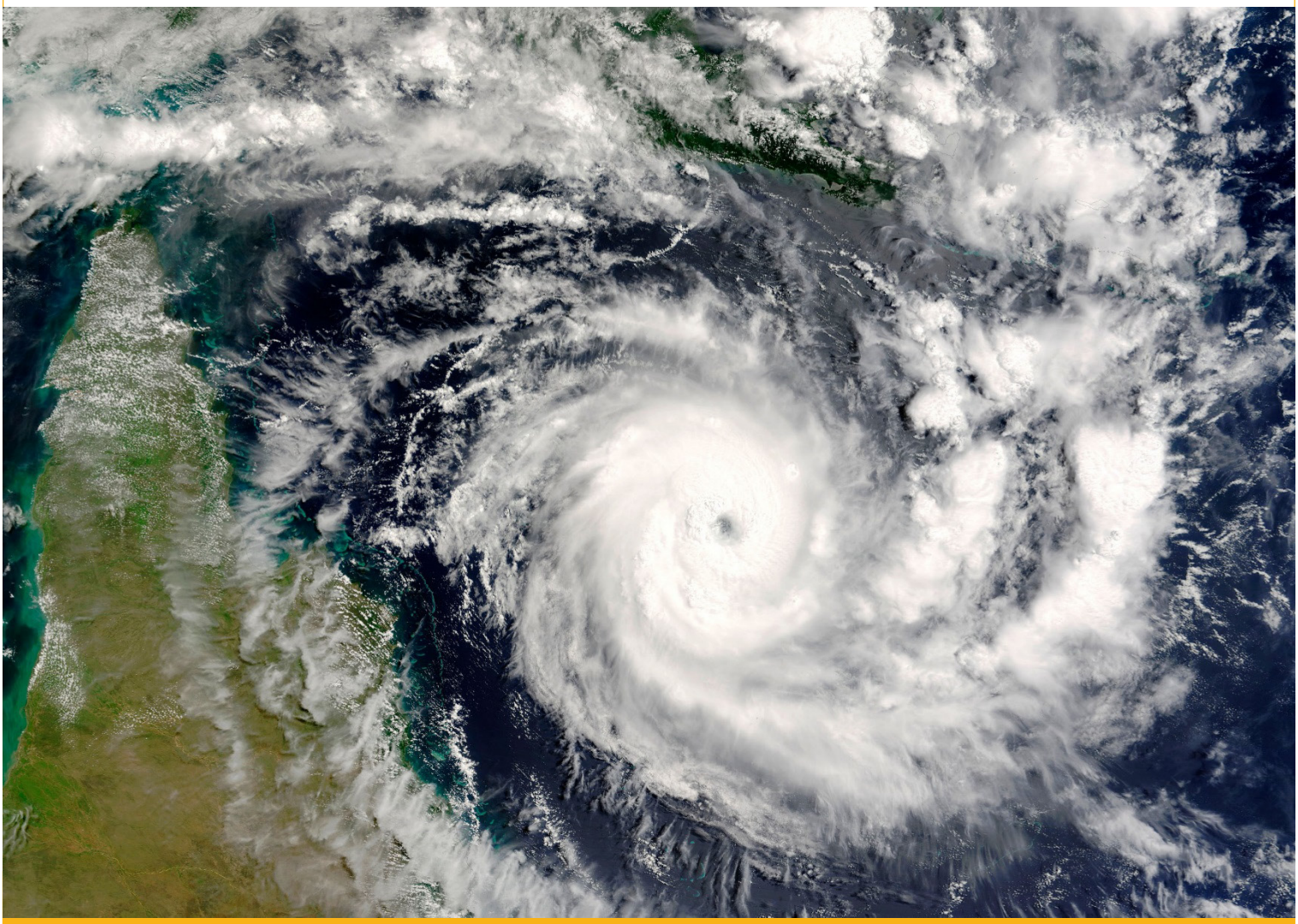
Cyclone Reinsurance Pool – Summary of the Actuarial Premium Rate Assessment

Australian Reinsurance Pool Corporation



June 2022

finity

28 June 2022

Dr Christopher Wallace
Chief Executive Officer
Australian Reinsurance Pool Corporation
PO Box Q1432
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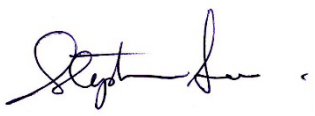
Dear Chris

Cyclone Reinsurance Pool – Summary of the Actuarial Premium Rate Assessment

We are pleased to present our Summary Report covering the actuarial analysis undertaken to parameterise the premium rate formula for the Cyclone Reinsurance Pool (CRP).

This Report summarises the processes and considerations in the premium rates recommended by Finity to the Australian Reinsurance Pool Corporation for the operation of the CRP.

Yours sincerely



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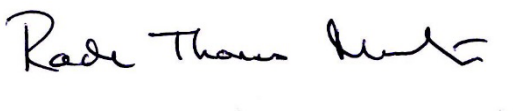

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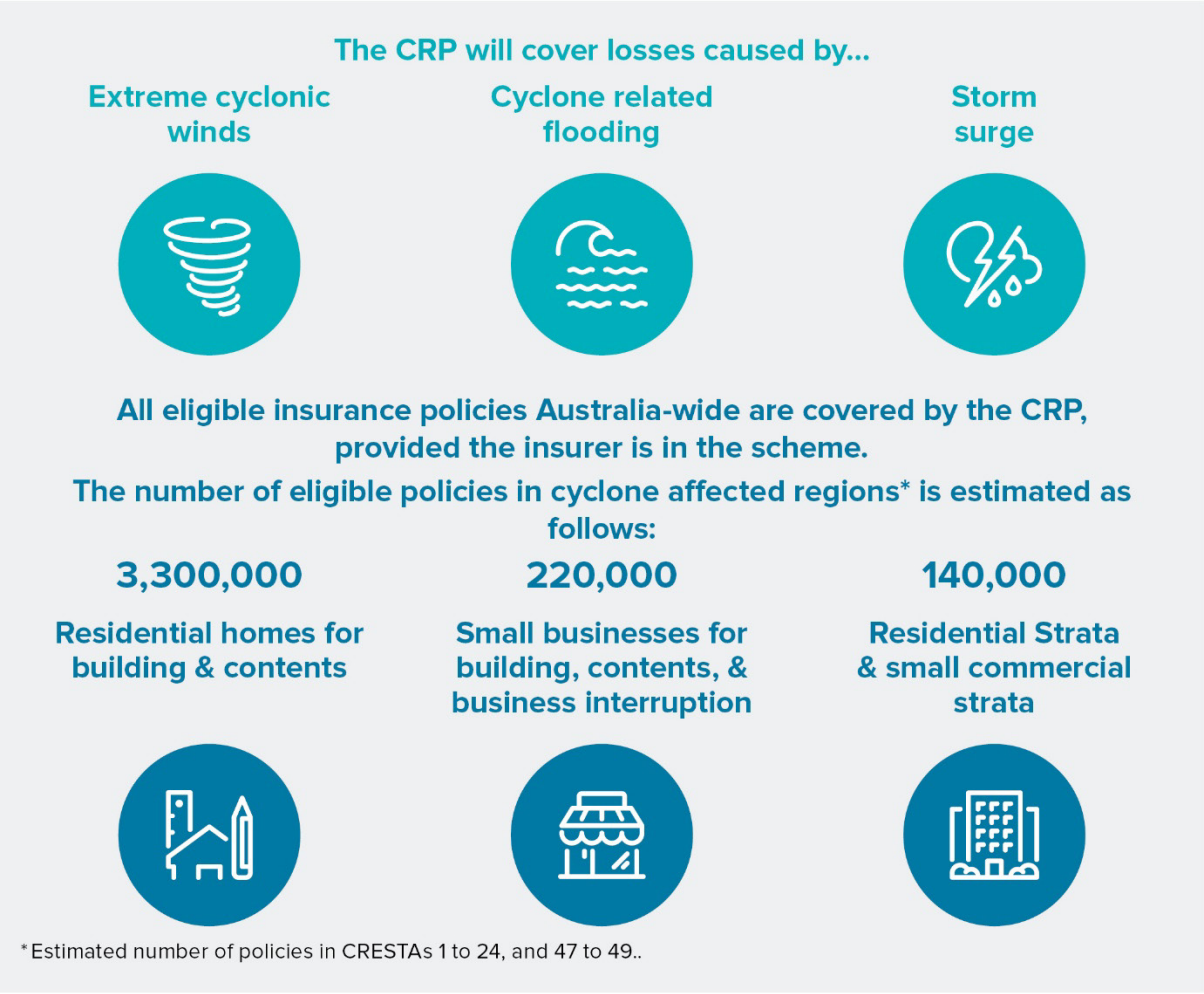
Notice of Errata and amendment

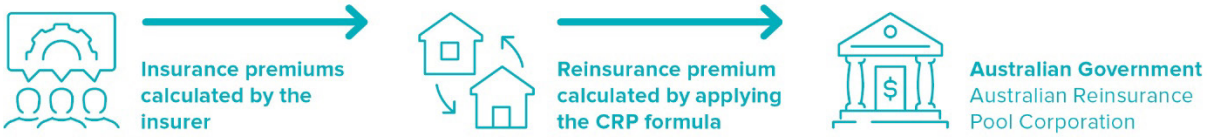
This Report was reissued on 8 July 2022 with a revised Appendix B.4 to correct a misprint.

1. The legislation

The Government announced the **Cyclone Reinsurance Pool** (CRP) on 4 May 2021 to make insurance more affordable for Australians who live in the north of the country at high risk of cyclones.



The Treasury Laws Amendment (Cyclone and Flood Damage Reinsurance Pool) Act 2022 amended the (renamed) Terrorism and Cyclone Insurance Act 2003 on 31 March 2022. This Act established a Cyclone Reinsurance Pool to be administered by the ARPC to commence from 1 July 2022.



The reinsurance premium is calculated based on each insurer's exposure to policies covered by the CRP. The insurer retains responsibility to determine premiums charged to its policyholders, and that savings are passed on fairly.

2. Finity's solution

The Act requires the ARPC to set premiums with regard to the following factors

1

Ensuring long-term financial sufficiency of the CRP.

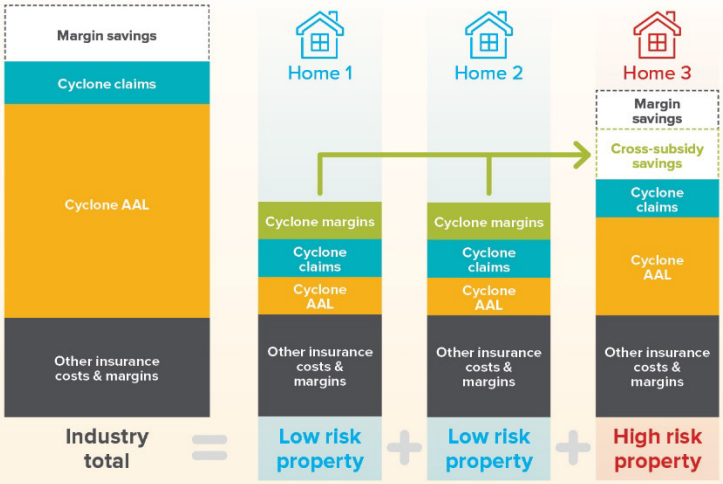
The target premium pool is $867m

The premium pool has been estimated using industry standard catastrophe models which include extreme events.

2

Premiums for medium to high cyclone risk policyholders as low as possible.

Premiums for lower risk level policyholders at comparable levels.



The intent of the **CRP pricing rates** is for the relatively small savings the CRP would have delivered to low risk properties go to medium to high risk properties instead.

3

Strengthening the building stock is key to reducing costs over time. The CRP has lower premiums for homes built to standards designed to improve resilience to cyclone risk.

Maintain incentives to reduce & mitigate cyclone risk.

The initial CRP premium encourages mitigation for older homes to reduce risk by retro-fitting:

- Stronger garage doors
- Stronger roofs
- Stronger window opens

3. Outcome

The premium formula applies a rate to the insurance policy sum insured. Risk factors and mitigation are multiplicatively applied.

Sum insured

Formula works based on the insured property

Risk rate based on property suburb (wind risk) & address (flood & storm surge).

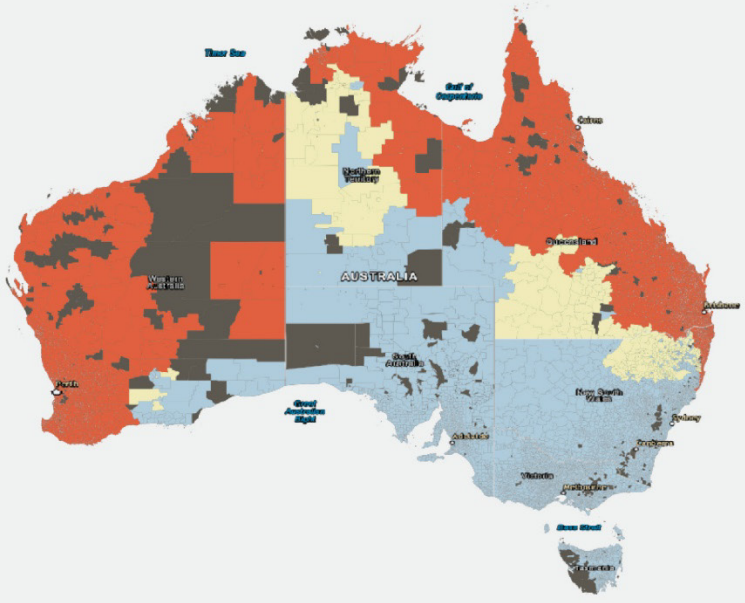
Risk factors for the property & risk mitigations.

The risk of the building is recognised by risk factors. For example, older buildings will have higher premiums. An older building retrofitted to current building standards will have a similar premium to a newly built one.

For example, the CRP reinsurance premium for a home in home in Northern Australia insured for $500,000 in a high cyclonic wind area may have the following outcomes.

	Reinsurance premium paid by the insurer to the CRP
Constructed after 1981	CRP premium $900
Constructed before 1981	CRP premium $1,250
Constructed before 1981, but fully mitigated	CRP premium $800

Older homes will still benefit from lower premiums, and more so if they have been mitigated for cyclone risk.



The CRP formula will apply a non-nil premium to 6,083 of suburbs. Cyclone claims are paid out by the CRP for damage across any of Australia's 15,694 suburbs, even for suburbs where no premium is paid to the CRP.

The CRP will provide cyclone coverage to over $2.6t insured value of homes, SME businesses and strata policies that are exposed to cyclone risk.

- Suburb rate applying this area
- Some addresses within this suburb have a CRP premium rate
- No CRP applying to this suburb

The CRP will remove the need to include margins related to the insurance and reinsurance of cyclone risk in premiums, thereby creating savings. This provides a source of funds for margins to be collected from a large number of low cyclone risk policies to be redistributed and flatten premiums to achieve savings for a smaller number of medium and high cyclone risk policies, while maintaining cost neutrality.

1 Executive Summary

1.1 Background

The Terrorism and Cyclone Insurance Act 2003 (the Act) establishes a Cyclone Reinsurance Pool (CRP) which will reinsure home, SME business, and strata insurers for cyclone and cyclone related flooding claims costs. The CRP will come into effect on 1 July 2022. The Australian Reinsurance Pool Corporation (ARPC) will administer the CRP, and has responsibility (among other roles) to determine the reinsurance premium rates it charges to insurers.

Finity Consulting Pty Limited (Finity) provided analytical assistance and recommended CRP premium rates to ARPC. This Report summarises Finity's process for determining CRP rates (version 1.0 which is expected to apply from 1 July 2022) that we recommended to ARPC.

A key part of the process for setting CRP premium rates has been ARPC's engagement with industry and testing based on data provided by insurers. This was limited, both in time and the availability of data, for the setting the initial premium rates summarised in this Report. The purpose is to identify inevitable, and address where appropriate, differences and anomalies arising from replacing a range of market practices with a necessary single premium rating approach. The information provided in this Report is intended to facilitate discussion with industry on the approach and expected policyholder outcomes. We understand that ARPC will continue consultation with industry from 1 July 2022, which may result in revisions applied to the CRP rates effective from 1 October 2022.

It is intended that this Report will be provided to insurers to assist with the implementation of the premium rates.

1.2 Objectives of the CRP

The Act sets out the following four objectives of the CRP relevant to the premium setting:

1. Premiums paid to the CRP are sufficient (over the longer term) to meet the CRP's costs (Section 8D (a))
2. Premiums for medium to high cyclone risk policyholders as low as possible (Section 8D (b))
3. Maintain incentives to reduce and mitigate cyclone risk (Section 8D (b))
4. Premiums for low cyclone risk policyholders kept to comparable levels of what would be charged by other reinsurers (Section 8D (c))

The CRP premiums set out in this Report have been determined having regard to the above objectives.

1.3 Estimating the premium pool

A primary consideration for long term sufficiency is for ARPC to collect an appropriate level of premiums, i.e. its target premium pool. Table 1.1 summarises the estimated premium pool that the CRP is required to collect on an annual basis for insured properties based on industry standard catastrophe models applied to estimated industry exposure[1].

[1] Industry exposure was estimated based on exposure datasets provided from some insurers to Treasury in mid-2021. The total industry exposure was estimated by Finity to allow for insured properties not in the datasets provided by insurers.

Table 1.1 – Summary of premium pool estimate ($m)

	Suggested CRP premium
Wind	710
Fluvial (riverine) flood	74
Storm Surge	49
Total risk premium	833
Insurer claims handling loadings	17
ARPC operational expenses	18
Target Premium Pool	**867**

Note: Rounding differences

The CRP's target premium pool is estimated in the order of $867m, on the basis that all eligible properties are in the CRP. This estimate is based on buildings exposures for 2020/21[2]. This target premium pool will not be achieved until a full year after all material insurers cede cyclone risks into the CRP and may differ from the estimate due to changes in the exposure base (i.e. increases property values).

Table 1.2 summarises the exposure and loss estimate by region.

Table 1.2 – Summary of exposure and estimated losses by region ($m)

Region	Property sum insured	Target Premium Pool	Premium rate
	$b	$m	/$100 SI
North Australia (CRESTAs 5-20)	477	445	0.09
Other Cyclone Areas (CRESTAs 1-4, 21-24, 47-49)	2,140	422	0.02
Total	2,616	867	0.03

While Northern Australia (CRESTAs 5-20) is about 20% of property sum insured in cyclone affected regions, it accounts for about half of the cyclone related claims costs.

1.4 Location specific risk relativities

The level of risk to cyclone is predominantly due to the location of the property.

