

LONG-TERM QUEENSLAND MAJOR PROJECTS PIPELINE



Major project work for roads and bridges

has risen strongly in 2016/17 and will remain on a growth path over 2017/18 and 2018/19



By region, Northern Queensland has the **strongest major project growth prospects**



Some sectors simply do not have enough projects in the pipeline – whether funded or unfunded – to sustain major project work through the next five years



Non-water utilities and rail

offer the strongest prospects for activity across the five- year forecast period



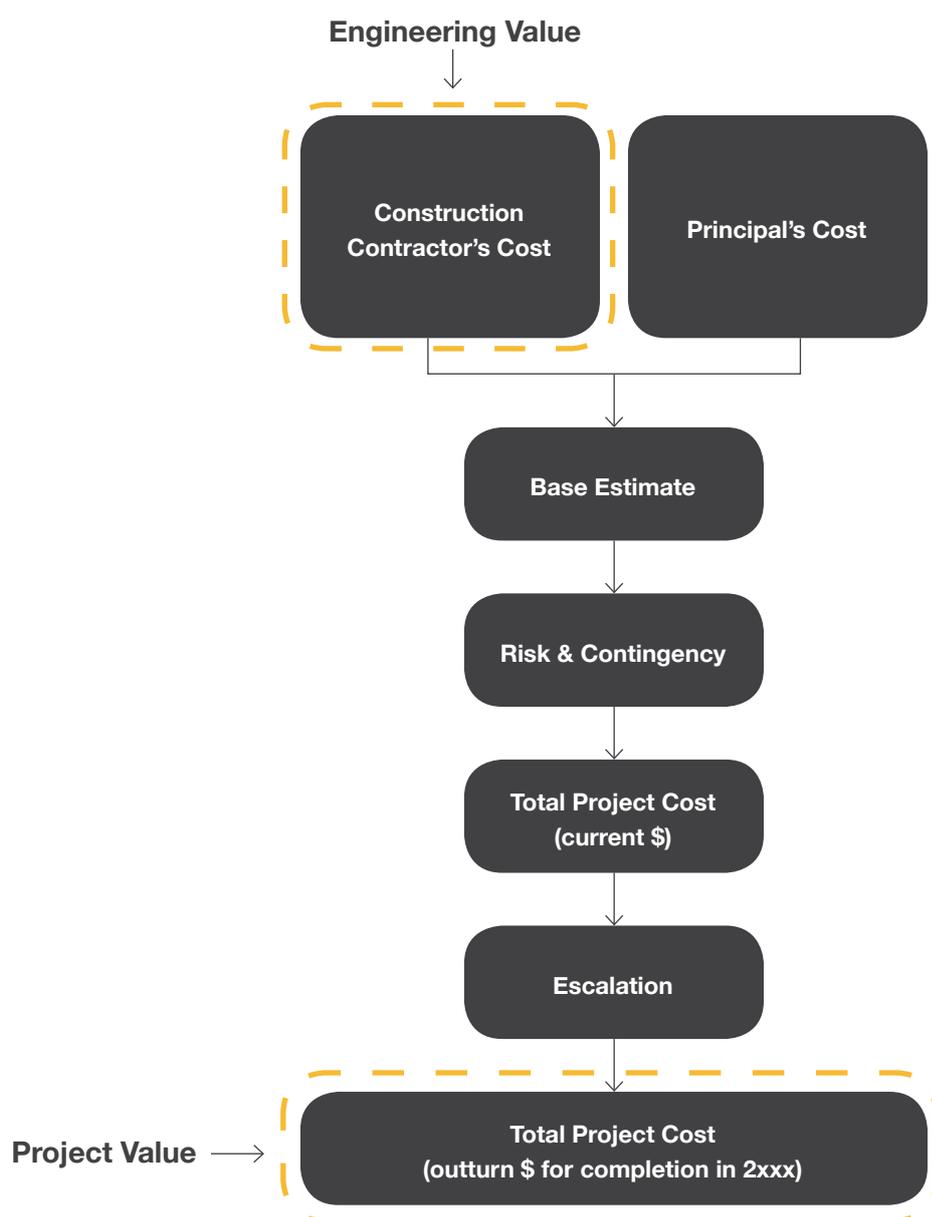
There are significant risks with the **water and sewerage** major projects outlook. Many major projects, such as the Nullinga Dam and the Paradise Dam Primary Spillway Improvement Project, are subject to future business cases

LONG-TERM QUEENSLAND MAJOR PROJECTS PIPELINE

The 2018 Major Projects List is presented in the Appendix of this Report. The Major Projects List includes engineering projects in excess of \$50 million and was developed by BIS Oxford Economics in coordination with QMCA and IAQ members and CSQ input throughout January and February 2018.

Figure 14

Definition of Project Value and Engineering Value



The Appendix provides both the Project Value and Engineering Value of each project. The figures and Australian dollar amounts stated throughout this Report are derived from aggregation of the Engineering Values, which typically exclude Project Owner's costs such as land acquisition.

Total Major Projects Outlook

Figures 15 and 16 highlight the current activity and projections for major project work for the period 2017/18 to 2021/22 based on the 2018 Major Projects List, as well as historical data to 2011/12. Key points from this analysis are:

