

Attachment 1.14

AON: Insurance Advice Report - Insurance costs and coverage impacts arising from cuts in vegetation management expenditure for the 2014-2019 regulatory period (PUBLIC)

January 2015





Insurance Advice Report

Networks NSW

Ausgrid, Endeavour Energy and Essential Energy

PUBLIC VERSION

Insurance costs and coverage impacts arising from cuts in vegetation management expenditure for the 2014-2019 regulatory period.

13 January 2015



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Acknowledgements

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Such persons have been provided with a copy of the Federal Court of Australia’s “Guidelines for Expert Witnesses in Proceeding in the Federal Court of Australia” and that the Report has been prepared in accordance with those Guidelines, refer to Appendix 1 to these Terms of Reference or alternatively online at <http://www.federalcourt.gov.au/law-and-practice-documents/practice-notes/cm7>

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Executive Summary

Introduction

Aon Risk Services Australia Limited (Aon) is pleased to report to Networks NSW. Networks NSW (NNSW) is a cooperative operating model across Ausgrid, Endeavour Energy and Essential Energy. The objective of NNSW is to contain the costs of building, maintaining and operating the NSW electricity networks in a safe, reliable and sustainable manner. This advice is being sought in relation to insurance costs and coverage impacts arising from cuts in vegetation management expenditure for the 2014-2019 regulatory period.

NNSW requires insurance and risk expertise and relevant industry experience in providing this advice as the findings will be submitted by each NNSW business to the Australian Energy Regulator (AER) as part of the revised proposals in January 2015.

Aon's advice is supplied to assist NNSW assess the impact on insurance costs and coverage if the overall proposed AER operational expenditure percentage Opex and/or Capex cuts were applied in the same proportion to vegetation management expenditure (i.e. Ausgrid (39%), Endeavour (23%), Essential (38%)) for the 2014-2019 regulatory period.

Key Findings

"[The electricity companies] need to do everything they can to stop another avoidable disaster from destroying so many lives."

Carole Williams, who lost her son on Black Saturday

<http://www.abc.net.au/news/2014-12-23/judge-approves-black-saturday-class-action-settlement/5984374>

"Insufficient electricity aerial line clearance with underlying vegetation" is cited by insurers as a cause of bushfire.
(1)

There is no doubt that a reduction in preventative asset management such as vegetation controls would result in severely increased premiums. Current premium discounts enjoyed by NNSW against insurer technical rating structures would be reduced or withdrawn.

Insurance markets could potentially withdraw their bushfire liability coverage, particularly at the primary and lower excess levels leaving NNSW partially or substantially uninsured.

Based on the findings, analysis and considerations contained within this Report, Aon estimates that under current insurance market conditions and without further losses from bushfire liability accruing to the specialist insurance market, potentially estimated and unverified composite premium costs **CONFIDENTIAL** **representing an increase of up to c.125% over the current 2014-2015 insurance position.**

A potential and likely scenario could present NNSW with issues of the magnitude of the following:



- Withdrawal of insurer support and therefore capacity from the program ultimately impacting at primary levels of insurance coverage **CONFIDENTIAL** and greater thereafter, potentially resulting in the incorporation of a substantially higher annual self-insured-retentions placed upon NNSW entities during the 2014-2019 regulatory period.
- **CONFIDENTIAL**
- Increased premium rates at all levels of the program. **CONFIDENTIAL**
- Insurance security comprising the world's Energy Liability market are effectively the same for all Government and private sector buyers internationally, whether accessed through direct insurance mechanisms or as reinsurance capacity. Accordingly there is, globally, a finite source of capacity available to underwrite risks in this space.
- Given the positive differentiation that NNSW has achieved with markets in the past through effective risk management regimes including vegetation management initiatives, faced with a more exposed risk profile NNSW insurers could seek other opportunities and simply walk-away.

The position detailed above for NNSW is conservative in that it does not consider other circumstances or eventualities arising from unrelated bushfire / wildfire events locally or even internationally which could further impact the restricted insurance market environment.

If underwriters become exposed to bushfire losses arising from insured contingencies occurring across Australia or internationally, say from increased claims arising from a poor bushfire or wildfire season, then market conditions could rapidly deteriorate.

In such circumstances, and given the past positive differentiation that NNSW has effectively conveyed to markets demonstrated through effective and prudent risk management regimes including vegetation management initiatives, faced with a more exposed risk profile the NNSW insurers could seek other opportunities in utilisation of their capacities and simply walk-away.

This holds the potential to leave NNSW in an untenable, effectively partially or even largely uninsured position at some point over the course of the next 5 years.



About Aon



Aon at a glance

[Aon plc](#) (NYSE:AON) is the leading global provider of [risk management](#), insurance and [reinsurance](#) brokerage. Through its more than 66,000 colleagues worldwide, [Aon](#) unites to empower results for clients in over 120 countries via [innovative](#) and effective [risk](#) and [people](#) solutions and through industry-leading global resources and technical expertise. Aon has been named repeatedly as the world's best [broker](#), best insurance intermediary, best reinsurance intermediary, best captives manager, and best [employee benefits](#) consulting firm by multiple industry sources. Visit [aon.com](#) for more information on Aon.

Industry Leading Global Resources

Our industry-leading global resources, technical expertise and industry knowledge are delivered locally through more than 500 offices in more than 120 countries. Aon was ranked by A.M. Best as the No. 1 global insurance brokerage in 2009, based on brokerage revenues, and voted best insurance intermediary, best reinsurance intermediary and best captives manager in 2010 by the readers of *Business Insurance*.

Aon recognised many years ago that our clients want products and services built around their unique needs and provided by professionals with deep expertise in their industries and local markets. We saw that globalisation demanded two capabilities: gather the best thinking from around the world and then deliver solutions locally. With worldwide distribution, a vast base of intellectual capital, and leading technology, we have built a professional services company to achieve these important goals—all focused on areas increasingly in demand: insurance brokerage, risk management, and human capital consulting.

