

Analysis of security of payment reform for the  
building and construction industry  
Prepared for the Queensland Department of Housing  
and Public Works

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# Glossary

Abbreviation	Definition
ASIC	Australian Securities and Investments Commission
BCIPA	Building and Construction Industry Payments Act 2004
BCR	Benefit to cost ratio
CBA	Cost-Benefit Analysis
CGE	Computable General Equilibrium
(The) Commonwealth	The Commonwealth Government of Australia
CPD	Continuous Professional Development
CWMF	The Government's Capital Works Contract Management Framework
(The) Department	The Department of Housing and Public Works
(The) Department Discussion Paper	The Department of Housing and Public Works Security of Payment discussion paper dated December 2015
FTE	Full-time Equivalent
(The) Government	The State Government of Queensland
GRP	Gross Regional Product
GSP	Gross State Product
Head contractor	Party that contracts with principal to carry out construction work or supply related goods and services for the principal under a construction contract
IRR	Internal Rate of Return
k	Thousands
m	Millions
MCA	Multi-Criteria Assessment
NPV	Net Present Value
PBA	Project Bank Account
PPSA	Personal Property Securities Act 2009
PPSR	The Personal Property Securities Register, which is an Australian national online register that provides details of security interests in personal property
Principal	Party that commissions building and construction work
(The) QBCC Act	Queensland Building and Construction Commission Act 1991
QCAT	Queensland Civil and Administrative Tribunal
RoQ	Rest of Queensland
RTF	Retention Trust Fund
SCA	Subcontractor Charges Act 1974
Senate Committee	The Commonwealth Senate Standing Committee on Economics
SEQ	South-East Queensland
Subcontractor	Person who is to carry out construction work or supply related goods and services under a construction contract, aside from the head contractor

# 1 Executive summary

## 1.1 Background

Security of payment in the building and construction industry has been the subject of a number of inquiries and reports over the past decade at national, state and territory levels. The Commonwealth Senate Standing Committee on Economics (The Senate Committee) report regarding insolvency in the Australian building and construction industry dated December 2015<sup>1</sup> (The Senate Report) argued that the building and construction market is distorted because market power is “concentrated at the top of the contracting chain, inequitably reallocating risk from the large contracting companies to those who are least able to bear it, namely subcontractors, suppliers and employees”. The Senate Report also noted that the Australian building and construction industry’s rate of insolvencies is out of proportion to its share of national output. Figures referenced in the Senate Report suggest that over the past decade, the building and construction industry has accounted for between 8%-10% of annual GDP and roughly the same proportion of total employment, but that over the same period the industry has accounted for between one-fifth and one-quarter of all insolvencies in Australia. The Senate Report suggests that the industry nationally is “burdened every year by nearly \$3bn in unpaid debts, including subcontractor payments, employee entitlements and tax debts averaging around \$630m a year for the past three years”.

There are a number of issues facing the building and construction industry which contribute to its relatively high rate of insolvencies such as poor business processes, poor contract management (for example undocumented and/or disputed variations), lack of financial management and forecasting capability, the competition for volume resulting in low margins and what could be argued is a culture (at every level of the industry, not only at the head contractor level) of pushing risk down the contractual chain, which often leads to those with the least bargaining power or ability to manage risk bearing the brunt of it.

As the building and construction industry traditionally uses a system of cascading payments from a head contractor down the contractual chain to all subcontractors, subcontractors bear the risk of head contractor insolvency. There is also an incentive for contractors higher up the chain to delay payments to those lower down to supplement their own cash flow and working capital. This deferred payment system and inflated cash flow is particularly prevalent where the higher contractor is nearing insolvency, and may hide that a company may otherwise be near or actually insolvent. As detailed in the Department’s Discussion Paper, these issues can leave subcontractors unpaid for work already completed, retention money can be lost as a result of being used as operating cash flow by contractors and head contractors rather than being held in trust, and subcontractors may suffer protracted delays in obtaining payment for work done.

In Queensland, the Subcontractors’ Charges Act 1974 (SCA) secures subcontractor payments in certain circumstances, while the Building and Construction Industry Payments Act 2004 (BCIPA) provides a statutory-based right to payment and a system of dispute resolution. A QBCC policy dictates minimum financial requirements for licensees. PBA or RTF schemes seek to address the issue of non-payment or delayed payment to subcontractors, and provides protection for subcontractors in the event of insolvency.

Our analysis suggests, subject to the assumptions and limitations discussed in this report, that the benefits outweigh the costs to society in implementing a PBA scheme, and that the scheme will have positive impacts on Gross State Product and employment. Depending on how widely the PBA scheme is applied (and its final design and effectiveness), our analysis suggests that it could increase employment in Queensland by up to 1,089 FTEs in average annual terms and increase Gross State Product by up to \$6.42bn in net present value terms.

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<sup>1</sup> The Commonwealth Senate Standing Committee on Economics – I just want to be paid, Inquiry into insolvency in the Australian construction industry – the Senate, December 2015, sourced from [http://www.apf.gov.au/Parliamentary\\_Business/Committees/Senate/Economics/Insolvency\\_construction/Report](http://www.apf.gov.au/Parliamentary_Business/Committees/Senate/Economics/Insolvency_construction/Report)

## 1.2 Reform options and evaluation results

### Option 1 - Project Bank Accounts (PBAs)

Broadly, a PBA is a trust account set up for a particular project into which the contract principal pays progress payments. Head contractors and subcontractors are beneficiaries of the account. Retention funds are also held in the account. We have analysed the impact of implementing a PBA scheme under two scenarios. Scenario 1 models the impact of applying the scheme only to Government building and construction projects with a contract value between \$1m-\$10m, excluding infrastructure projects and residential building and construction. Scenario 2 models the impact of applying the scheme to a much wider range of projects, being all Government and private construction projects with contract values over \$1m, excluding infrastructure projects and residential building and construction.

In order to easily compare different options, our quantitative modelling produces a Benefit-Cost Ratio (BCR). The BCR is a comparison of benefits to costs, and a BCR greater than one suggests a particular policy option provides a net economic gain and is therefore justified from an economic viewpoint. Our modelling shows that the BCR is 2.59 in Scenario 1 and 3.52 in Scenario 2. The modelling work undertaken for Scenario 2 involves an extrapolation of costs and benefits calculated in Scenario 1 to a wider range of projects with higher contract values. Scenario 2 has a higher BCR as the assumed benefits of the PBA scheme generally scale with contract size, suggesting that applying the scheme to a wider range of projects provides a relatively higher net benefit to society. Overall, our analysis suggests, subject to the assumptions and limitations discussed in this report, that the benefits outweigh the costs to society in implementing a PBA scheme.

The key assumption driving the positive BCR results is that project costs will reduce by 2.5% as a result of subcontractors reducing the risk premium they charge to compensate for the extra risk of non-payment. The PBA significantly reduces this risk as funds are quarantined in a trust account. The effect of this is to transfer financial risk from subcontractors to head contractors, who can better manage that risk (it is a planned risk for head contractors versus an unplanned risk for subcontractors). Head contractors may be able to reduce prices to the end customer because there is a potential overall efficiency gain due to reallocating this risk. We have sensitivity tested this assumption against a range of potential project cost savings, from 0.5% up to 4%. Reducing the assumed savings from 2.5% to 1% produces a BCR of 1.29 for Scenario 1 and 1.75 for Scenario 2. Reducing the assumed savings even further to 0.5% produces a BCR of 0.86 in Scenario 1, although the BCR for Scenario 2 remains greater than one at 1.16.

Our economic impact analysis of the proposed PBA scheme also suggests that it will have positive impacts on Gross State Product and employment. Our estimate is that this will be an increase of real GSP of \$269.3m in net present value terms in Scenario 1 and a GSP increase of \$6.42bn for Scenario 2. The impact on employment is estimated to be an increase of 51 FTEs in Queensland for Scenario 1 and 1,089 FTEs for Scenario 2 in average annual terms.

### Option 2 – Retention Trust Funds (RTFs)

A RTF is a trust account into which the head contractor pays retention funds in order to quarantine these from operating cash flow. We have modelled the impact of implementing a RTF scheme on the same set of contracts described in Option 1 Scenario 1, i.e. Government building and construction projects with a contract value between \$1m-\$10m, excluding infrastructure projects and residential building and construction.

Our modelling shows that the BCR for the proposed RTF scheme is 0.91. This suggests, subject to the assumptions and limitations discussed in this report, that the benefits to society in implementing a RTF scheme are less than the costs of implementing the scheme. However, our modelling does not capture the benefit to subcontractors of receiving retentions owed in the event of head contractor insolvency. It also does not capture the benefit to subcontractors of a potentially increased likelihood of subcontractors receiving retention funds outside of an insolvency situation because these funds are not intermingled with head contractors' working capital, reducing the incentive for head contractors to hold on to these funds to supplement their working capital.

### Option 3 – Changes to the Building and Construction Industry Payments Act 2004 (BCIPA)

The Government has proposed a number of changes to the BCIPA, some of which will improve the speed of payment to subcontractors. One of the significant proposed changes to the BCIPA is to automatically apply it to all progress claims. This may result in an improvement in subcontractor working capital and corresponding decrease in head contractor working capital.

### Option 4 – Education program

An education program is proposed which would cover, if approved by Government, a PBA and/or RTF scheme, and also a number of areas that have been identified as requiring improvement in the industry. Currently there is no continuing education requirement for QBCC licensees in Queensland (other than building certifiers and pool safety inspectors), although there is a process to assess the experience and technical qualifications of licensees when a licence application is made.

If reforms were to be introduced, educating industry participants would likely impact positively on the industry and the community as a whole. Our experience also suggests that a portion of business failure in the industry can be directly attributed to poor business management capability, and in particular poor contract management (both in quoting and in managing variations) and poor financial forecasting and management. We have assumed that an education program would have a positive impact on these issues.

#### 1.3 Implementation risks

Some head contractors may experience financial viability issues as a result of the loss of working capital, particularly under a PBA scheme. The impact is higher in a PBA scheme compared to a RTF scheme as the PBA scheme affects a larger amount of head contractor working capital. Those most at risk would be head contractors with limited financial reserves that are reliant on continually winning new contracts to meet working capital shortfalls. This can arise from a variety of issues such as misquoting, contract management issues including poor management of variation work, unforeseen events or poor financial forecasting and management. Head contractors facing these issues are at a higher risk of insolvency generally, and will be adversely affected by the implementation of either scheme which may lead to an increase in insolvencies. Insolvencies are however caused by numerous factors, including general market conditions, regulation changes, contract management issues, financial management issues, labour disputes etc., as well as other long term profitability and short term working capital issues. Accordingly we have not been able to quantify the expected impact from introducing a PBA or RTF scheme on head contractor or subcontractor insolvencies.

We have discussed other risks in Section 8 of this report. These include the risk that the project cost savings assumed in our modelling may not eventuate or take longer to be realised.