- As forecast in last year's Report, there was a decline in total major project work done over 2016/17. Queensland engineering construction for major projects fell to \$3.9 billion in 2016/17, down over 75% from the 2012/13 peak. Despite the continued fall in mining and heavy industry construction work, non-mining major project activity rose substantially over 2016/17, with electricity, telecommunications, defence and roads activity rising throughout the year. Accordingly, the mining and heavy industry share of total major project work decreased again in 2016/17, falling to just 20% of major project work done, from a peak of 85% in 2014/15. Major project engineering work completed has risen by 58% in 2017/18 to \$6.9 billion after two successive years of low activity. Subject to funding commitments for credibly proposed projects, activity in 2018/19 will be retained at a similar level.
- Furthermore, some sectors simply do not have enough projects in the pipeline – whether funded or unfunded – to sustain major project work through the next five years. Roads activity is expected to decline 44% over three years following the peak in 2018/19. Non-water utilities activity, comprising mostly electricity and telecommunications work, is forecast to decline 65% over the same period.
- Non-water utilities and rail offer the strongest prospects for activity across the five-year forecast period, notwithstanding a collapse in work done forecast for non-water utilities during the early 2020s as telecommunications (particularly the NBN) and renewable energy projects wind down. Compared to the previous five-year period, the value of projects in the pipeline for the next five years are 129% and 85% higher for non-water utilities and rail segments respectively.
- With a drop in funding commitments for numerous private mining and industrial projects, the value of public sector projects that have funds committed or are currently under procurement now outstrip the private sector by a factor of 6 to 1. The ability of governments to identify and deliver on their planned infrastructure has therefore assumed even greater importance to the continued short-term sustainability of the major projects contracting sector.
- By region, Northern Queensland has the strongest major project growth prospects over the next five years, with the value of projects in the pipeline worth \$8.2 billion – 361% higher than the previous five years. At \$13.6 billion, South East Queensland still commands the largest share of major project work listed in the pipeline, and is itself 167% higher than the actual work done over the past five years, albeit not all of this is currently funded.
- There are substantial risks to the sustainability of the major projects pipeline, however. Work done on currently funded projects is still expected to decline in 2018/19 before falling back to recent trough levels at the turn of the decade as work on large, existing projects moves to completion. As highlighted in last year's Report, more projects need to move from the unfunded to funded category if the recovery in major project work in 2017/18 proves to be more than a one-year phenomenon highlighting the need to work on funding strategies.

More projects need to move from the unfunded to funded category if the recovery in major project work in 2017/18 proves to be more than a one-year phenomenon, highlighting the need to work on funding strategies



Figure 15

Major Project Work Done: All Segments

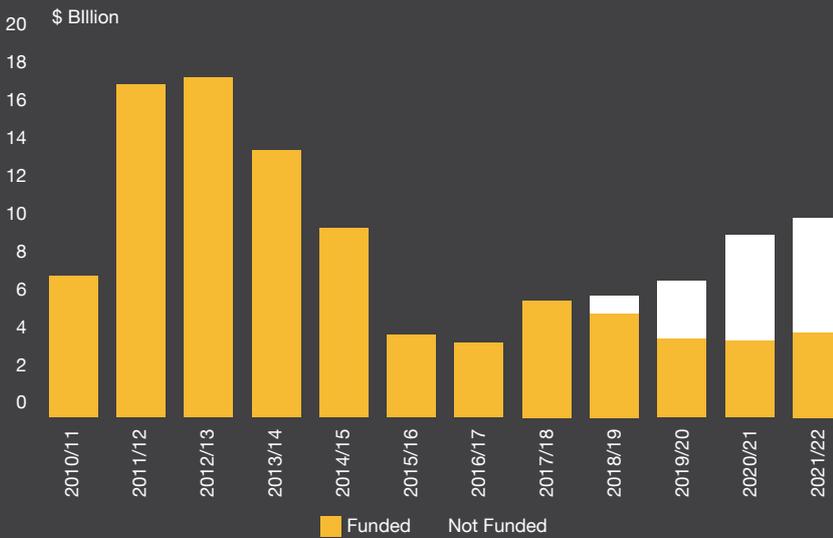


Figure 16

Major Project Work Done by Segment

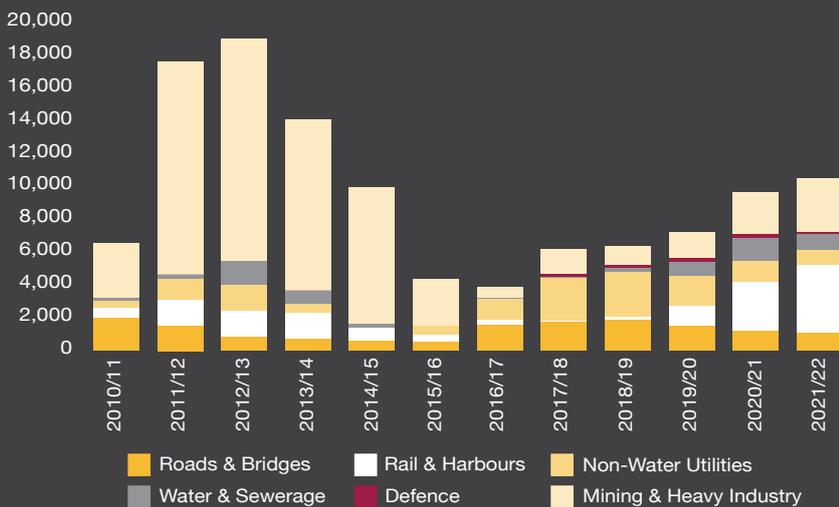
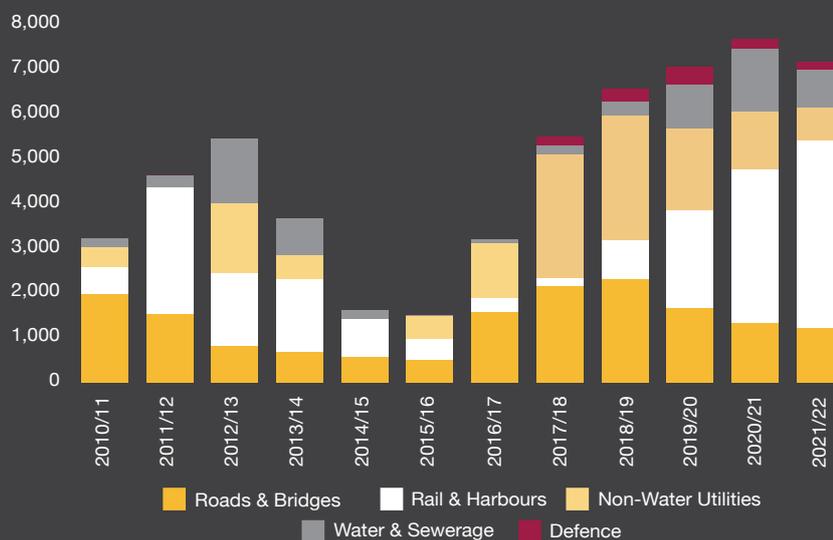


Figure 17

Major Project Work Done by Segment (Excluding Mining and Heavy Industry)



Funded versus Unfunded Projects

This projection is based on a considered view of both funded and unfunded projects. Consequently, it is likely to provide a more realistic outlook of major projects activity in Queensland.

“Funded” project categories include:

- **Announced:** projects which have funding support but have not yet entered the procurement stage (as at March 2018).
- **Under procurement:** projects in a procurement stage but have not yet started construction (as at March 2018).
- **Under construction:** projects in flight / under construction.

