

# General Insurance Seminar

**Insuring Tomorrow**



**Actuaries  
Institute**

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# Terrorism Risk Insurance in Australia

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# Overview

Providing a wide ranging discussion on terrorism risk insurance in Australia.

1. What is terrorism and how is the global and Australian security environment changing?
2. How can terrorism risk impact property insurers in comparison to natural catastrophes?
3. How does ARPC's reinsurance scheme fund risk for insurers in Australia?
4. What are the implications for Australian property insurers for terrorism risk?

# About ARPC (2012-13FY)

ARPC is a Commonwealth corporate entity which covers \$3 trillion aggregate exposure in private commercial sector assets.

Insurer clients (cedants)	225
Retrocessionaires	57
Premium income	\$130 million
Aggregate sums insured (exposure)	\$3,010 billion
Made up of:	
• \$2,256 billion – buildings and contents	
• \$531 billion – business interruption and loss of profits	
• \$223 billion – contract works	

# What is terrorism?

Terrorism is a politically and emotionally charged term. In Australia, terrorism is defined by the Australian Criminal Code Amendment (Terrorism) Act 2003.

*A terrorist act* means an action or threat of action where there is an intention of:

advancing a political, religious or ideological cause;

**AND** either:

coercing, or influencing by intimidation, the government of the Commonwealth or a state, territory or foreign country, or intimidating the public or a section of the public.

# What is not terrorism?

The same Act also defines what is not terrorism.

- action is: advocacy, protest, dissent or industrial action  
AND
- action is not intended to cause:
  - serious harm or death or to endanger life (other than that of the person taking the action)
  - serious risk to health and safety to the public