Insurance and Risk Management

Insurance and risk management is now widely viewed as a critical boardroom issue. It is the cornerstone of every company's capital structure. A poorly constructed program may leave your organization vulnerable to major long-term setbacks, or worse, insolvency and bankruptcy. When well-designed, an insurance and risk management program frees you to pursue your vision—unhindered by concerns that you may need to hoard precious financial capital or maintain unusually high levels of liquidity.



Reinsurance

Reinsurance is critical to helping insurance companies underwrite risk profitably, while preserving or enhancing capital strength and ratings. Aon Benfield, the world's leading reinsurance broker and intermediary, provides clients with integrated capital solutions and services, delivering objective advice and fostering competition among highly rated reinsurers and an expanding array of new and alternative capital providers. Clients are better able to differentiate and meet their business objectives with our treaty and facultative reinsurance placement services, capital markets expertise, and relevant analytics and technical expertise, including catastrophe management, actuarial and rating agency counsel.

To effectively deliver these, and other, services, Aon has developed a global network of local resources brought together via our Global Business Units and a Strategic Account Management system. These resources let us deliver services around the world—to multinational companies, small businesses, independent agents or brokers, associations and affinity groups and even individual consumers—with the local expertise necessary to meet your specific needs.

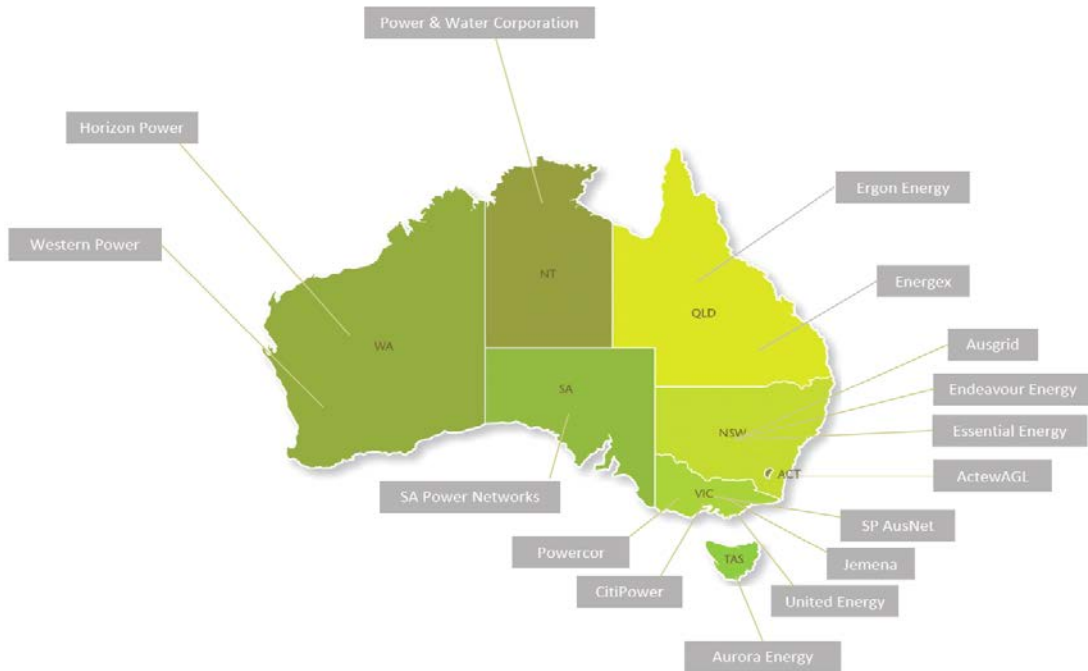
Electricity Distribution Experience

Aon is heavily experienced across the broad majority of the electricity distribution space across Australia. As evidenced in the following graphics Aon represents 10 of Australia's 16 electricity distribution providers. Kindly note Aon is no longer providing insurance broker services to Western Power stakeholders since late 2014.

Internationally, Aon acts for a broad cross-section of electricity distribution and/or associated clientele reflective of our position as the leading insurance and reinsurance brokerage provider, including the resourcing of specialist international insurance broking capabilities headquartered in the key UK insurance marketplace, with whom NNSW regularly inter-react in support of your own General Liability Program insurance arrangements.

Electricity distribution experience

All Australian Electricity Distribution Businesses



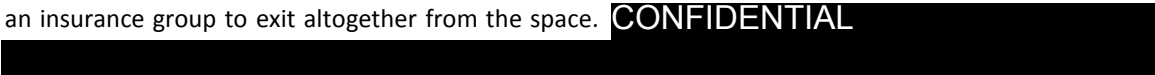
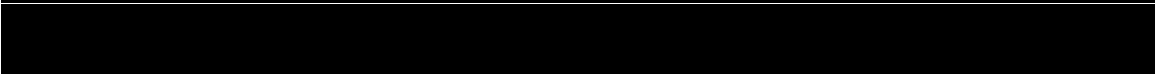
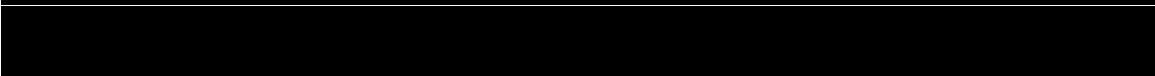

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The Energy Liability Insurance Market

The sector of this restricted global (re)insurance market with the capability, capacity and appetite to underwrite Australian (Public or) General Liability insurance for electricity distribution businesses specifically facing bushfire and failure-to-supply risk profiles, such as NNSW, can be categorised by the following key features:

Key Market Features

1. The market is truly international, essentially comprising underwriters operating on a Global scale with the ability to write international business, combined with selected locally represented insurers many of which are global carriers in their own right.
2. International markets with such ability are typically drawn from the global insurance marketplace, traditionally headquartered in London (UK) however with certain hubs more recently developed in other jurisdictions such as EU, Singapore and Bermuda.
3. In Australia, typically a select field of major insurers have the capability to underwrite such business, especially related to bushfire liability exposures however also with relevance to “failure-to-supply” exposures and other risks emanating from distributor-specific factors such as electro-magnetic field exposures.
4. Capacity for such risks is restricted, there is a finite amount of insurance capacity globally to support the General Liability insurance programs of Australian (and non-Australian) distribution businesses.
5. Factors impacting upon insurers’ ability or want to underwrite such risks are generally driven by the need to accommodate coverage over bushfire liabilities as part of the broader General Liability insurance program. In part this is also driven by the availability of an insurer’s appropriate reinsurance protections.
6. The insurance market in this sector is particularly dynamic, for instance a decision can be made globally by an insurance group to exit altogether from the space. **CONFIDENTIAL**



7. Dynamic factors driving the decisions of insurers to participate in this marketplace include the evolving claims environment (such as recent class-action claims and settlements arising from bushfires across Australia), and other issues which are constantly under review such as the impacts of climate change and the associated potential heightened bushfire exposures.
8. Such dynamism extends to losses incurred unrelated to Australia but impacting upon the same international capacity, such as Californian / US wildfires where the same insurers will typically be exposed.
9. Generally, liability coverage for bushfire exposures is only offered by insurance markets on an annually aggregated basis of limit of liability (sum insured) - **CONFIDENTIAL**




There is general recognition that bushfire liability exposures are considered a key risk driver in this insurance marketplace. We reference a South Australian Power Networks Insurance Premium Forecast Report dated September 2014 where at page 6, for Liability insurance, a systematic driver is stated as:

“Catastrophic losses, however, are the real focus of or underwriters and are therefore the real drivers behind any changes to premiums.

The key liability risk for SA Power Networks is bushfire liability risk.” (2)

General Climate Change Considerations

As mentioned at point 7 above, climate change factors are increasingly impacting upon insurer attitudes in affording capacity in many areas, including to underwritten portfolios facing specific exposures to flood and, for the purposes of this Report, bushfire. For instance, Lloyds have formed an Emerging Risks team which is part of the Lloyds Performance Management Directorate. Working with the Met Office, this group have recently released a Report titled “FORECASTING RISK - The value of long-range forecasting for the insurance industry”.

“The climate is clearly changing, with increasing evidence this climate change is leading to more frequent severe weather events. This results, together with increasing property values and concentrations of population in catastrophe-exposed areas, in increased insurance losses. Insurers need to find better ways of predicting these extreme events and the techniques of longrange forecasting provide a welcome addition to the debate on how to do so.”

“We believe that such longer-range forecasting techniques will have an increasingly important role to play in the insurance market and help to significantly improve and develop existing practices – particularly as the impacts of climate change are increasingly felt. That is why we held a series of workshops with modelling and forecasting experts from within and outside the Lloyd’s market. It is important that long-range forecasting and related modelling techniques are properly debated and evaluated and the findings shared for the wider benefit of the industry.” (3)

The insurance industry is aware that the treatment of fiscal risk related to catastrophic climate change events is high on governmental agendas. CSIRO have, for example, recently published a Discussion Paper:

“Australia’s climate has already changed and further change is inevitable. Climate change brings more frequent or intense extreme weather events and has the potential to magnify the fiscal implications of climate risk for the Commonwealth. At the same time, population growth and trends in settlement patterns (increasing urbanisation of coastlines, flood plains and mountain districts means development in Australia can be expected to continue to be concentrated in zones of high climate risk.”

“The Australian Government lacks a systematic assessment of the fiscal implications for the Commonwealth of changing climate risks. A better understanding of fiscal implications of climate risk and how they are changing is required. In addition, consideration of ways to disclose: (i) medium term fiscal risks over the forward estimates in the budget; and/or (ii) longer term fiscal risks in the Inter Generational Report (IGR) could help improve the Commonwealth’s capacity to manage fiscal and climate risks.” (4)

Insurers are increasingly seeing opportunities to profit in selective utilisation of insurance as an alternative risk treatment method.



Aon comments that those Insureds who remain positively un-differentiated from their peers in terms of risk management practices and, in this sector specifically, vegetation management practices are likely to experience greater negative insurance impacts where insurers will continue to seek the best allocation of their capital against lesser exposed risks.

NNSW Considerations

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Summary

For these and other highly relevant commercial reasons including, for instance, securing optimal pricing from a restricted insurance-capacity pool and tailored coverage structures afforded over 'failure-to-supply' exposures, insurance markets are approached by the majority of distribution customers and their insurance brokers on a highly strategic basis in performing renewals and also in managing claims.

Significant weight is applied by insurers in their considerations to underwriting such risks on an Insured's risk management practices and controls in addressing business-specific exposures.

Particular emphasis is placed on any Insured's risk management and commensurate mitigations, for this sector being keenly applied focus to the key exposure of bushfire liabilities, i.e. vegetation management practices evidencing control.

For bushfire liability exposed businesses the positive differentiation of such practices against peers can mean the difference between achieving an optimal General Liability insurance position from the restricted insurance marketplace, or otherwise.



Insurance underwriting considerations for electricity distribution General Liability insurance

This sector of the global insurance market is and remains extremely volatile, driven by individual underwriter perceptions to unpredictable change. Any sudden alteration from the carefully conveyed risk exposure and management position, adverse losses occurring, or sudden change in risk profile can facilitate broad negative reaction from the restricted marketplace resulting in wholesale changes in underwriters' position on providing future insurance.

The key driver in this sector is the potential to accrue losses through bushfire liability insurance claims.

The key mitigation therefore, being vegetation management as part of an organisations wider risk management governance and controls, is critical for the purposes of delivering ongoing satisfactory structured insurance solutions and executing placements.