“Unfunded” project categories include:

- **Unlikely:** projects considered not to occur in the next five years, even if announced.
- **Prospective:** projects considered likely to occur over next five years but not yet formally proposed.
- **Credibly Proposed:** projects that are supported by governments and/or the private sector but still in prefeasibility / business case mode and so do not have funding committed.

Figure 18 illustrates the outlook for major project activity based on the subcategories of funded and unfunded work. While total major project activity is expected to rise through much of the forecast period, the outlook for funded work (incorporating those projects announced, under procurement or under construction) is much different, peaking in aggregate during 2017/18. The funded forecast view is similar to that of a “worst case scenario” outlook, should international developments or public sector finances deteriorate significantly further, or the combination of threats to the Queensland construction industry remain unaddressed.

To have a growing pipeline of major project work beyond this requires shifting currently unfunded projects into the funded category. In our view, the most likely scenario for major project work excludes “unlikely” projects, but these are included here to show their potential impact on major project work, particularly later in the forecast.

The Addressable Market for Local Contractors

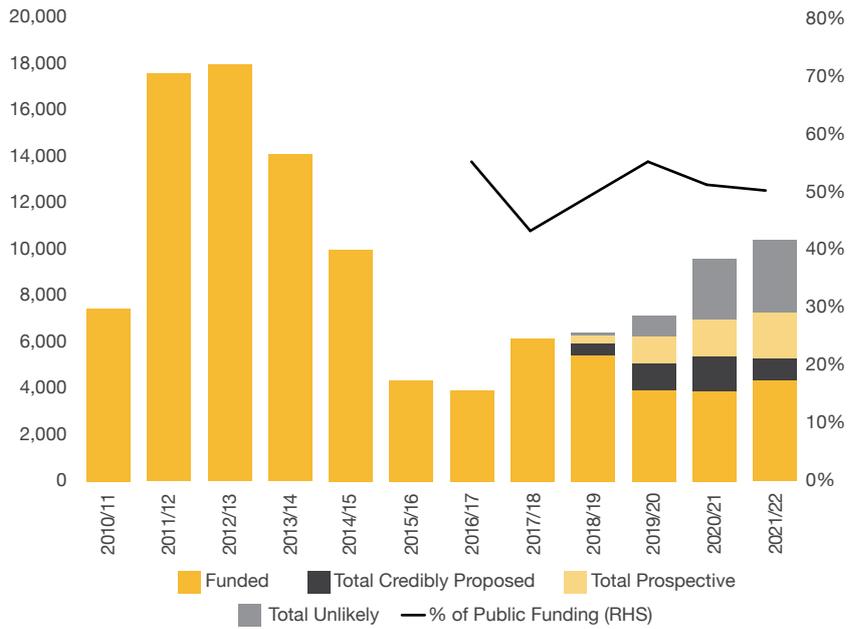
Given the high level of imported materials, equipment, and buildings and structures attached to LNG projects, as well as the use of direct labour employment contracts in assembling downstream LNG components on site, an alternative measure of major projects work for this Report, which better captures the market for which local contractors can effectively compete, has also been produced. This analysis is based on discussions with major contractors regarding the approximate percentage of LNG major project value year by year (both upstream and downstream) that tends to be imported, offered through direct labour employment contracts or tendered as packages of work to local contractors.

Figure 19 shows this Report’s estimates of local contractor work done versus offshore (imported) LNG construction elements. In 2011/12, the expansion of the contractor market was likely not as steep as indicated by the total value of major project work alone (and official ABS engineering construction data, which includes the value of imported LNG components).

During this period, the three major Gladstone-based LNG projects began to ramp up construction considerably, but this period also coincided with a large increase in imports. The analysis shows, however, that the local contract market continued to grow into 2012–2013, corresponding well with the data on construction employment that also rose during the same year. A downturn in local contractor work occurred from 2013/14, with declines continuing into 2015/16.

Figure 18

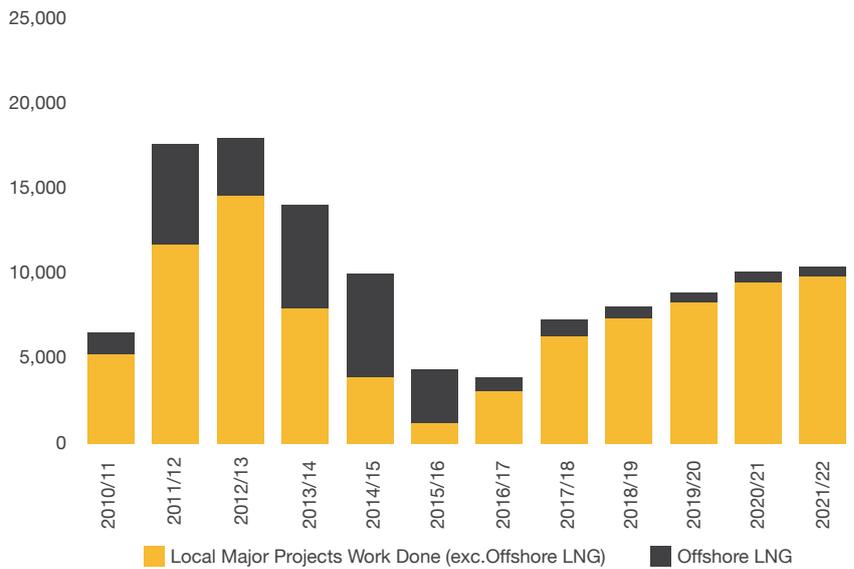
Major Project Work Done by Funding Status



Source: BIS Oxford Economics, BREE data

Figure 19

Local Major Projects Work Done



By contrast, with the completion of the downstream LNG processing facilities, a much greater proportion of major project work after 2015/16 is assumed to be won by local contractors (being more upstream related LNG work, other inland resources projects and public infrastructure).



Roads and Bridges

Major project work for roads and bridges has risen strongly in 2016/17 and will remain on a growth path over 2017/18 and 2018/19. Growth is being driven by the current round of funding under the Commonwealth Government's Infrastructure Investment Program (IIP) – focusing heavily on the Bruce Highway – and the addition of the Toowoomba Second Range Crossing, Gateway Upgrade North (GUN), the Ipswich and Pacific Motorways and the Kingsford Smith Drive and Caloundra to Sunshine Motorway upgrades.