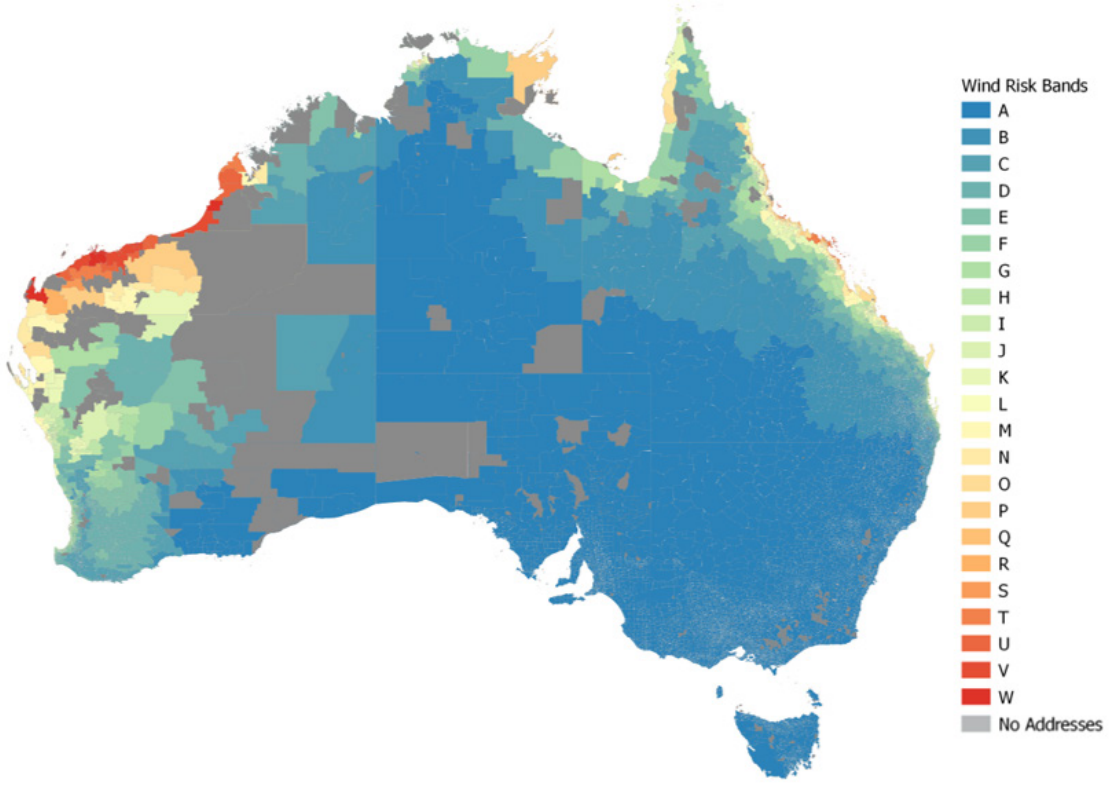
The natural geography of the land and the local weather patterns dictate a property's location risk to cyclones. The CRP will cover buildings (and contents contained therein) caused by ***extreme winds*** (and associated rain and pluvial flooding), ***storm surge***, and ***fluvial (riverine) flooding*** occurring within 48 hours after the cyclone has ceased. Cyclonic winds and storm surge predominantly affect coastal regions in Northern Australia. Fluvial flooding can occur some distance away and after the original cyclone event, as water can take time to move downstream. The location risk depends on a large range of factors, including proximity to cyclone weather conditions, distance to coast, elevation and geographical shielding.

A range of catastrophe models were sourced by ARPC to build up a picture of location risk. The location risks are used to allocate suburbs (wind risk) and addresses (flood and storm surge risk) into risk bands.

[2] The CRP's premiums are a rate on sum insured (discussed later in this report). Therefore, the target premium pool (and thus premium collected) will increase with exposure. For this reason, it was not necessary to increase the building exposures to 2022/23.

Each suburb in Australia is classified into risk bands for wind risk, with each risk band corresponding to a base premium rate. Figure 1.1 shows the CRP wind risk bands applied to Australian suburbs. Note that risk band A describes suburbs with nil CRP premium for wind risk.

Figure 1.1 – Suburb wind risk bands



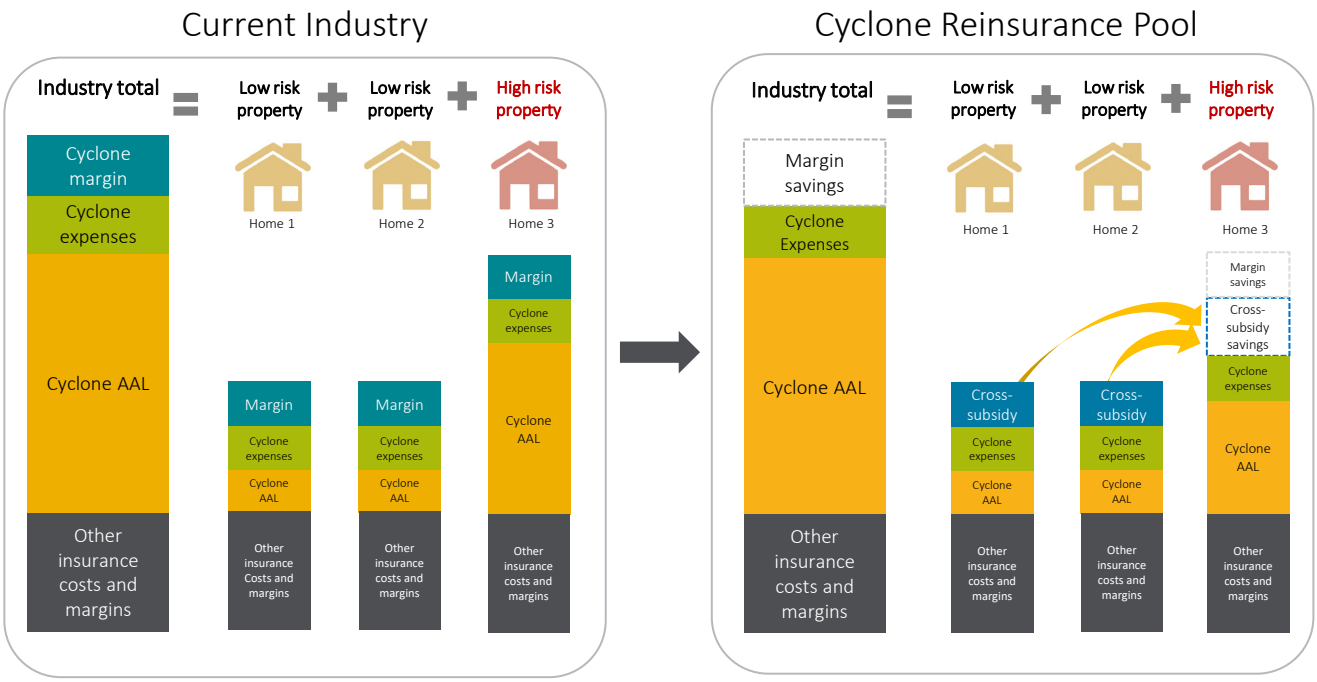
Each address in Australia is classified into 8 risk groups for cyclone related fluvial flooding and (separately) for storm surge risk for that location from Nil risk to Maximum risk, with the premium rate varying for each risk group. Flooding and storm surge are highly location specific, and one location might be subject to flooding or storm surge risk, while another nearby location might have no risk.

1.5 Savings for medium and high-risk policyholders

Insurers determine the price for cyclone risk for each property. This price will be made up of many factors, including an expected cost for cyclone damage, loading for expenses, reinsurance cost (especially the cost of Cat XOL described below) and margins (such as for capital costs). In a competitive market, an insurer is not able to materially cross subsidise the premium required for a high risk property by charging lower risk properties more. Doing so will lead to an insurer being selected against.

The premium rates for each risk classification in Section 1.4 have been determined such that premiums for low risk properties are intended to be comparable to current premiums, while medium and high risk properties are intended to have a lower premium rate. Conceptually, the aim is to achieve the outcome illustrated in Figure 1.2.

Figure 1.2 – Intent of CRP premiums in delivering savings to medium and high-risk policyholders



The CRP will replace insurers' current approach to financing cyclone losses. The CRP can achieve savings to policyholders as follows:

- The CRP will not charge a margin for the risk it takes on, leading to a saving in the total cost of cyclone insurance costs.
- The CRP can set cross-subsidised reinsurance premium rates such that medium and high risk properties attract lower premiums, while low risk properties pay comparable cyclone premiums (as intended by the legislation).

One key advantage of the CRP is that policyholder premiums can be more stable. For example, the CRP will not need to react to reinsurance market pressures.

In the longer run, a centralised CRP can provide incentives for policyholders to undertake risk mitigation to lower overall cost of cyclone to Australia.

1.5.1 Estimated margins

An insurance premium will typically be set to fund the following costs (items in *italics* are potential source of savings, which are discussed further below):

- Expected cost of retained claims after reinsurance
- Cost of reinsurance (see below)
- Expenses of the insurer
- *A margin for the insurer to provide a return commensurate with the amount of capital and the risk it takes on*
- Levies and taxes.

The reinsurance premium paid by each insurer will in turn be set to cover (items in *italics* are potential sources of savings, which are discussed further below):

- Expected cost of reinsurance claims and claim expenses (if covered)
- *Expenses of the reinsurer and sometimes the broker*
- *A margin for the reinsurer to give a return on capital and risk*
- Any relevant taxes (small).

The CRP will not change the expected cost of claims from cyclones, only that the CRP will ultimately pay for all eligible claims instead of insurers and reinsurers. It will not make any material change to expenses of insurers. This leaves the potential source of savings (in *italics* above) as the reinsurer and brokerage expenses and the margins for insurer and reinsurer that are related to the cyclone cover[3].

Indicatively, expected reinsurance loss ratios for catastrophe programs are in the order of 60% to 80% – lower for higher layers of reinsurance cover and vice versa for lower layers[4]. The occurrence of natural peril events means that actual loss ratios can be higher – as has been the case in Australia with recent bushfires, extreme rainfall, and flooding – though it is reasonable to expect reinsurance premiums are set to achieve adequate returns on capital over time.

Similarly, insurers hold capital for the uncertain losses they retain. We expect that the target margins for insurers' retained cyclone risks will be lower than for reinsurers.

The CRP removes the need to include target margins related to the insurance and reinsurance of cyclone risk, thereby freeing up funds. As illustrated above, this provides a source of funds for margins to be collected from a large number of low cyclone risk policies to be redistributed and flatten premiums to achieve savings for a smaller number of medium and high cyclone risk policies, while maintaining cost neutrality.

1.6 Risk factors and mitigation

Up to this point, we have estimated the technical view of relative risk based on the location of the risk. Properties and businesses will differ in risk due to factors such as:

- Building characteristics, such as construction material, how tall it is, when it was constructed, etc.
- Risk mitigation undertaken to the building to reduce susceptibility to cyclone risk.

The list of rating factors can be found in Section 4.4 of this Report, and the details of the relativities in Appendices B, C and D.

The risk rating factors are consistent with factors currently used by insurers and which relate to cyclone risk, and reflect output from catastrophe models. ARPC consulted with insurers on the rating factors and have sought feedback that was incorporated into the final list of factors adopted. The rating factors, and the classifications within each factor, reflect a reasonable level of industry practice. Insurers should be able to classify exposure in this manner (or can with some reasonable effort) at data collection.

[3] It is important to note that private reinsurance is subject to retentions, reinstatement costs and limits on the number of events covered. The CRP will assume all cyclone costs for insurers; this is more than covered by private reinsurance arrangements.
[4] We note that the reinsurance margins vary based on the type of business underwritten by the insurer and the degree of diversification in its portfolio. Insurers with a diversification benefit from potential large losses in both earthquake and cyclone will face a different margin savings than ones with a cyclone only portfolio in Northern Australia. It is not possible for us to estimate this effect at the insurer level as we lack information on the details of reinsurance programs, which are considered commercially sensitive by insurers and reinsurers.

The parameterisation of loadings and discounts applied for each risk rating factors has been informed from a combination estimates of relativities applied by insurers, inferred loss relativities from catastrophe models, and industry benchmarks.

Setting price signals for risk mitigation factors is a requirement of the Act. Most of the damage in a cyclone arises when the building envelope is breached via the roof, window openings or garage doors. We incorporated the following three types of mitigation discount for household insurance policies where steps have been taken to make the building envelope more resilient:

- Roof replacement/upgrade.
- Window protection (cyclone shutters).
- Roller door replacement/bracing.

The discounts for mitigation actions are designed to offset the loadings applied to older homes.

1.7 Policyholder outcomes

The CRP premium rates were tested against policyholder premium data provided by five insurers to ARPC ('policyholder premium data'). Finity has previously modelled expected policyholder outcomes in the absence of policyholder premium data from insurers[5]. By using actual policyholder data, the comparison will reflect differing insurer practices for determining premiums. The implication is that the variability in outcomes can be observed and understood, though the average outcomes are more difficult to distinguish due to the variability particularly where the sample sizes are low.

The design of the CRP means that actual policyholder outcomes will result from pricing decisions made by insurers and it may take some time before CRP and consumer pricing come into alignment. Nonetheless, we have attempted to estimate policyholder outcomes and effects on the presumption that insurers will reflect CRP reinsurance premiums in their pricing. Furthermore, the figures in this section estimate the policyholder outcomes assuming no change to the non-cyclone related premium charged by insurers.

Our process for analysis and more detailed results can be found in Section 5 and Appendix E. The reader should be aware of limitations of the analysis, which are also discussed in Section 5. These data limitations restricted comparisons of the CRP premium rates. While the available data allowed a significant level of analysis to be undertaken, it is expected that further data collection and study will indicate that refinements in some CRP premiums will be required.

Table 1.3 below summarises the estimated premium savings based on the policyholder sample data we relied upon.

[5] Actual policyholder premium data was not available for the modelling undertaken previously, where estimates were based on modelled policyholder premiums.

Table 1.3 – Summary of average premium savings by class

	Average savings (sample size)			
Product class	All record samples (QLD, NT, WA, Northern NSW)	Northern Australia (CRESTA 5-20)	High premium band in Northern Australia[3]	Total sample size
Home[1]	-8% (194,552)	-19% (45,904)	-38% (451)	194,552
SME[2]	-14% (281)	-17% (188)	-28% (5)[4]	281
Strata	-13% (531)	-15% (261)	-18% (6)[4]	531

[1] Policies with BLD cover, predominantly (99%) QLD policies

[2] Policies with BLD cover

[3] Average savings for highest premium bands (>$1.50 per $100 SI)

[4] Insufficient data for reliable analysis

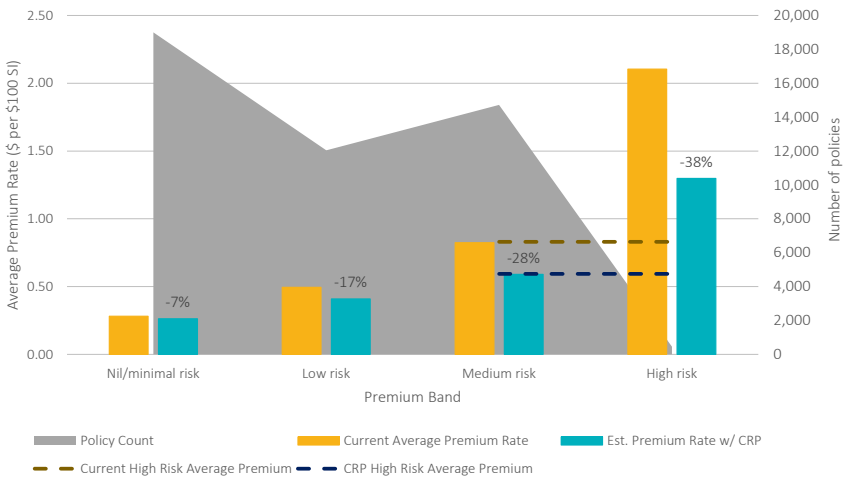
For Northern Australia policies in our sample, overall savings in the order of 15-20% are estimated across home, strata and SME insurance.

For home, a small number of policies currently paying the highest premiums (more than $10,000 for a $500,000 sum insured for home), the premium reduction can be in the order of 38%. The small and non-representative samples for strata and SME mean that the estimated savings for the highest risk bands cannot be reliably estimated. This is discussed in more detail in Section 5.2.3.

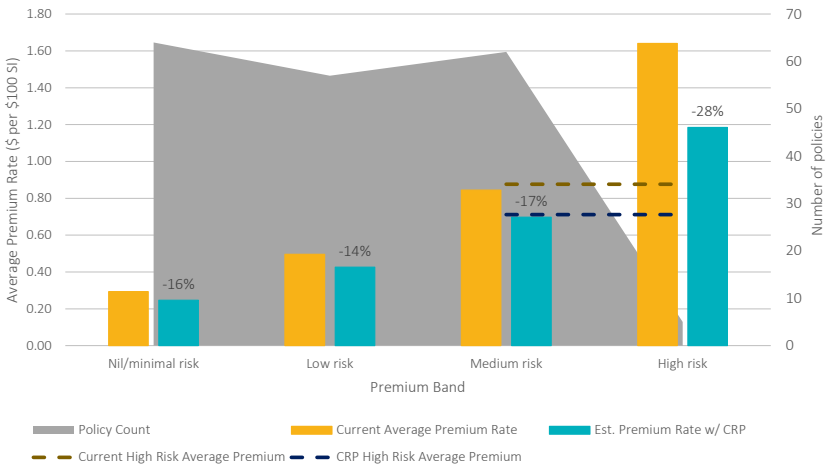
The intention is for the CRP to direct savings to medium to high cyclone risk properties. We have estimated premium savings based on the risk inferred from current insurer pricing (i.e. where the insurer charges a high premium, we assume this is because the insurer assumes policy is at high risk of natural perils). This is shown in Figure 1.3 for home, SME and strata respectively for properties located in Northern Australia.

Figure 1.3 – Estimated savings by premium risk band for home, SME and strata insurance

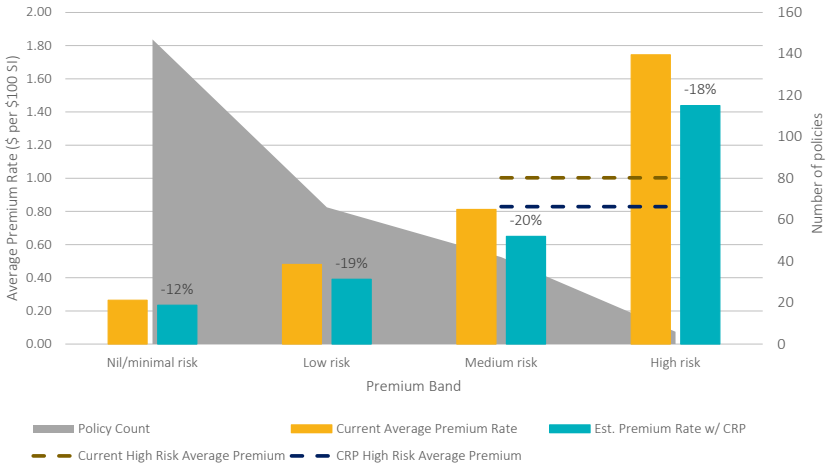
Home insurance polices



SME business insurance polices



Strata buildings insurance policies



For home, we estimate that the CRP may lead to small premium reductions for nil/minimal and low risk properties of 7% to 17% in Northern Australia. These levels of premium reductions may be difficult to observe in practice as insurers can make premium changes in this order of magnitude year-to-year. Premium increases resulting from issues outside of the CRP may mean that estimated premium reductions for nil/minimal and low risk properties may not be observed by the policyholder. There are larger savings estimated for a small number of high cyclone risk homes, as intended by the CRP.