Insurance security comprising the world's Energy Liability market are effectively the same for all Government and private sector buyers internationally, whether accessed through direct insurance mechanisms or as reinsurance capacity. Accordingly there is, globally, a finite source of capacity available to underwrite risks in this space.

Insurers assess exposure through client-specific insurable risk profiles and associated risk management protocols and regimes which demonstrate effectiveness in loss or potential loss mitigation.

Generically, the process of assessing and underwriting bushfire liability varies depending upon the Insurance Company and experience of the underwriting staff. Some may also refer risks to reinsurance partners for specific input, particularly around rating and portfolio modelling.

However in our experience most underwriters would seek to develop and apply modelling techniques commonly used across their portfolio of liability business.

Essentially a model would involve the use of historical data to create a theory of casualty that is used to predict future trends. It should allow the underwriter to provide consistency in risk appetite and pricing and allow them to compare and contrast potential and existing clients. The model would be developed by the underwriter in conjunction with actuarial staff or consultants.

Accurate historical bushfire liability data is difficult to source and often incomplete, therefore assumptions will be made.

Often liability settlements are made out of court. Data must also be inflated to current values which can be difficult given that exposures and the legal framework in which the liability will be examined is constantly evolving.

Other problems with sourcing data for liability losses from bushfires is the confidential nature of settlements, and initial reporting of losses where there are changes in the amount reserved when claims are first made and amounts ultimately paid when the claim is finalised, often several years later.

"In addition, large utility corporations and government self-managed insurance funds have considerable self-insured retentions which absorb many losses from small frequent bushfires." (5)



In relation to bushfire risk, historical data cannot be relied upon as:

- The population and demographics will have changed over time;
- Weather conditions and droughts need to be considered;
- There have been significant Improvements in fire fighting and communications technology;
- There has been development of building practices and building legislation over time.

As suggested by Lloyds:

“Predicting wildfire insured losses is difficult as changes in building practices and developing urbanisation of wildfire risk prone areas limit the effectiveness of relying on historical losses. However, despite the limitations of historical data, businesses continue to rely on them to estimate future wildfire losses. Companies, such as RMS, AIR and Eqecat, have developed catastrophe models for potential high exposure regions, such as California and Australia. These models incorporate additional factors to historical data, such as weather data, post-disaster damage survey, elevation and related slope and aspect, susceptibility of a structure and accessibility of locations for initial fire suppression efforts.” (6)

Therefore historical data can only be used as a starting point when an underwriter seeks to develop a model.

In our experience, normally underwriters and associated actuaries would seek to standardise the historical data, that is, they would apply set values to deaths, injuries and damage to third party structures such as housing. Such standardised historical data would then be used to create assumptions around frequency and severity.

Often for Australian risk the assumptions would be different for each state and/or region given the geography involved and the differing bushfire regions. Frequency is normally based on historical event data and severity would be modelled using a Pareto distribution or similar model.

“In the process of underwriting and evaluating risk, the job of the liability underwriter is to estimate the maximum foreseeable loss (MFL) for bushfire exposure from single risk accounts..... Calculation of the MFL will enable the liability underwriter to determine the full extent of bushfire liability in any given layer with a program structure of the single account.”(7)

From the modelling, return periods will be calculated and applied as appropriate to the risk being insured, which also holds relevance to the attachment point of the coverage being considered i.e. primary or excess insurance layers of insurance.

Underwriters would then seek to apply more specific underwriting to the account using available client risk information. As previously mentioned, for this sector vegetation management protocols are key.

This may result in rating discounts or loadings being applied to the derived basic technical premium. This course is best demonstrated by:

“...there are good grounds for a liability underwriter to make a subjective decision on applying a discount to the required technical premium developed using the return period payback methodology. The level of discount that may be applied will depend on numerous factors that are relevant to a particular risk such as with electricity industry, the extent of transmission lines that have single return power lines and 22 kilovolt



feeders replaced with underground cabling, preventative asset management, ignition and easement control and documented risk management and any statutory limitation of liability.” (8)

There is no doubt using historical data to develop insurance rating models is flawed and in recent times underwriters have worked to develop new methods.

Swiss Re, in particular, has developed a new approach which they have named “liability dynamics”. In this model they use “risk of change”:

“Virtually all developments in society, economy, environment, technology or in the regulatory/legal field may have an impact on liability risk. These can be emerging risks from new technologies or materials, or new threats such as climate change, which is not only a challenge for Swiss Re as a property / natural catastrophe reinsurer, but also an issue for liability insurance” (9)

Swiss Re’s model is based not only on historical events but also takes into account exposure-based events, and other changes and developments:

“We have now a liability risk drivers (LRD) model in place that is based on the systematic assessment of all observable risk factors. We think we have a much clearer picture now about the cause-effect chain between a liability event and the resulting claims. It allows us a real exposure-based – instead of experience only – risk assessment. In other words, we can distinguish all relevant individual risk factors, quantify them individually and determine their impact on an eventual liability claim. And if some of these factors change, ... we will adjust the respective risk factors in the model. This means greatly improved predictive capabilities, that is, better underwriting and risk selection.”

“Underwriting quality matters more than ever. Therefore, it is crucially important to calculate the claims costs right, particularly given the currently record-low interest rates that exert significant pressure and make achieving technical underwriting profits an absolute necessity. The thorough understanding of dynamic liability drivers, and their translation into casualty modelling, are key success factors – in terms of reliable insurance coverage supply and business profitability – for casualty insurance now and in the future. The new models and results will also help to increase market transparency, improve risk awareness, and the understanding of casualty peak exposures in the industry. We think we are on a promising track with our new models, and, going forward, intend to continue an active dialogue with our clients and other stakeholders.” (10)

In effect Swiss Re is seeking to put more rigour and transparency around the subjective and intuitive issues that underwriters apply when completing specific account underwriting.