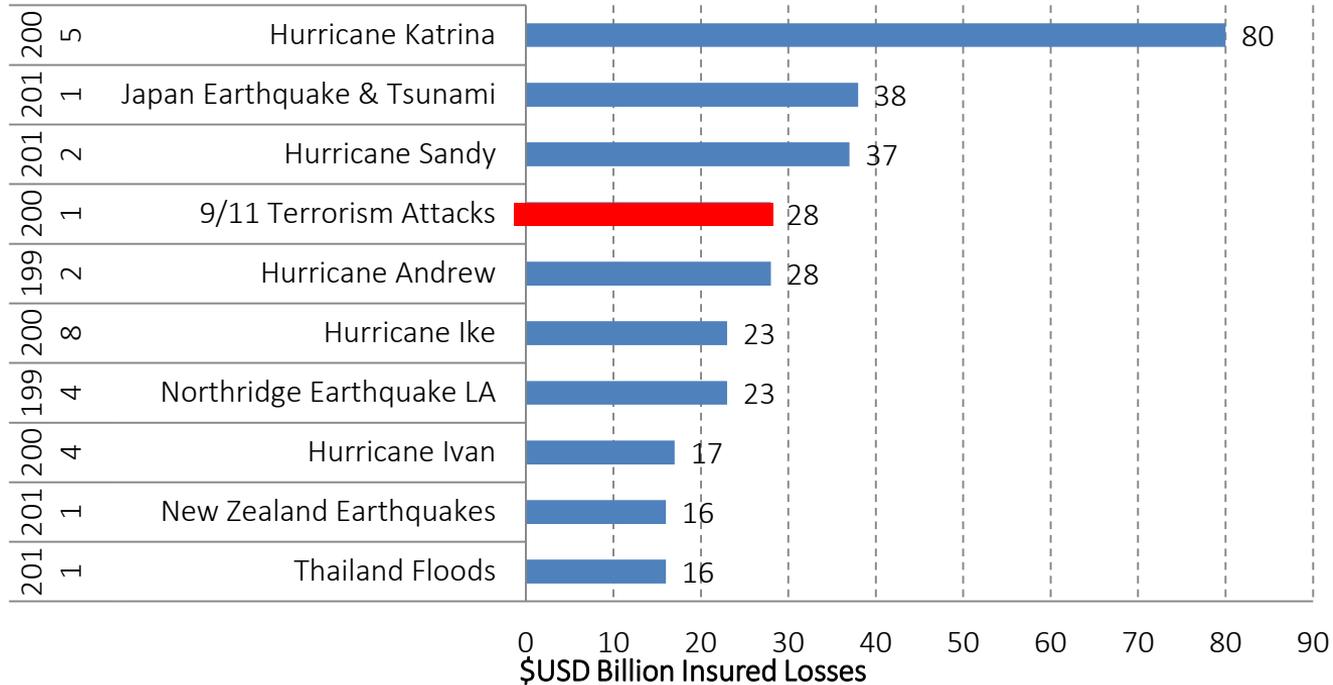
# Terrorism is a man-made catastrophe

A terrorist attack is a catastrophe, but it has different attributes to a natural catastrophe as an insured peril.

- events are not random
- frequency cannot be predicted - uncertain
- severity can be catastrophic in scale - certain
- losses can be disproportionate to the size of effort to undertake
- losses are influenced by and mitigated by the security environment
- can happen anywhere, with a wide variety of targets

These risk attributes make it difficult for traditional insurance markets to provide cost effective cover for the entire economy *that is deep, liquid, and sustainable.*

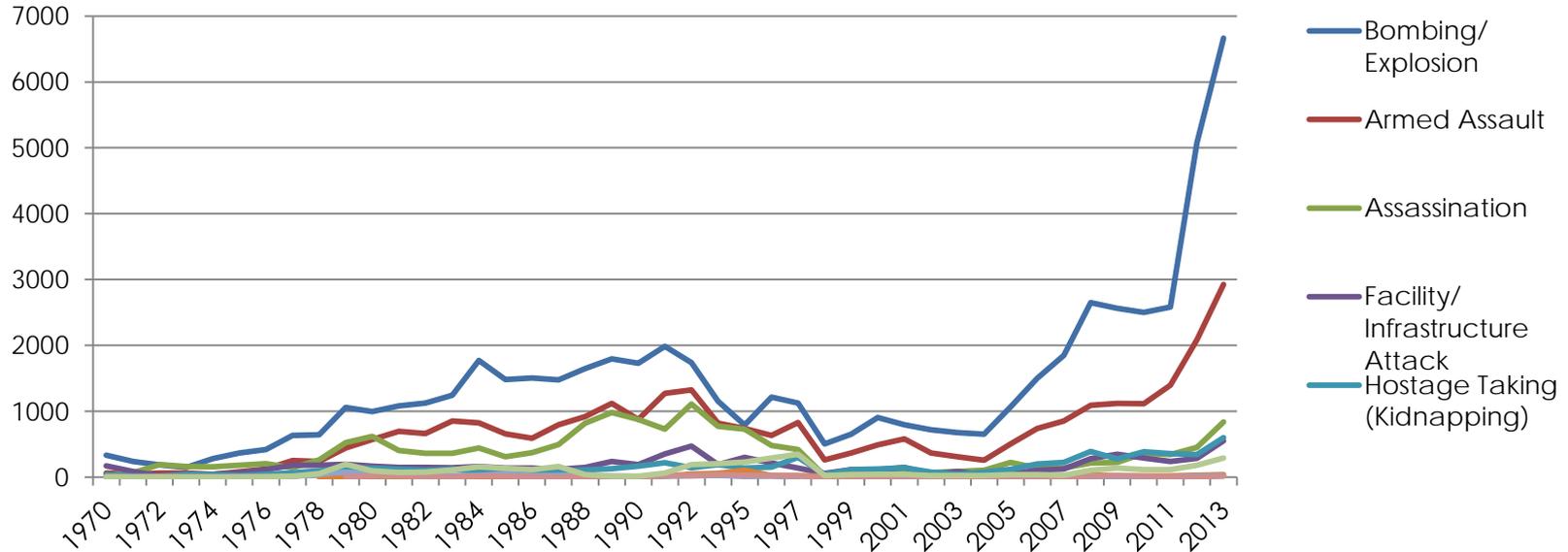
# 4<sup>th</sup> largest insured loss: September 11



Source: [Swiss Re Sigma No 1/2014](#), note: dollars are indexed to 2013

# 'Global terrorism database' trend

## Terrorism Attacks from 1970 to 2013



Source: National Consortium for the Study of Terrorism and Responses to Terrorism (START)  
Global Terrorism Database [Data file]. Retrieved from <http://www.start.umd.edu/gtd>

# ASIO assessment

The ASIO website says that the next five years will be challenging both at home and abroad and will be characterised by:

- 'the terrorist threat from Islamic extremists'
- 'the proliferation of weapons of mass destruction'
- 'radicalisation trends internationally and in Australia'
- 'continuing growth in international arrivals.'