A similar trend is observed for SME and strata insurance. Care is needed in interpreting the results for SME and strata where non-cyclone risk factors affect the premiums for these segments – e.g. for SME businesses the type of business will affect the premium rate, while for Strata high value buildings are typically individually underwritten and can have bespoke insurance arrangements.

It is inevitable that there will be overs and unders from one policy to another in (say) low cyclone risk areas (because a single CRP rate is replacing market prices). In this case, the insurer can choose to retain these offsetting movements in the prices it quotes. Some insurers make commercial decisions to apply multi-policy or loyalty discounts. The implementation of the CRP is not intended to unwind these commercial decisions, and conversely, provides flexibility for these to be retained. This is discussed further in Section 5.

1.8 Reliances and limitations

This report and the analysis contained herein summarises work completed solely for ARPC for the purposes of determining the CRP premium. This summary report has been provided to insurers to assist with their own implementation of the CRP.

We have relied upon a range of catastrophe models, each producing an estimate of claims costs. There is significant uncertainty in modelled estimates of cyclone claims. Catastrophe models are simplifications of complex natural weather processes, the interaction with building damage and finally the estimate insurance losses.

We have also relied on exposure data furnished to Treasury by insurers. A number of assumptions were required to standardise that exposure and render it useful for this analysis.

Some insurers provided data to ARPC for the purposes of determining the CRP premium rates. This data was provided on a best endeavour basis. Finity undertook reasonableness checks on the insurer data provided. We were unable to verify this data for completeness and accuracy. Some insurers informed ARPC that the data provided had known discrepancies, such as the cyclone book premium not being reflective of the actual premium paid by the policyholder. Furthermore, the data was not consistent between insurers; Finity adjusted the raw data for comparability purposes by making assumptions on the insurer expense and commission rates.

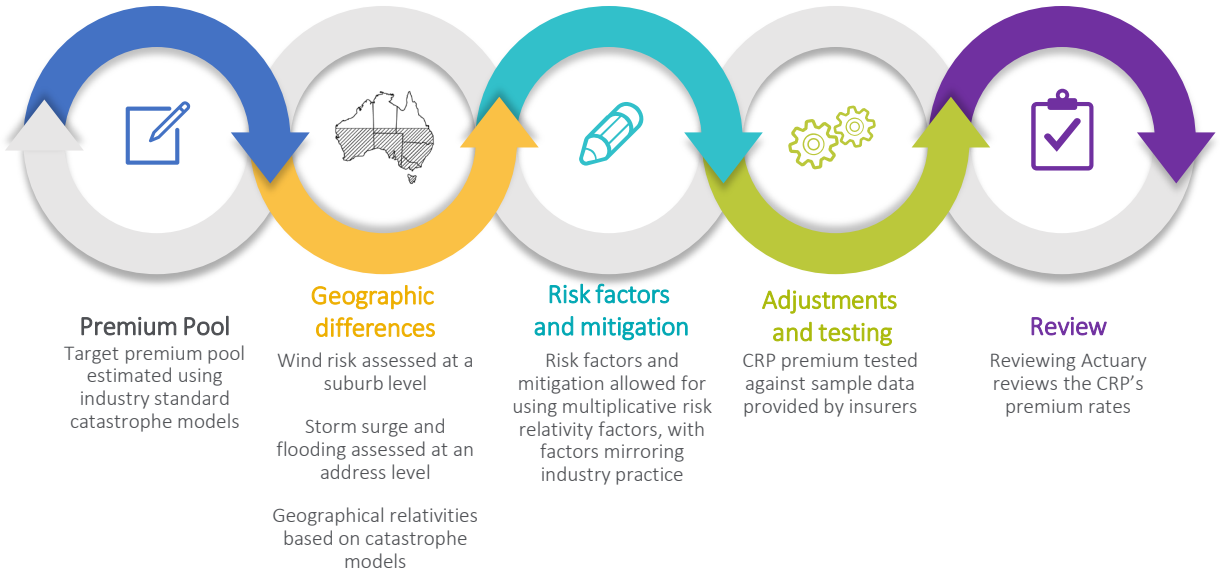
Estimating the CRP premium inevitably requires many assumptions. Further details of the reliances and limitations of this work are important to understand and are documented in Section 7.

2 Summary of approach

2.1 Process for parameterising CRP premium rates

Figure 2.1 summarises the process followed to determine the CRP's premium rates.

Figure 2.1 – Overview of process followed to determine CRP premium rates



ARPC procured the following catastrophe models to be used in parameterising the CRP premium rating formula:

- Wind risk: RMS, Risk Frontiers, COMBUS
- Fluvial flooding: Aon CHIP, COMBUS, Finperils/JBA
- Storm surge: Aon CHIP, COMBUS, Finperils

Additionally, ARPC engaged Aon, Risk Frontiers and COMBUS to provide expert advice in respect of the catastrophe models. Aon ran the RMS and Risk Frontiers catastrophe models. We relied upon the catastrophe models to estimate the target premium pool and to inform geographical differences in risk.

Risk mitigation factors were based on risk factors typically allowed for in the underwriting of cyclone risks, and parameterised by reference to catastrophe models and market practice.

The CRP premium rates was tested against policyholder premium data provided by five insurers to the ARPC ('policyholder premium data'). The testing process measured the CRP premium rates against the intended outcomes of the Act. Some insurers provided a sample of policies, while others provided all active policies – the limited consistency and other limitations of the policyholder premium data provided to ARPC restricted the testing of outcomes.

We considered feedback provided by insurers during a consultation period held by the ARPC, where the feedback was sufficiently specific to inform revisions to the CRP premium rates

The CRP premiums have been reviewed by a Reviewing Actuary (required under Section 33A of the Act), which initially is required under the Act to be the Australian Government Actuary (AGA).

2.2 Using catastrophe modelling for premium pool

The Reinsurance Pool Taskforce requested some insurers to provide catastrophe modelling exposure datasets for the purpose of assisting in financial modelling of the CRP. Treasury provided the aggregated industry exposure database[6] to Finity for the purpose of estimating industry wide insurance losses from cyclone and related flooding. We understand that the exposure snapshot provided by insurers was some time during 2020/21, though the snapshot date may not be consistent between insurers. This data was made available to Finity for the purposes of this Report.

This industry exposure dataset did not cover all properties with cyclone exposure. Finity adjusted the industry exposure dataset to cover all properties.

We estimate that the exposure data provided by insurers to Treasury covered around 50% of the total Australian properties for home, SME businesses and strata buildings in the regions that are most likely affected by cyclones (CRESTAs 1 to 24, and 47 to 49). In these regions, we estimate that the total value of properties covered by the CRP to be in the order of $2.6t in 2020/21 values – the data provided by insurers totalled $1.4t of sum insured.

The CRP target premium pool is based on the estimated Average Annual Loss (AAL) derived from the catastrophe models applied to the industry exposure data. The models licenced by ARPC provide a range of estimates for each peril risk. This means we do not overly rely on any one model, which is considered to be good practice. While there are other models available (each with its own areas of strengths and unique results), we consider ARPC's model selection as appropriate for setting the CRP's target premium pool.

The CRP will pay for cyclone related pluvial floods. An estimate for the cost of pluvial flooding is included in ARPC's target premium pool (included with wind risk) to meet cost neutrality requirements. To the extent that cyclone related pluvial flooding losses are elsewhere estimated by insurers, such as in their retained costs or covered by storm loss models, then they should be removed from premiums charged to policyholders. It will be up to insurers to identify how they have accounted for these costs and make appropriate adjustments, which may differ in practice from one insurer to another.

The AAL, as the name suggests, is the estimated average loss arising from cyclones over a year. This is the result of running a large number of simulations estimating the cost of each cyclone and from potentially multiple cyclones for a year. The simulation set will include years with no claims (the majority will be like this) and years with claims. The AAL is a probability weighted average of all these outcomes reflecting a long-term view of the required annual funding for the CRP.

2.3 Geographical risk differences

Residential home properties, strata properties and businesses will differ in risk due to where they are located. We have calculated risk relativities by location as follows:

- For wind risk, we have inferred risk relativities by suburb from the catastrophe models. The same models used to determine the target premium pool are used for this purpose (i.e. RMS, Risk Frontiers and COMBUS).
- For address specific storm surge and fluvial flooding risks, we have used catastrophe models with address level data to provide address level indications of relative risk (i.e. Aon CHIP and Finperils for storm surge; and Aon CHIP and Finperils/JBA for fluvial flooding).

[6] The underlying insurer information was deidentified in data provided to Finity for commercial confidentiality reasons.

2.4 Risk factors and mitigation

Properties and businesses will differ in risk due to factors such as:

- Building characteristics, such as construction type, how tall it is, when it was constructed, etc.
- Risk mitigation undertaken to the building to reduce susceptibility to cyclone risk.

We have relied on the following approaches to set the above risk relativities:

- Deconstruction[7] of catastrophe model to infer implied risk relativities in these models.
- Deconstruction of online insurer quote data.
- Benchmarks of standard industry practice from Finity's industry experts.

2.5 Adjustments and testing

The analysis described above details how we have used models, deconstructions of insurer quote data, and other sources to estimate the overall CRP premium pool and rates which can be described as "technical", meaning they are intended to achieve the CRP objective of being sufficient to be cost-neutral to Government over the long term.

As the legislation intends for premium reductions to be targeted to medium and high risk policyholders, the premium rates have been set to achieve cross-subsidisation as illustrated in Figure 1.2. The cross-subsidisation is designed only to come out of the savings from the CRP.

Our approach can be summarised as follows:

1. The estimated cyclone claims costs was increased to approximate cyclone premiums charged by insurers (i.e. including margins for carrying cyclone risk as discussed in Section 1.5.1). The loading for margins was informed by comparisons to actual cyclone premium data, where this was provided by insurers (in step (4)), and feedback from insurers arising from ARPC's consultations.
2. Threshold premium rates were determined for wind, storm surge and fluvial flooding risks. Where the estimated technical premium exceeded the threshold premium rate, the threshold premium rate will apply. This has the effect of targeting premiums reductions to medium to high-risk properties.
3. The margins collected in step (1) determine the how low the threshold premium rates can be in step (2), and vice versa. The margins and threshold rates were adjusted to the meet objectives of the Act. The two balance out so the total CRP pool is collected.
4. Insurers provided information to ARPC for the purposes of calibrating CRP premium rates. Insurers also provided feedback to ARPC through a consultation process. The CRP premium rates were compared to information and data provided by the industry, with 'Policy objectives adjustments' applied to the CRP premium rates to fix up anomalies and to meet policy objectives.
5. Check back to step (3) such that the total CRP pool funding remains appropriate. The threshold rates and assumed margins were revised as needed so that the target premium pool was achieved.

The expected outcome is that lower cyclone risk policyholders should have comparable premiums after insurers transition to the CRP. Meanwhile, medium to high cyclone risk properties should see a reduction in their insurance premiums.

[7] Deconstruction refers to analysis designed to backwards engineer risk relativity assumptions that are designed in the model.

2.6 Review process

The Australian Government Actuary is designated in Section 33A of the Act as the initial Reviewing Actuary and has filled that role throughout the premium setting project. There have been extensive interactions between Finity and the AGA and his team.

3 Target premium pool

3.1 Summary of target premium pool

Figure 3.1 summarises the catastrophe models relied upon to estimate the CRP's target premium pool and, where directly available or can be inferred, the address level risk classifications.

Figure 3.1 – Estimate of CRP premium pool based on catastrophe model for each peril

The total estimated premium pool is $867m (as shown in Table 1.1 in the Executive Summary). As well as an estimated risk premium of $833m, this includes other CRP costs such as compensable insurer claims handling loadings ($17m) and ARPC's costs to administer the CRP ($18m)[8].

In the following sections we discuss some key considerations relevant to the estimation of the required premium pool.

3.2 Plausibly large loss event

Catastrophe model simulations will include a very small number of extreme cyclone events (we refer to these as 'cataclysmic events'). These are theoretical, highly damaging scenarios based on the science built into the simulation models. Extreme events are not reliably quantified through catastrophe models or alternate means. The reality is that estimates for cataclysmic events are highly uncertain.

It is appropriate for the CRP to set a cap on the event sizes when calculating the AAL for the following reasons:

- The results for extreme events are highly uncertain as discussed above.
- The private insurance sector implicitly has a limit on the size of event that it provides protection to policyholders, by virtue of solvency requirements. This is typically in the region of 1 in 200 to 1 in 250 years. Setting a CRP premium pool for events more extreme than currently provided to policyholders is not the intention of the scheme designed to deliver premium savings.
- Charging for extremely remote possibilities does not materially affect the pool surplus or deficit position over meaningful timescales (say the next 100 years).

ARPC considered a 'plausibly large loss event' in setting an appropriate cap level for AAL calculation purposes. For example, a cyclone hitting Brisbane is a plausible although rare event that the CRP would cover. Having considered the plausibly large loss events, ARPC's management has determined an event cap of $15b for AAL calculation purposes which would include the rare occurrence of a cyclone affecting Brisbane. By comparison,

[8] Note: rounding differences

Cyclone Tracy normalised to current conditions is estimated to be in the order of a $6.5b event, which is the largest event on record (last 50 years). Finity considers a $15b cap to be reasonable and appropriate for estimating the AAL for the CRP.

Note that the setting of a cap for the purposes of estimating the AAL does not reflect any limit on the claims paid by the CRP. The CRP is designed to pay 100% of all cyclone damage related claims for eligible policies and events.

3.3 Non-cyclone related flooding

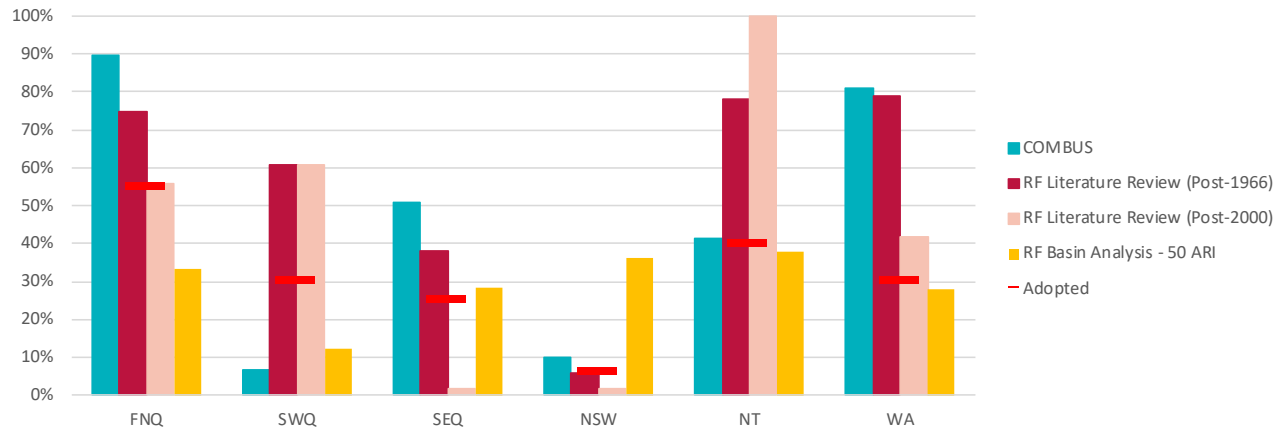
The CRP creates a need to split flooding caused by cyclones and not caused by cyclones, with the former being limited to flooding commenced during and up to 48 hours following the end a cyclone. Available studies to inform estimates of expected flood cost in total are not robust, and the question of cyclone versus non-cyclone cause has not been seriously examined until now.

ARPC commissioned the following two studies from Risk Frontiers to estimate the proportion of flood caused by cyclone for the purpose of setting the CRP premium pool and also to assist insurers determine the amount of non-cyclone related flooding retained:

- Literature review of historical cyclone events: A review of past cyclone events since 1966 and their associated flooding losses (estimated).
- Basin discharge study: A study of historical river basin water gauges over the past 111 years identifying incidences of elevated water flows and those associated with nearby cyclone tracks.

Figure 3.2 summarises the results of each information source and the selected proportion for the purposes of this report. This is presented on a broader regional level to match Risk Frontiers literature reviews.

Figure 3.2 – Comparison of estimated proportion of flood losses caused by cyclones



We have adopted a cyclone flood proportion that decreases moving southward, reflecting the reducing prevalence of cyclones. There is a broad range of estimates; this type of analysis is new and uncertain.

3.4 Treatment of non-insurance and underinsurance

3.4.1 Allowing for non-insurance

The CRP's target premium pool reflects expected losses from insured properties only.

The AAL was estimated for all properties. The target premium pool is calculated by removing estimated non-insured properties as follows:

- We have assumed a general level of non-insurance of 2% nationwide.
- For flood coverage, we assume an increasing level of non-insurance the higher the total policyholder premium. The non-insurance assumptions have been selected such that the proportion of non-insured properties is consistent with the findings from the ACCC report[9].

3.4.2 Allowing for underinsurance

Underinsurance[10] means that the policy's sum insured levels is insufficient to cover the incurred losses in the event of a total loss. This could be caused by the policyholder, where they have understated their sum insured levels to reduce their insurance premiums. It is difficult to estimate the degree or extent of under-insurance with any degree of certainty as we would need to verify insured sums insured against property replacement values for every property in Australia. This level of data or study does not readily exist.

A 5% underinsurance adjustment has been applied to the modelled loss estimates for home/householder policies, which reflects a mixture of industry practices. No underinsurance adjustment is applied to SME and strata.

3.4.3 Post loss amplification

This is commonly referred to demand surge, and was included in the catastrophe model loss estimates. This allows for additional cost of claims due to the level of demand for construction immediately following a large event.

3.5 Allowing for climate change

The estimates and modelling in this Report do not explicitly consider the effects of climate change. Climate change is only reflected to the extent it has been incorporated into the catastrophe models used for this analysis. However, a changing climate will clearly impact the future state of the CRP and from a directional standpoint it is important to consider climate risk in long-term planning.

3.6 Allowing for inflation

The analysis discussed in this Report is based on 2020/21 industry exposure data. No allowance for inflation has been applied to either the exposure or the target premium pool. The CRP's premium formula discussed in this report is based on a rate applied to sum insured. Therefore, as building cost inflation will be reflected in higher sums insured, the premium collected by the CRP will also correspondingly increase for inflation.

[9] The ACCC's 2020 Report, "Northern Australia Insurance Inquiry – Final Report", estimated that non-insurance rates for Home were around 20% for Northern Australia and 11% for Rest of Australia. The ACCC report finds that underinsurance and non-insurance occurs more where there is higher insurance risk, as consumers attempt to find ways to lower their premiums or do not take out insurance if it is not affordable. Given that the CRP will make insurance more affordable for policyholders exposed to cyclone risk, it is reasonable to assume this will reduce levels of non-insurance. This is likely to occur when the total insurance premium becomes affordable, noting that policyholders do not (and cannot) purchase cover for cyclone risk in isolation.