#### 1.4 Conclusion

Our quantitative analysis suggests that a PBA scheme will have a positive net impact on society, whereas the benefits of an RTF scheme may be outweighed by its costs. The critical assumption in this analysis is that overall project costs will be reduced as a result of securing payment for subcontractors, which was the case in the United Kingdom.

Although we have been unable to quantify the community benefits which could result from improving security of payment outcomes and speed of payment to subcontractors, reducing the extent of business failures or financial stress will have a positive impact on society. Our experience suggests that subcontractors are more likely to pledge personal assets as security against business loans (for example mortgaging their principal place of residence to fund the business). If a subcontractor with this exposure suffers an insolvency event, this can have a significant impact on their personal financial position, with flow on effects to family and community. The community as a whole is therefore expected to benefit from improving certainty of payment outcomes for subcontractors through lower social costs relating to business failure such as divorces, mental illness, unemployment and other indirect costs.



However, there are risks to implementing either a PBA or RTF scheme, which essentially involves transferring financial risk from subcontractors to head contractors. Either scheme could result in an increase in head contractor insolvencies, although there may be ways to mitigate this risk.

Our analysis of the proposed changes to the BCIPA and the proposed education program is primarily qualitative rather than quantitative due to data limitations. We have assessed that these measures will have a positive net impact on society.

# 2 Introduction

## 2.1 Background

Security of payment has been the subject of a number of inquiries and reports over the past decade at national, state and territory levels. The Senate Committee report into insolvency in the Australian building and construction industry dated December 2015 argued that the building and construction market is distorted because market power is “concentrated at the top of the contracting chain, inequitably reallocating risk from the large contracting companies to those who are least able to bear it, namely subcontractors, suppliers and employees”. The Senate Report also argues that businesses in the industry face “an unacceptably higher risk” of insolvency than other industries, noting that the industry’s rate of insolvencies is out of proportion to its share of national output. Figures referenced in the Senate Report suggest that over the past decade, the building and construction industry has accounted for between 8%-10% of annual GDP and roughly the same proportion of total employment, but that over the same period the industry has accounted for between one-fifth and one-quarter of all insolvencies in Australia. The Senate Report suggests that the industry nationally is “burdened every year by nearly \$3bn in unpaid debts, including subcontractor payments, employee entitlements and tax debts averaging around \$630m a year for the past three years”.

Prior to the Senate Report, the issue of security of payment for subcontractors has been a focus for the State Government for a number of years, with the Subcontractors’ Charges Act 1974 (SCA) and Building and Construction Industry Payments Act 2004 (BCIPA) being enacted in response.

The Department of Housing and Public Works released a detailed discussion paper in December 2015<sup>2</sup> seeking feedback from industry (the Department Discussion Paper) on options to improve security of payment in the building and construction industry. The Government is now considering the merits of PBA and RTF schemes, an education program, amendments to the BCIPA and a revision of the SCA to improve security of payment outcomes to subcontractors.

## 2.2 Typical cash flow

The Australian building industry is a project-based industry<sup>3</sup> and consists of a large number of private firms<sup>4</sup>. In project-based industries like this, the delivery of projects to clients typically requires a head contractor to purchase ‘sub-projects’ and expertise from a large number of external trade suppliers. This model allows for increased specialisation in the industry and flexibility in the delivery of projects.

Consequently, head contractors in the building and construction industry often act as ‘systems integrators’ and take responsibility for actively coordinating a network of subcontractors<sup>5</sup>. Thus, building and construction projects are characterised by a hierarchical chain of contracts involving cascading payment obligations<sup>6</sup>. Under this hierarchical chain, the Principal pays the head contractor, the head contractor then pays the subcontractor and the subcontractor then pays sub-subcontractors and suppliers. This is illustrated in the Department Discussion Paper and reproduced below. The Discussion Paper also states that it was reported that head contractors often delay payment for as long as possible to supplement their own businesses’ cash flow.

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<sup>2</sup> DHPW discussion paper: <http://www.hpw.qld.gov.au/SiteCollectionDocuments/SecurityOfPaymentDiscussionPaper.pdf>

<sup>3</sup> Construction work done, Australia: <http://www.abs.gov.au/ausstats/abs@.nsf/0/13ABDBADFD4D140ACA2568A9001393D7?Opendocument>

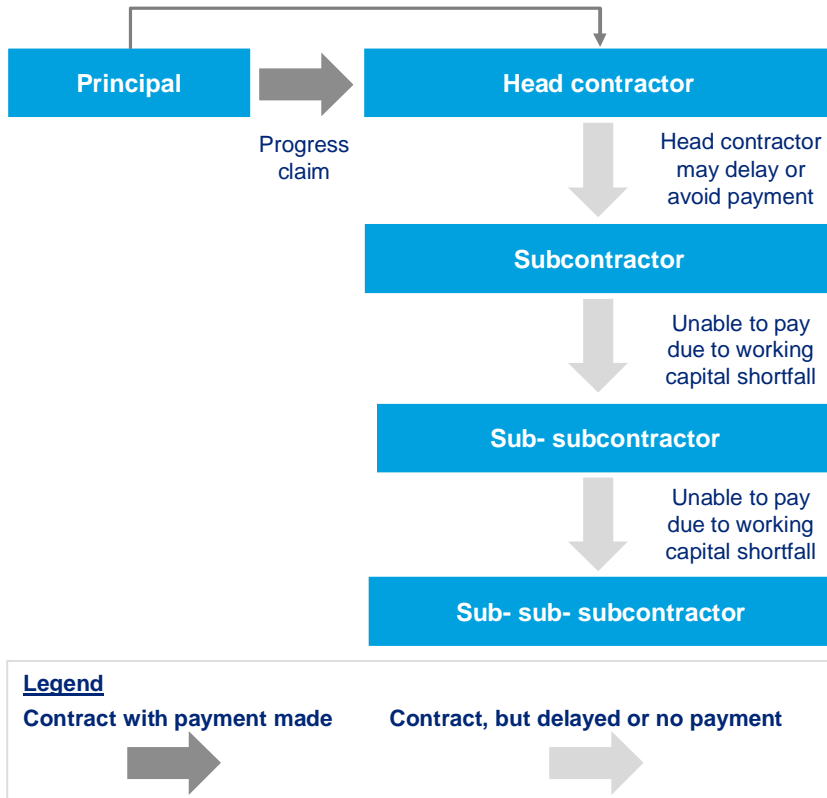
<sup>4</sup> Private sector construction industry, Australia, 2011-12: <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/8772.02011-12?OpenDocument>

<sup>5</sup> Martinsou, M., & Ahola, T. (2010). Supplier integration in complex delivery projects: Comparison between different buyer-supplier relationships. *International Journal of Project Management*

<sup>6</sup> Commonwealth of Australia (2002), ‘Royal Commission into the Building and Construction Industry: Security of Payment in the Building and Construction Industry’, Discussion Paper 12, Commonwealth of Australia, Canberra



Figure 1: Current state



Source: The Department Discussion Paper

Funds are generally distributed from the principal to the head contractor by way of regular progress claims over the life of a contract. For residential building and construction, there are standard form contracts provided by the QBCC and industry bodies which include suggested or standard progress payment schedules. All progress payments must relate to the amount of work performed on site. For commercial building and construction contracts, the value and timing of progress payments are negotiated between the principal and head contractor in the contract stage. The QBCC Act also places a requirement on principals to pay head contractors within 15 business days of receiving a payment claim (for commercial building contracts), and for head contractors or other contractors to pay subcontractors within 25 business days of receiving a payment claim (for all building contracts).

A feature of the building and construction industry is the retention money system. Retention money is money earned by a party but not distributed to the party, either the head contractor or subcontractor, through the progressive completion of work. For subcontractors, retention money is held by the head contractor/contractor to secure the subcontractor's performance obligations under the construction subcontract. Retention money is generally held by the head contractor or contractor until practical completion and the end of the defect liability period, which is typically 6-12 months after practical completion. If no defects or issues are identified during the liability period, the retention money is distributed to the subcontractor. Currently there is no requirement for head contractors to hold these retention funds separately. In an insolvency event, these funds may be lost to higher ranking creditors.

There is a similar risk for head contractors in the event of principal insolvency, as it is standard practice for the principal to withhold retention money from the head contractor in commercial building and construction contracts. The QBCC Act limits the amount of retention funds to no more than 10% of a progress claim, up to a maximum of 5% of the contract sum. Of the 5%, a maximum of 2.5% can be retained during the defect liability period.

### 2.3 Current framework

There are currently a number of protections in place for subcontractor payments for government building projects. The Government’s Capital Works Management Framework (CWMF) administered by the Department includes special requirements and contract conditions as well as a system of prequalification for building contractors and consultants known as the Prequalification (PQC) System. This system does not cover private sector contracts.

In Queensland, the SCA secures subcontractor payments in certain circumstances, while the BCIPA provides a statutory-based right to payment and a system of dispute resolution. The QBCC has a policy which dictates minimum financial requirements for licensees.

#### *Personal Property Securities Act 2009 (Cth) (PPSA)*

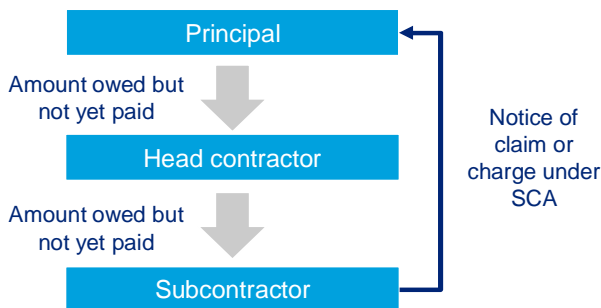
Subcontractors may be able to register security interests against a head contractor to secure funds, goods supplied and equipment on site, although in practice these measures may not be widely used currently.

#### *Building and Construction Industry Payments Act 2004 (Qld) (BCIPA)*

BCIPA establishes a statutory-based right to payments and a system of adjudication to ensure building and construction payment disputes are resolved quickly. Under the BCIPA, adjudication is available to persons who enter into a written or oral contract to carry out construction work or supply related goods and services. While the BCIPA provides subcontractors with a right to payments, it does not guarantee payment.

#### *Subcontractors’ Charges Act 1974 (Qld) (SCA)*

The SCA establishes a statutory mechanism by which a contractor, in certain circumstances, can secure payment of monies owed under their contract with a higher contractor. A typical claim scenario is shown below.



Source: Deloitte analysis

A notice of claim is only effective when there are monies payable to a subcontractor and when there are monies owed by the principal or other party higher in the contractual chain to the defaulting contractor. The process crystallises the money payable by the head contractor to the subcontractor via a statutory charge over the money owed to the head contractor by the principal. This means the funds are on hold until a court resolution is reached, which can take some time. The SCA can be used at all levels of the contractual chain, not only within the typical scenario shown above.

#### *Queensland Building and Construction Commission Act 1991 (QBCC Act)*

The QBCC Act regulates the building industry and establishes a licensing and regulatory system for the conduct of building work in Queensland. The QBCC Act also includes specific requirements for domestic building contracts, other building contracts and disciplinary provisions when a licensee fails to pay a subcontractor.

