Addressing Home Insurance Affordability:
Better Reinsurance Pool

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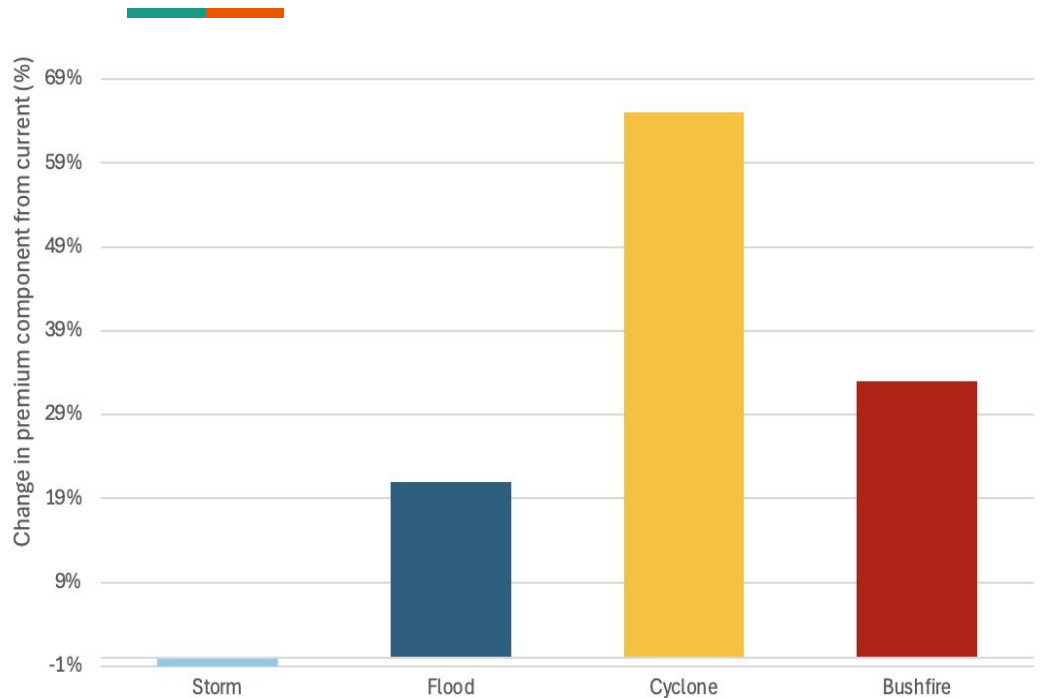
Cliff Thant

Natural Disaster Risk

Figure: Changes to annual costs of weather related hazard components under high emissions climate scenario 2050 from current

By 2050, weather-related natural hazards components of home insurance premiums are expected to rise by

6%   to   **15%**

low emissions   high emissions

$309m   **$782m**

Cyclone 65%

Bushfire 33%

Flood 21%

Storm -1%

Consumer Needs

Bushfire component of home insurance premiums is expected to rise by

$111 million   (33%)
under the high emissions scenario

$25 million   (7%)
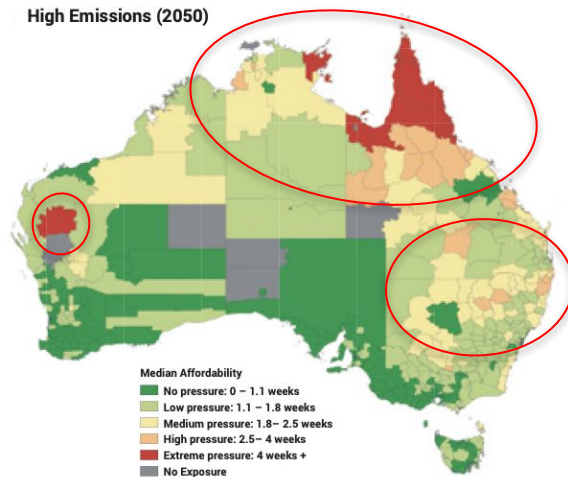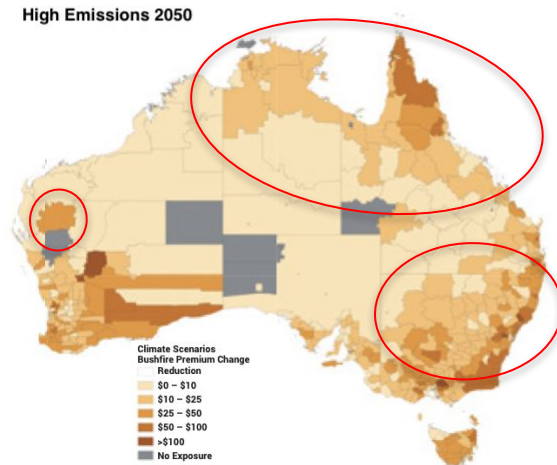under the low emissions scenario