Source: ASIO (Australian Security Intelligence Organisation) website  
[www.asio.gov.au/asio-and-national-security/threat-environment.html](http://www.asio.gov.au/asio-and-national-security/threat-environment.html)

# National Terrorism Public Alert System

The Alert System guides national preparation and planning. It also dictates levels of precaution and vigilance to minimise the risk of a terrorist incident occurring.

- Australia is at **HIGH** level of alert (since 12/09/2014)
- The National Terrorism Public Alert System is a range of four levels that communicate an assessed risk of terrorist threat to Australia. The four levels are:
- low—terrorist attack is not expected
- medium—terrorist attack could occur
- **high—terrorist attack is likely**
- extreme—terrorist attack is imminent or has occurred.



Source: [www.nationalsecurity.gov.au/Securityandyourcommunity/Pages/NationalTerrorismPublicAlertSystem.aspx](http://www.nationalsecurity.gov.au/Securityandyourcommunity/Pages/NationalTerrorismPublicAlertSystem.aspx)

# Conclusion 1

The global threat of terrorism is increasing, and there is a heightened awareness in Australia of terrorism risks.

# Risk to commercial property insurers



# ARPC exposure modelling

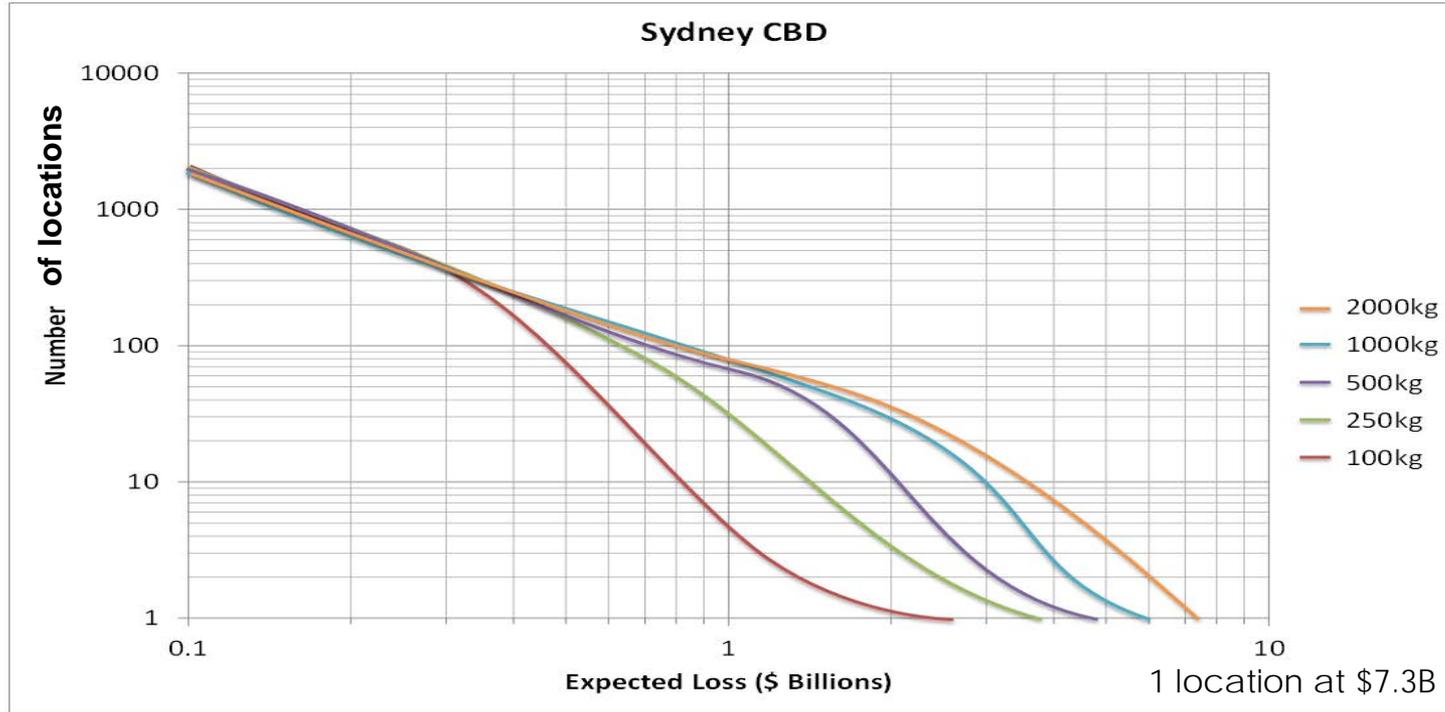
ARPC analyses its portfolio by:

- collecting postcode level exposure data from insurers nationally
- collecting street address exposure data for Sydney, Melbourne, Brisbane, & Perth CBDs
- building sophisticated simulation and loss estimation models with the assistance of Geoscience Australia and Attorney-General's Department
- understanding potential regional infrastructure exposures
- understanding biological and chemical attack exposure

# ARPC – 3D terrorism blast loss estimation

- Sydney CBD
- Blast magnitude scenario 1,000kg TNT
- Location sums insured in blast radius
  - \$14.1 billion
- Location insured loss (buildings, contents, business interruption)
  - \$5.3 billion

# ARPC 2D exposure modelling



# Terrorism likelihood?

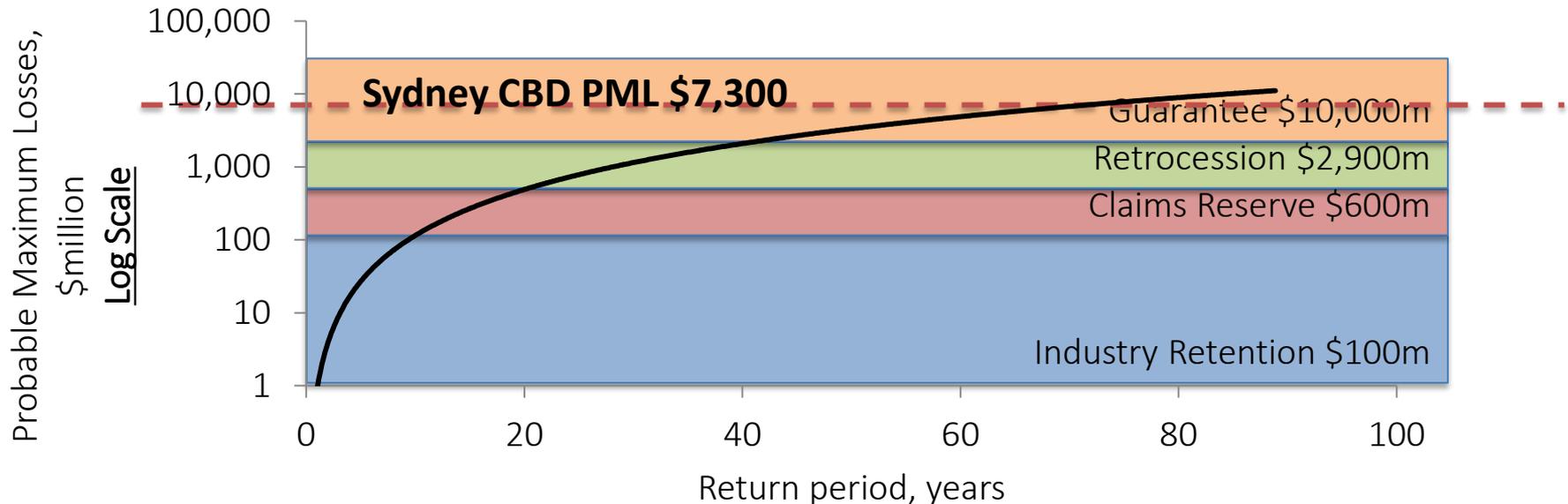
Whilst the modelling of exposure to terrorism scenarios can be done with some level of sophistication, the modelling of terrorism likelihood is much more problematic.