Under the QBCC Act, the Queensland Building and Construction Board is able to make policies governing the administration of the Act e.g. the Minimum Financial Requirements Policy (MFR Policy). The objectives of the MFR

Policy are to “promote financially viable businesses and foster professional business practices in the Queensland building industry”. The MFR Policy contains strict requirements for licensees to manage debts appropriately or risk losing their licence. Licensees are required to notify the QBCC when their net tangible assets fall by 30% within 30 days of the fall occurring. It also permits the QBCC to take action as soon as there is an undisputed debt owing for an extended period.

## 2.4 The issues

Subcontractors can wait a significant amount of time to be paid for work performed or services provided. This delay puts a strain on the subcontractor’s cash flow, which increases the risk of insolvency. As a consequence, this risk is eventually priced into contracts, meaning that contract prices are higher than what they need to be if that risk was reduced. In addition, as many subcontractors are relatively small businesses, they may not have adequate financial reserves and/or the financial management capability to manage such situations. This can have a flow-on effect to employees if salaries and wages are delayed or the business fails as a consequence of the delayed payment. In this situation employees could wait a significant period of time to be paid their entitlements.

The point above is sometimes exacerbated by head contractors delaying payment for as long as possible to improve their own cash flow. This practice is particularly prevalent where the head contractor is struggling financially, and hides the fact that a company may otherwise be near or actually insolvent.

Subcontractors bear the risk of head contractor insolvency together with other creditors. ASIC’s submission to the Senate Committee indicated that, in the period 2009 – 2014, the building and construction industry experienced the highest number of insolvency appointments of all industry sectors, except for the business and personal services sectors. The Senate Committee report also noted that the Australian building and construction industry’s rate of insolvencies is out of proportion to its share of national output.

Due to data limitations we are unable to quantify the extent to which subcontractor insolvencies will be reduced as a result of improved security of payment. The Senate Committee suggested that the total shortfall of liabilities over assets in the building and construction industry for FY15 was between \$1.63bn and \$2.7bn. The larger the deficiency, the lower the recovery for creditors. In many head contractor insolvencies the ordinary unsecured creditors would include subcontractors, for example where they have not been able to use the SCA provisions to secure their claim for payment. If a PBA or RTF scheme were to be introduced, subcontractors would avoid some of this shortfall as funds would be quarantined for their benefit.

Improving security of payment for subcontractors could reduce subcontractor insolvencies due to improved working capital and by improving the outcome to subcontractors in the event of head contractor insolvency. There may also be an accompanying reduction in the social costs associated with business failure and insolvency overall.

## 2.5 Our role

Deloitte has been engaged by the Department of Housing and Public Works (the Department) to evaluate the costs and benefits of potentially implementing the PBA and RTF schemes and other reform options.

Our work is focused on a certain aspect of the building and construction industry – the issue of non-payment or delayed payment to subcontractors, and protection for subcontractors in the event of insolvency. There are a number of other issues facing the building and construction industry such as poor business processes and practices centered around contract management (for example undocumented and/or disputed variations), a lack of financial management and forecasting capability, the competition for volume resulting in low margins and what could be argued is a culture (at every level of the industry, not only at the head contractor level) of pushing risk down the contractual chain, which often leads to those with the least bargaining power or ability to manage risk bearing the brunt of it.

Our analysis does not take into account the effect of any of the above issues and assumes that there are no issues with contract management or variations, and that participants in the industry will comply with the proposed reforms if they are introduced.

The scope and limitations of our work are set out in Section 10 of this report.

# 3 The Evaluation

## 3.1 Reform options analysed

### *Option 1 – Implementation of PBAs*

Option 1 involves implementing a requirement that building and construction projects set up a PBA. Broadly, a PBA is a trust account into which the principal pays progress payments, which are then disbursed to the head contractor and subcontractors at the same time. Retention money accumulated throughout the project is also managed through the same account. The proposed PBA model applies only to the second tier of contractors. This means that the PBA would disperse funds to the head contractor and the first “layer” of subcontractors that contract directly with the head contractor.

In this option most activities would be delivered by the head contractor. Activities include the creation of trust deeds and other agreements, opening and closing PBAs, managing the addition or removal of subcontractors to the PBA, obtaining regular audits of PBAs and monitoring and reconciling accounts. The principal would not be responsible for creating or managing the PBA, and would not have viewing rights over the PBA or visibility over the allocation of payments to particular subcontractors. All of these activities would be undertaken by the head contractor.

#### *Scenario 1 – Government building and construction procurement (\$1m-\$10m, excluding infrastructure projects and residential building and construction)*

Scenario 1 examines a progressive rollout of the PBA scheme, applied to Government building and construction projects with a contract value between \$1m-10m, excluding infrastructure projects. In this scenario the Government appointed project superintendent would be responsible for assessing payment claims from the head contractor and authorising progress payments. As all projects are Government projects, we have been advised that no additional regulatory or policy functions will need to be performed, as most additional costs would be absorbed within Government agencies. We have been advised that no legislative change is required in this scenario. The total estimated value of this set of contracts over the 20 year evaluation period is \$6.5bn.

#### *Scenario 2 – Whole of Government building and construction procurement (above \$1m, excluding infrastructure projects) and private sector building and construction (above \$1m, excluding residential building and construction and infrastructure projects)*

Scenario 2 examines the impact of an extension of the PBA arrangements across Government building and construction procurement and the private sector for all projects above \$1m, excluding residential building and construction and infrastructure projects. The total estimated value of this set of contracts over the 20 year evaluation period is \$127.8bn, which is significantly higher than Scenario 1.

This scenario involves higher implementation costs than Scenario 1, because of the implementation of Government regulatory oversight, especially for private sector contracts.

### *Option 2 – Implementation of RTFs to Government building and construction procurement (\$1m-\$10m, excluding infrastructure projects and residential construction)*

Option 2 involves implementing a requirement that head contractors for Government building and construction projects with a contract value between \$1-10m (excluding infrastructure projects and residential building and construction) pay retention funds into a RTF. Broadly, a RTF is a trust account into which the head contractor pays retention funds in order to quarantine these from operating cash flow. Funds are released to subcontractors from the RTF on practical completion and at the end of the defect liability period (if applicable) as per current industry practice. The principal will not be a party to the RTF and will have no control over the account.

We have assumed that the RTF would operate in a similar manner to a real estate trust account, where head contractors would be responsible for setting up one trust account for all their projects and ensuring that retention funds are held in the account. The Government will be required to maintain a register of these trust accounts and monitor and enforce compliance.

### *Option 3 - Changes to BCIPA*

The Department has provided us with an overview of the proposed amendments to the BCIPA legislation. In summary the proposed main proposed changes to BCIPA include removing the requirement to state that a payment claim is made under BCIPA and an extension of the timeframes for application for adjudication.

### *Option 4 - Education program*

The Department's consultation process suggested that an education program would be beneficial as a stand-alone option and could be multi-faceted to address issues such as cash flow management, work place health and safety, record keeping, GST, variations, obligations of company directors in addition to education around any security of payment reforms being implemented and potential changes to the BCIPA. The Department has advised that the education program will also include a mandatory continuous professional development (CPD) component.

## 3.2 Evaluation methodology

The evaluation methodology consists of three components:

- A cost-benefit analysis quantifying the net benefits and disbenefits accruing to stakeholders
- A multi-criteria analysis assessing the effects on stakeholders that could not be quantified in the cost-benefit analysis
- An economic impact analysis measuring the economy-wide effects of improving risk allocation and therefore efficiency in the building and construction industry

We have set out the methodology for each of the components in more detail below.

### 3.3 Cost-Benefit Analysis (CBA) methodology

Cost-Benefit Analysis (CBA) applies monetary values to a policy outcome. The purpose of the CBA is to test the economic viability of implementing the proposed reforms under different policy options. The results of the CBA can inform both the economic viability of each option and the comparison across different options.

#### 3.3.1 Steps in methodology

The methodology for the CBA involves the following steps:

- Defining the base case and project case (in this instance, policy options)
- Identifying and agreeing the core parameters of the evaluation (e.g. modelling time period, base year for prices to calculate present dollar values, discount rate).
- Identifying the costs and benefits that might be expected in moving from the base case under a variety of different policy options (i.e. PBA and RTF).
- Where possible, quantifying the costs and benefits over the expected lifecycle and discounting future values to express them in current equivalent values.
- Generating performance measures including the net present value (NPV), benefit-cost ratio (BCR) and internal rate of return (IRR) using discounted cash flow techniques over the evaluation period.
- Testing the sensitivity of these performance measures to changes in the underlying assumptions utilised.

Each step in the cost-benefit analysis approach is discussed in further detail in the following sections.



### 3.3.2 Evaluation parameters and assumptions

The CBA model adopts the parameters shown in Table 1. The rationale for selecting the value for these parameters is discussed below.

Table 1: Key model evaluation parameters

Parameter	Assumption	Source
Base date	FY2017 (2016/17)	Deloitte
Discount rate (real)	5%	Deloitte
Model start year	FY2017	Deloitte
Model end year	FY2036	Deloitte
Evaluation period	20 years	Deloitte
Benefit period	20 years	Deloitte

Source: Deloitte Access Economics

#### *Discount rate*

The discount rate is defined as the rate at which future cash flows must be adjusted to reflect the current values of those cash flows. The discount rate incorporates the time value of money and the opportunity cost of money. In our analysis the discount rate has been set at 5% real in accordance with the Treasury 5-year bond rate.

#### *Inflation and price year*

In the CBA, time-related unit parameters are escalated for future years with some measure of real income growth. Future benefits and costs are discounted back to the base year's price level to give an indication of the present value of these factors. All costs and benefits in this evaluation are presented in financial year 2017 (year 2016/17) constant prices.

#### *Evaluation period*

The evaluation period represents the period of time over which the benefits and costs of a policy will be measured. For this cost benefit analysis, we have applied a 20 year evaluation period.

### 3.3.3 Partial equilibrium analysis

The CBA of the policy reform is considered a partial equilibrium analysis. A partial equilibrium analysis concerns the assessment of one sector of the economy, unlike a general equilibrium analysis which concerns the whole economy. The general equilibrium assessment for the reform options is discussed in Section 3.5.

### 3.3.4 Benefit cost ratio

BCR is the ratio of the present value of benefits to the present value of costs and measures the relative net gain of the proposed policy options. The BCR will be greater than 1 when discounted benefits exceed discounted costs. A policy option with a BCR above 1 provides a net economic gain and is therefore justified from an economic viewpoint.

### 3.3.5 Net present value

The net present value (NPV) measures the actual or real net economic benefit of the project. While the BCR provides a ratio of benefits to costs, the NPV measures the absolute net economic gain.

## 3.4 Multi-Criteria Analysis (MCA) methodology

The second element of the evaluation framework is multi-criteria analysis (MCA). The purpose of the MCA analysis is to convert qualitative considerations into measurable, quantitative scores. Those benefits and costs that were unable to be quantified and included in the CBA have been incorporated into the MCA.