Lloyds comment “Australia continues to be the ‘fire continent’”:

“8.3 Mitigating wildfire risk

An effective wildfire mitigation strategy needs not only to minimise the effect of wildfire on lives and property, but also to avoid conditions that may lead to particularly damaging fires. This means not only protecting properties and other infrastructures against fires, but also managing the landscape in a way that minimises the risk of severe wildfires.

Efforts to move away from a suppression focused policy require the re-introduction of natural fire occurrence and risk mitigation efforts to protect Wildland Urban Interface communities. Florida and



Western Australia have recently developed prescribed fire programmes to complement suppression capabilities and they have largely avoided high impact mega-fires (11)

7.2 Modelling wildfire losses

Predicting wildfire insured losses is difficult as changes in building practices and developing urbanisation of wildfire risk prone areas limit the effectiveness of relying on historical losses. However, despite the limitations of historical data, businesses continue to rely on them to estimate future wildfire losses. Companies, such as RMS, AIR and Eqecat, have developed catastrophe models for potential high exposure regions, such as California and Australia. These models incorporate additional factors to historical data, such as weather data, post-disaster damage survey, elevation and related slope and aspect, susceptibility of a structure and accessibility of locations for initial fire suppression efforts.

Liability insurance is also another line of business which may be affected by wildfires as unintentional ignition could lead to large claims under a liability cover as demonstrated by Sempra's case in 2007 (12)

or Wildfire: A burning issue for insurers?

the 2009 Black Saturday case (see box 2). Wildfires are one of the few potential man-made natural catastrophes, which can affect liability insurers. If there is evidence that a fire was the result of human action and liability is established, the claims will be transferred from property to liability insurers. The Ash Wednesday bushfires was another case when much of the insurance burden was transferred from the property to the liability area although it took several years to establish liability and for recoveries to be made by the property insurers. One of the main causes was due to inadequately maintained power lines belonging to the electricity authorities of South Australia and Victoria. The total amount recovered was \$135m although this included uninsured recoveries as well." (13)

The point to note is, whichever method is applied, underwriters take into account specific-account underwriting exposures and risk controls when making risk acceptance and rating decisions.

For example:

"Insufficient electricity aerial line clearance with underlying vegetation" (14)

is cited as a cause of bushfire. The depth of controls adopted over these exposures is critical to the liability insurance solution for electricity distribution businesses.



NNSW General Liability Insurance – Current Market Position

A key driver of the current optimised General Liability insurance program position is the positive differentiation applied to NNSW's risk management governance, and specifically related to past and current vegetation management strategies.

NNSW currently purchase general liability coverage of CONFIDENTIAL which includes personal injury and property damage cover for a variety of risks including bushfire liability.

The NNSW General Liability insurance program is extremely complex in nature, having evolved through targeted and strategic use of available insurers and capacity for many years. The sheer number of participating insurers to the insurance program evidences the complexities associated with optimising the insurance risk transfer solutions.

The majority of the insurers providing participation on the current program are at or near their maximum capacity levels.

There are very few insurance markets available to NNSW beyond those already participating on the program. Those with capacity available and also appetite have consistently advised that current pricing structures are too competitive to enable their ready participation, or that current retention structures are in their view inappropriate and low.

Relationships have been developed with all key markets in this sector in facilitating the optimal insurance solution as it currently stands.

NNSW, or their predecessors, have strategically managed their General Liability Insurance Scheme (GLIS) successfully as a consortium representing all NSW distributors for the past 27 years.

A common feature of the annual insurance broking and strategy certainly evidenced since at least since 2008 and likely before, has been the focus applied by the respective GLIS entities to prudent risk management, and in particular related to vegetation management practices which are seen by the insurance market as instrumental in the mitigation of the NSW distributors' bushfire exposures.

A key strategic focus over this time has been to differentiate the GLIS entities from their Australian peers through a combination of detailing activities and spend (both CAPEX and OPEX) associated with vegetation management practices, and also geographic factors such as bushfire zoning across Australia. Other features where positive differentiation has been applied for the purposes of insurance market interaction on bushfire risks under General Liability insurance include line inspection practices, and condition based monitoring processes.

Further, NNSW are able to demonstrate to insurers a prudent, formal and structured approach to risk management which focuses on mitigating risk to the general public, contractors, emergency services workers and employees. In turn reducing the public liability exposure of NNSW.



Various models have also been utilised a part of the overall “risk prospectus” which is presented to all key insurance underwriters, many of whom have continued to support the NSW program following relocation to other underwriting firms.

The success of this strategy is no more evident than during the current GLIS renewal for 2014-2015 where, despite recent substantial bushfire liability settlements arising from class actions interstate, and Endeavour Energy defending a potential \$200m class action(s), **CONFIDENTIAL** **CONFIDENTIAL**
[REDACTED]

CONFIDENTIAL **[REDACTED]**
[REDACTED]

CONFIDENTIAL **[REDACTED]**
[REDACTED]

Following is the 2013-2014 and 2014-2015 GLIS placement structure charts evidencing the complex nature of the insurance arrangements:

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NNSW General Liability Insurance – Future Market Position

This Insurance Advisory Report responds to potential coverage impact and insurance costs arising from cuts in vegetation management expenditure by respective NSW entities for the 2014-2019 regulatory period.


Even before the subject of reduced spending on vegetation management arises, Aon comments it is extremely difficult to foresee future insurance market conditions, especially related to the market for electricity distribution businesses primarily in terms of bushfire liability exposures.