Correlation
between
Affordability Pressure and
Bushfire Premiums Change

Map of Home Insurance Affordability Pressure by 2050

High Emissions (2050)

Median Affordability
- No pressure: 0 – 1.1 weeks
- Low pressure: 1.1 – 1.8 weeks
- Medium pressure: 1.8– 2.5 weeks
- High pressure: 2.5– 4 weeks
- Extreme pressure: 4 weeks +
- No Exposure

Map of Average Bushfire Premiums Change by 2050

High Emissions 2050

Climate Scenarios
Bushfire Premium Change Reduction
- $0 – $10
- $10 – $25
- $25 – $50
- $50 – $100
- >$100
- No Exposure

Aim

ARPC Current Model

Government Backed Reinsurance Pool for

Cyclone Events

Our Proposal to Federal Treasury:

Government Backed Reinsurance Pool for

Cyclone + Bushfire

38% reduction in home insurance premiums in high cyclone risk areas as a result of the cyclone reinsurance pool.
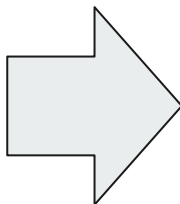
We wish to extend the ARPC model to cover bushfire risk as well as cyclone risk to improve affordability of home insurance premiums in high risk areas.

Benefits

1. Government Backed

No Cost of Capital

No Profit Margin

➡ **SAVINGS**
to be passed on to
policyholders

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2. Diversification Benefit
3. Risk Mitigation Practices
4. High Risk Areas

