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# What's Happening In The Insurance Market

APPA Business & Financial Conference  
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# What's Happening In The Insurance Market

- Presentation Goals
  - Quick Insurance 101
  - Common Coverage Gaps Found
  - Common Coverage Improvements Available
  - Trends In Insurance market
  - Ideas to Reduce Cost



# Public Power Property Insurance

- Property Insurance 101
  - 1<sup>st</sup> Party Damage to Items Under Your Care, Custody or Control
  - Premium Based on Values Insured
  - Underwriter Primary Concerns
    - Turbine Technology
    - Quality of Maintenance Program
    - Fire Protection
    - Catastrophe Exposure



# Public Power Property Insurance

- Valuation
  - Turbine Technology Advancement Disrupting Valuation
  - Obsolescence of Older Machinery
  - Consider Insure for Functional Replacement Cost
    - Planned Technology Replacement (not replace as-is)
    - Opportunity to Save Premium



# Public Power Property Insurance

- Primary Maintenance Concerns
  - Documented Preventative Maintenance Program
  - # Starts/Stops on Turbines
  - Transformer Oil/Gas Analysis
    - Results
    - Actions Taken by Owner
  - Fire Protection
    - Fire Water Adequate
    - Areas Utilizing Oil Sprinklered
    - Gaseous System Sealed



# Public Power Property Insurance

- Property Insurance Items to Review
  - Pollution Sublimit
  - Insurer Engineering Reports Provided
  - Replacement Cost vs Actual (Depreciated) Cash Value
  - Split or combine Utility with Municipality
  - Confirm Resulting Damage from Cyber Attack



# Public Power Property Insurance

Terrorism Defined in Insurance is an attack deemed to be terrorism by US Government.

- “Cyber Terrorism”/Property Insurance Dilemma
  - Terrorism not Part of Property Policy (Bought Separately or Endorsed to Policy)
    - Therefore, No “Cyber Terrorism” Coverage w/o Terrorism Coverage Addition
- “Cyber” must be endorsed onto the Terrorism Policy



# Public Power Property Insurance

- Property Market Trends

- Coal Plant Coverage Retraction (Paris Accord Driven)

- Swiss Re      Scor Re      Other European Markets

- Zurich      Munich Re      (Does Not Include Lloyds of London)

- Insurance Carriers Pushing for 5-10% Rate Increase (Unsuccessfully)

- Inconsistent Pricing Across USA

- APPA Group Market Leverage

- Opportunity for Cost Reduction



# Public Power Property Insurance

- Conclusion (Cost Savings Tips)
  - Functional Replacement Cost – Insure for Replacements Plans
  - Compare Cost to Split or Combine Utility with Municipality
    - Generator (>20Mw's) Probably Split
    - Non-Generation – Probably Combine
  - Consider Purchasing as Part of APPA Leveraged Program
  
- Review Coverage for “Cyber Terrorism”



# Casualty Market Update

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# What is Casualty Insurance?

## **General Liability / Excess Liability**

Insurance purchased by a public power utility for protection against claims from a third party for bodily injury (BI) and property damage (PD) arising out of premises, operations, products, and completed operations; advertising and personal injury (PI) liability.

## **Workers' Compensation / Employers' Liability**

Provides statutory benefits for employees sustaining job-related injury or death through a no-fault system prescribed by state law. Employers' Liability is the legal obligation of an employer to pay damages because of bodily injury by accident or disease, including resulting death, sustained by an employee not covered under the statutory obligation.

## **Auto Liability**

Insurance that protects the insured against financial loss because of legal liability for automobile-related injuries to others or damage to their property by an auto.



# Utility Market Update

- Insurance Trends
- Themes affecting rates/premiums
- Buying Trends
- Program Considerations



# Market Update

- General Liability is experiencing generally flat renewals to slight increases in the range of 1-5%. Loss rated accounts are will in excess of this range, especially with mutual carriers.
- Commercial Auto premium is up 7.7% in Q1 2018 which makes this the 27<sup>th</sup> consecutive quarter of increased auto rates. Projections for the balance of 2018 are 5% increases which will hold into 2019 as well.
- Workers' Compensation is the exception to the trend of recent rate corrections. Q1 2018 trended down at -2%.
- Excess Liability is seeing more rate pressure in the first excess/umbrella layers with less volatility up the tower. With many Public Power companies buying only one layer of Excess, this is likely to be impacted by loss history or programs with large auto fleets.