[10] Where the policy's sum insured does not reflect the pre-loss estimate of the full cost to replace the insured property.

4 CRP rate structure

4.1 CRP premium rate formula

The CRP premium rates are intended to achieve an overall target premium pool to meet the expected cost of claims and the operational costs of the CRP.

A CRP premium rating formula is applied to an insurer's property exposures to determine the CRP premium payable by the insurer. This rating formula can be described as follows (summarised for brevity):

- Each property will have a "base rate" depending on the location of the property. The premium for wind risk[11] will be based on the suburb which the property is located, while fluvial (riverine) flood and storm surge risks will be allocated to risk category based on the property address. The base rate is expressed as a rate per $100 sum insured.
- A series of "modifiers" will be applied to base premium to determine the CRP premium. The modifiers reflect differences in relative risk – for example, a single storey building will be relatively more exposed to flooding risk than a multi storey building. The modifiers may also reflect improvements made to the property to reduce damage when a cyclone occurs.
- The base rate and modifiers will be multiplied with the sum insured for the insurance cover to determine the base premium.

The premium calculated by the rating formula is exclusive of GST, duties and levies.

ARPC developed the CRP's premium rate formula in consultation with Treasury, industry and Finity.

The above premium approach will be used for each category of insurance which the CRP will apply to – i.e. a separate formula will apply to home buildings, home contents (including valuables included within home contents), SME buildings, SME contents, SME business interruption, and strata buildings. Each of wind, storm surge, and flood coverage will be calculated separately consistent with the underlying policy coverage for each risk (i.e. the insurer will not calculate the flood premium where the policy does not provide flood cover).

A more detailed description of the formula can be found in Appendix A.

4.2 Geographical risk relativities

The natural geography of the land and the local weather patterns dictate a property's location risk to cyclones. The CRP will cover buildings (and contents contained therein) for the following 3 risks caused by cyclone:

- ***Extreme winds*** and rain caused by the cyclone weather cell. Cyclones predominantly affect coastal regions in Northern Australia. ***Pluvial flooding*** (incorporating surface flooding and flash flooding) can occur anywhere high rainfall occurs, such as the path of a cyclone. Natural geographical protections such as natural terrain shielding extreme risks or being further inland reduces cyclone risks.
- ***Storm surge*** is caused by intense winds and reduced atmospheric pressure from the tropical cyclone causing the sea to rise well above the highest astronomical tide levels. Cyclone related storm surge therefore affects low lying coastal properties in cyclone regions.
- ***Fluvial (riverine) flooding*** occurs when water in a river, lake or other water body overflows onto the surrounding banks and land. Fluvial flooding can occur some distance away and after some time from the original cyclone event, as water can take time to move downstream. The CRP covers fluvial flooding occurring within 48 hours after a cyclone has ceased. In respect of the CRP coverage, properties on the

[11] Pluvial flood, also referred to as surface and flash flooding, has been included with wind risk.

banks of water basins, particularly river systems subject to cyclonic rainfall, are most at risk. Elevated geography reduces the risk.

The location risk depends on a large range of factors, including proximity to cyclone weather conditions, distance to coast, elevation and geographical shielding. A range of catastrophe models were sourced by ARPC to build up a complete picture of location risk (see Section 2.3). The location risks are used to allocate suburbs (wind risk) and addresses (flood and storm surge risk) into risk bands.

It is not practical to include tables showing the risk classification for each suburb and address due to the size of these tables. These will be electronically provided by ARPC.

Table 4.1 shows the base rates applying for wind risk by insurance segment. Each suburb in Australia is classified into risk bands.

Table 4.1 – Base rates for wind risk ($ per $100 sum insured)

	Home		SME businesses			Strata
Wind risk bands	Buildings	Contents	Buildings	Contents	Business Interruption	Building and contents
A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
B	0.0040	0.0028	0.0028	0.0010	0.0018	0.0038
C	0.0080	0.0056	0.0056	0.0020	0.0036	0.0076
D	0.0120	0.0084	0.0084	0.0032	0.0055	0.0114
E	0.0160	0.0112	0.0112	0.0045	0.0073	0.0144
F	0.0200	0.0140	0.0140	0.0056	0.0091	0.0180
G	0.0240	0.0168	0.0168	0.0071	0.0109	0.0216
H	0.0280	0.0196	0.0196	0.0082	0.0127	0.0252
I	0.0320	0.0230	0.0240	0.0108	0.0156	0.0288
J	0.0360	0.0259	0.0288	0.0130	0.0187	0.0324
K	0.0400	0.0288	0.0380	0.0182	0.0247	0.0360
L	0.0500	0.0450	0.0475	0.0228	0.0309	0.0450
M	0.0600	0.0540	0.0570	0.0274	0.0371	0.0552
N	0.0800	0.0720	0.0760	0.0365	0.0494	0.0736
O	0.1000	0.0900	0.0950	0.0456	0.0618	0.0920
P	0.1200	0.1080	0.1176	0.0564	0.0764	0.1104
Q	0.1400	0.1260	0.1372	0.0659	0.0892	0.1288
R	0.1600	0.1440	0.1568	0.0753	0.1019	0.1472
S	0.1800	0.1620	0.1764	0.0882	0.1058	0.1656
T	0.2000	0.1800	0.2000	0.1080	0.1100	0.1840
U	0.2000	0.2400	0.2000	0.1200	0.1200	0.2000
V	0.3500	0.3500	0.2975	0.1339	0.2231	0.3500
W	0.5000	0.5000	0.5000	0.3500	0.2500	0.5000
X						
Y						
Z						

While the premium rating formula allows for up to 26 risk bands, only 23 risk bands have been utilised in this initial parameterisation.

Figure 4.1 shows the CRP wind risk bands applied to Australian suburbs.

Figure 4.1 – Suburb wind risk bands

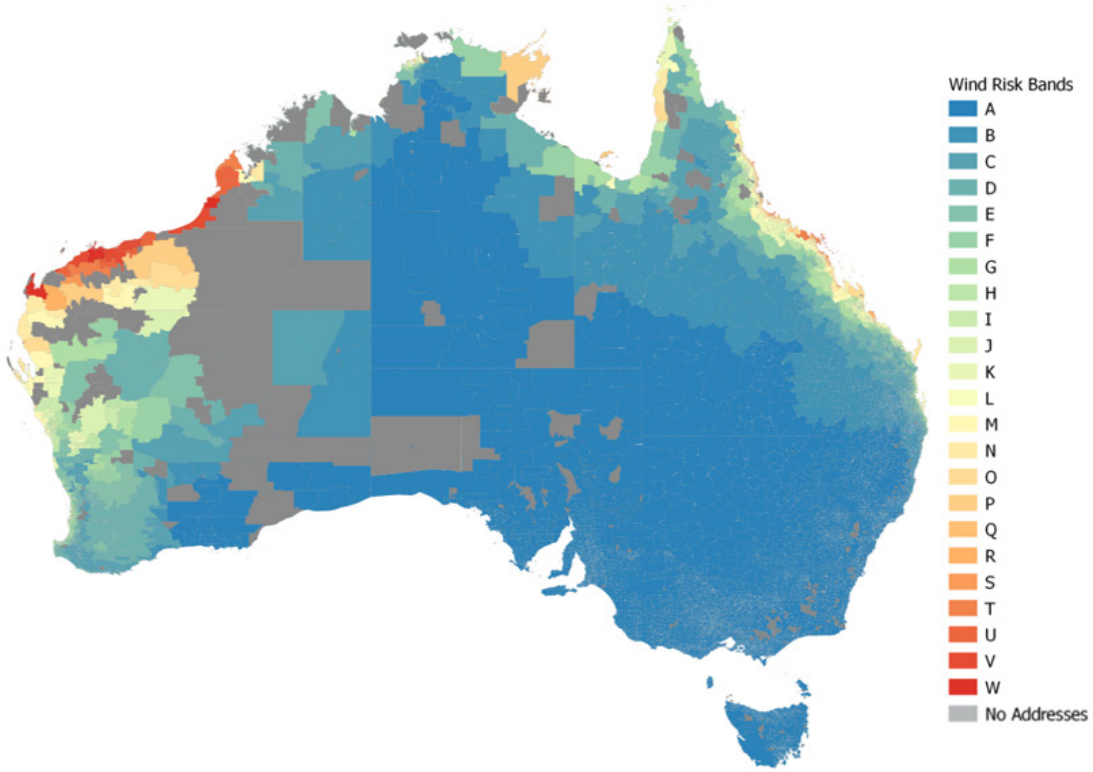
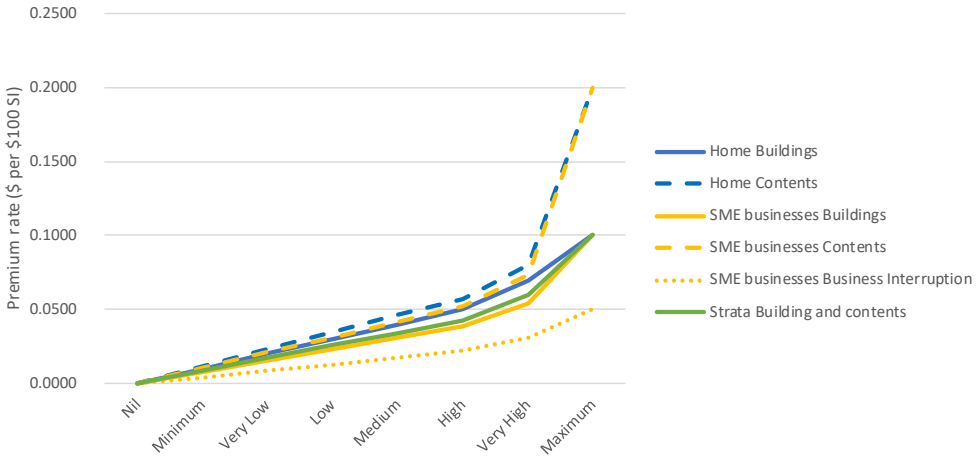


Table 4.2 and Figure 4.2 shows the base rates applying for cyclone related fluvial flooding risk by insurance segment. Each address in Australia is classified into one of the 8 risk groups.

Table 4.2 – Base rates for cyclone related fluvial flooding risk ($ per $100 sum insured)

	Home		SME businesses			Strata
Flood risk bands	Buildings	Contents	Buildings	Contents	Business Interruption	Building and contents
Nil	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Minimum	0.0100	0.0115	0.0077	0.0105	0.0044	0.0086
Very Low	0.0200	0.0230	0.0154	0.0210	0.0088	0.0172
Low	0.0300	0.0345	0.0231	0.0315	0.0132	0.0258
Medium	0.0400	0.0460	0.0308	0.0420	0.0176	0.0344
High	0.0500	0.0575	0.0385	0.0525	0.0220	0.0430
Very High	0.0700	0.0805	0.0539	0.0735	0.0308	0.0602
Maximum	0.1000	0.2000	0.1000	0.2000	0.0500	0.1000

Figure 4.2 – Base rates for cyclone related fluvial flooding risk ($ per $100 sum insured)



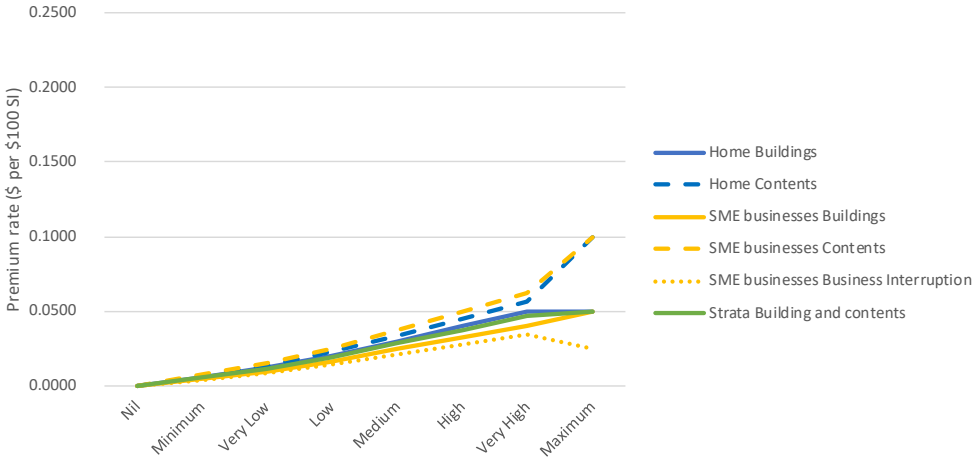
The SME business building base rates are lower than for home and strata within the same risk band for flood risk. This reflects different damage ratios inferred from the catastrophe models.

Table 4.3 and Figure 4.3 show the base rates applying for storm surge risk by insurance segment. Each address in Australia is classified into one of the 8 risk groups.

Table 4.3 – Base rates for storm surge risk ($ per $100 sum insured)

	Home		SME businesses			Strata
Surge risk bands	Buildings	Contents	Buildings	Contents	Business Interruption	Building and contents
Nil	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Minimum	0.0060	0.0067	0.0049	0.0075	0.0041	0.0056
Very Low	0.0120	0.0134	0.0097	0.0150	0.0083	0.0113
Low	0.0200	0.0224	0.0162	0.0250	0.0138	0.0188
Medium	0.0300	0.0336	0.0243	0.0375	0.0207	0.0282
High	0.0400	0.0448	0.0324	0.0500	0.0276	0.0376
Very High	0.0500	0.0560	0.0405	0.0625	0.0345	0.0470
Maximum	0.0500	0.1000	0.0500	0.1000	0.0250	0.0500

Figure 4.3 – Base rates for storm surge risk ($ per $100 sum insured)



The overall storm surge premium rates are lower than for flood, reflecting that the maximum storm surge rate is lower than for flood.

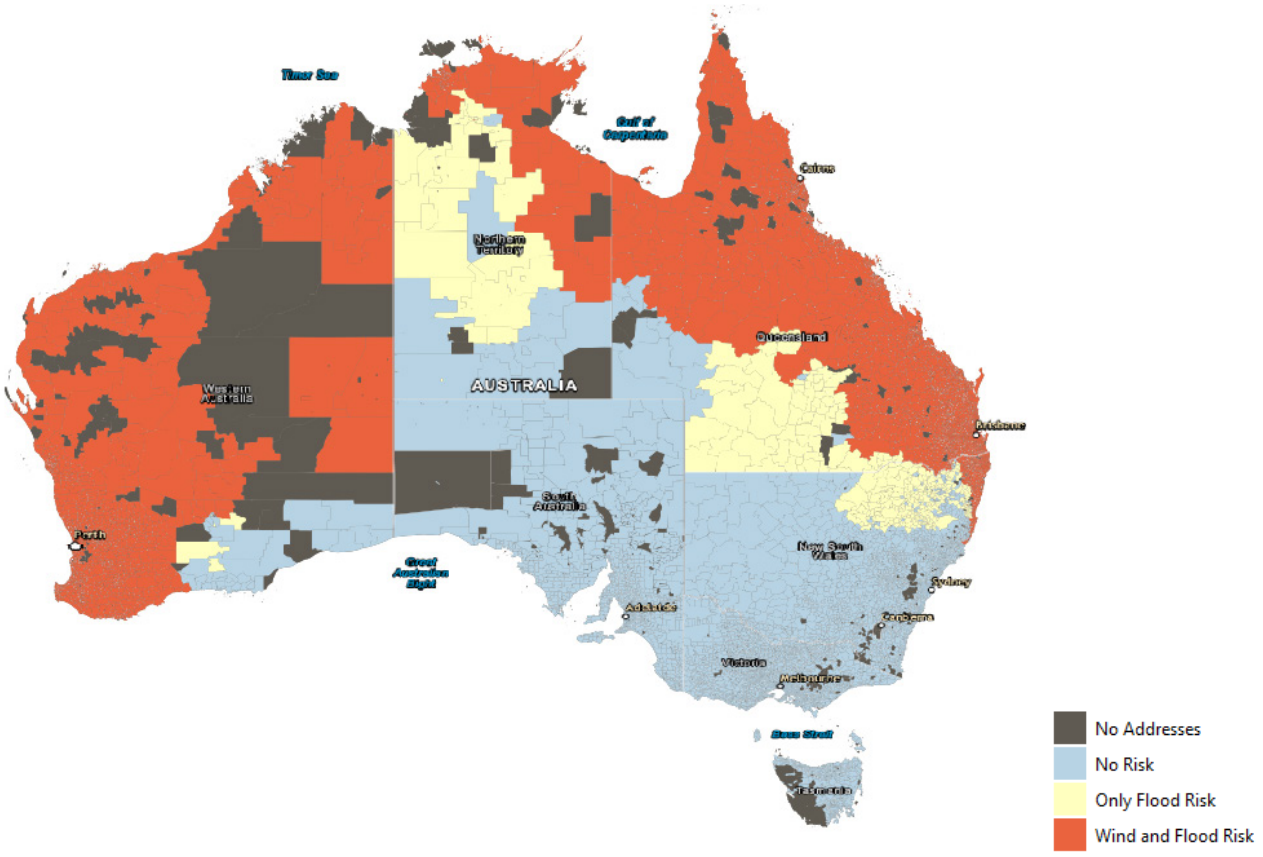
The SME business building base rates are lower than for home and strata within the same risk band for storm surge risk.

4.3 Suburbs that will be covered by the CRP

Cyclone claims are paid out by the CRP for damage across any of Australia's 15,694 suburbs for insurers that are in the scheme, even for suburbs where the CRP does not charge a premium.

The CRP premium formula will apply where non-trivial exposure to claims (as covered by the CRP) is expected. The CRP formula will apply a non-nil premium to 6,083 of suburbs, out of 15,694 Australia wide, as shown in Figure 4.4.

Figure 4.4 – Suburbs with exposures to cyclone risk as covered by the CRP



4.4 Risk factor and mitigation relativities

The characteristics of a building affect its susceptibility or resilience to natural perils. For example, a building constructed after 1980 to building codes designed to withstand cyclonic winds will be less likely to be damaged if a cyclone occurs than one built before 1980. Similarly, houses built on stilts will have less damage to flooding than ones which are not elevated.

The insurance policy itself can affect the loss payable by the CRP. The most notable example of this is the excess or deductible on the policy. Higher deductibles mean that more risk is retained by the policyholder.

Finally, the property owner's actions in mitigating risk can also affect cyclone losses. Property owners can take actions such as strengthening roof structures, egress points, garage doors, etc. from being breached in high winds. At the extreme, older buildings completely retrofitted to current building standards will have similar risk to a newer building.

Table 4.4 below summarises the risk rating factors adopted in the CRP premium algorithm.