The evaluation framework comprises evaluation criteria, which are weighted in terms of importance. The impact of the reform options are then assessed in terms of these criteria. The evaluation criteria weightings, developed in consultation with the Department, apply the highest weightings to improving speed of payment for contractors (both subcontractors and head contractors), improving community harmony through reduced tension between head contractors and subcontractors, and reducing the social costs of business failure.

The criteria for each option are rated according to a scale of +3 (a strongly positive impact) to -3 (a strongly negative impact), for each stakeholder. The ratings are combined based on the weightings above to produce an overall score for each stakeholder and a total score. The stakeholders included in the assessment are:

- Government as regulator
- Government as customer
- Head contractors
- Subcontractors
- The community

### 3.5 Economic Impact Analysis (CGE) methodology

The third element of the evaluation framework is the use of our in-house computable general equilibrium (CGE) model to understand the broader impacts of the reform on Queensland’s Gross State Product and employment. This model measures results by comparing a ‘business as usual’ scenario with the policy scenarios, where the potential cost savings derived from improved security of payment are expected to be realised over 20 years to 2035-36, consistent with the CBA. This model focuses on two major Queensland regions: South East Queensland<sup>7</sup> (SEQ) and the rest of Queensland<sup>8</sup> (RoQ). Together they comprise the state as a whole and modelling results are presented for both major regional areas.

The results of economy wide modelling should be considered as a complement (but not a substitute) to CBA. This is because in this case the CBA tells us whether this is a good policy change or not from a societal welfare perspective. CGE modelling is a broader analysis which considers the impact on the overall level of output from the economy as a whole. Specifically, in this report CGE modelling is used to evaluate the change in economic activity resulting from implementing the proposed policy change on a subset of building and construction contracts. The impacts are measured relative to a ‘business as usual scenario’ that excludes the policy change in question to measure the incremental change in economic activity as a result of the policy.

### 3.6 Information sources and key assumptions

There are certain assumptions which have a significant impact on the results of the CBA and CGE analysis. We have discussed these in detail below.

Assumption	Value	Comment
PBA - Reduction in project costs	2.5%	<p>In other jurisdictions around the world, building and construction procurement costs fell by 1-2.5%<sup>9</sup> as a result of PBAs being introduced. We have assumed a 2.5% reduction in project costs due to the implementation of a PBA scheme. We have also sensitised this assumption in our modelling.</p> <p>Textura Europe surveyed UK subcontractors and identified that late payment risks led them to add 4% to bid costs, while they would discount 2.3% for early payment. Although we note that this is a stated preference and not a revealed preference it is consistent with other research that suggests subcontractors add</p>

<sup>7</sup> SEQ is defined in this study to include the local government areas of Brisbane, Gold Coast, Ipswich, Lockyer Valley, Logan, Moreton Bay, Noosa, Redland, Scenic Rim, Somerset, Sunshine Coast and Toowoomba

<sup>8</sup> RoQ is defined as all other areas outside of SEQ in Queensland

<sup>9</sup> Implementation of Project Bank Accounts across Highways England review:

<http://www.secgroup.org.uk/pdfs/2015/Implementation%20of%20Project%20Bank%20Accounts%20across%20Highways%20England.pdf>

		a 5-10% premium to quotes to compensate for the extra risk of non-payment, and is in line with our experience. The PBA significantly reduces this risk as funds are quarantined in a trust account, and is therefore expected to lead to a reduction in project costs. The basis for this assumed reduction, driven by allocative efficiencies (i.e. risk being reallocated from subcontractors to head contractors, who are better able to manage the risk), is also discussed in section 8.2.3 of this report.
RTF - Reduction in project costs	0.5%	We have not been able to obtain any data on potential project cost reductions in a RTF scheme. Logically any savings would be substantially less than under a PBA scheme as the RTF scheme does not cover all payments and does not improve the speed of progress claim or retention payments. However we have assumed there will be some benefit to putting this protection measure in place for subcontractors which will lead to lower subcontractor quotes and therefore lower project prices.
Head contractors will have different financing costs compared to subcontractors	9-12%	<p>In calculating working capital impacts, we have assumed an average financing cost for head contractors of 9%, being an estimated overdraft interest cost. We have used this cost as we assume head contractors will finance working capital through an overdraft-like facility rather than through fixed debt facilities, equity or some hybrid security.<sup>10</sup></p> <p>We have assumed an average financing cost for subcontractors of 12%, being an estimated overdraft interest cost. We have assumed subcontractors are required to pay a higher interest rate due to being a higher lending risk, on average. This rate is in line with the current average rate applied to unsecured loans. Some submissions to the Department’s consultation process suggested subcontractors were financing working capital requirements on personal credit cards, which attract a far higher rate than we have used. We have not used the higher credit card rate as we assume that the majority of subcontractors do not finance working capital requirements through personal credit cards, although we are aware that for some subcontractors traditional sources of finance are often not available.</p>
Funding of government function areas to exercise regulatory and policy function	Varies	Additional administration cost to Government as regulator may be minimal in Option 1 Scenario 1 and therefore would be absorbed within current cost structures. In Option 1 Scenario 2, additional staff would be required to fulfil the regulatory and policy function of Government if the scheme were to be applied to the wider industry. These functions would include for example monitoring compliance, dealing with complaints and maintaining registers of accounts. In our modelling we have used an estimate based on initial costings by the Department.
Head contractors transactional activities	Varies	For PBAs we have assumed head contractors will spend an additional 8 hours per project per month in total compared to the current state. For RTFs we have assumed head contractors will spend an additional 4 hours per project per month in total compared to the current state. This time assumption is linked to average estimated hourly wage for a construction manager of \$52 per hour <sup>11</sup> , which produces an estimated cost per month per PBA or RTF.
Subcontractors	0.5 hours	For both PBAs and RTFs we have assumed subcontractors will spend an

<sup>10</sup>Comparison of commercially secured business overdrafts: <http://www.canstar.com.au/compare/business-overdrafts-commercially-secured/?profile=Commercial+property&amount=40000&state=QLD>

<sup>11</sup>The following link provides information regarding average salaries in the Australian labour market: [http://www.payscale.com/research/AU/Job=Construction\\_Manager/Salary](http://www.payscale.com/research/AU/Job=Construction_Manager/Salary)

transactional activities	per project per month	additional 0.5 hours per project per month in total compared to the current state. This time assumption is linked to average estimated hourly wage for a construction manager of \$52 per hour, which produces an estimated cost per month per PBA or RTF.
Contracting tiers analysed	First and second tiers	Due to data limitations, our analysis assumes a three layer structure of principal, head contractor and subcontractors for each project. We have varied the assumed number of contractors based on contract value, with projects of higher value involving contractors over the life of the project compared to lower value projects. The extent to which the project procurement cost saving assumptions discussed above are realised may be affected by the number of contracting tiers covered by the proposed reforms.
Retention funds	Cash only	We have assumed that all retentions are cash retentions, as we have been unable to obtain data on the proportion of cash retentions versus non-cash retentions (for example bank guarantees or insurance bonds).
Payment timeframes	60 days	We have assumed that on average head contractors delay payment to subcontractors by 60 days/2 months on average. This period of time was based on evidence provided to the Senate Committee which suggested that head contractors generally seek to extend payments to subcontractors for a period ranging from 30 to 90 days. <sup>12</sup>

<sup>12</sup> Parliamentary review into insolvency in the Australian building and construction industry: [http://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate/Economics/Insolvency\\_construction/Report/c02](http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Economics/Insolvency_construction/Report/c02)

# 4 Project Bank Accounts

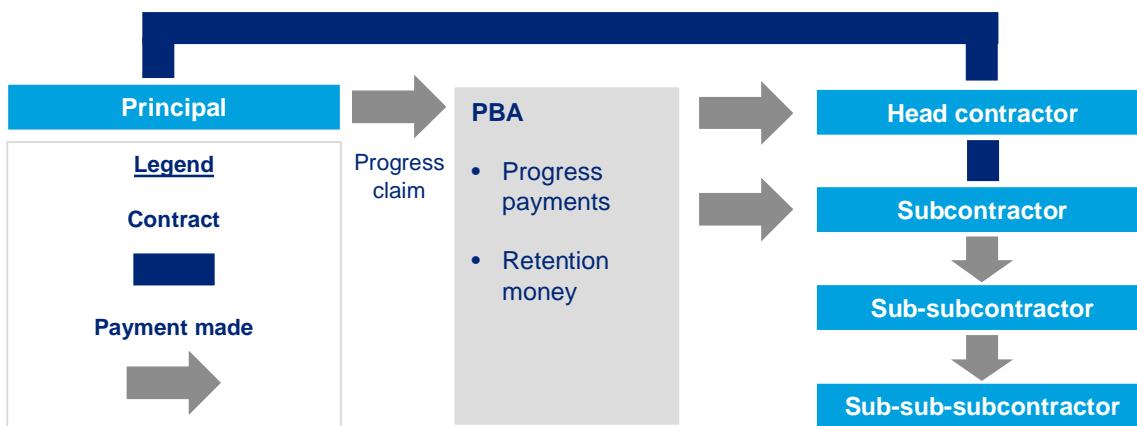
## 4.1 Background

### 4.1.1 Typical cash flow

Broadly, a PBA is a trust account into which the contract principal pays progress payments, which are then disbursed to the head contractor and subcontractors at the same time. Retention money accumulated throughout the project is also managed through the same account.

The flow of funds in a PBA scenario is illustrated below.

Figure 2: PBA



Source: The Department Discussion Paper

### 4.1.2 Operation of a PBA scheme

The key assumptions agreed with the Department which have been relied upon when analysing this option are:

Assumption	Comment
All projects will require a separate PBA to be set up	Costs have been analysed on the basis that head contractors will be required to set up PBAs for each project (i.e. there is no re-use of accounts, and projects cannot be pooled into one PBA).
The PBA is required to be a trust account	Using a trust account structure would ensure that funds are protected in the event of insolvency of the head contractor.
Subcontractors and the head contractor are beneficiaries of the PBA	This is a requirement in order to disburse funds.
The head contractor is responsible for submitting progress claims and supporting documentation to the principal	The head contractor will provide a progress claim to the principal as per current practice. The Department has advised that the principal or the superintendent will not be required to confirm the allocation of payments to specific subcontractors. This means that the principal will not have visibility over the details of payments to subcontractors.
All progress payments will be paid into the PBA by the principal	Payment of the progress claim amount by the principal into the PBA discharges the principal from further liability in respect of the claim.

Assumption	Comment
PBAs will not form part of secured assets	If a head contractor has loan arrangements with a bank, those arrangements will usually allow the bank to “set off” any credit funds against outstanding debts in the event of default (including insolvency). We assume that banks administering the PBAs will provide a release of security or other undertaking that confirms any funds in the PBA are not part of the bank’s security and therefore not subject to any right of set off.
The principal will only pay in accordance with a superintendent or quantity surveyor assessment	It is assumed that a principal will engage a suitably qualified expert to assess the extent of the work done, compare it to the progress claim and determine whether the full amount claimed should be paid.
BCIPA will apply to any payment disputes	If there is a dispute between the head contractor and subcontractor regarding the work performed, the BCIPA will apply.