A recent paper by the RAND Corporation concluded:

*“Terrorism risk models based on historical event or theories of terrorist decision making are limited... They cannot extrapolate to estimate the likelihood of future attacks beyond those that have already been recognized.”*

Source: National Security Perspectives on Terrorism Risk Insurance in the United States  
by [Henry H. Willis](#), [Omar Al-Shahery](#) (2014) - RAND Corporation

# Australian terrorism reinsurance price



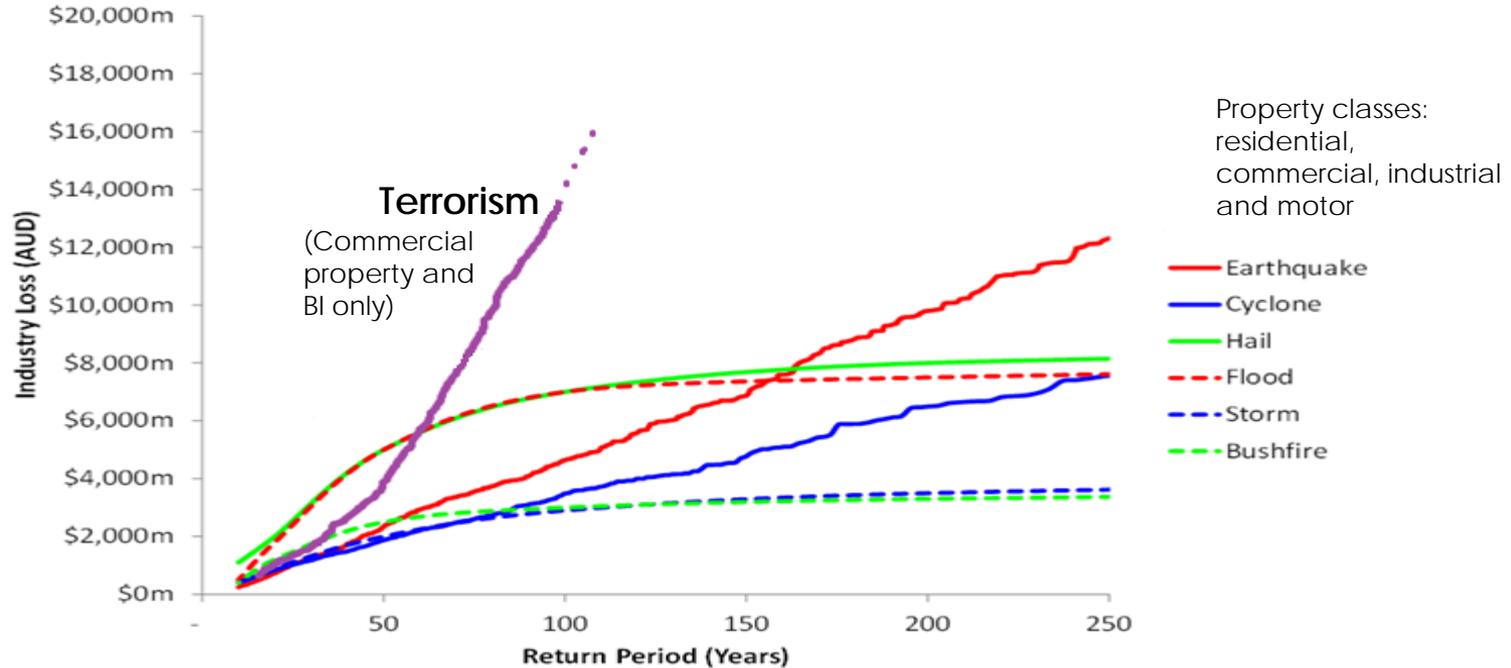
Note: Insured losses are commercial property, business interruption, and public liability.  
 Source: ARPC data

# Market price of Australian terrorism risk

The global retrocession market's view on terrorism in Australia, based on reinsurance market pricing:

- small size loss (\$500m), 1 in 20 years
- medium size loss (\$500m to \$1.5b), 1 in 30 years
- large loss (\$1.5b to \$3.5b), 1 in 50 years
- very large loss (\$3.5b to \$13.5b) 1 in 90 years.