As shown in Figure 20, major project road and bridge construction work done contracted around 70% between the peak of 2010/11 and the trough of 2015/16. However, major project work more than tripled in 2016/17, driven by the current round of IIP projects.

Given the project pipeline, Queensland roads and bridge major projects work is expected to reach a new peak of over \$2.3 billion by 2018/19. However, major project work in this segment is also projected to be highly cyclical, with work falling away again significantly after the 2018/19 peak, particularly over 2019/20 and 2020/21 as the next round of projects reach completion. Reducing the degree of cyclicity will entail increasing the number of funded projects later this decade.



Railways and Harbours

Major project work across the railways and harbours segments in Queensland moved to a higher plane in the early 2010s, peaking at over \$1.6 billion in 2013/14, before falling to just \$320 million in 2016/17 with the completion of the Moreton Bay Rail Link. Harbours major project construction work has been driven predominantly by the demands of the resources sector, but across railways there are also significant contributions from the public sector for passenger and freight projects.

Since our previous Report, the Cross River Rail project has become fully funded, and this will be a key major project driving railways activity into the future. While early preparation works have already commenced, the majority of work for this project will commence from 2020/21 onwards. Adding to this will be works on the Inland Rail from the Queensland border to Acacia Ridge. This project has secured Commonwealth funding and construction is expected to commence from 2018/19. Work on Inland Rail will comprise a significant proportion of total activity over the subsequent years, although it is noted that the exact timing of work is subject to risk.

In the nearer term, work in this segment will be supported by the RG Tanna Coal Terminal upgrade as part of the Port of Gladstone and the North Coast freight line upgrade, as well as privately funded port facilities for the Amrun Project (bauxite). Other publicly funded harbour works expected to underpin activity are the Port of Gladstone – Second Shipping Lane (Gatcombe and Golding Cutting Channel Duplication Project) and the Port of Townsville – Outer Harbour Expansion (Berths 14+15).

Work on Adani-related projects, which includes upgrading Abbot Point and building further rail infrastructure, is still unfunded. Other unfunded rail projects in the pipeline include the Townsville Eastern Access Rail Corridor (requiring private funding) and the Beerburum to Nambour, Landsborough to Nambour upgrades, as well the Ipswich Rail Line – Darra-Redbank 3rd track (requiring funding from the public sector to proceed). If these projects secure funding, construction is expected to commence post 2019/20, supporting activity later in the forecast period.

In the long-term, another \$4 billion will likely be needed to complete the rail line from Acacia Ridge and the Port of Brisbane itself. However, the timing of construction is likely to fall outside the scope of this report (>2021/22) with substantial planning required given the urban nature of this project.



Water and Sewerage

Water and sewerage work done on major projects spiked in 2012/13, largely underpinned by new water treatment facilities and pipeline construction projects supporting upstream CSG field development in the Surat Basin. However, as these projects moved to completion, work done weakened substantially, falling under \$50 million in 2015/16.

Activity rose marginally in 2016/17, and should do so again this financial year, but stronger growth is forecast ahead, initially driven by an expanding pipeline of sewerage upgrade works.

The Commonwealth Water Infrastructure Ministerial Working Group has identified key water infrastructure projects across Queensland that have the potential for Commonwealth Government involvement. Commonwealth funding has already been allocated to the Rookwood Weir and the Haughton Channel Capacity Upgrade. Furthermore, the Northern Australia Infrastructure Facility (NAIF) could help prospective private projects across Queensland, particularly agricultural food bowl opportunities, such as the Three Rivers Irrigation Project.

Cross River Rail and Inland Rail will drive railway activity from 2020/21 onwards



There are significant risks with the water and sewerage major projects outlook. Many major projects, such as the Nullinga Dam and the Paradise Dam Primary Spillway Improvement Project, are subject to future business cases. Also, as many of the projects driving work done and workforce demand are coal or oil and gas related pipeline work that are not yet funded, they retain significant start date flexibility. If conditions do not prove ideal for these projects, they could be further delayed or pushed out beyond the forecast horizon, considerably weakening the industry growth profile.

Taken together, these projects have the potential to substantially boost activity into 2019/20 and 2020/21. Work done could reach a new cyclical peak of just over \$1.4 billion by 2020/21 if all unfunded projects in the pipeline were to proceed, before pulling back into 2021/22.

Electricity, Pipelines and Telecoms

Electricity, pipelines, and telecoms major project work done peaked at a record \$1.6 billion in 2012/13 driven mainly by booming LNG-related gas pipeline construction. In the electricity sector, a host of new Powerlink distribution and supply projects were a key driver. The completion of these major projects saw work done decline sharply over 2013/14 and 2014/15.

During 2016/17, electricity, pipelines and telecoms major project work done jumped back above \$1.2 billion, driven heavily by surging NBN activity and a host of smaller electricity projects getting underway. For 2017/18, activity is expected to more than double, rising above \$2.8 billion – a new record. While a ramp-up in the NBN and the North East Gas Interconnector (Queensland Section) is partially responsible, a large part of the increase is driven by a boom in renewable energy projects.

