Bowen only), rather than in Barcaldine (R).

Data in this report are derived from surveys conducted by QGSO in 2018 and other sources. The Survey of Accommodation Providers counted the number of non-resident workers on-shift during the last week of June 2018. See the *Bowen Basin population report, 2018* <http://www.qgso.qld.gov.au/products/reports/bowen-basin-pop-report/index.php> for further details. The Resource Operations Employment Survey and the Resource Projects Employment Survey gathered workforce information from all resource companies with existing operations or future projects in the Bowen and Galilee Basins as at June 2018. A full list of existing operations and projects is available in Table 7 of this report.

The total number of non-resident workers on-shift for the Bowen Basin represents the aggregate non-resident populations of all LGAs in the region. This total may include a small number of non-resident workers in each LGA who live elsewhere within the Bowen Basin.

Figures in tables have been rounded to the nearest 10. As a result of rounding, discrepancies may occur between sums of the component items and totals. Percentages and other calculations are made prior to rounding of figures and discrepancies might therefore exist between these calculations and those that could be derived from the rounded figures.

Data tables to supplement this report are available online at <http://www.qgso.qld.gov.au/products/tables/index.php>.



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