Table 4.4 – Building risk rating factors in CRP algorithm

Home and contents	Business insurance (building, contents, and business interruption)	Strata
◦ Sum insured / building value ◦ Excess ◦ Coverage level ◦ Building type ◦ Construction type ◦ Roof type ◦ Construction year ◦ Landlords coverage (Y/N) ◦ Number of storeys ◦ Mitigation – Roller Door ◦ Mitigation – Window Protection ◦ Mitigation – Roof Replacement	◦ Sum insured / building value ◦ Excess ◦ Coverage level ◦ Construction type ◦ Roof type ◦ Construction year ◦ Number of storeys ◦ Duration of cover ◦ Additional Increased Cost of Working (AICOW) coverage ◦ Industry Group	◦ Sum insured / building value ◦ Excess ◦ Sub-limits for flood and storm surge coverage ◦ Coverage level ◦ Construction type ◦ Roof type ◦ Construction year ◦ Number of storeys ◦ Number of basements

The risk relativities have been separately set to apply to wind, storm surge and fluvial flooding. The relativities are shown in Appendices B, C and D for home/contents, business insurance, and strata respectively.

Where the risk factor is unknown by the insurer, no risk loading or discount is generally applied at this stage so as to not disadvantage insurers that do not currently collect information on each rating factor. Over time, we expect unknown risk factors will attract a loading to provide an incentive for the data to be collected. The exception is year of construction, where buildings with unknown construction year attract the highest risk loading.

5 Policyholder outcomes

5.1 How the CRP design affects policyholder outcomes

5.1.1 The CRP is a reinsurance arrangement

The CRP is designed as a reinsurance facility which will cover eligible cyclone losses in exchange for a premium. As such it does not directly set consumer prices, but instead replaces private sector funding sources (such as insurer capital and reinsurance) with CRP funding from its premium collections backed by a government guarantee. The CRP will enable insurers to offer more affordable premiums to medium and high-risk consumers by reducing the cost of providing the cover. It will be insurers that ultimately will decide on premiums to be paid by policyholders[12].

Insurers will need to restructure their reinsurance arrangements to account for the CRP reducing reinsurance costs. Further, the CRP will cover losses now retained by insurers. The CRP will thus result in cost savings that can fund CRP premiums and reduced premiums to policyholders.

5.1.2 Minimising consumer impact

The need in Australia to address location risk issues in regional centres and isolated communities required that the CRP provide coverage for small events at a property level. This means that ARPC had to carefully consider the effect of the CRP at a policy level. Further, as a government entity, the CRP must treat all insurers equally, meaning it must apply a single premium formula across the entire market.

In Australia there exists a wide range of prices for any given risk in the market. Thus, as the CRP must hold overall premiums at a level similar to the private market in low risk areas and apply a single premium formula, it is inevitable that there will be some policyholders which would receive increases if insurers passed along CRP premiums directly.

The CRP's design anticipated this problem by making it a reinsurance arrangement and allowing insurers discretion in how the savings are applied to individual policyholders, with the expectation that overall savings would be fully passed on, but not that every property would be charged exactly what the CRP charges the insurer. We would expect the market, over time, to increasingly reflect the CRP's premiums at a policy level, though during a transition period this will not be realistic.

For example, it is inevitable that there will be overs and unders from one policy to another in (say) low cyclone risk areas (because a single CRP rate is replacing market prices). In this case, the insurer can choose to retain these offsetting movements in the prices it quotes. Some insurers make commercial decisions to apply multi-policy or loyalty discounts. The implementation of the CRP is not intended to unwind these commercial decisions, and conversely, provides flexibility for these to be retained.

5.2 Estimated Policyholder outcomes

5.2.1 Note to reader on estimated policyholder outcomes in this Section

In this Section we will refer to policyholder outcomes and effects on the presumption that insurers will reflect CRP reinsurance premiums in their pricing. The design of the CRP means that actual policyholder outcomes will instead result from pricing decisions made by insurers and it may take some time before CRP and consumer pricing come into alignment.

[12] The ACCC will monitor policyholder outcomes resulting from the CRP's implementation.

Furthermore, the figures in this section estimate the policyholder outcomes assuming no change to the non-cyclone related premium charged by insurers. Insurers retain responsibility to determine premiums for risks not covered by the CRP, and the pricing for non-cyclone risks will affected the policyholder outcomes.

5.2.2 Process for estimating policyholder outcomes

The CRP premium rates were tested against policyholder premium data provided by five insurers to ARPC ('policyholder premium data'). The level of detail in the premium data supplied was not consistent across the insurers. The data limitations include:

- The data received was heavily dominated by home insurance and towards QLD. There is sparse sample policy data outside of QLD, and for SME business insurance and strata insurance, available for analysis. Where the sample sizes were small, we were not able to draw high confidence conclusions on estimated savings at any level of granularity.
- Most insurers provided an estimate of the premium for cyclone risk. This data was not consistent across insurers (e.g. some included margins, others did not) and in some instances this did not reflect the actual premium charged to the policyholder (e.g. there may be subsequent adjustments applied).
- No insurers provided an estimate of the premium for flood risk.

The lack of consistency and other limitations of the policyholder premium data provided to ARPC restricted the testing of outcomes. We needed to make assumptions to adjust the data provided to be comparable between insurers, and to estimate the current policyholder premium (i.e. the component of premium to cover cyclone and cyclone related flooding, inclusive of margins) that would be replaced by the CRP. Even where there is a large volume of premium data for comparison, care is needed to not over interpret as the observed outcomes as these may by different when applied by another insurer.

These data limitations restricted comparisons of the CRP premium rates. While the available data allowed a significant level of analysis to be undertaken, it is expected that further data collection and study will indicate that refinements in some CRP premiums will be required.

Our approach to testing CRP premium rates against policyholder premium data is discussed in Appendix E.

5.2.3 Estimated overall savings

Table 5.1 below summarises the estimated premium savings based on the policyholder sample data we relied upon.

Table 5.1 – Summary of average premium savings by class

	Average savings (sample size)			
Product class	All record samples (QLD, NT, WA, Northern NSW)	Northern Australia (CRESTA 5-20)	High premium band in Northern Australia[3]	Total sample size
Home[1]	-8% (194,552)	-19% (45,904)	-38% (451)	194,552
SME[2]	-14% (281)	-17% (188)	-28% (5)[4]	281
Strata	-13% (531)	-15% (261)	-18% (6)[4]	531

[1] Policies with BLD cover, predominantly (99%) QLD policies

[2] Policies with BLD cover

[3] Average savings for highest premium bands (>$1.50 per $100 SI)

[4] Insufficient data for reliable analysis

For Northern Australia policies in our sample, overall savings in the order of 15-20% are estimated across home, SME and strata insurance.

For home, a small number of policies currently paying the highest premiums (more than $10,000 for a $500,000 sum insured for home), the premium reduction can be in the order of 38%.

The small and non-representative samples for SME and strata mean that the estimated savings for the highest risk bands cannot be reliably estimated based on insurer provided data. A number of non-cyclone risk factors affect the premiums for these segments – e.g. for SME businesses the type of business will affect the premium rate, while for Strata high value buildings are typically individually underwritten and can have bespoke insurance arrangements. The limited sample size meant that we could not control for these factors in our analysis.

Notwithstanding this, there are instances in our limited sample set where large premium reductions are observed for individual strata buildings. Similarly, savings of around 40% are observed for SME buildings only policies in the highest premium band in Northern Australia (Table 5.1 above includes policies with contents coverage).

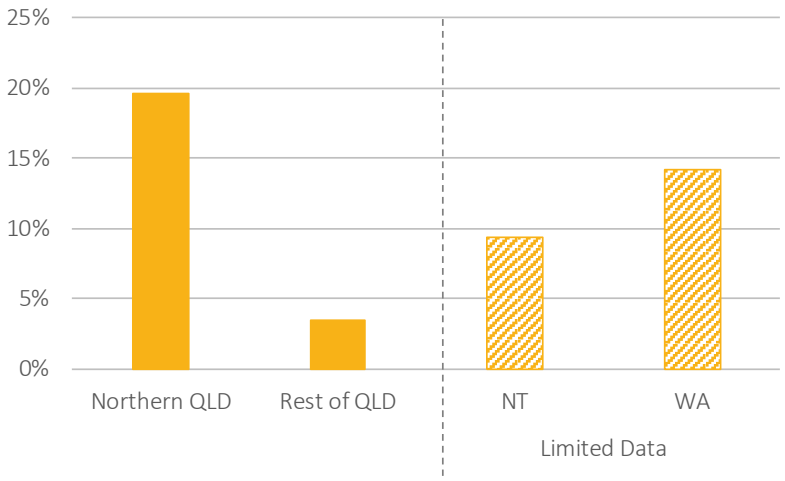
Furthermore, we observe that the CRP premium rates are materially lower than technical modelling estimates for high cyclone risk regions for strata and SME business insurance policies. For example, the CRP premium rates for Pilbara (an extreme cyclone risk area) are more than 50% lower than technical modelling estimates for building damage cover.

5.2.4 Residential Home premium outcomes

The policyholder data for QLD is dominated by a small number of insurers that provided larger datasets for our analysis (and therefore over representing the outcomes for those insurers' policyholder profile). For WA and NT, there was a small sample of policies for comparison (a few hundred in total) across three insurers. The limited samples mean that savings to the population may be different to the estimates in our samples, which can be biased due to the selection of the sample polices. We caution against extrapolating these savings estimates to the population.

Figure 5.1 below shows the average premium savings by region across Standalone Buildings, Contents and Combined policies. For reasons relating to data limitations noted above, the level of savings for NT and WA are only indicative due to the low volumes of policy data supplied by insurers.

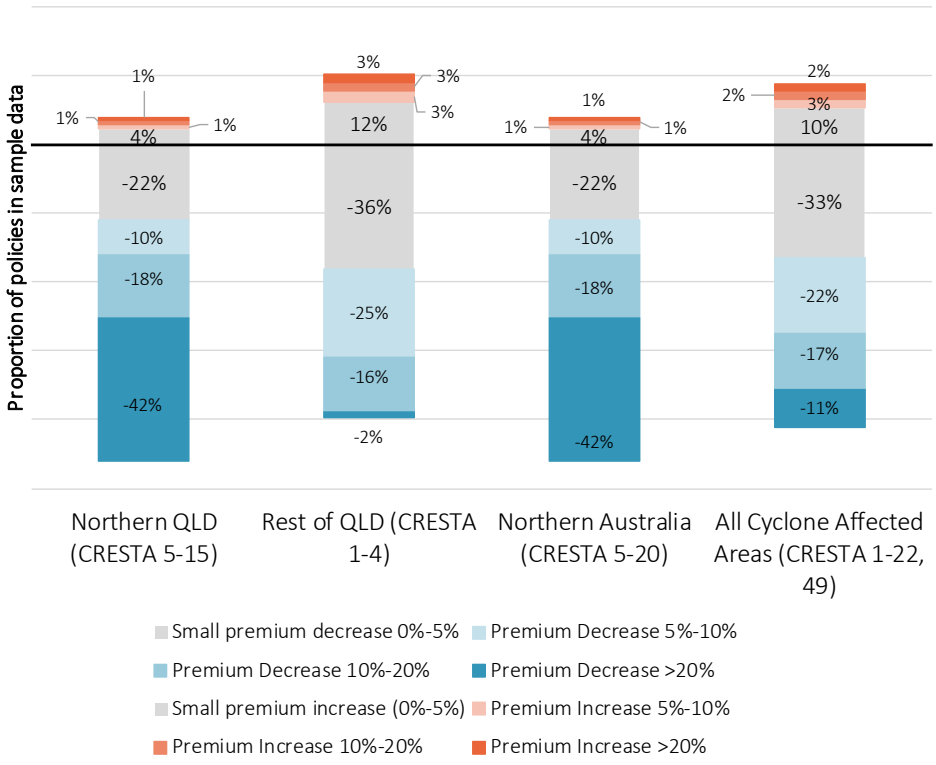
Figure 5.1 – Average insurance premium savings for Residential Home policies by region



Under the CRP, premium savings averaging 20% for Residential Home policies are estimated to be directed towards Northern QLD regions where most of the cyclone risk is situated. A lower saving of 3% on average is estimated for the rest of QLD (generally the SE QLD and inland regions), where there is lower cyclone risk have.

Figure 5.2 below shows the distribution of premium impact above or below a 5% change under the CRP across different regions based on the policyholder premium data (the quality of data in the ±5% premium change group, shown in grey, does not allow for meaningful results and changes of this magnitude would be difficult to observe in practice).

Figure 5.2 – Distribution of premium impacts for Residential Home policies by region

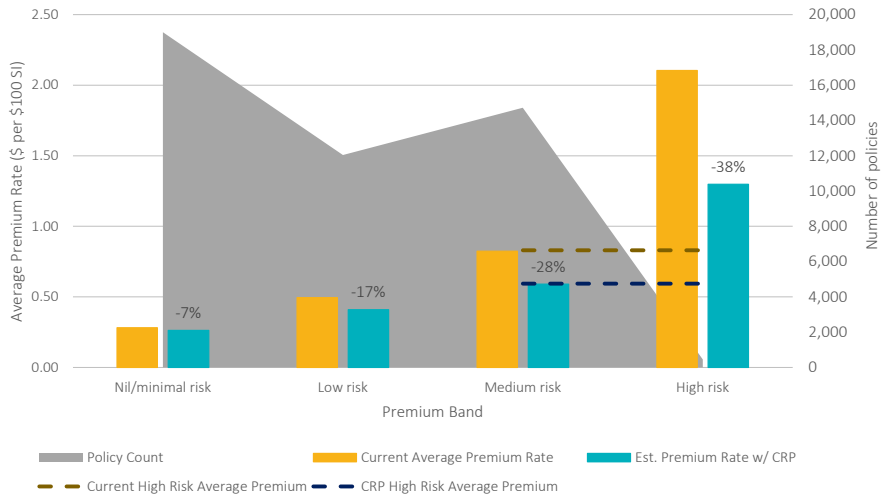


In higher cyclone risk areas, such as Northern QLD, savings are estimated for most policies in these areas from our sample dataset. In lower risk areas, like Southern and Inland QLD (shown as Rest of QLD), the average overall premium is only slightly below current premiums. This means that there is inevitably a range of policies where the premium is estimated to increase, offset by policies that are expected to decrease, as shown in the figure above (see Section 5.2.6).

The results for Northern Australia and all cyclone affected areas are heavily influenced by a limited number of insurers that provided a large policy sample set, which means that the results will not be representative of all policyholders.

Figure 5.3 shows estimated overall outcomes for homes in Northern Australia based on the risk inferred from current insurer pricing (i.e. where the insurer charges a high premium, we assume this is because the insurer assumes policy is at high risk of natural perils).

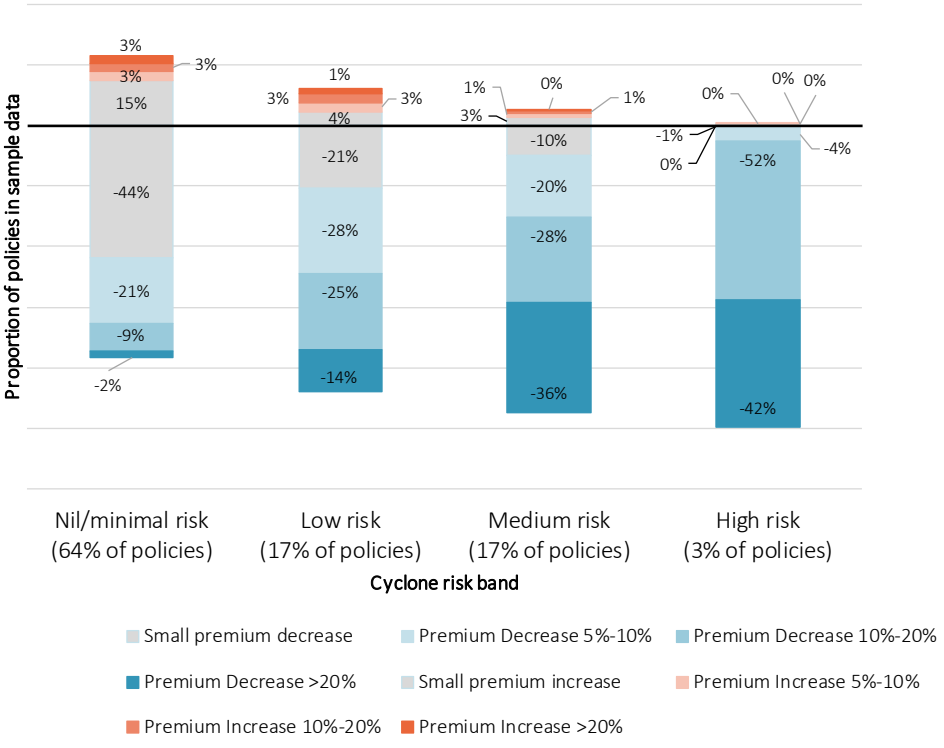
Figure 5.3 – Estimated outcomes based on insurer provided premium data (home combined in Northern Australia)



We estimate that the CRP may lead to small premium reductions for nil/minimal and low risk properties of 7% to 17% in Northern Australia. These levels of premium reductions may be difficult to observe in practice as insurers can make premium changes in this order of magnitude year-to-year. Premium increases resulting from issues outside of the CRP may mean that estimated premium reductions for nil/minimal and low risk properties may not be observed by the policyholder.

Figure 5.4 below shows the distribution of premium savings for policies in low, medium and high risk cyclone regions in QLD.

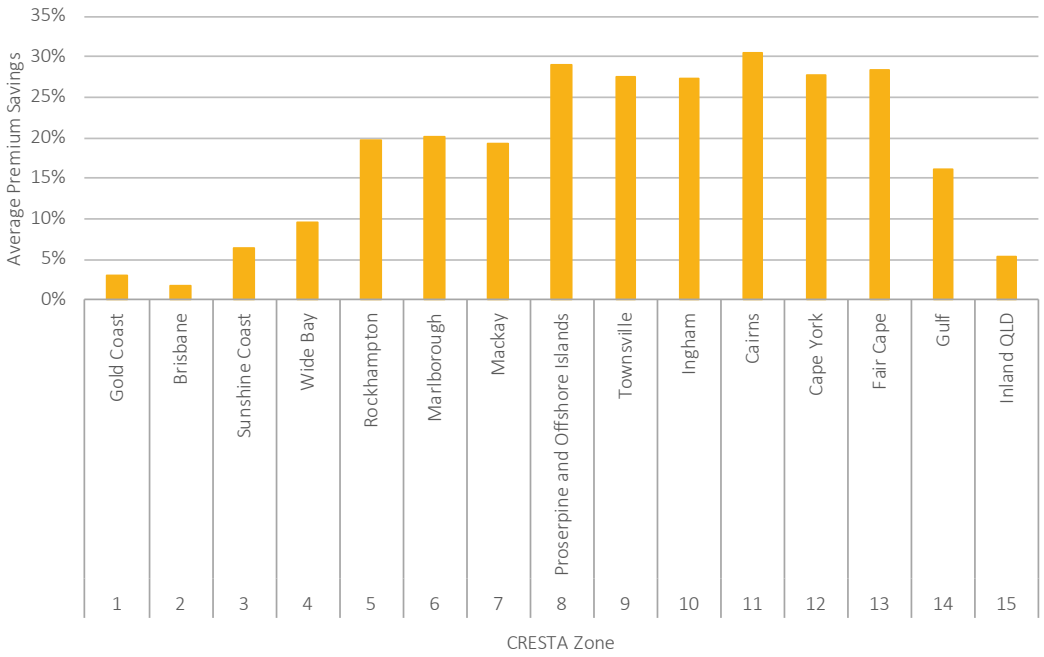
Figure 5.4 – Premium impacts for Residential Home policies by cyclone risk



High levels of premium savings are expected to be directed towards policies that have high cyclone risk under the CRP, in line with the objectives of the CRP.