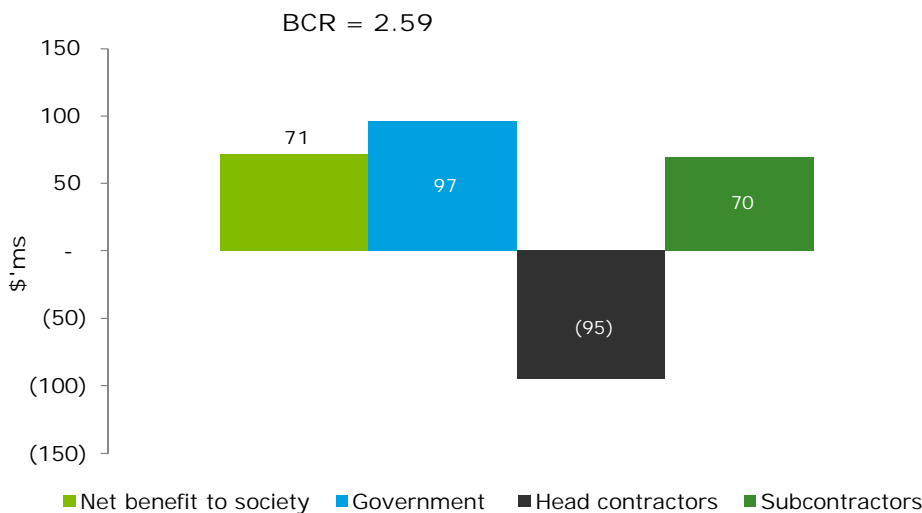
#### 4.2 Option 1 Scenario 1 – PBAs on Government building and construction procurement \$1m-\$10m, excluding infrastructure projects and residential building and construction

As discussed in Section 3.1 of this report, Scenario 1 examines a progressive rollout of the PBA, applied to Government building and construction projects with a contract value between \$1m-10m, excluding infrastructure projects and residential building and construction.

##### 4.2.1 Summary of CBA results

At the highest level, the CBA evaluation results show that Option 1 Scenario 1 returns a net benefit to society of \$71m, leading to a Benefit Cost Ratio (BCR) of 2.59. The net benefits to stakeholders are shown below.

Figure 3: CBA evaluation results, Option 1 Scenario 1



##### 4.2.1.1 Significant stakeholder costs and benefits

The net benefit to Government of \$97m is realised in its capacity as project principal or customer, resulting from an assumed reduction in project costs. This is based primarily on analysis done in other jurisdictions which identified that subcontractors reduced their pricing to reflect a reduced risk of delayed or non-payment, which led to a reduction in overall project costs.



The net cost of \$95m to head contractors is principally due to reduced working capital as a result of losing access to progress payments and retention funds. Conversely, the net benefit for subcontractors of \$70m is driven by improved working capital as a result of improved speed of payment of progress claims. There is also increased cost to head contractors from the bank fees and charges applicable to the PBA, as well as additional administration and compliance activity for head contractors associated with the operation of the PBA.

#### 4.2.1.2 Sensitivity analysis

Given that a significant portion of the benefits are driven by the potential savings in project procurement costs for Option 1 Scenario 1, the CBA results have been tested for variations in the potential project procurement cost savings and changes in the discount rate.

The results of the sensitivity testing on the project procurement price savings assumption and the discount rate assumption are shown in the table below.

Assumption	BCR - Option 1 Scenario 1	
Project procurement cost savings	0.5%	0.86
	1%	1.29
	4%	3.89
	2.5% ( <i>main case</i> )	2.59
Discount rate	2%	2.66
	8%	2.52
	5% ( <i>main case</i> )	2.59

Note: The discount rate sensitivities above are based upon the “main case” project procurement cost saving of 2.5%.

#### 4.2.2 Economic impact analysis (CGE modelling) summary

##### Gross Regional Product

In the case of PBA Scenario 1, it has been estimated that the economic impact of the policy change could lead to an increase of real Gross Regional Product (GRP) of \$139.5m in SEQ in net present value terms (using a 5 per cent real discount rate) out to 2035-36. For the RoQ region, this is estimated to increase real GRP by \$129.8m over the same timeframe. In total, Queensland real Gross State Product (GSP) is estimated to increase by \$269.3m over the same time-frame in NPV terms.

The modelling suggests that while the impact in absolute terms is larger in SEQ, we expect a proportionately higher impact on real GRP in the RoQ region. This is mainly due to the proportionately higher share of spend of projects in this region (when compared with the regions total share of the Queensland economy or population as another indicator).

##### Employment

The modelling indicates that employment could increase by up to 69 Full-Time Equivalents (FTEs) in Queensland by 2035-36 comprising of 27 FTEs in SEQ and 42 FTEs in RoQ. In average annual terms, the net increase in employment is expected to be 23 FTEs in SEQ and 51 in Queensland as a whole. These total jobs impacts increase each year over the 20 years after the policy is implemented as the cost savings associated with the policy change flow through the broader economy.

The breakdown of the potential employment increase is provided in more detail in the subsection below.

### Sectoral results and discussion

The increase in the size of the Queensland economy and the level of employment is driven by the flow-on impacts of the cost savings to the building and construction sector as a result of the policy change. However, this is not to say that building and construction is the only sector affected.

Indeed, the following table shows an increase in the output of other sectors in SEQ and the Queensland economy as a whole relative to the baseline forecast. In particular, the most pronounced increases are expected in financial and business services, trade and other services (which include government-related industries) as these productivity improvements flow through to increased incomes. Some of these industries are also positively impacted as end users of services from commercial buildings – because, as highlighted in the CBA section of this report, we expect on balance that the benefits exceed the costs for projects overall. Furthermore, the effects on head contractors and subcontractors in the building and construction industry would ultimately be reflected in lower prices paid by end-users of the products and services provided from commercial building projects. This is reflected in the modelling as cost savings that are passed on to lower prices of building and construction activity impacted by the policy change.

Other sectors such as manufacturing also increase over the long-term which is partly due to the industry being a key supplier to the building and construction industry.

Table 2: Sectoral impacts, (\$m, NPV, \$2015-16 and FTE, annual average), PBA Scenario 1

	NPV \$m's		FTEs	
	SEQ	Queensland	SEQ	Queensland
GRP/GSP deviation (\$m)	139.5	129.8	-	-
Employment (FTE, annual average)	-	-	23	51
Employment (FTE, 2035-36)	-	-	27	69
Sectoral gross output (\$m)				
Agriculture	-0.1	5.5	-	1
Mining	2.2	31.6	-	2
Manufacturing	21.8	45.2	1	4
Construction	61.1	116.7	5	13
Trade*	26.3	42.6	4	8
Electricity, gas and water	4.3	10.6	-	1
Transport	8.7	18.4	1	2
Financial and business services**	54.7	77.2	6	10
Other services***	40.6	68.8	5	11

Source: Deloitte Access Economics

Notes:

\* includes retail, wholesale trade and accommodation and food services

\*\* includes financial and insurance services, communication services, and business services

\*\*\* includes government related services such as public administration, education, health as well as other services and ownership of dwellings

The modelling also shows that the assumed project procurement cost savings are expected to have a proportionately greater impact on output than employment. This is because the impact on capital is higher, triggered by the higher rate of return on capital due to a lower cost for building and construction procurement. This lower cost acts to increase overall investment in the economy which drives capital and the overall economic impacts as well as employment. This also reflects that due to improvements in payment security, subcontractors should be able to make better investment plans with improved certainty and security of cash flows.

#### 4.2.3 Summary of MCA results

We have applied the criteria and relative weightings provided by the Department and set out in Section 2 of this report to the various stakeholder groups involved to obtain a summary score, which is then ranked against the other options.

Our MCA analysis indicates that a PBA scheme will provide greater positive impact across all stakeholder groups than an RTF scheme. This result is principally due to what is assumed to be a significant impact of a PBA scheme on improving speed of payment to subcontractors, which has the greatest relative weighting among the criteria. The effect of the PBA scheme on head contractors is assumed to result in negative impacts due to administrative burdens and job security, with significant resistance within industry to acceptance of either scheme. These negative impacts are partially offset by assumed benefits in reducing delays in project delivery and minimising disruptions and disputes as a result of certainty of payment for subcontractors.

Our experience suggests that subcontractor financing facilities are more likely to involve pledging personal assets as security against business loans (for example mortgaging the principal place of residence to fund the business). If a subcontractor with this exposure suffers an insolvency event, this can have a significant impact on their personal financial position, with flow on effects to family and community. The community as a whole is therefore expected to benefit more from a PBA scheme as it is assumed that with subcontractors being paid quicker there will be lower social costs relating to business failures of subcontractors such as divorces, mental illness, unemployment and other indirect costs.

Our MCA analysis does not take this scale issue into account, on the basis that if the measures were to be introduced industry-wide the relative impacts would remain materially unchanged. Accordingly we have assumed the results would be similar under Scenarios 1 and 2.

### 4.3 Option 1 Scenario 2 – PBAs on whole of Government building and construction procurement above \$1m and private sector building and construction above \$1m, excluding infrastructure projects and residential building and construction

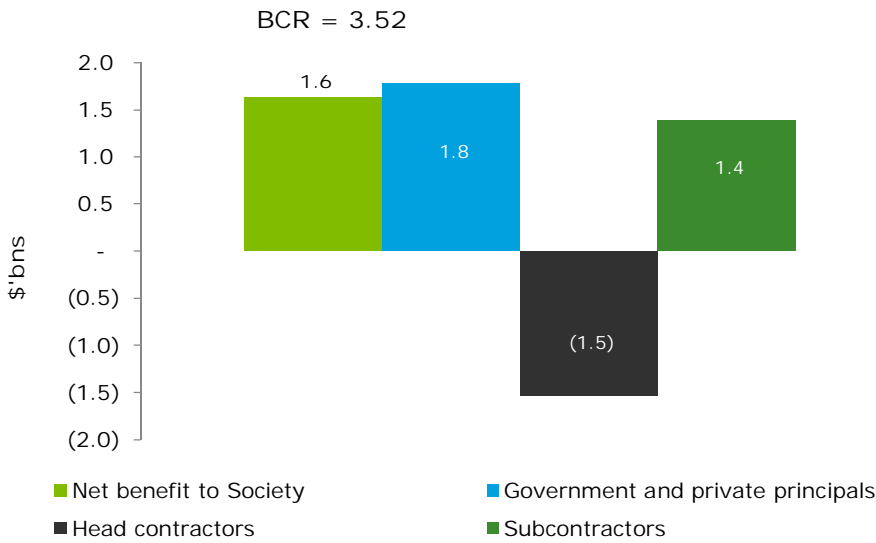
This scenario extends the PBA arrangements across Government building and construction procurement and the private sector for projects above \$1m, but still excludes residential building and construction and infrastructure projects.

This scenario involves higher implementation costs than Scenario 1, because of increased Government regulatory activity, especially for private sector contracts.