# Comparison to natural catastrophes



Source: Gardner, W., (2012) Practical Stress Testing using Realistic Disaster Scenarios, *Australian Actuaries Institute General Insurance Seminar*

# Conclusion 2

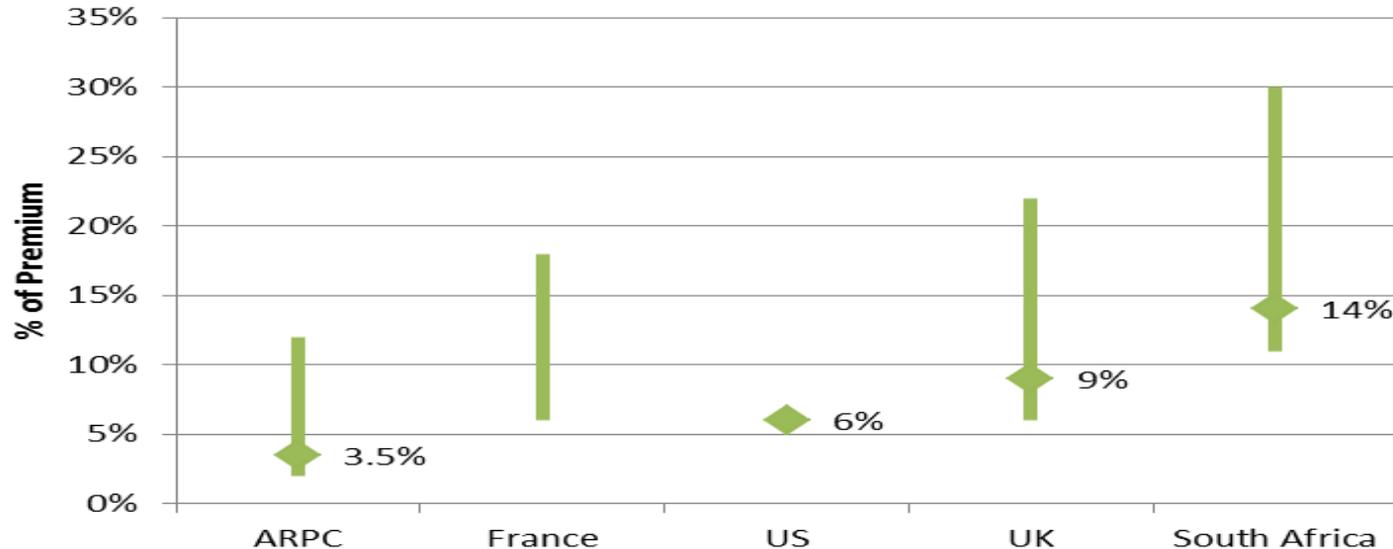
For return periods less than 1 in 50 years, the market prices terrorism at less than flood and hail but greater than earthquake, cyclone, storm and bushfire

The \$10 billion Commonwealth guarantee excess of \$3.6 billion is priced at a return period of 1 in 89 years.

Question?

Is it evidence of the level of risk – or evidence of a limited market with high pricing?

# Comparison of ARPC premium rates



Source: 'Terrorism Insurance Review – Report 2013', airmic Technical  
'2014 Terrorism Risk Insurance Report – April 2014', Marsh Risk Management  
Research

Note: the average rate for France was not available.

Private insurers determine the terrorism premium in the US. Only the average  
rate for US is shown for this comparison.

Source: ARPC Analysis comparing sums insured.  
The UK and South African weighted averages rates are  
shown.

# ARPC scheme coverage

ARPC provides reinsurance cover to private commercial sector assets.