Reinsurance Premium Components
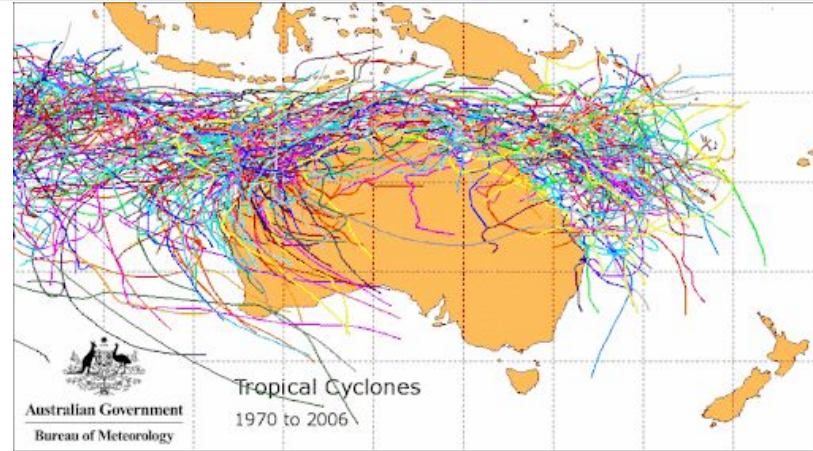

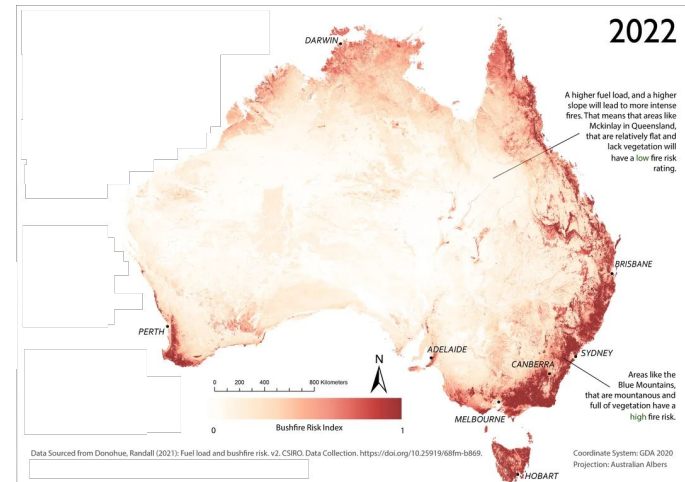Corporate Reinsurer

Government-Backed Reinsurance Pool

Benefits

1. Government Backed
2. **Diversification Benefit**

- **Geographical**

- **Frequency**

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3. Risk Mitigation Practices
4. High Risk Areas

Map of Historical Cyclones (BoM)

Tropical Cyclones 1970 to 2006

Australian Government
Bureau of Meteorology

Map of Bushfire Prone Areas (CSIRO)

2022

DARWIN

A higher fuel load, and a higher slope will lead to more intense fires. That means that areas like McKinlay in Queensland, that are relatively flat and lack vegetation will have a low fire risk rating.

BRISBANE

PERTH

ADELAIDE

CANBERRA SYDNEY

Areas like the Blue Mountains, that are mountainous and full of vegetation have a high fire risk.

MELBOURNE

Bushfire Risk Index

0   1

N

0   200   400   800 Kilometers

Data Sourced from Donohue, Randall (2021): Fuel load and bushfire risk. v2. CSIRO. Data Collection. https://doi.org/10.25919/68fm-b869.

Coordinate System: GDA 2020
Projection: Australian Albers

HOBART

Benefits

1. Government Backed
2. Diversification Benefit
3. **Risk Mitigation Practices**

Premium Discounts: Incentivise homeowners to add cyclone and bushfire resilience features with lower premiums.

Reduced Risk, Affordable Coverage: Encourages proactive measures, lowering overall claims and keeping insurance affordable.

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4. High Risk Areas

Non-Combustible Roofing

Clearing Gutters

Benefits

1. Government Backed
2. Diversification Benefit
3. Risk Mitigation Practices
4. **High Risk Areas**

Lower Premiums for High-Risk Areas: Risk pooling reduces costs for cyclone and bushfire-prone regions.

Risk Redistribution: cross-subsidise lower-risk areas to help offset the costs for higher-risk regions which ensures more affordable insurance for vulnerable communities.

Cross-Subsidisation

Pricing Model - Quantitative View

- Premium calculation for bushfire reinsurance uses the current cyclone reinsurance premium formula as a template
- Bushfire premiums are calculated separately to other risks
- Based off ARPC Premium Determination Report (Finity Consulting, September 2024)

$$Premium_{Cyclone} = SI \times Base\ Rate_{Cyclone} \times \left((RF)_{C,1} \times (RF)_{C,2} \times ... \times (RF)_{C,n}\right)$$

$$Premium_{Bushfire} = SI \times Base\ Rate_{Bushfire} \times \left((RF)_{B,1} \times (RF)_{B,2} \times ... \times (RF)_{B,m}\right)$$

SI = Sum Insured
$(RF)_{C,1}$ = Cyclone Risk Factor
$(RF)_{B,1}$ = Bushfire Risk Factor

$$Premium_{Cyclone} = SI \times Base\ Rate_{Cyclone} \times ((RF)_{C,1} \times (RF)_{C,2} \times ... \times (RF)_{C,n})$$

$$Premium_{Bushfire} = SI \times Base\ Rate_{Bushfire} \times ((RF)_{B,1} \times (RF)_{B,2} \times ... \times (RF)_{B,m})$$

		Wind	Flood	Storm surge	Bushfire	Total
Sum Insured		$450,000	$450,000	$450,000	$450,000	
Risk Band		Band Q	Medium	Maximum	Medium	
Base Rate		0.140	0.040	0.050	0.040	
Risk Relatives						
Sum Insured	$450,000	1.016				
Policy Excess	$250 excess	1.060	1.060	1.060	1.060	
Building Type	Freestanding home	1.000				
Construction Type	Timber	1.100	1.100	1.100	1.200	
Roof Type	Teracotta Tile	0.900				
Construction Year	1975	1.400	1.000	1.000	1.000	
Landlords Flag	No	1.000	1.000	1.000	1.000	
Number of Storeys	1		1.000	1.000	1.000	
Policy Coverage Level	A	1.030	1.030	1.030	1.030	
Risk Mitigation Relatives						
Garage Doors	No	1.000			1.000	
Window Openings	Shutters installed	0.900			0.900	
Replaced Roof	No	1.000			0.900	
Total risk relativity						
(product of all relatives)		1.383	1.201	1.201	1.061	
CRP Premium (ex GST, duties, and levels)		$871	$216	$270	$191	$1,548