#### 4.3.1 Summary of CBA results

At the highest level, the CBA evaluation results show that Option 1 Scenario 2 returns a net benefit to society of \$1.6bn, leading to a BCR of 3.52, as shown below. Consistent with Option 1 Scenario 1, the beneficiaries are the Government and private sector principals (net benefits of \$1.8bn) and subcontractors (net benefits of \$1.4bn). However the reform benefits are at a cost to head contractors, estimated to be approximately \$1.5bn over the 20 year evaluation period.

Figure 4: CBA evaluation results, Option 1 Scenario 2



#### 4.3.1.1 Significant stakeholder costs and benefits

The net benefit to Government and private sector principals of \$1.8bn is a result of the assumed reduction in project costs, as discussed in Scenario 1. There are however increased costs to the Government as regulator in this scenario as a result of extending the PBA scheme across Government and private sector building and construction.

The net cost of \$1.5bn to head contractors is driven by the same factors discussed in Scenario 1. That is, the net cost is principally due to reduced working capital as a result of losing access to progress payments and retention funds, together with bank fees and charges applicable to the PBA and additional administration and compliance activity associated with the operation of the PBA. The net benefit for subcontractors of \$1.4bn is driven by improved working capital as a result of improved speed of payment of progress claims.

#### 4.3.1.4 Sensitivity analysis

The CBA results for Option 1 Scenario 2 have been tested for variations in the potential project procurement cost savings and changes in the discount rate. The results are shown in the table below.

Assumption	BCR - Option 1 Scenario 2	
Project procurement cost savings	0.5%	1.16
	1%	1.75
	4%	5.28
	2.5% (main case)	3.52
Discount rate	2%	3.61
	8%	3.42
	5% (main case)	3.52

Note: The discount rate sensitivities above are based upon the “main case” project procurement cost saving of 2.5%.

Comparing the sensitivity testing for Option 1 Scenario 1 and Scenario 2 shows that if project procurement cost savings are 0.5% (compared to the 2.5% assumed in the modelling), the BCR is expected to be less than one for Scenario 1 and greater than one for Scenario 2. This is due to the fact that a portion of the estimated costs applicable to the PBA scheme are assumed to vary with the number of PBAs, not project value. The project cost

saving benefit varies with project value. This means that, based on our modelling assumptions, applying the PBA scheme to higher cost projects (which is modelled in Scenario 2) generates a greater net benefit than applying it to lower value projects. We discuss the issue of project size in Section 9.1 of this report.

#### 4.3.2 Economic impact analysis (CGE modelling) summary

##### Gross Regional Product

In case of PBA Scenario 2, it has been estimated that the economic impact of the policy change could lead to an increase of real GRP of \$4.76bn in SEQ (\$2015-16) in net present value terms using a 5 per cent real discount rate out to 2035-36. For the RoQ region, this is estimated to increase real GRP by \$1.65bn over the same timeframe. In total, Queensland real Gross State Product (GSP) increases by an estimated \$6.42bn over the same time-frame in NPV terms.

##### Employment

The modelling indicates that employment could increase by up to 1,409 FTEs in Queensland by 2035-36 comprising of 812 FTEs in SEQ and 597 FTEs in RoQ. In average annual terms, the net increase in employment is expected to be 713 FTEs in SEQ and 1,089 in Queensland as a whole. As the cost savings of the policy change flow through the broader economy, total jobs increase each year over the 20 years after the policy is implemented.

The breakdown of the potential employment increase is provided in more detail in the subsection below.

##### Sectoral results and discussion

In comparison to the results for PBA Scenario 1, the GRP/GSP, employment and industry impacts are significantly higher and this is a function of the direct costs savings of the policy being significantly higher in PBA Scenario 2. The larger scenario also has significant impacts on employment. In average annual terms, employment in SEQ increases by up to 714 FTEs and this increases up to 1,089 FTEs for Queensland as a whole. The impacts at the industry level are magnified as the improvement in productivity in the building and construction sector (that translates to a price reduction in the building and construction industry) has beneficial flow-effects to industries that use building and construction inputs and supply to the building and construction industry. The productivity improvement also leads indirectly to additional investment in the economy and in income growth that supports services industry output.

Table 3: Sectoral impacts, (\$m, NPV, \$2015-16 and FTE, annual average), PBA Scenario 2

	NPV \$m's		FTEs	
	SEQ	Queensland	SEQ	Queensland
GRP/GSP deviation (\$m)	4,768.8	6,421.6	-	-
Employment (FTE, annual average)	-	-	714	1,089
Employment (FTE, 2035-36)	-	-	812	1,409
Sectoral gross output (\$m)				
Agriculture	42.4	156.7	4	25
Mining	142.1	557.8	5	34
Manufacturing	1,037.4	1,358.0	60	96
Construction	2,199.8	2,797.1	183	266
Trade*	916.9	1,172.2	126	190

Electricity, gas and water	197.5	275.6	8	14
Transport	361.2	485.2	32	54
Financial and business services**	1,672.1	1,957.2	168	216
Other services***	1,045.6	1,336.4	128	194

Source: Deloitte Access Economics

Notes:

\* includes retail, wholesale trade and accommodation and food services

\*\* includes financial and insurance services, communication services, and business services

\*\*\* includes government related services such as public administration, education, health as well as other services and ownership of dwellings



# 5 Retention Trust Funds

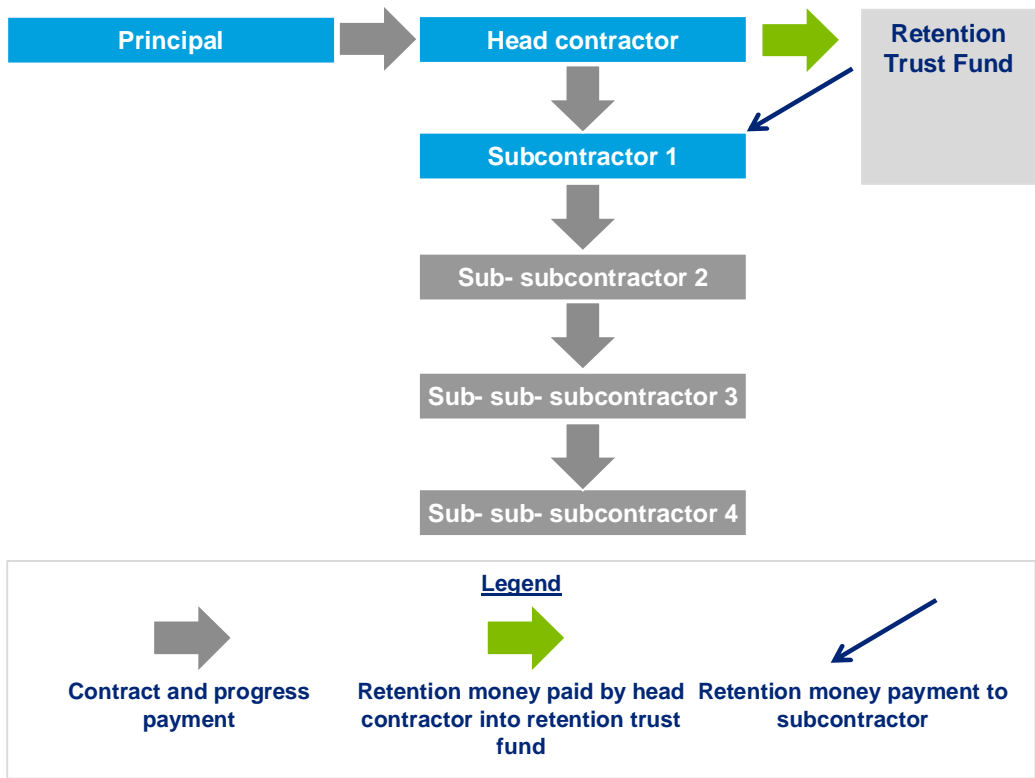
## 5.1 Background

Broadly, a RTF is a trust account into which the head contractor pays retention funds in order to quarantine these from operating cash flow. We have set out the key features of the proposed RTFs model below.

### 5.1.1 Typical funds flow

The flow of funds in a RTF scheme is illustrated below.

Figure 5: RTF



Source: The Department Discussion Paper

### 5.1.2 Operation of a RTF scheme

The key assumptions agreed with the Department which have been relied upon when analysing this option are:

Assumption	Comment
The RTF will be a trust account set up by a head contractor	It is assumed that the RTF will operate in a similar manner to a real estate trust account, where head contractors would be responsible for setting up one trust account for all their projects and ensuring that retention funds are held in the account.

Additional resources will be required to administer an RTF scheme	The Government would be required to maintain a register of these trust accounts and monitor compliance. Again, this may operate in a similar manner to a real estate trust account, where annual audits are lodged with the statutory body monitoring compliance of the scheme. It is assumed this will require additional staff and other costs such as IT systems.
Head contractors will bear additional compliance costs	Head contractors would be required to obtain annual audits of their RTF accounts to provide to the Government.
From a subcontractor perspective, there will be no significant additional costs	There will be no significant change in costs for subcontractors, as the subcontractor will continue to deal with the head contractor to recover retention funds.
There will be a benefit to subcontractors in an insolvency scenario	Provided head contractors comply with the RTF scheme requirements, retention payments will be protected in the event of insolvency.
RTFs will not form part of secured assets	If a head contractor has loan arrangements with a bank, those arrangements will usually allow the bank to “set off” any credit funds against outstanding debts in the event of default (including insolvency). We assume that banks administering the RTFs will provide a release of security or other undertaking that confirms any funds in the RTF are not part of the bank’s security and not subject to any right of set off.

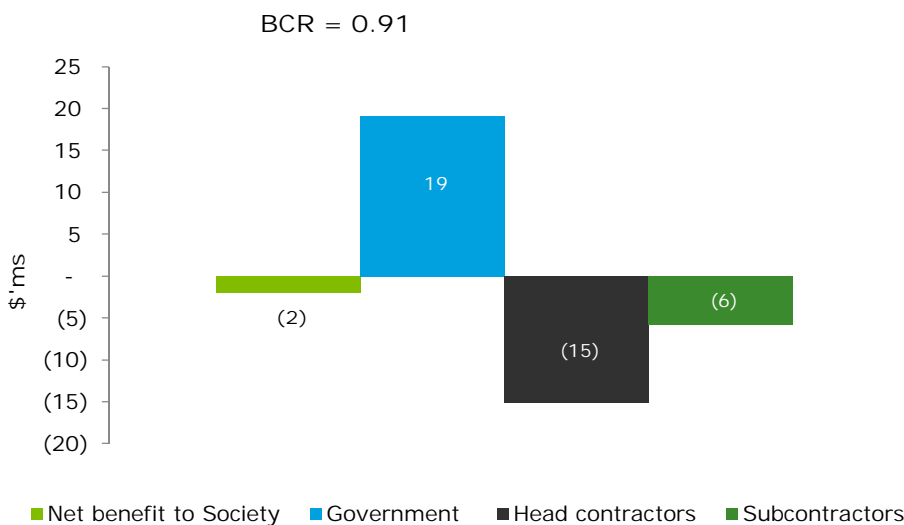
## 5.2 Option 2 – RTFs on Government building and construction procurement \$1m-\$10m, excluding infrastructure projects and residential building and construction

As discussed in Section 3.1 of this report, Option 2 examines a progressive rollout of an RTF scheme, applied to Government building and construction projects with a contract value between \$1m-10m, excluding infrastructure projects and residential building and construction.