## INCLUDED

- Commercial property
- Construction
- Private - road, tunnels, rail track, pipes
- Private - infrastructure, power plants, docks, mines
- Farms with business interruption

## EXCLUDED

- Residential property
- High rise residential
- Mixed use commercial and residential
- Marine
- Motor vehicles and CTP
- Rolling stock
- Machinery breakdown
- Aviation
- Workers compensation
- Government property
- Computer crime (cyber)
- Uninsured and underinsured

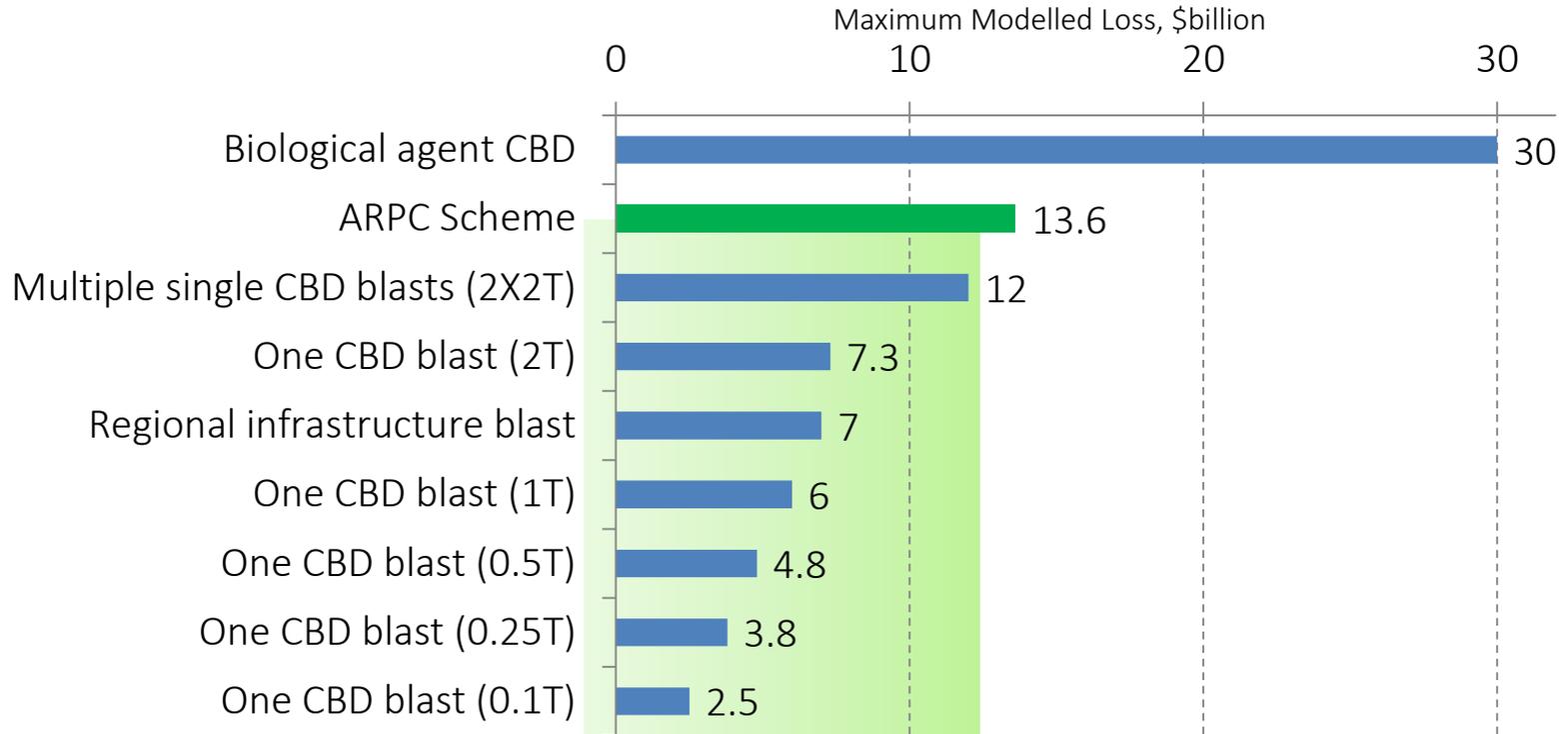
# Non-conventional attacks

ARPC does not cover non-conventional attacks. Most other terrorism insurance pools in other countries include non-conventional attacks.