Figure 20

Roads and Bridges Major Project Work Done by Funding Status

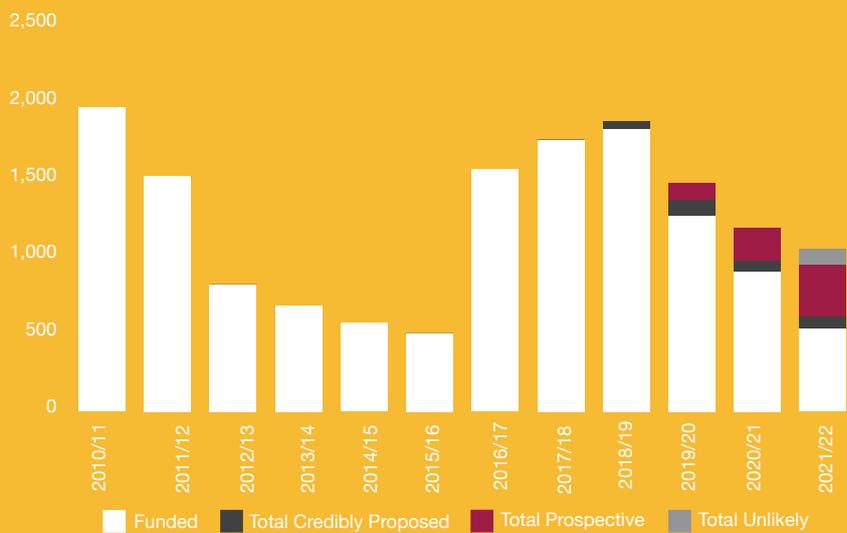


Figure 21

Railways and Harbours Major Project Work Done by Funding Status

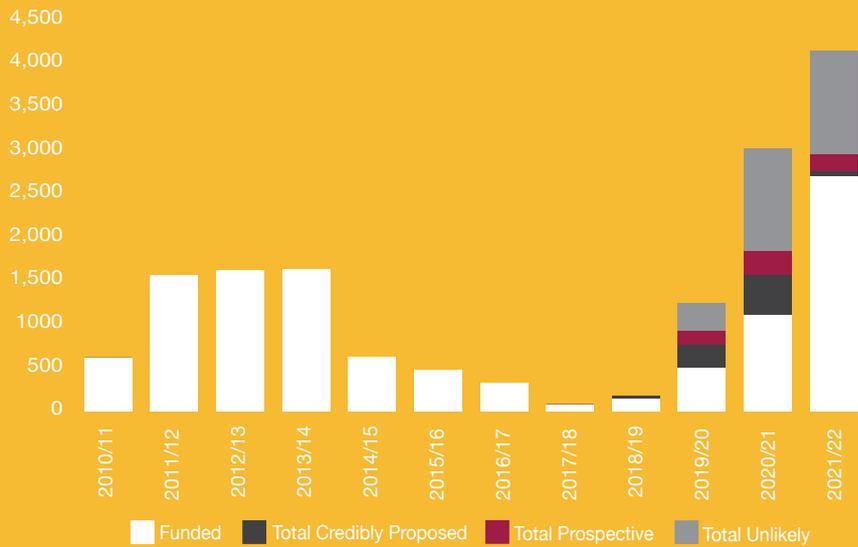


Figure 22

Water and Sewerage Major Project Work Done by Funding Status

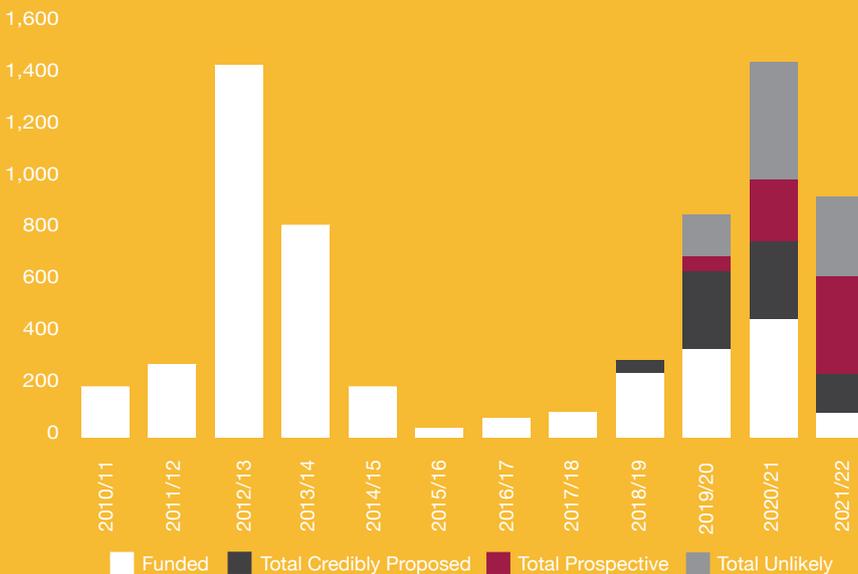


Figure 23

Electricity, Pipelines and Telecoms Major Project Work Done by Funding Status

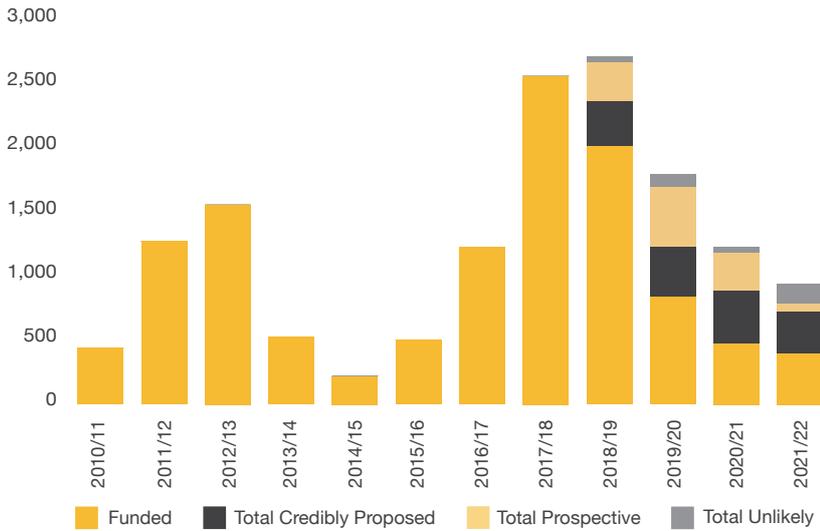


Figure 24

Defence Major Project Work Done

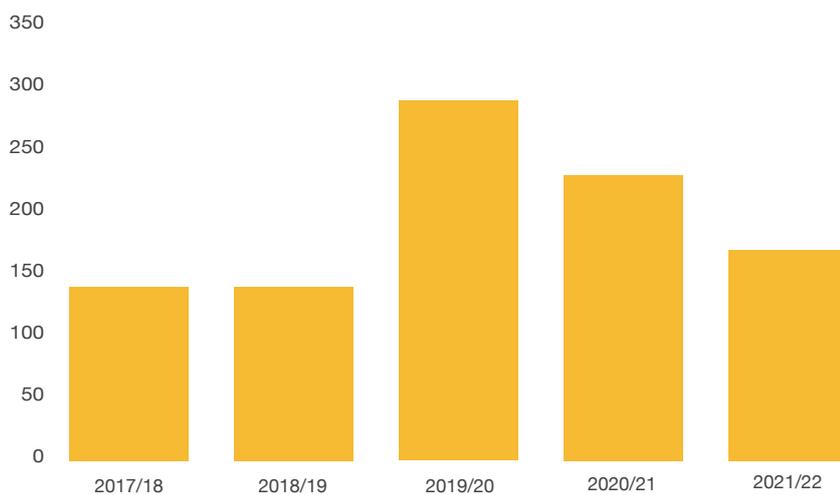
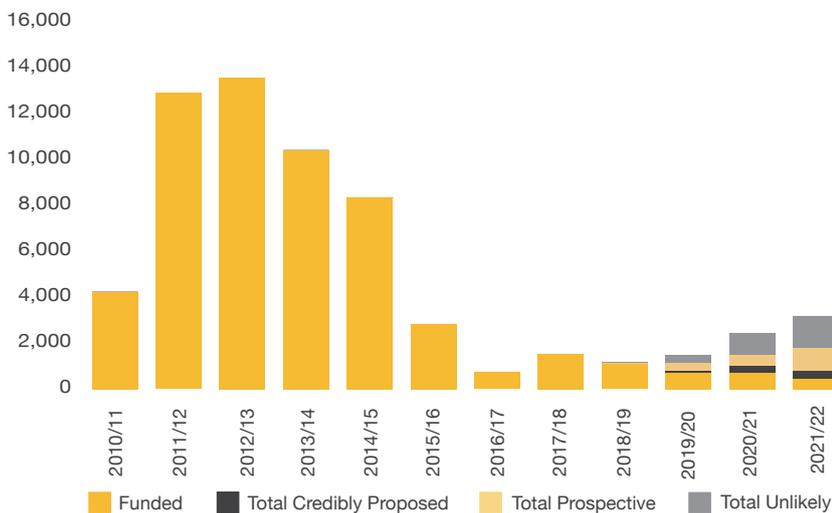


Figure 25

Mining and Heavy Industry Major Project Work Done by Funding Status



Progress is being made to reach the 2020 Renewable energy target (RET) as Queensland, suitably nicknamed the ‘sunshine’ state, enters a renewable energy construction boom. This boom is being led by the construction of solar farms, but also includes some wind and hydro projects. Over twenty solar and wind projects are included in the Pipeline as under construction in 2017/18 and a similar number of projects are forecast for 2018/19. Large-scale solar projects include Kidston Solar Project - Stage 2 (270 MW), Daydream Solar Farm (150 MW) and the Clare Solar Farm Project (100MW), while wind and hydro projects include the Kidston Hydro Project, the Kennedy Energy Park and the Mt Emerald Wind Farm (180 MW).

Beyond 2019/20, activity is expected to drop as renewable energy construction boom tapers off and the NBN rollout winds down. The ongoing development of the coal seam gas fields to feed Queensland’s LNG processing facilities will require continual upstream investment in pipelines (and other infrastructure) over the long term. The Arrow Bowen Pipeline has been identified as a potential major project in this space. There are also several significant announced projects that remain unfunded which could keep activity at a relatively high level. These are focused in the electricity sector and include further renewables projects such as the Burdekin Dam Hydro Project, the proposed North Queensland power station and potential transmission works to mining regions.



Defence

Queensland is benefiting from the latest round of Commonwealth-funded defence initiatives. Projects include maintenance infrastructure upgrades and the construction of the new Growler Airborne Attack Capability facilities at South East Queensland’s RAAF Base Amberley. Activity should also be boosted by the Australia – Singapore Military Training Initiative.

The Initiative will provide increased access to Australian military training areas for the Singapore Armed Forces, building on Australia and Singapore's existing defence cooperation. Training facilities will be redeveloped at the Fitzroy's Shoalwater Bay, which will first be remediated, as well as a training facility further north in Townsville.

Combined, the aforementioned projects account for \$1.1 billion in the Pipeline over the forecast horizon. This value has downside and upside risk. On the downside, there may not be as much engineering construction in the defence projects listed in the Pipeline than anticipated here. However, on the upside, a Queensland-based contractor has won a \$5 billion tender in March 2018 to build the next generation of light armoured vehicles. While the contract includes the building of an Excellence Centre in Redbank, only a small amount of the vehicle contract value is expected to involve engineering construction.