The figure below shows the average estimated saving by CRESTA within QLD.

Figure 5.5 – Estimated Premium savings for Residential Home in QLD by CRESTA



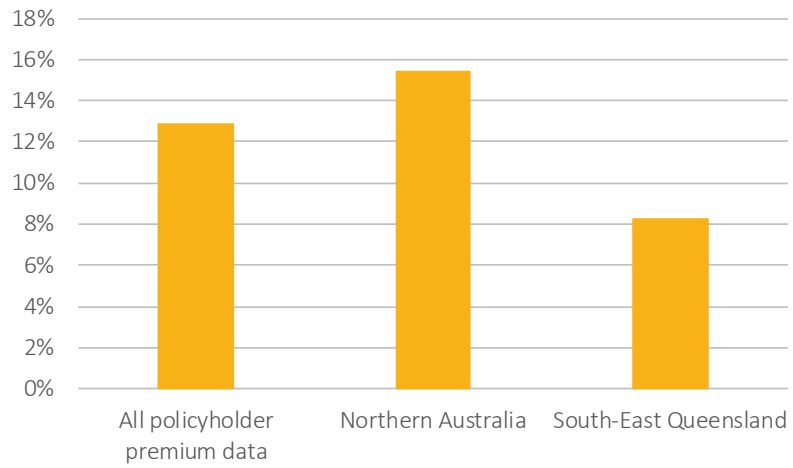
The average savings increases towards higher cyclone risk areas. In lower risk areas, the average premium change in areas like Brisbane is close to neutral, which reflects the design objectives of the CRP. In these areas, there will be some addresses that will have increases, which would be offset by decreases for others, assuming CRP premiums are directly passed onto consumers. This is an inevitable outcome of keeping cyclone premiums for low risk areas (such as Brisbane) comparable to current premiums. As discussed earlier, the scheme design allows insurers to smooth over price differences across low risk areas. Insurers currently perform such smoothing with the reinsurance premiums they pay, as these are derived from models similar to those which have been used by the CRP.

5.2.5 SME

Cyclone premium data was available for just 120 Buildings only policies and 200 Contents only policies in the policyholder premium level data provided to us to estimate the premium impacts. Due to the very small number of policies, there are not enough records to estimate premium outcomes at more granular geographical regions.

The chart below shows the estimated premium outcomes for SME businesses in the policyholder premium data, by region.

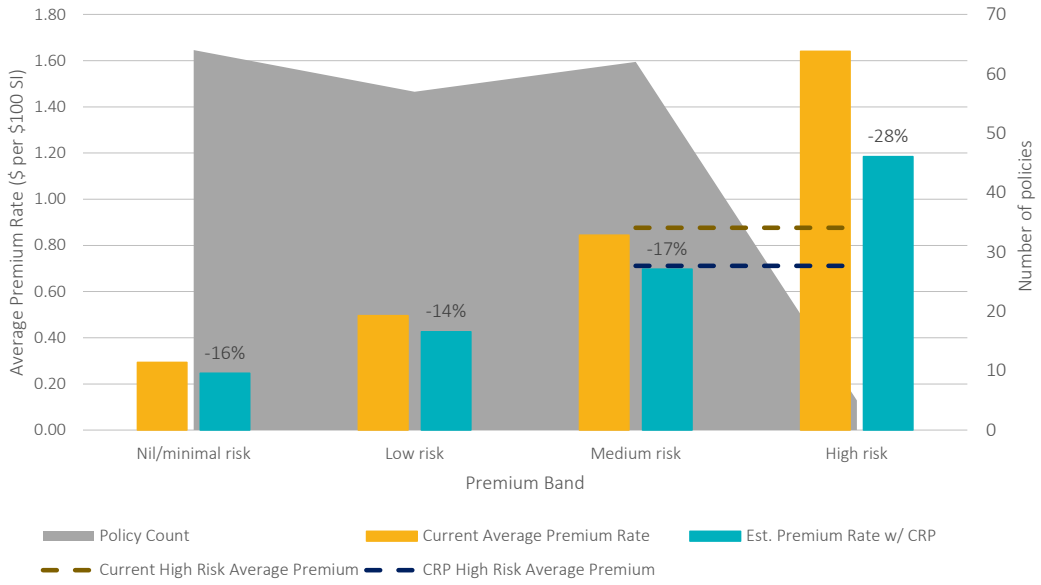
Figure 5.6 – Premium impacts for SME policies by region



We estimate savings in the order of around 13% overall for the sample policies provided by insurers, with higher levels of savings directed towards policies in Northern Australia.

Figure 5.7 shows estimated overall outcomes for SME insurance policies in Northern Australia based on the current insurer premium (i.e. a higher insurer premium is assumed to be because the insurer assumes the policy is at higher risk of natural perils). This figure shows SME policies where there is building coverage.

Figure 5.7 – Estimated outcomes based on insurer provided premium data (SME insurance in Northern Australia)

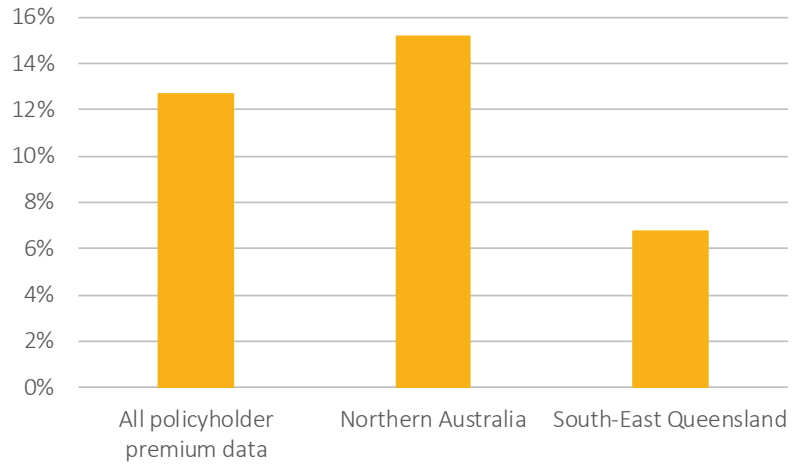


We observe reductions across each of the premium bands. For SME, the premium rates vary by the business activities, which means that the insurer premium rate does not only reflect exposure to natural perils risk. Notwithstanding, premium reductions in the order of 28% are observed for the highest premium bands (where the premiums are likely to reflect to greater exposure to cyclone risk).

5.2.6 Strata

Figure 5.8 below shows the estimated average savings by region for strata policies. The limited insurer premium data sample means that it is difficult to draw broad conclusions of the level of savings expected for strata buildings.

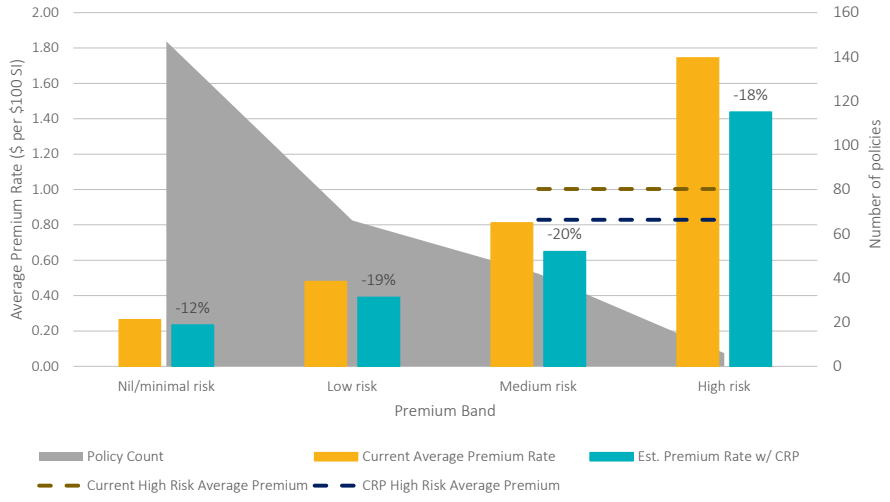
Figure 5.8 – Estimated Strata premium savings by region



Based on the limited sample we have been provided, premium savings of 13% are estimated, with Northern Australia's estimated savings being 15% whereas South East Queensland is estimated to receive more modest savings of 7%.

Figure 5.9 shows estimated overall outcomes for strata insurance policies in Northern Australia based on the current insurer premium (i.e. a higher insurer premium is assumed to be because the insurer assumes the policy is at higher risk of natural perils).

Figure 5.9 – Estimated outcomes based on insurer provided premium data (strata insurance in Northern Australia)



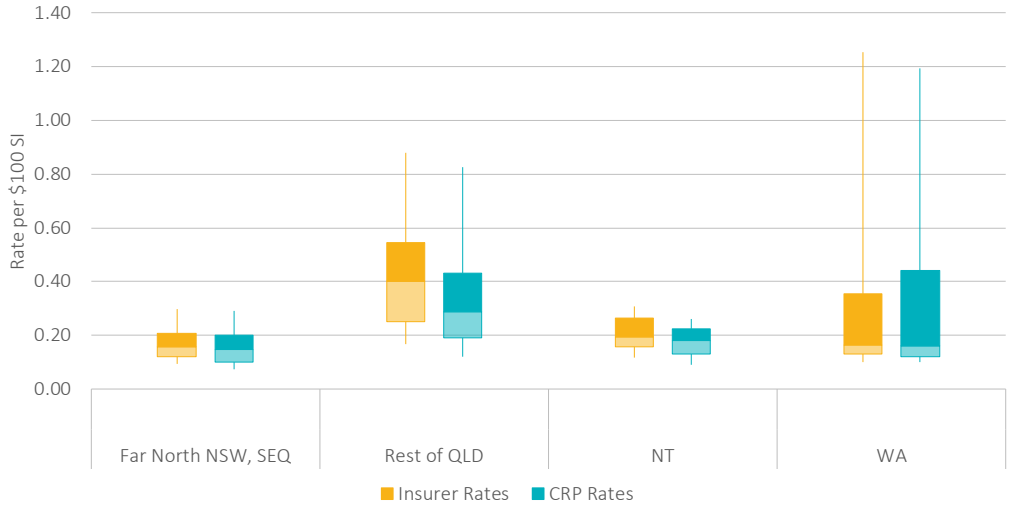
We observe savings across each premium rate band in our limited sample. There is generally more savings for the higher premium bands.

The premium reductions are less obvious in strata. Flood coverage is optional for strata insurance policies, and not commonly taken (where there is significant flood risk at least) based on our understanding of this market.

Reductions in premium for cyclone related flooding can be where the most substantial savings are expected to materialise, but if flood coverage is not included in the strata insurance policy then there would be no saving from a lower premium for the flood cover.

The outcomes observed for strata buildings varies significantly by region, as shown in Figure 5.10. The boxes show the 25th, 50th, and 75% percentile premium changes. The whiskers are the 10th and 90th percentile outcomes.

Figure 5.10 – Range of estimated premium outcomes for strata buildings



We estimate reduction in premium rates between current insurer pricing and CRP pricing for the limited policyholder premium sample set (445 policy samples) available to us in QLD, NT, and Northern NSW.

For WA, in our sample of 86 policies we observed savings for buildings currently paying higher premium rates, bringing down extreme premium outcomes. However, we also observed some policies in our limited sample that appear to have very low premium rates in high risk cyclone areas. The limited sample analysed is not representative of strata buildings in WA (or for relevant cyclone affected regions more generally).

On an overall basis for all regions, around half of the strata policies are estimated to have *savings* of more than 10%. However, around 13% have estimated *increases* of more than 10%.

Variability in outcomes was anticipated due to the broad range of practices and sophistication in the strata insurance market. Less sophistication in insurer rating approaches can mean that insurers do not reflect as much shape in risks between locations as others. Alternatively, underwritten risks can better reflect the specific of a building compared with a standardised formula.

5.3 Concluding comment on overall savings

While the commentary above reflects a significant degree of uncertainty around individual policy outcomes, largely reflecting the limited quality of data available, there is higher confidence in the overall level of savings in the aggregate. By pricing the CRP at expected cost without capital margins, including those incurred by both reinsurers and insurers on their retained risk, significant cost will be removed from the system. In addition, the CRP will be able to offer a stable source of cyclone coverage not subject to market fluctuations, such as those now being experienced following recent bushfires and floods.

However, the combination of:

- the CRP being designed to hold overall premiums at levels similar to those in the private market for low risk policyholders,
- its need to apply a uniform pricing structure across insurers, and
- the wide variety of prices currently charged by private insurers in the market

makes it inevitable that some policyholders could see price increases if CRP rates are implemented without some smoothing. We have carefully considered this issue and done as much as possible to mitigate adverse outcomes given the government's policy objectives.

The CRP was deliberately designed to allow insurers a degree of discretion in passing these savings along to policyholders to smooth the inevitable situations where past practices, such as commercial decisions, have resulted in some premiums being below those which are indicated by the CRP's rate formula.

When viewing the overall effect of the CRP on the market, four points should be kept in mind:

- *Properties currently not insured or which are underinsured due to price pressure.* The advent of the CRP should create incentives over time for more insurers to offer policies in high risk regions or for consumers to reconsider decisions to not fully insure their properties due to cost. Generally, our analysis has not attempted to quantify effects such as these, which directionally should increase the level of savings and/or positive consumer outcomes.
- *Effect of capping.* The CRP will effectively cap the price for insuring cyclone risk at a level which should be affordable for most consumers. Despite the inevitable situations where the CRP could result in some increases for individual consumers, overall it will remove the pressure for high cyclone premiums.
- *Lack of non-cyclone related flood cover.* Many areas subject to cyclone risk are also prone to non-cyclone flood risk. As the CRP's design does not address non-cyclone flood, high prices for overall coverage may persist across such areas despite the savings generated by the CRP.
- *Reinsurance market factors*. Across the market reinsurance programs are varied, tailored to individual insurer needs, and subject to complex negotiating practices. It will take time for insurers and reinsurers to realign their covers to account for the CRP. While a detailed discussion of this topic is beyond the scope of this report, we note the following:
    - Recent losses from bushfires, storms, and non-cyclone flooding have placed upward pressure on reinsurance prices. Insurers may see reinsurance price increases despite the savings generated by replacing private market cyclone cover with the CRP. This could lead to incorrect perceptions that the CRP is not delivering expected savings.
    - Some insurers have benefitted by a "diversification benefit", whereby the cost of cover is shared by large perils, such as a major cyclone in Brisbane and a catastrophic earthquake in Melbourne or Wellington. This is particularly true in upper layers providing capital for extreme events. In some cases, removing the cyclone risk from these programs will not achieve savings proportionate to the reduction in expected loss, due to the need to supply reinsurance capital for extreme risk from earthquakes. The CRP should remove the need to charge high premiums for cyclone risk, but there may be some offsetting pricing effects in other extreme perils. This is a known and expected consequence of the CRP's design.
    - While the CRP will primarily affect catastrophe excess of loss covers, many types of reinsurance, such as facultative or per risk excess, also provide cyclone cover and will need to be restructured. This issue is particularly relevant in the strata market due to the size of the sums insured. Reworking these covers will take time and may result in outcomes which were beyond the scope of this analysis.

Over time, we expect that the market will reach an equilibrium where policyholders will benefit from significant premium savings reflecting policy objectives.

6 Implementation considerations and uncertainties

6.1 Implementation considerations

The CRP will have a single premium formula that applies to all insurers, ensuring a level playing field. The implication is that the CRP premium will inevitably differ from the cyclone premium calculated by insurers for any particular insured risk for the following reasons:

- There are wide variations in a competitive private market in approaches used to set premiums, including different catastrophe modelling approaches adopted, application of judgements and insurer risk appetites.
- It is well established that any individual property can be quoted a wide range of premiums from different insurers, even if the average premium across insurers is similar. Some insurers may apply commercial decisions such as multi-policy or loyalty discounts.

The design of the CRP envisages this complication by providing insurers flexibility in setting premiums at the policyholder level which do not necessarily reflect the CRP premium formula rates. For example, overs and unders for low cyclone risk properties may be offset, so long as the overall policyholder premiums fairly reflect the premium payable to the CRP.

Nonetheless, outside market conditions will influence the final policy premiums. The CRP does not control the non-cyclone premium charged by an insurer, and hence does not control the total premium. For example, if the market firms by about 15% and the CRP reduces original pricing by about 10%, the policies will still go up by about 5%. Achieving the target outcomes are affected by issues outside the government's influence.

Unintended anomalous outcomes are inevitable in the first years of operation and this will only be known following the CRP's commencement. Testing and industry consultations can mitigate this risk and the severity of its impact, but there will be inevitably some unanticipated outcomes. There will be a period of adjustments to the CRP premium rates to respond to these unanticipated outcomes, though it is expected that eventually CRP premiums will reach a stable level with changes mainly being driven by evolving scientific understanding of risk as reflected in updates to catastrophe models.

6.2 Uncertainties

We have relied upon a range of catastrophe models, each producing an estimate of claims costs. There is significant uncertainty in modelled estimates of cyclone claims. Catastrophe models are simplifications of complex natural weather processes, the interaction with building damage and finally the estimate insurance losses. Catastrophe models differ in how this is achieved, but even the most sophisticated models cannot incorporate all the variables that occur in real life. Instead, catastrophe models are better considered as a tool to assist the CRP and its management.

There is a high degree of volatility in insurance claims arising from natural perils events. It is possible for there to be multiple years of significant losses, which can lead to deficits and calls on the Commonwealth Guarantee.

In some segments there was very limited insurer premium data provided to calibrate premium rates. For example, only samples of SME and strata policies were provided and in some geographical regions there might only be a few policies where comparisons to our calculated CRP premiums can be made. The limited data means that we cannot be confident of how the proposed CRP premium rates compare with current industry premium rates.

7 Reliances and Limitations

This report and the analysis contained therein summarises work completed solely for ARPC for the purposes of determining the CRP premium. This summary report has been provided to insurers to assist with their own implementation of the CRP. We understand that ARPC may publish this report on its website.

Insurers, or any other third party, should recognise that the furnishing of this report is not a substitute for their own due diligence and should place no reliance on this report or the data contained herein which would result in the creation of any duty or liability by Finity to the third party.

We have relied on exposure data furnished to Treasury by insurers. A number of assumptions were required to standardise that exposure and render it useful for this analysis.

We have relied on catastrophe models (from a number of providers) commissioned by ARPC, and in many cases run by Aon for ARPC, for the purpose of informing this work. We have not independently verified nor have we independently validated the data or outcomes. We have reviewed the findings for reasonableness and suitability for the purpose of this report.