### 5.2.1 Summary of CBA results

At the highest level, the CBA evaluation results show that Option 2 returns a net cost to society of \$2m, leading to a BCR of 0.91 as shown below.

Figure 6: CBA evaluation results, Option 2



### 5.2.1.1 Significant stakeholder costs and benefits

The net benefit to Government of \$19m is realised in its capacity as project principal or customer, resulting from an assumed reduction in project costs. We have not been able to obtain any data on potential project cost reductions in a RTF scheme. Logically any savings would be substantially less than under a PBA scheme as the RTF does not cover all payments (only retention funds, which are up to 5% of the total value of the works) and does not improve the speed of progress claims or retention payments. However we have assumed there will be some benefit to putting this protection measure in place for subcontractors which will result in some reduction in subcontractor contingency pricing. As there is no empirical evidence that supports the assumption that contract prices would reduce as a result of the implementation of the RTF scheme, the project cost reduction of 0.5% is considered an optimistic estimate

The net cost of \$15m to head contractors is principally due to reduced working capital as a result of losing access to retention funds, although there is also a cost in the bank fees and charges applicable to the RTF, as well as additional administration and compliance activity for head contractors associated with the operation of the RTF.

The net cost for subcontractors of \$6m is driven by compliance costs associated with the RTF scheme such as reviewing and signing trust documentation. Our modelling does not capture the benefit to subcontractors of receiving retentions owed in the event of head contractor insolvency, and potentially an increased likelihood of subcontractors receiving retention funds outside of an insolvency situation as these funds are not intermingled with head contractors' working capital. Without detailed data regarding the proportion of cash versus bank guarantees or insurance bond retentions, the extent of retentions lost as a result of head contractor insolvency and the extent of non-payment of retentions outside of an insolvency situation, we have been unable to quantify these potential benefits.

### 5.2.1.2 Sensitivity analysis

Given that a significant portion of the benefits are driven by the potential savings in project procurement costs for Option 2, the CBA results have been tested for variations in the potential project procurement cost savings and changes in the discount rate.

The results of the sensitivity testing on the project procurement price savings assumption and the discount rate assumption are shown in the table below.

Assumption		BCR - Option 2
Project procurement cost savings	0%	0.00
	1%	1.82
	0.5% ( <i>main case</i> )	0.91
Discount rate	2%	0.93
	8%	0.88
	5% ( <i>main case</i> )	0.91

Note: The discount rate sensitivities above are based upon the "main case" project procurement cost saving of 2.5%.

### 5.2.2 Summary of MCA results

Our MCA analysis indicates that a RTF scheme will provide a positive impact overall across all stakeholder groups aside from head contractors, but that this impact is likely to be less than that of a PBA scheme. This result is principally due to the RTF scheme not including progress payments, only retention funds, which is unlikely to have a material impact on improving speed of payment to subcontractors, which has the greatest relative weighting among the criteria. The effect of the RTF scheme on head contractors is assumed to be lower than that of a PBA scheme as it is expected to have a positive impact on job security and on disruptions and disputes,

which are offset by a negative impact on job security and the addition of some administrative complexity. There is also likely to be significant resistance from head contractors to the acceptance of either scheme.

The benefits to subcontractors are expected to be lower under a RTF scheme, as the scheme would cover a lower quantum of funds and is not expected to have a material impact on improving speed of payment for subcontractors. The community as a whole is expected to benefit from a RTF scheme as it is assumed that with retention funds being protected in the event of insolvency, there will be some reduction in subcontractor business failures, which will lower societal costs such as divorces, mental illness, unemployment and other indirect costs.

# 6 Changes to BCIPA

## 6.1 Background

In this section we have summarised the proposed changes to the BCIPA. We set out our analysis of the impact of some of these changes at a high level, however there are certain aspects which we have been unable to quantify. The aspects which we have been unable to quantify have been analysed in the MCA, and our findings are discussed in this section.

## 6.2 Summary of changes

BCIPA applies to all commercial building and construction contracts, including the supply of related goods and services, in Queensland. BCIPA does not cover residential building work, however a subcontractor on a residential project can use the BCIPA to obtain payment from the contractor. In summary, the proposed main proposed changes to BCIPA include removing the requirement to state that a payment claim is made under BCIPA and an extension of the timeframes for application for adjudication.

We understand all proposed amendments are subject to further approval.

## 6.3 Evaluation results

### 6.3.1 Potential working capital benefit to subcontractors

Submissions provided during the Department's consultation process have suggested that the BCIPA is not as widely used as it could be. One of the proposed changes to the BCIPA is that an invoice will be able to operate as a BCIPA claim. As a result, all the BCIPA will apply to all progress claims.

In order to perform a high level analysis of this change, we have assumed that if all claims were to fall under the BCIPA, subcontractors would still wait up to 30 days after invoice due date (which we have assumed to be 30 days from end of month) to begin the adjudication process. Based on the submissions provided to the Department, in some cases subcontractors currently wait up to 60 days after invoice due date to commence a claim under the BCIPA. Accordingly the benefit of this change may be an improvement of 30 days in subcontractor working capital and corresponding decrease in head contractor working capital.

Our analysis suggests that consistent with the CBA modelling for the PBA Option 1 Scenarios 1 and 2, there is a benefit to subcontractors and a loss for head contractors from improving average subcontractor payment times as a result of having BCIPA apply to all payment claims, and in increasing the timeframes to apply for adjudication. Overall there is a positive net benefit. We have not included a detailed breakdown of the costs and benefits in this report however, as there are limitations to this analysis due to a lack of data which could have a significant impact on the values of these costs and benefits.

### 6.3.2 Summary of MCA results

Our analysis suggests these changes are positive overall. The legislative changes are expected to improve speed of payment for subcontractors. This drives the positive result for subcontractors. Finally, although the legislation changes are expected to have minimal benefits to the wider community, we assume there will be some benefits flowing to the community as a result of improved speed of payment to subcontractors and therefore reduced subcontractor failures.

# 7 Education program

## 7.1 Background

An education program is proposed to be put in place which would cover not only implementation of a PBA or RTF scheme, but also a number of areas that have been identified as requiring improvement in the industry. These include areas such as cash flow management, work place health and safety, record keeping, GST, variations and obligations of company directors in addition to education around any security of payment reforms being implemented and potential changes to the BCIPA. The majority of submissions provided through the Department's consultation process identify business management capability as an industry-wide issue, and in particular an issue for subcontractors or those further down the contracting chain.

Currently there is no continuing education requirement for licensees in Queensland (other than building certifiers and pool safety inspectors), although there is a process to assess the experience and technical qualifications of potential licensees. Depending on the type of licence, requirements may include undergraduate degrees, building and construction management diplomas, and various individual units of competency such as managing processes for complying with legal obligations. These requirements are graduated based on the level of licence, with trade licences generally having no financial or business management education requirements.

Submissions made to the Department's industry consultation process and our experience suggests that a portion of business failures in the industry can be directly attributed to poor business management capability, and in particular poor contract management (both in quoting and in managing variations) and poor financial forecasting and management. This can be the case with both large and small firms, and for both head contractors and subcontractors. We have been unable to quantify the extent to which a lack of business management capability contributes to business failure. However our experience suggests that all else being equal, well-informed and proactive management can often represent the difference between a business that can "trade through" difficult periods and return to profitability, and a business that fails and becomes subject to external administration.

## 7.2 Analysis

We have assessed an education program as a standalone initiative. We have assumed that the program would cover all participants in the industry (i.e. contractors and subcontractors in all contractual tiers or layers), and Government departments affected by the changes and consumers. The effectiveness of an education program rolled out in conjunction with the implementation of either a PBA or RTF scheme will be a significant factor in how quickly, and to what extent, the assumed benefits of either scheme are realised.

## 7.3 Evaluation results

Based primarily on industry feedback from the Department's consultation process, our analysis shows strong positive ratings for an education program across most criteria, and in particular on industry acceptance.

The highest benefits are realised by the Government as regulator and as customer. This is because we have assumed that an education program would be highly beneficial to achieving industry acceptance of any security of payment reform, and that industry acceptance is a key driver in realising the expected reduction in project costs. We have also assumed that an effective education program could have significant impacts on reducing delays in project delivery and minimising disruptions and disputes, which will benefit all stakeholders. The community is expected to benefit from a reduction in the level of business failures which we have assumed will flow from improved subcontractor business management capabilities.

# 8 Implementation

## 8.1 Potential short term disruption

### 8.1.1 Application of a PBA or RTF scheme to the industry is likely to lead to short term financial viability issues for some head contractors

Submissions received during the Department's consultation process and the Senate Committee inquiry process suggest that some head contractors may experience viability issues as a result of the loss of working capital, particularly under a PBA scheme. We assume that the impact is higher in a PBA scheme compared to a RTF scheme as the PBA scheme affects a larger amount of head contractor working capital.

Our experience is that head contractors often structure progress claims to "front load" the claims and generate a cash surplus in the early stages of a project. This means that the later stages of a project are often run at a cash deficit, even if overall the project generates a positive margin contribution for the head contractor. Misquoting, project management issues or unforeseen events can lead to head contractors losing money on a project, which makes them reliant on winning new projects to generate a cash surplus and fund the completion of old projects. Even where contracts are profitable, financial management issues can lead to head contractors being reliant on winning new contracts to fund the completion of old contracts - for example taking funds out of the business through related party loans or dividends at the positive point of the project cash cycle without considering that the deficit needs to be funded in the later stages.

In practice, contract management can be a significant issue for head contractors. As a project progresses the risk of cost overruns or under-recoveries increases which can have a material impact on the overall profitability of the contract as a whole. These types of issues often relate to material unapproved variations between the head contractor and principal. Often these variations are undocumented and/or subject to dispute. This leads to a situation where a head contractor may have engaged subcontractors to perform work on the assumption the variation will ultimately be approved and paid which subsequently proves not to be the case. In this scenario (shown in the chart below) the project becomes unprofitable overall, and subcontractors performing work towards the end of the project are more likely to be at risk of underpayment because of variations disputes between the head contractor and principal over which they have no control.

Anecdotal evidence suggests that some head contractors may also purposely underbid on projects in order to win the work, on the expectation that they can "make back the margin" by forcing subcontractors to reduce prices or by not paying subcontractors.