## Terrorism Insurance Act 2003

- nuclear blast and contamination is specifically EXCLUDED
- biological and chemical attacks is silent and NOT EXCLUDED
  - But is EXCLUDED by primary policy pollution and contamination exclusion clauses
- war is also EXCLUDED
- biological agents attacks can be very large – in the order of \$30 billion in insured losses.

# Australian terrorist insured loss estimates



Note: Insured losses are commercial property, business interruption, and public liability  
Source: ARPC modelling.

# Market capacity for terrorism reinsurance

Market capacity is currently not sufficient to cover a PML for the entire market in either Sydney or Melbourne CBDs. A PML is for a 2 tonne TNT conventional blast.

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- Sydney CBD PML \$7.3 billion
- Melbourne CBD PML \$4.3 billion
- The 2014 ARPC retrocession program is \$3.2 billion
- There is a gap between market capacity and PML
- Without pooling, market capacity we believe would be less.

## Conclusion 3

The ARPC scheme is a sufficient size to cover modelled blast PML for Australian CBD and regional attacks on infrastructure

ARPC's \$3.2 billion retrocession program purchases almost all available global capacity offered.

# Implications for insurers

Top 9 insurers (grouped into threes) insured losses for Sydney CBD 2T blast with PML of \$7.3 billion.

	Market share	Total potential loss \$billion (unreinsured)	Total insurer retention \$million (reinsured)
A Group	40%	\$2.9 b	\$17 m
B Group	24%	\$1.8 b	\$22 m
C Group	11%	\$0.8 b	\$21 m
<b>TOP 9</b>	<b>75%</b>	<b>\$5.5 b</b>	<b>\$60 m</b>

Without terrorism cover the top three insurers could suffer a combined loss of \$2.9 billion.

Source: ARPC RISE system, insurer submitted exposure data at EOFY 2013

# Impact on capital

Without terrorism reinsurance, a PML event significantly impacts insurer capital.

	Latest APRA statistics (Dec 2013)			Postcode 2000 PML scenario		
	Current capital base \$billion	Current MCR or PCR \$billion	Current solvency ratio	SI market share	Total potential loss \$billion	% of capital base
A Group	\$1.6 b	\$0.9 b	1.8	40%	\$2.9 b	177%
B Group	\$2.0 b	\$1.3 b	1.5	24%	\$1.8 b	88%
C Group	\$3.0 b	\$1.8 b	1.7	11%	\$0.8 b	27%
<b>TOP 9</b>	<b>\$6.6 b</b>	<b>\$4.0 b</b>	<b>1.7</b>	<b>75%</b>	<b>\$5.5 b</b>	<b>83%</b>

# ARPC reinsured vs not

## If reinsured with ARPC:

- the contribution of terrorism risk to “other accumulations vertical requirement” is a maximum of \$10 million (retention) for an insurer and \$100 million total for all (industry retention).

## If not reinsured with ARPC:

- an insurer may be exposed to a share in a loss of \$7B plus for a single CBD attack
- the top 3 individual Sydney CBD insurers could suffer losses around \$1B each or almost double their current combined capital base.

# Insurer protection under the Act

Insurers who reinsure with ARPC are offered significant capital protection through the Terrorism Insurance Act 2003.

## REINSURED WITH ARPC

- ARPC is liable, and not the insurer
- eligible contracts of insurance are protected
- the Commonwealth guarantee is available
- reduction percentage applies for very large losses to limit liability.

## NOT REINSURED WITH ARPC

- the insurer is liable
- the Commonwealth guarantee is not available
- reduction percentage is not applied.

## Conclusion 4

Insurers may have significant terrorism exposures, and this should be considered in capital adequacy calculations if they are not reinsured with ARPC.

Some insurers face exposures in the order of \$1 billion.

# Wrap-up

- Threat of terrorism is real and increasing globally
- Terrorism insurance pools are an effective way to mitigate the risk
- ARPC delivers significant capacity and value to the market.