Mining and Heavy Industry

Mining and heavy industry major project work boomed between 2010/11 to 2012/13, increasing collectively by over 200% to reach a new peak of \$13.6 billion. This represented a second, LNG-focused phase of the resources boom in Queensland, but there was also substantial coal developments during this time including the construction of the Broadmeadow, Caval Ridge, Daunia and Grosvenor coking coal mines, which also sustained a high level of work.

The completion of the "once in a generation" large LNG projects in Queensland saw mining and heavy industry major project work collapse to just \$700 million in 2016/17, a mere shadow of the previous peak. Major downstream LNG project construction has now ceased and activity in 2016/17 was solely supported by LNG sustaining work and upstream field developments, estimates of which have been revised downwards given lower than expected activity in this area, both historically and in the forecast.

However, GLNG's new Roma East Project, which aims to increase domestic gas supply, will see LNG activity rise over the short-term. Outside of gas-related projects, major project activity will continue to be supported in the near term by the development of the Amrun Project and the Dugald River Zinc Project. Moving forward, total activity is expected to pick up but remain modest relative to the previous peak. Projects supporting this uptick include new coal projects such Byerwen and Styx, the re-opening of existing mines such as Wilkie Creek and potential expansions at Caval Ridge and Peak Downs.

Other resource projects include copper and gold projects in Northern Queensland. While activity is expected to rise into the future, it is important to note that the majority of the projects in the list still remain unfunded, and subject to movements in global commodity prices and demand. Consequently, there is still a high degree of uncertainty surrounding the pace and scale of the recovery.

In particular, Adani's \$16 billion Carmichael coal project is still categorised as 'unlikely' and the outcome of this project has the potential to significantly change the outlook for the category. Substantial risks surround the outlook for this project (and related infrastructure works elsewhere in the list) given uncertainties over future coal prices and the risks surrounding finance for Adani's very large Galilee Basin railway line that would stimulate development of its Carmichael mine. Even if the Adani mine were not to proceed, some coal projects (currently slated to commence in the 2020s) may still be pulled forward if coal prices were to remain relatively high.

In terms of LNG, it has been assumed that no new downstream train expansions will take place over the next five years given the outlook for energy prices and the supply / demand balance in the LNG market. Nonetheless, ongoing development of Coal Seam Gas (CSG) fields over the operational life of LNG facilities will require continual investment in related field infrastructure, including roads, water, and pipelines and gas facilities. Again, while not as significant as downstream processing and infrastructure projects, in aggregate they will keep the volume of activity high compared to pre-boom times and offer a higher share of work for domestic contractors compared to the LNG trains.