Some insurers provided data to ARPC for the purposes of determining the CRP premium rates. This data was provided on a best endeavour basis. Finity undertook reasonableness checks on the insurer data provided. We were unable to verify this data for completeness and accuracy. Some insurers informed ARPC that the data provided had known discrepancies, such as the cyclone book premium not being reflective of the actual premium paid by the policyholder. Furthermore, the data was not consistent between insurers; Finity adjusted the raw data for comparability purposes by making assumptions on the insurer expense and commission rates.

We have formed our views based on the current environment and what we know today. If future circumstances change, it is possible that our findings may not prove to be correct.

The underlying exhibits and attachments contained in our report are an integral part of this report and should be considered in order to place our report in its appropriate context. We have prepared this report in conformity with its intended use by persons technically competent in insurance matters. Judgements as to the conclusions drawn in this report should be made only after considering the report in its entirety.

Appendices

A Premium calculation

A.1 The CRP premium formula

At a high level, the CRP premium formula has the following structure when calculated in respect each eligible policy.

$$CRP\ premium_{product\ type,peril} = Policy\ sum\ insured \times CRP\ base\ rate_{product\ type,location,peril}$$

$$\times \left[risk\ rating\ factor_{1,product\ type,peril} \times risk\ rating\ factor_{2,product\ type,peril} \times \ldots\right] / 100$$

There are different risk rating factors for each peril and insurance product.

The following insurance products are covered by the CRP:

- Home:
  - Building
  - Contents
- SME
  - Building
  - Contents
  - Business Interruption
- Strata
  - Buildings and common contents combined

A separate CRP premium formula applies for each insurance segments and for each of the risks posed by cyclone (wind, flood, and storm surge). Flood and storm surge premiums need only be calculated where the policy conditions include coverage for these perils.

For example, where a SME business purchases insurance coverage for contents and business interruption, and the Business Packages policy excludes coverage for flood risk, then the CRP premium applicable for that insurance policy will be the aggregate of the following calculations:

- SME contents for wind risks
- SME contents for storm surge risks
- SME business interruption for wind risks
- SME business interruption for storm surge risks

If the above example SME policy includes flood coverage, then the CRP flood premium will also need to be calculated for each of the content and business interruption policy sections.

The base rate is expressed per $100 Sum Insured (SI). The base rate is dependent on the location of the risk, and varies by peril:

- Wind: Each suburb in Australia has been allocated to one of 26 Wind Bands, designated by the letters A to Z. Each Wind Band has a base rate to be applied per $100 SI.

- Flood and storm surge: Each GNAF in Australia has been allocated to one of 8 flood / storm surge bands (Nil, Minimum, Very Low, Low, Medium, High, Very High and Maximum). Each flood / storm surge band has a base rate to be applied per $100 SI.

The relativities are dependent on the individual characteristics of the risk and associated policy and can be found in Appendices B, C and D.

A.2 Calculation of sum insured risk relativity

The sum insured risk relativity is determined such that there is no 'saw-tooth' pattern to calculated CRP premiums as the sum insured increases.

The sum insured risk relativity is calculated using the formula below.

$$\frac{\text{Start of SI band} \times \text{Relativity}_{start\ of\ SI\ band} + (\text{SI} - \text{Start of SI band}) \times \text{Relativity}_{marginal\ for\ the\ SI\ band}}{\text{SI}}$$

SI refers to sum insured in the above formula.

For example, for a home building with sum insured of $790,000, the start of the sum insured band would be $700,000, which has a relativity of 0.97. The marginal additional $90,000 sum insured has a relativity of 0.90. The sum insured relativity applying to this policy is the weighted average of these amounts, which is 0.96.

Instead of applying the above formula, insurers may instead calculate the implied relativity for each sum insured value resulting in a large look up table.

A.3 Worked example

Below is a worked example of the CRP premium calculation for a one storey, freestanding timber and terracotta roof home insured for $450,000 located in Cairns City (4870, which is risk band Q), built in 1975. The owner has retrofitted shutters to the windows. Looking up the address of this property in the CRP's G-NAF dataset shows Medium flood risk and Maximum storm surge risk.

The insurance policy includes coverage for flood and storm surge. There is a $250 excess on the policy. This insurance product offers coverage consistent with ARPC's A category.

The CRP premium is calculated as follows.

		Wind	Flood	Storm surge	Total
Sum insured		$450,000	$450,000	$450,000	
Risk band		Band Q	Medium	Maximum	
Base rate		0.1400	0.0400	0.0500	
Risk Relativities					
Sum insured	$450,000	1.016			
Policy excess	$250 excess	1.060	1.060	1.060	
Building type	Freestanding home	1.000			
Construction type	Timber	1.100	1.100	1.100	
Roof type	Terracotta Tile	0.900			
Construction year	1975	1.400	1.000	1.000	
Landlords flag	No	1.000	1.000	1.000	
Number of storeys	1		1.000	1.000	
Policy coverage level	A	1.030	1.030	1.030	
Risk mitigation relativities					
Garage doors	No	1.000			
Window openings	Shutters installed	0.900			
Replaced roof	No	1.000			
Total risk relativity (product of all relativities)		1.383	1.201	1.201	
CRP premium (ex GST, duties, and levies)		$871	$216	$270	$1,358

Note that the sum insured relativity for the wind risk is calculated as follows to give a relativity of 1.016

$$\frac{400{,}000 \times 1.030 + (450{,}000 - 400{,}000) \times 0.900}{450{,}000}$$

The total CRP premium for this property is $1,358, excluding GST and levies, summing up the wind, flood, and storm surge components of the premium.

B Home building premium rates

B.1 Wind Base Rates per $100 SI

	Wind	
Band	Buildings	Contents
A	0.0000	0.0000
B	0.0040	0.0028
C	0.0080	0.0056
D	0.0120	0.0084
E	0.0160	0.0112
F	0.0200	0.0140
G	0.0240	0.0168
H	0.0280	0.0196
I	0.0320	0.0230
J	0.0360	0.0259
K	0.0400	0.0288
L	0.0500	0.0450
M	0.0600	0.0540
N	0.0800	0.0720
O	0.1000	0.0900
P	0.1200	0.1080
Q	0.1400	0.1260
R	0.1600	0.1440
S	0.1800	0.1620
T	0.2000	0.1800
U	0.2000	0.2400
V	0.3500	0.3500
W	0.5000	0.5000
X	#N/A	#N/A
Y	#N/A	#N/A
Z	#N/A	#N/A

B.2 Flood and Storm Surge Base Rates per $100 SI

	Flood		Surge	
Band	Buildings	Contents	Buildings	Contents
Nil	0.0000	0.0000	0.0000	0.0000
Minimum	0.0100	0.0115	0.0060	0.0067
Very Low	0.0200	0.0230	0.0120	0.0134
Low	0.0300	0.0345	0.0200	0.0224
Medium	0.0400	0.0460	0.0300	0.0336
High	0.0500	0.0575	0.0400	0.0448
Very High	0.0700	0.0805	0.0500	0.0560
Maximum	0.1000	0.2000	0.0500	0.1000

B.3 Sum Insured

Buildings		Wind		Contents		Wind	
Sum Insured Min	Sum Insured Max	Relativity applied to min. of band	Marginal relativity	Sum Insured Min	Sum Insured Max	Relativity applied to min. of band	Marginal relativity
0	99,999		1.200	0	9,999		1.250
100,000	199,999	1.200	1.050	10,000	19,999	1.250	1.080
200,000	299,999	1.125	0.950	20,000	29,999	1.165	1.020
300,000	399,999	1.067	0.920	30,000	39,999	1.117	0.850
400,000	499,999	1.030	0.900	40,000	49,999	1.050	0.820
500,000	599,999	1.004	0.900	50,000	59,999	1.004	0.820
600,000	699,999	0.987	0.900	60,000	69,999	0.973	0.820
700,000	799,999	0.974	0.900	70,000	79,999	0.951	0.820
800,000	899,999	0.965	0.900	80,000	89,999	0.935	0.820
900,000	999,999	0.958	0.900	90,000	99,999	0.922	0.820
1,000,000	1,099,999	0.952	0.900	100,000	109,999	0.912	0.820
1,100,000	1,199,999	0.947	0.900	110,000	119,999	0.904	0.820
1,200,000	1,299,999	0.943	0.900	120,000	129,999	0.897	0.820
1,300,000	1,399,999	0.940	0.900	130,000	139,999	0.891	0.820
1,400,000	1,499,999	0.937	0.900	140,000	149,999	0.886	0.820
1,500,000	1,599,999	0.935	0.900	150,000	159,999	0.881	0.820
1,600,000	1,699,999	0.932	0.900	160,000	169,999	0.877	0.820
1,700,000	1,799,999	0.931	0.900	170,000	179,999	0.874	0.820
1,800,000	1,899,999	0.929	0.900	180,000	189,999	0.871	0.820
1,900,000	1,999,999	0.927	0.900	190,000	199,999	0.868	0.820
2,000,000	100,000,000	0.926	0.900	200,000	209,999	0.866	0.820
				210,000	219,999	0.864	0.820
				220,000	229,999	0.862	0.820
				230,000	239,999	0.860	0.820
				240,000	249,999	0.858	0.820
				250,000	259,999	0.857	0.820
				260,000	269,999	0.855	0.820
				270,000	279,999	0.854	0.820
				280,000	289,999	0.853	0.820
				290,000	299,999	0.852	0.820
				300,000	100,000,000	0.851	0.820

B.4 Excess

Buildings					Contents					Combined				
Excess Min	Excess Max	Wind	Flood	Surge	Excess Min	Excess Max	Wind	Flood	Surge	Excess Min	Excess Max	Wind	Flood	Surge
0	99	1.120	1.120	1.120	0	99	1.120	1.120	1.120	0	99	1.120	1.120	1.120
100	199	1.100	1.100	1.100	100	199	1.100	1.100	1.100	100	199	1.110	1.110	1.110
200	299	1.060	1.060	1.060	200	299	1.060	1.060	1.060	200	299	1.065	1.065	1.065
300	399	1.045	1.045	1.045	300	399	1.045	1.045	1.045	300	399	1.050	1.050	1.050
400	499	1.030	1.030	1.030	400	499	1.030	1.030	1.030	400	499	1.033	1.033	1.033
500	599	1.000	1.000	1.000	500	599	1.000	1.000	1.000	500	599	1.000	1.000	1.000
600	699	0.988	0.988	0.988	600	699	0.988	0.988	0.988	600	699	0.992	0.992	0.992
700	799	0.976	0.976	0.976	700	799	0.976	0.976	0.976	700	799	0.984	0.984	0.984
800	899	0.964	0.964	0.964	800	899	0.964	0.964	0.964	800	899	0.976	0.976	0.976
900	999	0.952	0.952	0.952	900	999	0.952	0.952	0.952	900	999	0.968	0.968	0.968
1,000	1,249	0.940	0.940	0.940	1,000	1,249	0.940	0.940	0.940	1,000	1,249	0.960	0.960	0.960
1,250	1,499	0.935	0.935	0.935	1,250	1,499	0.935	0.935	0.935	1,250	1,499	0.955	0.955	0.955
1,500	1,749	0.930	0.930	0.930	1,500	1,749	0.930	0.930	0.930	1,500	1,749	0.950	0.950	0.950
1,750	1,999	0.925	0.925	0.925	1,750	1,999	0.925	0.925	0.925	1,750	1,999	0.951	0.951	0.951
2,000	2,999	0.920	0.920	0.920	2,000	2,999	0.920	0.920	0.920	2,000	2,999	0.952	0.952	0.952
3,000	3,999	0.913	0.913	0.913	3,000	3,999	0.913	0.913	0.913	3,000	3,999	0.945	0.945	0.945
4,000	4,999	0.907	0.907	0.907	4,000	4,999	0.907	0.907	0.907	4,000	4,999	0.937	0.937	0.937
5,000	1,000,000	0.900	0.900	0.900	5,000	1,000,000	0.900	0.900	0.900	5,000	1,000,000	0.930	0.930	0.930

B.5 Building Type

	Wind	
Building Type	Buildings	Contents
Freestanding house	1.00	1.00
Semi detached, duplex or terrace	1.00	1.00
Unit, flat or apartment	1.00	1.00
Townhouse or villa	1.00	1.00
Caravan, mobile or relocatable home	2.00	2.00
Other	1.00	1.00
Unknown	1.00	1.00

B.6 Construction Type

	Wind								Flood		Surge	
	Buildings				Contents				Buildings	Contents	Buildings	Contents
Construction Type	A	B	C	D	A	B	C	D				
Brick Veneer	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fibro/Asbestos	1.25	1.25	1.25	1.25	1.10	1.10	1.10	1.10	1.10	1.00	1.10	1.00
Concrete/Cement/Hebel	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.90	1.00	0.90	1.00
Timber/Weatherboard/Hardiplank	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.10	1.00
Double Brick	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Metal Sheeting	1.15	1.15	1.15	1.15	1.10	1.10	1.10	1.10	1.00	1.00	1.00	1.00
Metal Frame	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.90	1.00	0.90	1.00
Mudbrick/Rammed Earth	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Stone	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EPS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Caravan, mobile or relocatable home	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Other	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Unknown	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

B.7 Roof Type

	Wind	
Roof Type	Buildings	Contents
Concrete Tiles	0.90	0.90
Terracotta Tile	0.90	0.90
Metal/Colorbond	1.00	1.00
Concrete	0.90	0.90
Fibro/Asbestos Cement	1.10	1.00
Shingle	1.00	1.00
Slate	0.90	0.90
Timber	1.00	1.00
Decramastic	1.00	1.00
Thatched	1.20	1.20
Caravan, mobile or relocatable home	1.00	1.00
Other	1.00	1.00
Unknown	0.95	0.95

B.8 Construction Year

	Wind								Flood		Surge	
	Buildings				Contents				Buildings	Contents	Buildings	Contents
Construction Year	A	B	C	D	A	B	C	D				
Pre 1920	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.00	1.00	1.00	1.00
1920 - 1949	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.00	1.00	1.00	1.00
1950 - 1959	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.00	1.00	1.00	1.00
1960 - 1969	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.00	1.00	1.00	1.00
1970 - 1981	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.00	1.00	1.00	1.00
1982 - 1989	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1990 - 1999	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2000 - 2009	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2010 - 2019	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
2020+	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Caravan, mobile or relocatable home	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Unknown	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.00	1.00	1.00	1.00

B.9 Landlords Flag

	Wind		Flood		Surge	
Landlords Flag	Buildings	Contents	Buildings	Contents	Buildings	Contents
Non-Landlords	1.00	1.00	1.00	1.00	1.00	1.00
Landlords	1.10	1.00	1.10	1.00	1.10	1.00

B.10 Number of Storeys

	Flood		Surge	
Number of Storeys	Buildings	Contents	Buildings	Contents
1	1.00	1.00	1.00	1.00
2	0.80	0.60	0.80	0.60
3+	0.60	0.40	0.60	0.40
1 Storey elevated (>1m)	0.50	0.40	0.50	0.40
2 Storeys elevated (>1m)	0.45	0.35	0.45	0.35
3 Storeys elevated (>1m)	0.40	0.30	0.40	0.30
Caravan, mobile or relocatable home	1.00	1.00	1.00	1.00
Unknown	1.00	1.00	1.00	1.00

B.11 Coverage Level

	Wind		Flood		Surge	
Coverage Level	Buildings	Contents	Buildings	Contents	Buildings	Contents
A	1.03	1.03	1.03	1.03	1.03	1.03
B	1.00	1.00	1.00	1.00	1.00	1.00
C	0.97	0.97	0.97	0.97	0.97	0.97
Not Applicable	1.00	1.00	1.00	1.00	1.00	1.00

B.12 Mitigation – Roller Door

	Wind	
Mitigation	Buildings	Contents
No roller door bracing	1.00	1.00
Roller door bracing or Roller door installed after 2012 (compliant with AS 4505:2012)	0.92	0.92

B.13 Mitigation – Window Protection

	Wind	
Mitigation	Buildings	Contents
No window protection	1.00	1.00
Window protection to all windows (e.g. cyclone shutters)	0.90	0.90

B.14 Mitigation – Roof Replacement

	Wind	
Mitigation	Buildings	Contents
No roof replacement	1.00	1.00
Roof structure tie-down upgrades (e.g. over-batten roof system) - on homes built pre 2002	0.80	0.80
Complete roof replacement and structure tie-down upgrades to current standards - on homes built pre 2002	0.70	0.70

C SME business insurance premium rates

C.1 Wind Base Rates per $100 SI

	Wind		
Band	Buildings	Contents	BI
A	0.0000	0.0000	0.0000
B	0.0028	0.0010	0.0018
C	0.0056	0.0020	0.0036
D	0.0084	0.0032	0.0055
E	0.0112	0.0045	0.0073
F	0.0140	0.0056	0.0091
G	0.0168	0.0071	0.0109
H	0.0196	0.0082	0.0127
I	0.0240	0.0108	0.0156
J	0.0288	0.0130	0.0187
K	0.0380	0.0182	0.0247
L	0.0475	0.0228	0.0309
M	0.0570	0.0274	0.0371
N	0.0760	0.0365	0.0494
O	0.0950	0.0456	0.0618
P	0.1176	0.0564	0.0764
Q	0.1372	0.0659	0.0892
R	0.1568	0.0753	0.1019
S	0.1764	0.0882	0.1058
T	0.2000	0.1080	0.1100
U	0.2000	0.1200	0.1200
V	0.2975	0.1339	0.2231
W	0.5000	0.3500	0.2500
X	#N/A	#N/A	#N/A
Y	#N/A	#N/A	#N/A
Z	#N/A	#N/A	#N/A

C.2 Flood and Storm Surge Base Rates per $100 SI

	Flood			Surge		
Band	Buildings	Contents	BI	Buildings	Contents	BI
Nil	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Minimum	0.0077	0.0105	0.0044	0.0049	0.0075	0.0041
Very Low	0.0154	0.0210	0.0088	0.0097	0.0150	0.0083
Low	0.0231	0.0315	0.0132	0.0162	0.0250	0.0138
Medium	0.0308	0.0420	0.0176	0.0243	0.0375	0.0207
High	0.0385	0.0525	0.0220	0.0324	0.0500	0.0276
Very High	0.0539	0.0735	0.0308	0.0405	0.0625	0.0345
Maximum	0.1000	0.2000	0.0500	0.0500	0.1000	0.0250