Downward forces for the market:

- Abundant capacity
- Effects from corporate tax cuts
- Slow rise in interest rates



# Market Dynamics

- Underwriters are demanding more information
- Insurance companies looking to grow premium commensurate with exposure base
- Markets are re-engineering their books of business to obtain the return on investment of deploying the capacity for the premium received
- Underwriting submissions need to be creative to spotlight strengths of the insured

# Key Themes Affecting Casualty Insurance

- **Auto Liability:** reaching epidemic proportions
- **\$14B+ in insured wildfire losses; California estimated at \$11B (Insurance Information Institute)**
- Governmental Immunity
- WC Regulation
- Legalization of Marijuana
- Capex in upgrades and fortification of distribution networks
- M&A – both on the capacity provider side and the utility side
- Mutual Assistance
- Aging infrastructure (pole maintenance, cast iron piping, bare wire)
- Drone usage
- Cyber exposure
- Gas in Storage
- Ash Pond Exposure
- Dam exposure



# Auto Liability

Rising frequency of claims and their severity is causing a hardening of this part of the domestic casualty market.

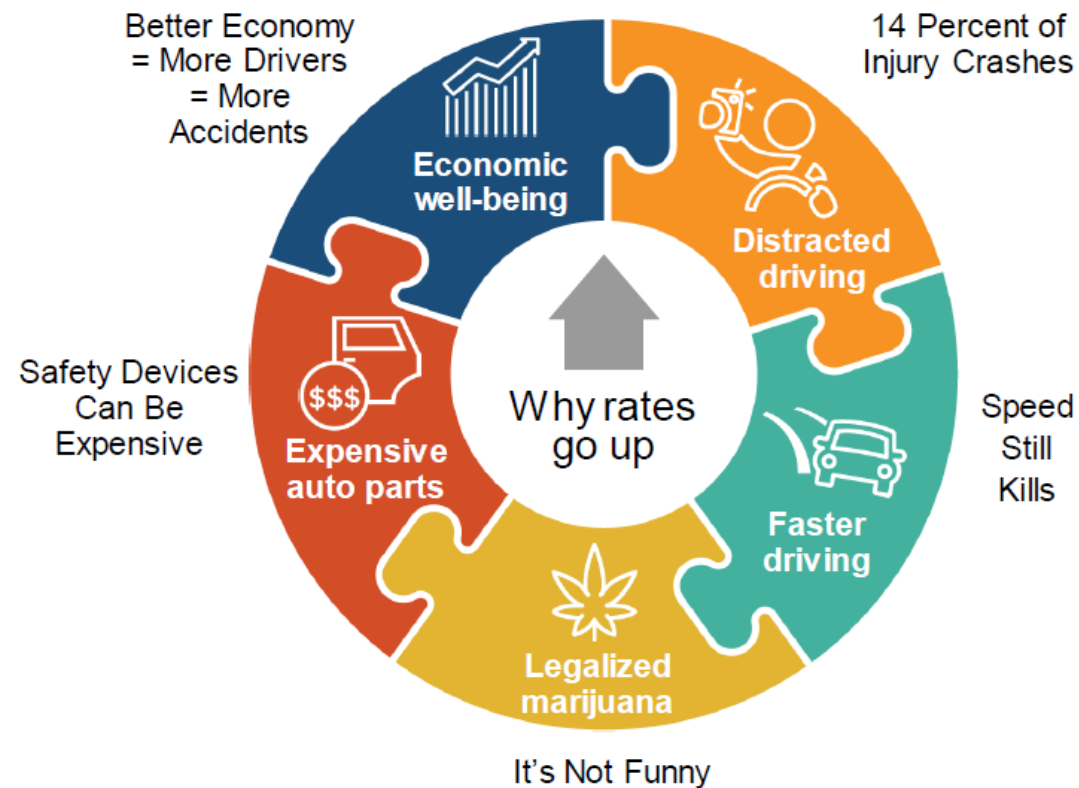
All coverage parts have been affected. This is an increase in loss cost over the past 2 years. Consumer Price Index only rose 3.4% from 2015 to 2017