These forecasting difficulties escalate exponentially for predictions of the market condition into the future, say over the coming five year period, for the reasons and factors outlined earlier in this Report, which can be summarised as:

- I. Uncertainties around future climate change impacts;
- II. Uncertainties around the historical bushfire liability environment being able to represent a reasonable basis for modelling and quantifying risks into the future;
- III. The inability to forecast future capacity availability either at the respective insurers themselves, or through access to reinsurance;
- IV. Future loss scenarios;
- V. The increasing nature of class action litigation within the Australian environment, and current settlements directly impacting the restricted insurance sector (e.g. the Victorian Black Saturday \$494M Kilmore East settlement this week, for one event only);
- VI. The already restricted access to insurance market capacity in this specific sector, including when other insurable risks such as “failure-to-supply” liabilities need also to be factored into equations.

These insurance industry specific factors also need to be further balanced against the future economic environment and outlook generally, and respective insurer corporate decision making processes relating to their best use of capital for adequate returns.

NNSW are subject to ensuring that the following considerations are encompassed within their forward insurance broking strategies:

1. NSW and Aon, as insurance brokers, are governed by requirement for material fact disclosure. CONFIDENTIAL

2. NSW risks are differentiated to the market through presentation of the prudent risk management and investment in loss prevention - particularly around vegetation controls and bushfire. This approach has been actively pursued for many years.
3. A major consideration is the market’s sensitivity to bushfire exposures and also their need to justify their actions internally and under heavy review. Underwriters own management and their reinsurers will be

doing the same and any action to de-stabilise the present status maintained by NNSW would be ill advised, potentially creating a severely eroded insurance position from the existing placement.

4. Another consideration relates to network performance in that if NNSW cuts LiDAR or equivalent inspection services, beyond the vegetation management issues surrounding bushfire exposures such inspections also enable hardware defect identification. In the event maintenance expenditure is also reduced this may potentially affect network reliability and lead to increased levels of asset failure that could result in injury to the public, fire or property damage. In such circumstances this could lead to a changed and increased risk profile for insurers, meaning the potential for further negative insurance cost and coverage implications.
5. Insurance market conditions can be easily influenced by perceptions of risk. For example a fire in WA was reported on Sky news over the weekend of 13-14/12/14 in the UK and this keeps the subject at the front of Underwriters and Reinsurers minds. There is still the issue of the open Endeavour bushfire incident which is yet to be resolved, however underwriters maintain a close watching brief as to developments.
6. The issue is about availability of capacity and insurer appetite as much as premium dollars to be earned. If the market feels that NNSW is not taking risk seriously they may just remove their capacity. This would impact premium directly through needing to find alternates and just through the market changing price structure, which could increase premiums to uneconomic levels.
7. The potential impact on premiums has not been market tested at this stage. To try to guess this or to provoke the market to answer this point would be rather provocative. The market will perhaps ask themselves about what was already a less attractive sector; what's the point in continuing with an industry and clients that are putting budgets and profits before safety and risk management?

For the reasons noted above, no approach has to be made by Aon to any party at this time, whether that is insurers, their representatives, reinsurers or other similar bodies external to Aon to preserve NNSW's commercial position in the current international General Liability insurance marketplace.

Lloyds has commented:

“...wildfire being one of the few natural perils that can be triggered by human activities such as poorly maintained power lines.” (5)

In our opinion, underwriters may already be cognisant of the draft AER findings however have yet to draw the distinction specifically towards bushfire liability exposures as a result of reduced vegetation management expenditure.

In the event such reduction in vegetation management expenditures or changes to ongoing maintenance programs is to occur, this may have substantial impacts to capacity and premium, potentially just triggered by news of the issue.



There is no doubt that a reduction in preventative asset management such as vegetation controls would result in increased premiums, current premium discounts enjoyed by NNSW against insurer technical rating structures would be reduced or withdrawn.

Further impacts could be felt related to substantially increased self-insured retentions, **CONFIDENTIAL**
[REDACTED]

Circumstances dependent, capacity could be withdrawn from the program leaving NNSW in a partially or even substantially uninsured position.

A potential and likely scenario could present NNSW with issues of the magnitude of the following, to address at the 2015 renewal:

- Possible withdrawal of insurer support from the NNSW program ultimately impacting at primary levels of coverage **CONFIDENTIAL**
[REDACTED]
- **CONFIDENTIAL**
[REDACTED]
- Increased premium rates at all levels of the program. **CONFIDENTIAL**
[REDACTED]
- There is little available substitute capacity available in the global insurance sector at primary levels for these exposures in any event, the currently utilised insurer security represent a large percentage of all available market capacity in the current market environment.

Potential insurance program structure and associated estimated annual premium costs at 2015-2016, based on the current insurance market condition we experience today:

CONFIDENTIAL
[REDACTED]

[REDACTED]	[REDACTED]
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CONFIDENTIAL
CONFIDENTIAL

We re-iterate that given the sensitivities associated with this insurance market no insurers have been approached for verification at this time, the potential premium costs and coverage impacts are estimated based on Aon's experience of this sector.

The position detailed above for NNSW does not consider other circumstances or eventualities which could further impact. This includes no further significant market bushfire losses accruing to insurance markets over the ensuing period(s). This relates to all Australian bushfire exposed risks, not NNSW alone, and also catastrophe losses which might be experienced by the same insurers from international exposures beyond Australia.

Additionally we comment it is feasible that should vegetation management expenditure reduce, over the course of the five year regulatory period the vegetative fuel load would possibly commensurately increase, subject to any alternative vegetation management strategies to be employed.

In that case, based on a heightening risk profile from increased fuel load over time, then further annual premium impacts and/or additional coverage restrictions could be evidenced from 2016 and beyond.

In absolute worst-circumstances and faced with a more exposed risk profile NNSW insurers could seek other opportunities and simply walk-away.

Modelling

It is recommended to support future insurance broking strategy and execution that NNSW should consider conducting further modelling for assessment and use in structuring future insurance arrangements, based on the potential impacts arising from the proposed expenditure cuts to vegetation management.



Catastrophe models continue to evolve across segments of the insurance market.