Band	Bushfire	
	Building	Contents
Nil	0.020	0.020
Minimum	0.025	0.025
Very Low	0.030	0.030
Low	0.035	0.035
Medium	0.040	0.040
High	0.045	0.045
Very High	0.050	0.050
Maximum	0.055	0.055

Bushfire Bands

Data Inputs

- Location
  - Climate Data
  - Vegetation
  - Topography
  - Proximity to Services
- Historical Data
- Mitigation
- Building Characteristics

Wind Risk Bands
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U
V
W
No Addresses
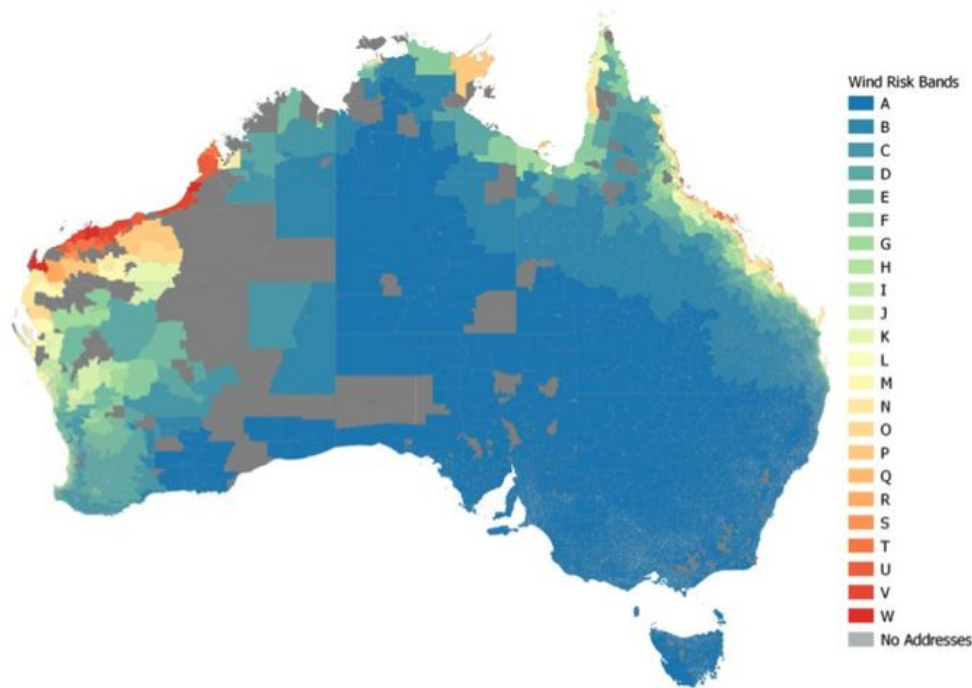
Metrics for Success - Key Considerations

Metric	Description	Importance
Reduction in Home Insurance Premiums	Track changes in insurance premiums for homes in high-risk areas.	Aim of the product is to reduce premiums and in turn increase housing affordability in high risk areas
Policyholder Participation	Monitor the proportion of eligible households with bushfire and cyclone insurance	Ensure all Australian households are benefiting from the BRP.
Loss Ratio	Assess the ratio of claims paid to premiums earned.	Measures the effectiveness of the pricing model and the success of the reinsurance pool.
Total Claims Expenses	Monitor claim amounts for bushfire and cyclone events	Measure impact of incentivised risk mitigation strategies in reducing claims as well as for disaster modelling.
Insurer Feedback	Communication channel with insurers regarding premium rates, potential changes etc.	To ensure that insurers are passing on the savings to the customers.

Conclusion