Head contractors that engage in the practices described above are at a higher risk of insolvency generally, and will be adversely affected by the implementation of a PBA scheme (and to a lesser extent a RTF scheme) which may lead to an increase in insolvencies. Insolvencies are caused by numerous factors however, including general market conditions, other regulation, contract management issues, financial management issues, labour disputes etc., as well as other long term profitability issues and short term working capital issues. Accordingly we have not been able to quantify the expected impact from introducing a PBA or RTF scheme on head contractor or subcontractor insolvencies, either the expected increase or decrease in number of external administrations, the expected increase or decrease in recoveries in the event of insolvency or the impact of insolvencies on project costs. Over the long term we assume that this disruption is necessary for prices to reduce, as less efficient businesses exit the industry. Over the short term, there may not be a significant impact on project costs as we assume the market is large enough to remain competitive. In the long term, in a competitive market head contractor margins should remain unaffected by the proposed reforms. Those head contractors that are able to adapt to the new requirements quickly are more likely to avoid short term viability issues.

### 8.1.3 Application of a PBA scheme may also lead to disruption for subcontractors

Head contractors may have a number of subcontractors on different payment arrangements such as cash on delivery, weekly payments or some other payment timeframe which may not necessarily align to the payment terms between the principal and head contractor. Where subcontractors are currently paid on terms shorter than the terms agreed between the head contractor and principal, these subcontractors may ultimately be worse off as the head contractor looks to realign the entire contractual chain to incorporate the PBA payment process. We have not been able to analyse the extent of this issue due to lack of data.

## 8.2 Other risks

### 8.2.3 Assumed benefits from eliminating the “contingency” in subcontractor pricing (i.e. lower overall project pricing through allocative efficiencies) may not eventuate or will take an unreasonably long time to realise

Our analysis indicates that head contractors will incur additional costs if a PBA or RTF scheme is introduced. Competitive pressure is assumed to restrain head contractors abilities to raise prices as competitors can win more work by offering lower prices.

Our modelling also assumes (based on evidence from other jurisdictions) that there is an overall reduction in project costs. This is a result of subcontractors eliminating or reducing the risk premium in their quotes as a result of transferring risk to head contractors who can better manage that risk (it is a planned risk for head contractors versus an unplanned risk for subcontractors). Head contractors may be able to afford to reduce prices to the end customer because there is a potential overall efficiency gain due to transferring this risk. It is assumed that subcontractors eliminate or reduce the risk premium or contingency currently built into quotes to compensate for the unplanned risk of non-payment or delayed payment to reflect this reduction in risk. There will be no impact on subcontractor margins or rate of return for head contractors and subcontractors. These assumptions are the basis for the project procurement cost reduction benefit assumption used in our analysis.

We have assumed that the building and construction industry will take time to adapt to the implementation of a PBA or RTF scheme, and therefore the benefit of lower project pricing will take time to be fully realised.



# 9 Other matters

## 9.1 PBA or RTF scheme based on contract/project size or contractor size

We have been asked to consider whether a PBA or RTF scheme should be applied based on project size or contractor size. We have assumed that contractor size is as defined by the QBCC financial requirements – i.e. the value of net tangible assets. The two options are assumed to be mutually exclusive.

Our MCA analysis, indicates that a PBA or RTF scheme based on project size is preferable to one based on contractor size. This result largely stems from the assumption that project size is less susceptible to manipulation in comparison to contractor size which results in relatively positive scores across our criteria especially with regard to the Government (acting in a regulatory and customer capacity).

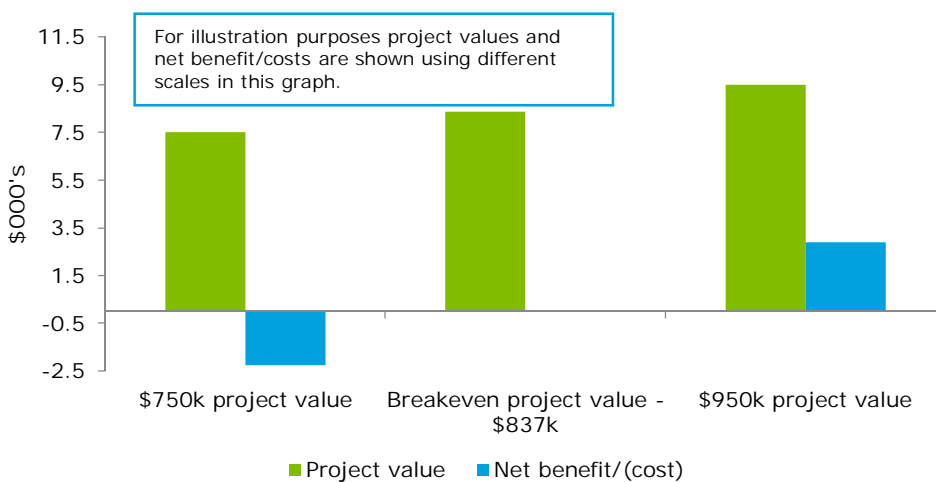
If the application of a scheme is based on contractor size, head contractors will have an incentive to minimize their reported size. Depending on how size is measured this could involve avoiding hiring additional staff, stripping retained earnings out of the business or engaging in complicated related party transactions to shift assets off balance sheet. A cost that applies to a certain “size” of contractor may have a distortionary effect, as size may not necessarily be an indication of financial risk. Smaller head contractors may have less sophisticated management systems and staff, or less financial reserves and may therefore be at a higher risk of insolvency. Feedback from the Department’s consultation process, although anecdotal, suggests that small or mid-tier head contractors and subcontractors are more likely to experience financial viability issues or enter into insolvency.

Contract size as a measure could also be subject to manipulation (for example breaking up contracts into smaller stages and treating these as separate contracts to avoid the threshold), however we assume that it will be less susceptible to manipulation.

### *Break-even analysis of contract size*

We have analysed potential contract size thresholds for the application of the PBA scheme via a break-even analysis and an analysis of the ASIC insolvency statistics for FY14 and FY15.

Figure 7: Comparison of net benefits or costs under different project values



Source: Deloitte analysis

Based on the assumptions in our CBA analysis, the estimated break-even point for the PBA model as currently envisaged is \$750-950k. The actual estimated breakeven point is \$837k, however at either end of the range of

project values provided, the estimated net benefits or costs are within approximately 0.3% of the assumed project value, which we have used as an error tolerance.

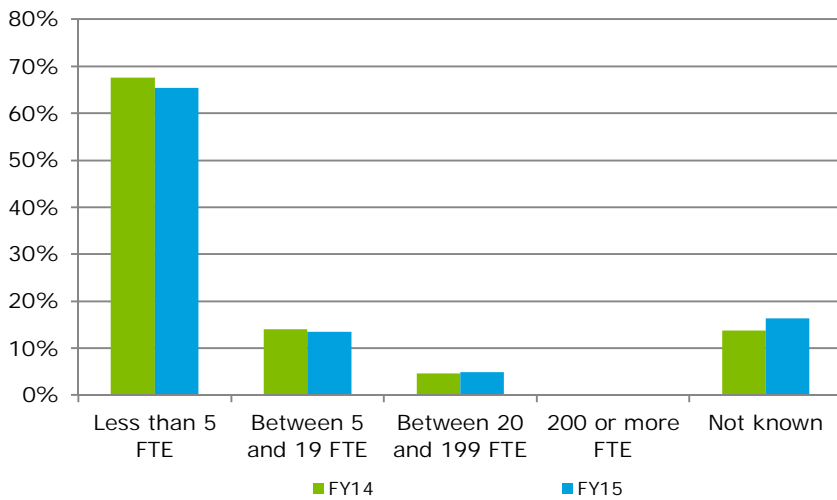
At this point the marginal costs of operating a PBA outweigh the marginal benefits. Note this does not include the fixed costs incurred by the Government in setting up a statutory body to monitor compliance with the PBA scheme, or additional staff being added to an existing statutory body to do so. This also does not include the annual ongoing funding costs of a statutory authority to monitor the scheme, which would include ongoing staff costs and overheads such as technology costs, capital expenses and rent. Our analysis has been done on a marginal basis (i.e. capturing only costs directly attributable to a new project/PBA) as fixed costs are unlikely to have a strong linear relationship to project value.

Accordingly, we have assumed that the scheme will be applied only to projects with a value of over \$1m.

*Determination of maximum contract size threshold*

To analyse the assertion that larger head contractors are less likely to enter into insolvency, we have reviewed ASIC insolvency statistics for FY14 and FY15. Over the period analysed, all external administrations suffered a net asset deficit (i.e. in 100% of cases, liabilities exceeded assets). The QBCC’s size measure is net tangible assets (being total assets less total liabilities), and there is a minimum financial requirement that a licensee’s net tangible assets cannot be less than zero. Due to the lack of specific ASIC data, we have used the number of FTEs as a proxy for size. This is summarised in the graph below.

Figure 8: % of corporate insolvencies in the building and construction industry by FTE band FY14 and FY15



Source: ASIC data

The data suggests an inverse relationship between size and insolvency rates, using number of FTEs as a size measure. We have not been able to confirm the number of external administrations as a percentage of the total pool of building and construction businesses by FTE band, so we are unable to say whether, as a proportion of total businesses in a particular band, those with less FTEs are more likely to be subject to external administration.

The relationship between size and external administrations is in line with what would be expected using the QBCC financial requirements size measure of net tangible assets. In our experience, all else being equal the larger the size of the head contractor’s net tangible asset measure the less likely it would enter into insolvency.

The analysis above suggests at a high level that a security of payment scheme should cover small and mid-tier head contractor and subcontractors, as these appear most likely to suffer an insolvency event.

## 9.2 Residential building and construction

The focus of our work has been the introduction of various reform options on the commercial building and construction sector. However the residential building and construction sector may have similar issues with non-payment or delayed payment in the contractual chain. In the timeframe and with the data available to us a detailed analysis of the residential building and construction sector is not possible, including an analysis of the potential impacts of the PBA or RTF options within the CBA and CGE framework.

# 10 Scope and limitations of our work

## Scope

We have been engaged to provide modelling and financial advisory services to assist in the modelling and analysis of proposed security of payment reforms for Queensland. We have not provided legal advice regarding any aspect of the proposed reforms. Our services do not include the provision of advice regarding taxation or accounting issues.

## Limitations

As is usual with our work, our analysis has been restricted by the time and information available. In particular, we have made a number of assumptions in our report which, where possible, are based on information provided by the Department, publicly available research reports or other information, or our own professional judgement. We have set out significant assumptions and the rationale behind these in our report. If these assumptions were to change, the analysis and conclusions in this report may be different.

The majority of our analysis relates to future events, and actual costs and benefits may be affected by the structure and implementation process of any reform, as well as unforeseen economic or other events occurring after the date of this report. Achievement of the forecast benefits to a large extent relies on the effectiveness of the Government in implementing the proposed reforms and enforcing compliance with the reforms.

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Deloitte Access Economics Pty Ltd  
ACN 149 633 116

Riverside Centre  
Level 25  
123 Eagle Street  
Brisbane QLD 4000  
GPO Box 1463  
Brisbane QLD 4001 Australia

Tel: +61 7 3308 7000  
Fax: +61 7 3308 3002  
[www.deloitte.com.au](http://www.deloitte.com.au)

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