A relevant update could be performed of bushfire exposures for NNSW to review potential impacts arising from bushfire losses where ignition source from electricity assets are increasing from the current low levels as a result of reduced vegetation management activities.

Other catastrophe models, including bushfire models, are also either now available or in course of construction which may be of interest to NNSW.



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Acknowledgement

Persons nominated within the above Contacts Information section of this Report denoted by "*" have made all the inquiries that they believe are desirable and appropriate and that no matters of significance that the person(s) regards as relevant have, to the person(s) knowledge, been withheld.



Appendix 1 – Source References

The following reference material is provided as source or as further general information in support of the findings of this Report:

- (1) Bushfire Liability – The Undermodelled Casualty Risk in Australia, Mark Coss, Munich Re 5/2011 pg 7.
- (2) SAPN Insurance Premium Forecast Report dated September 2014 pg 6.
- (3) Lloyds Met Office “FORECASTING RISK - The value of long-range forecasting for the insurance industry” pg. 5.
- (4) <http://www.documentcloud.org/documents/1377268-the-csiros-fiscal-risk-project-discussion-paper.html> pg. 2.
- (5) Lloyds Met Office “FORECASTING RISK - The value of long-range forecasting for the insurance industry” pg. 5.
- (6) Lloyd’s Wildfire : A Burning Issue for Insurers 2013 pg. 22
- (7) Bushfire Liability – The Undermodelled Casualty Risk in Australia, Mark Coss, Munich Re 5/2011 pg. 22.
- (8) Bushfire Liability – The Undermodelled Casualty Risk in Australia, Mark Coss, Munich Re 5/2011 pg. 30.
- (9) Swiss Re Podcast Werner Schaad published 9/11/11
- (10) Swiss Re Podcast Werner Schaad published 9/11/11
- (11) Lloyd’s Wildfire : A Burning Issue for Insurers 2013 pg. 24
- (12) Lloyd’s Wildfire : A Burning Issue for Insurers 2013 pg. 23
- (13) Lloyd’s Wildfire : A Burning Issue for Insurers 2013 pg. 23
- (14) Bushfire Liability – The Undermodelled Casualty Risk in Australia, Mark Coss, Munich Re 5/2011 pg 7.

These documents (or podcasts) are available in the public domain. In certain cases we have included links directly to the source.

Should relevant parties require to be provided with actual source documentation this will be facilitated upon request to Aon.

To further assist ease of reference we attach relevant extracts below, being the highlighted features from these sources utilised in this Report.

Munich Re Paper

Considerations when calculating premium:

“The level of discount that may be applied will depend on numerous factors that are relevant to a particular risk such as with electricity industry, the extent of transmission lines that have single return power lines and 22 kilovolt feeders replaced with underground cabling, preventative asset



management, ignition and easement control and documented risk management and any statutory limitation of liability.”

Cited as a cause of bushfire:

“Insufficient electricity aerial line clearance with underlying vegetation”

Swiss Re

Swiss Re would consider this a liability dynamic which would result in an adjustment in risk factor and thus the participation and/or pricing model:

Link: [Download podcast](#)

Liability dynamics and its modelling implications: a fresh approach to Swiss Re's Casualty risk modelling

“Risk complexity, lack of transparency and risk driver dynamics are constant challenges in the casualty insurance business. But as Werner Schaad, Managing Director for Casualty Products Underwriting, explains, new models can show a clearer picture of the link between liability events and related claims costs. It is all part of Swiss Re's fresh approach to casualty risk assessment, modelling and pricing.”

Why is “liability dynamics” a key concern for Swiss Re, particularly its Casualty Division?

“Liability insurance has been around for more than 100 years. But hardly any other risk in our product portfolio is as complex and dynamic as liability. It is affected by what we call the “risk of change”. Virtually all developments in society, economy, environment, technology or in the regulatory/legal field may have an impact on liability risk. These can be emerging risks from new technologies or materials, or new threats such as climate change, which is not only a challenge for Swiss Re as a property / natural catastrophe reinsurer, but also an issue for liability insurance, e.g. when it comes to “public nuisance” suits against the automobile and energy industry. And liability dynamics isn’t just a concern for Swiss Re. In our recent liability dynamics survey of 44 experts, only two risk categories, natural catastrophes and financial crises, were seen as having a more severe impact on the re/insurance industry than liability dynamics.”

What was the driver behind Swiss Re's fresh approach to its Casualty / Liability Business? And is there a link to liability dynamics?



“There definitely is. Liability dynamics describes the problem or the challenge. The projects we run under Swiss Re's Casualty initiative and their results are part of the solution. Let's look back at natural catastrophe risks - earthquake, storm, flood: About 30 years ago, natural perils were considered almost uninsurable - potentially huge but infrequent, no reliable experience, high uncertainty. However, in the meantime natural catastrophe threats have become quantifiable and manageable risks for the insurance world, thanks to models and computer tools based on scientific and technical information.

In Casualty we have always struggled with the risk complexity, lack of transparency and dynamics of risk drivers. Consequently, in 2007, we launched our project as a multi-year, strategic initiative. Its goal is to approach these risks with a fresh view and to establish a systematic approach, as well as achieve knowledge and modelling progress, for long-tail lines as we had achieved previously for natural perils.”

What are the main achievements of Swiss Re's Casualty initiative?

“We are pretty excited about the progress we have made. For instance, we have now a liability risk drivers (LRD) model in place that is based on the systematic assessment of all observable risk factors. We think we have a much clearer picture now about the cause-effect chain between a liability event and the resulting claims. It allows us a real exposure-based – instead of experience only – risk assessment. In other words, we can distinguish all relevant individual risk factors, quantify them individually and determine their impact on an eventual liability claim. And if some of these factors change, for example, in the legal field with the higher likelihood for collective redress, as we call it here in Europe, or in technology due to the materialization of an emerging risk – we will adjust the respective risk factors in the model. This means greatly improved predictive capabilities, that is, better underwriting and risk selection.”