C.3 Sum Insured

Buildings		Wind		Contents		Wind		Business Interruption		Business Interruption	
Sum Insured Min	Sum Insured Max	Relativity applied to min. of band	Marginal relativity	Sum Insured Min	Sum Insured Max	Relativity applied to min. of band	Marginal relativity	Sum Insured Min	Sum Insured Max	Relativity applied to min. of band	Marginal relativity
0	99,999		1.150	0	99,999		1.050	0	99,999		1.050
100,000	199,999	1.150	1.150	100,000	199,999	1.050	0.950	100,000	199,999	1.050	0.980
200,000	299,999	1.150	1.150	200,000	299,999	1.000	0.950	200,000	299,999	1.015	0.950
300,000	399,999	1.150	0.950	300,000	399,999	0.983	0.900	300,000	399,999	0.993	0.950
400,000	499,999	1.100	0.950	400,000	499,999	0.962	0.850	400,000	499,999	0.982	0.950
500,000	599,999	1.070	0.950	500,000	599,999	0.940	0.850	500,000	599,999	0.976	0.950
600,000	699,999	1.050	0.950	600,000	699,999	0.925	0.800	600,000	699,999	0.972	0.950
700,000	799,999	1.036	0.950	700,000	799,999	0.907	0.800	700,000	799,999	0.969	0.900
800,000	899,999	1.025	0.950	800,000	899,999	0.894	0.800	800,000	899,999	0.960	0.900
900,000	999,999	1.017	0.950	900,000	999,999	0.883	0.800	900,000	999,999	0.953	0.900
1,000,000	1,099,999	1.010	0.900	1,000,000	1,099,999	0.875	0.800	1,000,000	1,099,999	0.948	0.900
1,100,000	1,199,999	1.000	0.900	1,100,000	1,199,999	0.868	0.800	1,100,000	1,199,999	0.944	0.900
1,200,000	1,299,999	0.992	0.900	1,200,000	1,299,999	0.862	0.800	1,200,000	1,299,999	0.940	0.900
1,300,000	1,399,999	0.985	0.900	1,300,000	1,399,999	0.858	0.800	1,300,000	1,399,999	0.937	0.900
1,400,000	1,499,999	0.979	0.900	1,400,000	1,499,999	0.854	0.800	1,400,000	1,499,999	0.934	0.900
1,500,000	1,999,999	0.973	0.900	1,500,000	1,999,999	0.850	0.800	1,500,000	1,999,999	0.932	0.900
2,000,000	2,499,999	0.955	0.900	2,000,000	2,499,999	0.837	0.750	2,000,000	2,499,999	0.924	0.900
2,500,000	2,999,999	0.944	0.850	2,500,000	2,999,999	0.820	0.750	2,500,000	2,999,999	0.919	0.900
3,000,000	3,499,999	0.928	0.850	3,000,000	3,499,999	0.808	0.750	3,000,000	3,499,999	0.916	0.900
3,500,000	3,999,999	0.917	0.800	3,500,000	3,999,999	0.800	0.700	3,500,000	3,999,999	0.914	0.900
4,000,000	4,499,999	0.902	0.800	4,000,000	4,499,999	0.787	0.700	4,000,000	4,499,999	0.912	0.900
4,500,000	5,000,000	0.891	0.800	4,500,000	5,000,000	0.778	0.700	4,500,000	5,000,000	0.911	0.900

C.4 Sum Insured Type

	Business Interruption
Industry Group	Gross Profit Relativity
Wholesale Trade	2.00
Retail Trade	2.00
Accommodation	1.50
Food and Beverage Services	2.00
Professional, Scientific and Technical Services	1.50
Health Care and Social Assistance	1.50
Arts and Recreation Services	1.50
Repair and Maintenance	1.50
Personal and Other Services	1.50
Private Households Employing Staff and Undifferentiated Goods	1.00
Property Owner Only	1.00
Standard/Default	1.50

C.5 Excess

		Buildings					Contents		
Excess Min	Excess Max	Wind	Flood	Surge	Excess Min	Excess Max	Wind	Flood	Surge
0	249	1.100	1.100	1.100	0	249	1.100	1.100	1.100
250	499	1.100	1.100	1.100	250	499	1.100	1.100	1.100
500	749	1.000	1.000	1.000	500	749	1.000	1.000	1.000
750	999	0.975	0.975	0.975	750	999	0.975	0.975	0.975
1,000	1,499	0.950	0.950	0.950	1,000	1,499	0.950	0.950	0.950
1,500	1,999	0.925	0.925	0.925	1,500	1,999	0.925	0.925	0.925
2,000	4,999	0.900	0.900	0.900	2,000	4,999	0.900	0.900	0.900
5,000	9,999	0.850	0.850	0.850	5,000	9,999	0.850	0.850	0.850
10,000	24,999	0.800	0.800	0.800	10,000	24,999	0.800	0.800	0.800
25,000	49,999	0.750	0.750	0.750	25,000	49,999	0.750	0.750	0.750
50,000	99,999	0.700	0.700	0.700	50,000	99,999	0.700	0.700	0.700
100,000	1,000,000	0.650	0.650	0.650	100,000	1,000,000	0.650	0.650	0.650

C.6 Industry Group

	Wind		Business Interruption
Industry Group	Buildings	Contents	Business Interruption
Wholesale Trade	1.00	1.00	0.95
Retail Trade	1.00	1.00	0.95
Accommodation	1.00	1.00	1.25
Food and Beverage Services	1.00	1.00	1.10
Professional, Scientific and Technical Services	1.00	1.00	0.80
Health Care and Social Assistance	1.00	1.00	0.70
Arts and Recreation Services	1.00	1.00	1.00
Repair and Maintenance	1.00	1.00	0.85
Personal and Other Services	1.00	1.00	0.85
Private Households Employing Staff and Undifferentiated Goods	1.00	1.00	0.85
Property Owner Only	1.00	1.00	1.00
Standard/Default	1.00	1.00	1.00

C.7 Construction Type

	Wind												Flood			Surge		
	Buildings				Contents				BI				Buildings	Contents	BI	Buildings	Contents	BI
Construction Type	A	B	C	D	A	B	C	D	A	B	C	D						
Brick Veneer	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fibro/Asbestos	1.25	1.25	1.25	1.25	1.10	1.10	1.10	1.10	1.25	1.25	1.25	1.25	1.10	1.00	1.10	1.10	1.00	1.10
Concrete/Cement/Hebel	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.90	1.00	0.90	0.90	1.00	0.90
Timber/Weatherboard/Hardiplank	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.10	1.10	1.00	1.10
Double Brick	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95
Metal Sheeting	1.15	1.15	1.15	1.15	1.10	1.10	1.10	1.10	1.15	1.15	1.15	1.15	1.00	1.00	1.00	1.00	1.00	1.00
Metal Frame	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.90	1.00	0.90	0.90	1.00	0.90
Mudbrick/Rammed Earth	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Stone	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EPS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Other	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Unknown	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00	0.95

C.8 Roof Type

	Wind		
Roof Type	Buildings	Contents	BI
Concrete Tiles	0.90	0.90	0.90
Terracotta Tile	0.90	0.90	0.90
Metal/Colorbond	1.00	1.00	1.00
Concrete	0.90	0.90	0.90
Fibro/Asbestos Cement	1.10	1.10	1.10
Shingle	1.10	1.10	1.10
Slate	1.00	1.00	1.00
Timber	1.00	1.00	1.00
Decramastic	1.00	1.00	1.00
Thatched	1.20	1.20	1.20
Other	1.00	1.00	1.00
Unknown	1.00	1.00	1.00

C.9 Construction Year

	Wind												Flood			Surge		
	Buildings				Contents				BI									
Construction Year	A	B	C	D	A	B	C	D	A	B	C	D	Buildings	Contents	BI	Buildings	Contents	BI
Pre 1920	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.00	1.00	1.00	1.00	1.00	1.00
1920 - 1949	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.00	1.00	1.00	1.00	1.00	1.00
1950 - 1959	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.00	1.00	1.00	1.00	1.00	1.00
1960 - 1969	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.00	1.00	1.00	1.00	1.00	1.00
1970 - 1981	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.00	1.00	1.00	1.00	1.00	1.00
1982 - 1989	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1990 - 1999	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2000 - 2009	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2010 - 2019	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
2020+	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Unknown	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.30	1.35	1.40	1.60	1.00	1.00	1.00	1.00	1.00	1.00

C.10 Number of Storeys

	Flood			Surge		
Number of Storeys	Buildings	Contents	BI	Buildings	Contents	BI
1	1.00	1.00	1.00	1.00	1.00	1.00
2-3	0.80	0.80	0.80	0.80	0.80	0.80
4-6	0.50	0.50	0.50	0.50	0.50	0.50
7+	0.30	0.30	0.30	0.30	0.30	0.30
Unknown	1.00	1.00	1.00	1.00	1.00	1.00

C.11 AICOW

	Business Interruption
AICOW	Business Interruption
No	1.00
Yes	1.30

C.12 Coverage Level

	Wind		Flood		Surge		Business Interruption
Coverage Level	Buildings	Contents	Buildings	Contents	Buildings	Contents	Business Interruption
A	1.00	1.00	1.00	1.00	1.00	1.00	1.00
B	1.00	1.00	1.00	1.00	1.00	1.00	1.00
C	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Not Applicable	1.00	1.00	1.00	1.00	1.00	1.00	1.00

C.13 Duration of Cover

	Business Interruption
Duration of Cover	Business Interruption
3 Months	0.60
6 Months	0.80
12 Months	1.00
18 Months	1.10
24 Months	1.20
36 Months	1.30

D Strata building premium rates

D.1 Wind Base Rates per $100 SI

Band	Wind
A	0.0000
B	0.0038
C	0.0076
D	0.0114
E	0.0144
F	0.0180
G	0.0216
H	0.0252
I	0.0288
J	0.0324
K	0.0360
L	0.0450
M	0.0552
N	0.0736
O	0.0920
P	0.1104
Q	0.1288
R	0.1472
S	0.1656
T	0.1840
U	0.2000
V	0.3500
W	0.5000
X	#N/A
Y	#N/A
Z	#N/A

D.2 Flood and Storm Surge Base Rates per $100 SI

Band	Flood	Surge
Nil	0.0000	0.0000
Minimum	0.0086	0.0056
Very Low	0.0172	0.0113
Low	0.0258	0.0188
Medium	0.0344	0.0282
High	0.0430	0.0376
Very High	0.0602	0.0470
Maximum	0.1000	0.0500

D.3 Sum Insured

		Wind	
Sum Insured Min	Sum Insured Max	Relativity applied to min. of band	Marginal relativity
0	499,999		1.000
500,000	999,999	1.000	1.000
1,000,000	1,999,999	1.000	1.000
2,000,000	2,999,999	1.000	1.000
3,000,000	3,999,999	1.000	1.000
4,000,000	4,999,999	1.000	1.000
5,000,000	5,999,999	1.000	1.000
6,000,000	6,999,999	1.000	1.000
7,000,000	7,999,999	1.000	1.000
8,000,000	8,999,999	1.000	1.000
9,000,000	9,999,999	1.000	1.000
10,000,000	14,999,999	1.000	1.000
15,000,000	19,999,999	1.000	1.000
20,000,000	24,999,999	1.000	1.000
25,000,000	29,999,999	1.000	1.000
30,000,000	34,999,999	1.000	1.000
35,000,000	39,999,999	1.000	1.000
40,000,000	44,999,999	1.000	1.000
45,000,000	49,999,999	1.000	1.000
50,000,000	54,999,999	1.000	0.900
55,000,000	59,999,999	0.991	0.726
60,000,000	64,999,999	0.969	0.720
65,000,000	69,999,999	0.950	0.720
70,000,000	74,999,999	0.933	0.720
75,000,000	79,999,999	0.919	0.720
80,000,000	84,999,999	0.907	0.720
85,000,000	89,999,999	0.896	0.720
90,000,000	94,999,999	0.886	0.720
95,000,000	99,999,999	0.877	0.720
100,000,000	119,999,999	0.869	0.720
120,000,000	139,999,999	0.844	0.720
140,000,000	159,999,999	0.827	0.720
160,000,000	179,999,999	0.813	0.720
180,000,000	199,999,999	0.803	0.720
200,000,000	249,999,999	0.795	0.720
250,000,000	299,999,999	0.780	0.720
300,000,000	349,999,999	0.770	0.720
350,000,000	399,999,999	0.763	0.720
400,000,000	449,999,999	0.757	0.720
450,000,000	499,999,999	0.753	0.720
500,000,000	549,999,999	0.750	0.720
550,000,000	599,999,999	0.747	0.720
600,000,000	649,999,999	0.745	0.720
650,000,000	699,999,999	0.743	0.720
700,000,000	749,999,999	0.741	0.720
750,000,000	100,000,000,000	0.740	0.720

D.4 Excess

Excess Min	Excess Max	Wind	Flood	Surge
0	499	1.020	1.020	1.020
500	999	1.000	1.000	1.000
1,000	1,999	0.980	0.980	0.980
2,000	4,999	0.960	0.960	0.960
5,000	9,999	0.920	0.920	0.920
10,000	24,999	0.900	0.900	0.900
25,000	49,999	0.880	0.880	0.880
50,000	99,999	0.850	0.850	0.850
100,000	249,999	0.800	0.800	0.800
250,000	499,999	0.750	0.750	0.750
500,000	749,999	0.700	0.700	0.700
750,000	999,999	0.700	0.700	0.700
1,000,000	100,000,000	0.700	0.700	0.700

D.5 Flood and Storm Surge Sublimits

	Flood					Surge				
	Sum insured band					Sum insured band				
Sublimit as % of sum insured	0-$10m	$10m-$20m	$20m-$50m	$50m-$100m	$100m+	0-$10m	$10m-$20m	$20m-$50m	$50m-$100m	$100m+
0-5%	0.45	0.49	0.55	0.62	0.76	0.45	0.49	0.55	0.62	0.76
5%-10%	0.62	0.67	0.72	0.76	0.85	0.62	0.67	0.72	0.76	0.85
10%-20%	0.71	0.77	0.82	0.85	0.89	0.71	0.77	0.82	0.85	0.89
20%-30%	0.77	0.83	0.89	0.92	0.93	0.77	0.83	0.89	0.92	0.93
30%-50%	0.84	0.91	0.96	0.97	0.98	0.84	0.91	0.96	0.97	0.98
50-100%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

D.6 Construction Type

	Wind				Flood	Surge
Construction Type	A	B	C	D		
Brick Veneer	1.00	1.00	1.00	1.00	1.00	1.00
Fibro/Asbestos	1.25	1.25	1.25	1.25	1.10	1.10
Concrete/Cement/Hebel	0.85	0.85	0.85	0.85	0.90	0.90
Timber/Weatherboard/Hardiplank	1.10	1.10	1.10	1.10	1.10	1.10
Double Brick	1.00	1.00	1.00	1.00	0.95	0.95
Metal Sheeting	1.15	1.15	1.15	1.15	1.00	1.00
Metal Frame	0.85	0.85	0.85	0.85	0.90	0.90
Stone	1.00	1.00	1.00	1.00	1.00	1.00
EPS	1.00	1.00	1.00	1.00	1.00	1.00
Other	1.00	1.00	1.00	1.00	1.00	1.00
Unknown	1.00	1.00	1.00	1.00	1.00	1.00

D.7 Roof Type

Roof Type	Wind
Concrete Tiles	1.00
Terracotta Tile	1.00
Metal/Colorbond	1.00
Concrete	0.90
Fibro/Asbestos Cement	1.10
Shingle	1.00
Slate	1.00
Timber	1.10
Decramastic	1.00
Aluminium	1.00
Iron	1.00
Copper	1.00
Other	1.00
Unknown	1.00

D.8 Construction Year

	Wind				Flood	Surge
Construction Year	A	B	C	D		
Pre 1920	1.30	1.35	1.40	1.60	1.00	1.00
1920 - 1949	1.30	1.35	1.40	1.60	1.00	1.00
1950 - 1959	1.30	1.35	1.40	1.60	1.00	1.00
1960 - 1969	1.30	1.35	1.40	1.60	1.00	1.00
1970 - 1981	1.30	1.35	1.40	1.60	1.00	1.00
1982 - 1989	1.00	1.00	1.00	1.00	1.00	1.00
1990 - 1999	1.00	1.00	1.00	1.00	1.00	1.00
2000 - 2009	1.00	1.00	1.00	1.00	1.00	1.00
2010 - 2019	0.95	0.95	0.95	0.95	1.00	1.00
2020+	0.95	0.95	0.95	0.95	1.00	1.00
Unknown	1.30	1.35	1.40	1.60	1.00	1.00

D.9 Number of Storeys

Number of Storeys	Wind	Flood	Surge
1-3	1.00	1.00	1.00
4-6	0.80	0.80	0.80
7-9	0.75	0.70	0.70
10-19	0.70	0.60	0.60
20+	0.65	0.50	0.50
Unknown	1.00	1.00	1.00

D.10 Number of Basement Levels

Number of Basement Levels	Flood	Surge
0	1.00	1.00
1	1.40	1.40
2	1.50	1.50
3+	1.60	1.60
Unknown	1.00	1.00

D.11 Coverage Level

Coverage Level	Wind	Flood	Surge
A	1.00	1.00	1.00
B	1.00	1.00	1.00
C	1.00	1.00	1.00
Not Applicable	1.00	1.00	1.00

E Comparison to insurer provided data

The primary source of information for comparing the CRP premiums to the current market is premium data provided by insurers. The data was furnished to Treasury with details of the providing insurer deidentified prior to Finity receiving the data. Insurers were asked for information on the following (amongst other items):

- Location of the property
- Sum insured
- Details of risk factor, such as construction type
- Total premium (excluding taxes and levies)
- Cyclone book premium

The data provided by insurers was on a best endeavour basis. Finity was not able to independently assess the veracity of the data. Further, the data between the insurer sources was not on a consistent basis.

We have assumed that the cyclone premium provided by insurers does not consider the risk from fluvial flooding – this would be considered typical market practice. Therefore, we estimated the flood premium as the total premium less cyclone premium less the premium for attritional/storm losses[13]. The premium for attritional/storm losses was calculated using market benchmarks and validated against the insurer data premium for no/low cyclone risk areas.

Thus, the process we followed for comparing policyholder outcomes can be summarised as:

1. Adjusted the cyclone book premium provided by insurer to be inclusive of expenses, commissions and margins. This is so that the comparisons are like for like between insurers. This required assumptions on expense, commissions and margins to be made, where these were not included in the original data.
2. Estimated the flood premium for the policy (described above). Our approach to estimating flood premium results in a premium inclusive of expenses, commissions and margins payable. We assume that insurers retain the non-cyclone flood premium using the proportions described in Section 3.3.
3. The cyclone book premium is compared with the CRP premium for wind and storm surge risk applicable to that policy. The estimated cyclone related flood premium is compared with the CRP premium for flood, where the policy has flood cover. We have included estimates for policy expenses and commissions that are likely required in addition to the CRP published reinsurance premium rates.

Home insurance typically includes flood coverage. Some home insurers offer an opt-out for flood coverage.

The comparisons for strata and SME business insurance policies are only for a sample of policies. For SME businesses in particular, the wide variety in businesses types insurers, size of businesses, etc., makes comparisons more difficult.

Flood coverage is optional for strata and SME business insurance policies, and generally not widely optioned where properties are located in high flood risk zones.

[13] There is bushfire risk in southern parts of cyclone prone regions, but this is generally small and limited to properties near bushland. For the purposes of this analysis, we do not anticipate that this materially affects the results of our analysis.