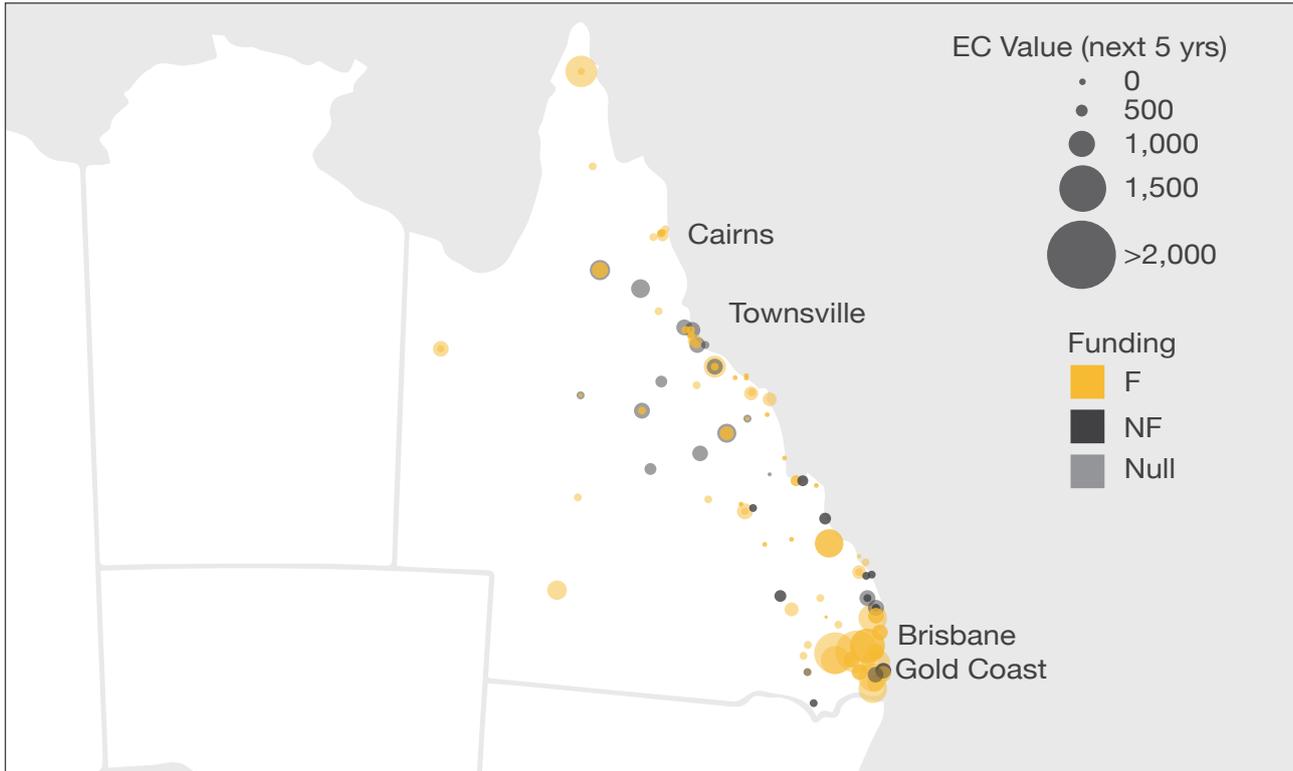


Adani's \$16 billion

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Figure 26

Funding & Engineering construction value (next 5 years) by location



Queensland Regional Focus

Significant shifts in major project work are projected at the regional level in Queensland over the forecast period. While major project activity will be rising in aggregate terms, a much greater share of this work is expected to be focused in the South East Queensland region, but also the Northern Queensland region. While South East Queensland is expected to see the largest volumes of major project work over the next five years, the strongest growth in work is expected in Northern Queensland. An interesting feature of the outlook by region is the differences in the size and status of projects and hence the certainty of projects proceeding. As our maps demonstrate, most of the larger, more securely funded major projects are located in the South East corner, with a greater proportion of unfunded (and generally smaller) projects located in Queensland's central and northern regions

The outlook for resources investment, coupled with rising transport infrastructure and renewable investment, will be the key driver of differences in regional activity and is expected to see South East Queensland's overall share of activity shift to a higher plane through the forecast period. Much of this recovery is dependent on public investment decisions by State and Federal Governments, with much of the Pipeline remaining unfunded.

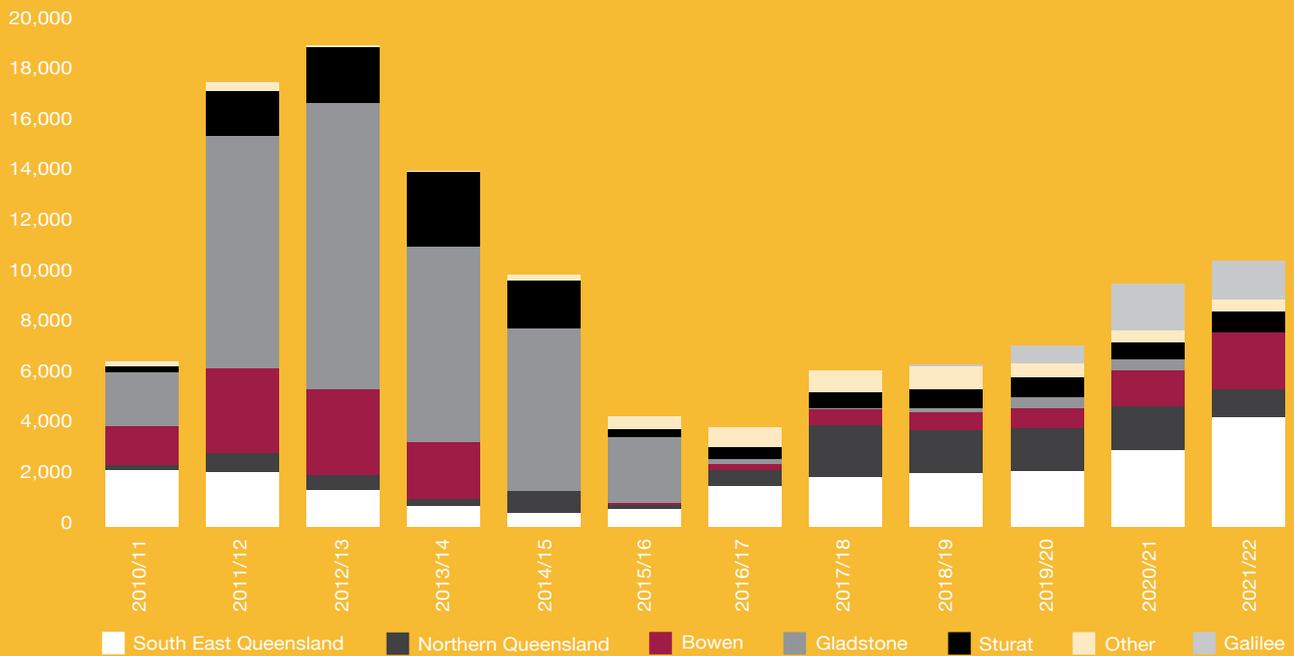
Northern Queensland has already benefited from mining projects in recent years (Amrun and Dugald River) but activity will broaden if the Northern Australia Infrastructure Facility (NAIF) begins to award concessional finance to proposed private sector projects. Northern Queensland already has a stronger pipeline of funded work including several large sections of the Bruce Highway (including the Mackay Ring Road Stage 1 and the Cairns Southern Access Corridor Stages 3 and 4) and Cape York Regional Roads Package, the North Coast Rail Capacity Upgrade, as well as a plethora of renewable energy projects.