You just mentioned “collective redress,” which is one of the very prominent themes within liability dynamics.

“Yes, this is actually one of the important current risks of change in the regulatory/legal field. Collective redress is the EU term for what is known as class actions or mass tort in the US. The EU is currently exploring and enhancing ways to facilitate access to justice for consumer claims or anti-trust law violations. For example, class action regimes have been introduced in Italy and in Poland in 2010, and draft legislation is on the table in Belgium. Swiss Re fully supports the goal of improving access to justice and higher process efficiency in case of damage. However, we have to bear in mind possible severe negative implications of class actions, for consumers, economy and insurance, as we see them in the US. This includes, for example, excessive liability as an obstacle for economic growth and innovation, exorbitant claims cost and potential abuses of the tort system, high cost for - or reduced supply of - insurance coverage. That's why we promote an active stakeholder dialogue at national and international level to improve the understanding of essential criteria for a balanced approach to collective redress– including, for example, the use of alternative dispute resolution (ADR) instruments instead of - or prior to - litigation.”



How do you see the way forward?

“Underwriting quality matters more than ever. Therefore, it is crucially important to calculate the claims costs right, particularly given the currently record-low interest rates that exert significant pressure and make achieving technical underwriting profits an absolute necessity. The thorough understanding of dynamic liability drivers, and their translation into casualty modelling, are key success factors – in terms of reliable insurance coverage supply and business profitability – for casualty insurance now and in the future. The new models and results will also help to increase market transparency, improve risk awareness, and the understanding of casualty peak exposures in the industry. We think we are on a promising track with our new models, and, going forward, intend to continue an active dialogue with our clients and other stakeholders.”

Published 9 November 2011

Lloyds Wildfire

Australia continues to be the ‘fire continent’:

“8.3 Mitigating wildfire risk

An effective wildfire mitigation strategy needs not only to minimise the effect of wildfire on lives and property, but also to avoid conditions that may lead to particularly damaging fires. This means not only protecting properties and other infrastructures against fires, but also managing the landscape in a way that minimises the risk of severe wildfires.

Efforts to move away from a suppression focused policy require the re-introduction of natural fire occurrence and risk mitigation efforts to protect Wildland Urban Interface communities. Florida and Western Australia have recently developed prescribed fire programmes to complement suppression capabilities and they have largely avoided high impact mega-fires.

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7.2 Modelling wildfire losses

Predicting wildfire insured losses is difficult as changes in building practices and developing urbanisation of wildfire risk prone areas limit the effectiveness of relying on historical losses. However, despite the limitations of historical data, businesses continue to rely on them to estimate future wildfire losses. Companies, such as RMS, AIR and Eqecat, have developed catastrophe models for potential high exposure regions, such as California and Australia. These models incorporate additional factors to historical data, such as weather data, post-disaster damage survey, elevation and related slope and aspect, susceptibility of a structure and accessibility of locations for initial fire suppression efforts.

Liability insurance is also another line of business which may be affected by wildfires as unintentional ignition could lead to large claims under a liability cover as demonstrated by Sempra’s case in 2007 (see box 3) or Wildfire: A burning issue for insurers?

the 2009 Black Saturday case (see box 2). Wildfires are one of the few potential man-made natural catastrophes, which can affect liability insurers. If there is evidence that a fire was the result of human action and liability is established, the claims will be transferred from property to liability insurers. The Ash Wednesday bushfires was another case when much of the insurance burden was transferred from the property to the liability area although it took several years to establish liability and for recoveries to be made by the property insurers. One of the main causes was due to inadequately maintained power lines belonging to the electricity authorities of South Australia and Victoria. The total amount recovered was \$135m although this included uninsured recoveries as well.

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Insurance News - 30 September 2013

This commentary is extracted from an insurance industry news publication:

<http://insurancenews.com.au/local/wildfire-risk-increasing-lloyds>

“Wildfire risk increasing: Lloyd’s

30 September 2013

Wildfire losses are increasing and the “fire continent” of Australia could be hit hard, Lloyd’s warns.

Insurers across several lines of business must be mindful of their exposures and roles in mitigation, it says in a new report.

US wildfires alone cost the insurance market \$US595 million (\$638 million) last year, but insurers can expect losses to rise due to increasing global temperatures and populations.

South-central Australia, western South America, the western US, south-west Canada, parts of the Mediterranean basin and many of the drier regions of Africa and Asia are among regions most prone to increased risk.

In Australia, wildfires have accounted for 10% of insured losses from all natural disasters, with average annual insured losses estimated at \$120 million.

Victoria’s Ash Wednesday bushfires in February 1983 were the costliest for the industry. Years of drought resulted in more than 180 fires blown by winds of up to 110 kmh that amounted to \$1.3 billion in insured losses.



Australia is sixth in a table of the worst hit nations, having suffered \$US2.6 billion (\$2.79 billion) of economic damages since 1900. The US tops the table, with \$US17.8 billion (\$19.1 billion).

Lloyd's says that wildfires globally have caused \$US52.3 billion (\$56.1 billion) of economic losses since 1984.

Property is the most exposed line, but the fires also pose a threat to liability insurers, with wildfire being one of the few natural perils that can be triggered by human activities such as poorly maintained power lines.

Business interruption may occur and motor can also be affected. There may be repercussions for health insurance from secondary problems caused by smoke, smog, burns or water contamination.

Insurers can play a role reducing risk, the report says.

"One of the things insurers can consider doing is to engage directly with legislators as well as communities and individuals," Lloyd's Emerging Risks and Research Executive Sandra Gonzalez said.

"Some governments have been considering introducing zoning regulations that will limit building in wildfire-prone areas. The insurance industry could work with governments to help facilitate that kind of legislation being passed."

Insurers should also offer guidance to customers, Lloyd's says."