The Bowen region, meanwhile, is more heavily dependent on major project work related to coal mine development and will be supported by Byerwen and the expansion and reopening of existing mines. There are also other projects getting underway including the Peak Downs Highway Upgrade and a significant number of solar projects. This will see Bowen's share of total major project activity rise over the forecast horizon.

While the pace of the shift in work will be slower than that which occurred in Gladstone during the LNG boom, remote regions such as Northern Queensland and the Bowen Basin will have their own challenges to overcome. The regional towns and cities that will inevitably service projects in these regions will face a number of social and economic changes and will be competing against South East Queensland (as well as interstate) for skills.

Figure 27

Major Project Work Done by Region



This will require detailed planning by Federal, State and Local Governments in conjunction with project proponents in order to keep the project pipeline intact in these regions whilst maintaining harmonious and sustainable communities.

As history has proven, the South East Queensland region has considerable experience in handling significant shifts in major project work and employment such as those forecasts in this Report.

However, the current forecast upswing will occur at a time when other Australian states and cities (particularly Sydney and Melbourne), as well as other global cities, will also be undergoing increasing levels of major project investment. This will likely see competition for skilled labour and plant and equipment intensify, which will create a challenging period for procurement.

Most of the larger, more securely funded projects are located in the South East corner, with a greater proportion of unfunded (and generally smaller) projects located in Queensland's central and northern regions

Strengths, Weaknesses, Threats by Region

South East Queensland

Publicly funded infrastructure works are the key driver in South East Queensland, with roads and railways work to remain the principal source of major project activity, notably the large Cross River Rail. In this sense, the projection of increasing levels of public investment and major project works in this region will give local contractors many new opportunities over the forecast horizon (generally \$2-3 billion per annum in major project work through the forecast period and progressively increasing). Much will depend on the willingness of the Queensland and Commonwealth Governments to fund these projects. Given the plethora of rail projects occurring in New South Wales and Victoria, there may also be risks to the timing of signature rail projects in South East Queensland.

Gladstone

The strengths, weaknesses and threats to the Gladstone region are shaped by the outlook for LNG and coal development. Major project demands peaked in 2013/14 and have since declined sharply given the completion of various LNG projects and the Wiggins Island Coal Export Terminal (WICET). A recovery in Gladstone major project work depends heavily on whether further stages to existing LNG projects, or new LNG projects commence during the forecast period or are delayed by high cost pressures and the emergence of competitive threats (such as from US shale gas). The current pipeline does not expect another major downstream LNG development occurring until beyond 2021/22. Higher than anticipated coal prices, however, may see currently unfunded coal-related developments proceed earlier than expected, which presents an upside risk to the current (very low) outlook for work in the region.

Bowen Basin

Coal-related major projects shape the Bowen Basin region, but it is also becoming a focus for solar energy projects. While many proposed coal projects remain unfunded, there are some notable exceptions that will support activity in the short term including the new Byerwen mine, and potential expansions at Caval Ridge and Kestral. Activity in the Bowen Basin is increasingly underpinned by investment in renewables energy. Notable renewable projects include the Moranbah Solar Farm (170MW) and the Daydream Solar Farm (150 MW). Roads work (Peak Downs Highway), as well as water and port works will also support major projects activity. Overall, it is expected to be a relatively stronger growth region and could see upside if coal prices were to remain at higher levels.

Galilee Basin

While several very large Galilee Basin projects remain proposed, only one project, Adani's Carmichael project, features on the 2018 Major Projects List, albeit as an unlikely starter. There remains a very high risk that this project will not occur at all given the long-term price outlook for coal, as well as issues regarding project finance, costs, remoteness and environmental issues. Together, Galilee Basin projects in the list account for nearly \$7.5 billion dollars of major project work, but these are classified as unlikely to proceed. The absence of these projects sees major project work effectively flatline from 2018/19, as shown in Figure 27.

Surat Basin

Ongoing upstream coal seam gas work is currently driving activity levels in the Surat Basin. This Report forecasts relatively stable levels of activity in this region going forward, but the need to replace ageing wells whilst simultaneously increasing upstream capacity for the LNG processing facilities could see a more significant increase in CSG and related infrastructure activity. The new Roma East project is one such project. Outside of CSG, there is also expected to be a substantial number of renewable energy investments, including Bulli Creek Solar Farm Stage 1 (100 MW) and the Darling Downs Solar Farm (106.8 MW).

Northern Queensland

Northern Queensland has benefited recently from multiple major resources, yet the Pipeline suggests many future resources projects currently remain unfunded, the outcome and timing of which is dependent on the state of the global economy and demand for metals and minerals. Apart from minerals development, Northern Queensland is benefiting from measures to boost regional economic growth through infrastructure investment. These measures include upgrades to the Bruce Highway (Sarina to Cairns) and the Cape York regional package. Northern Queensland is also at the forefront of a large round of renewable energy investment. These include the Ross River Solar Farm (142 MW), Mt Emerald Wind Farm (180 MW) and the Kidston Solar Project – Stage 2 (270 MW). This is expected to see North Queensland emerge as the strongest regional growth centre for major project work.