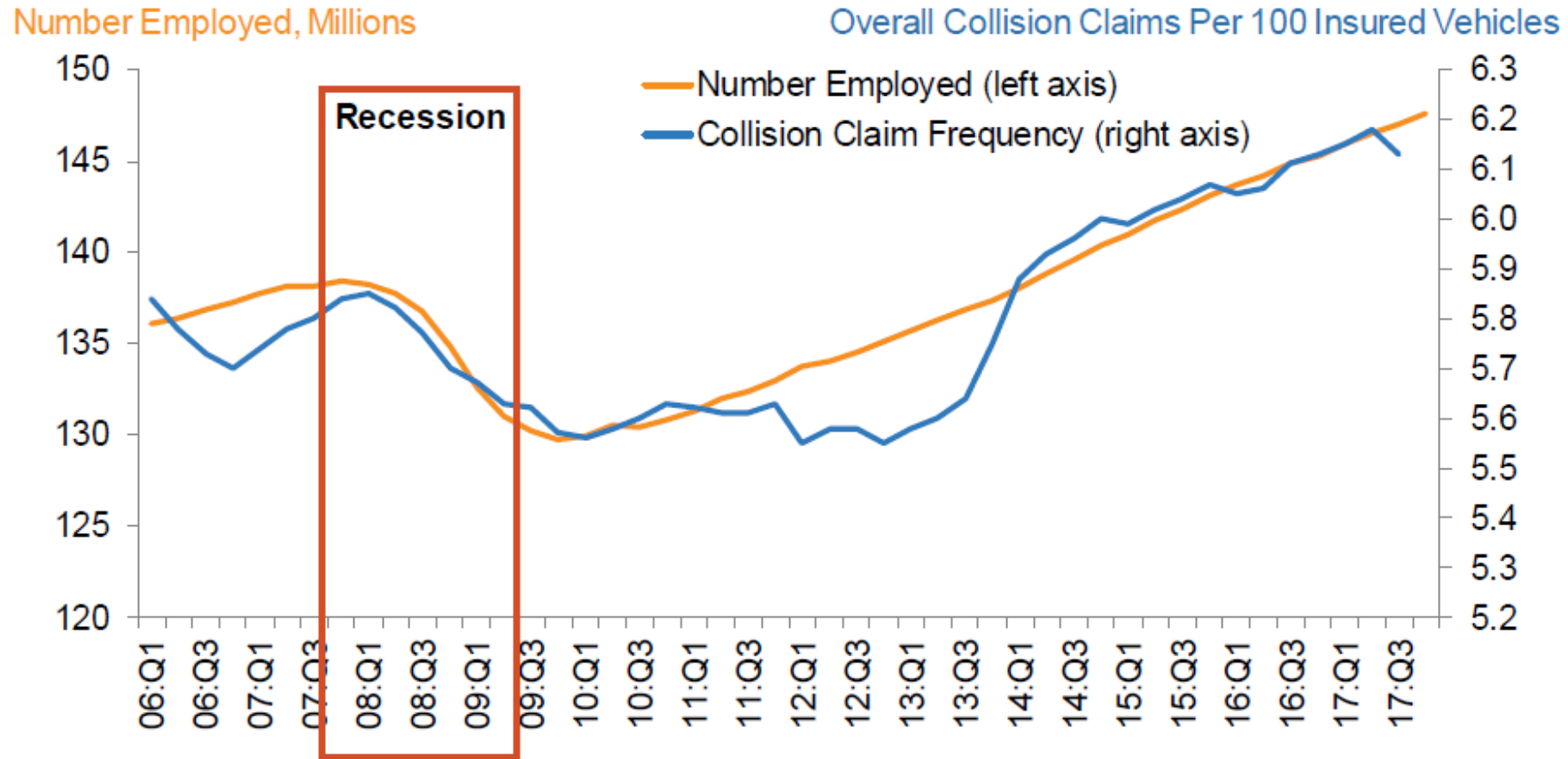
Source: Fast Track Monitoring System

# Auto Liability

What is driving these trends according to the Insurance Information Institute? Americans are driving more! More miles driven is directly correlated to rate of incident.



# Auto Liability



Source: IUI, Bureau of Labor Statistics, and Fast Track Monitoring System

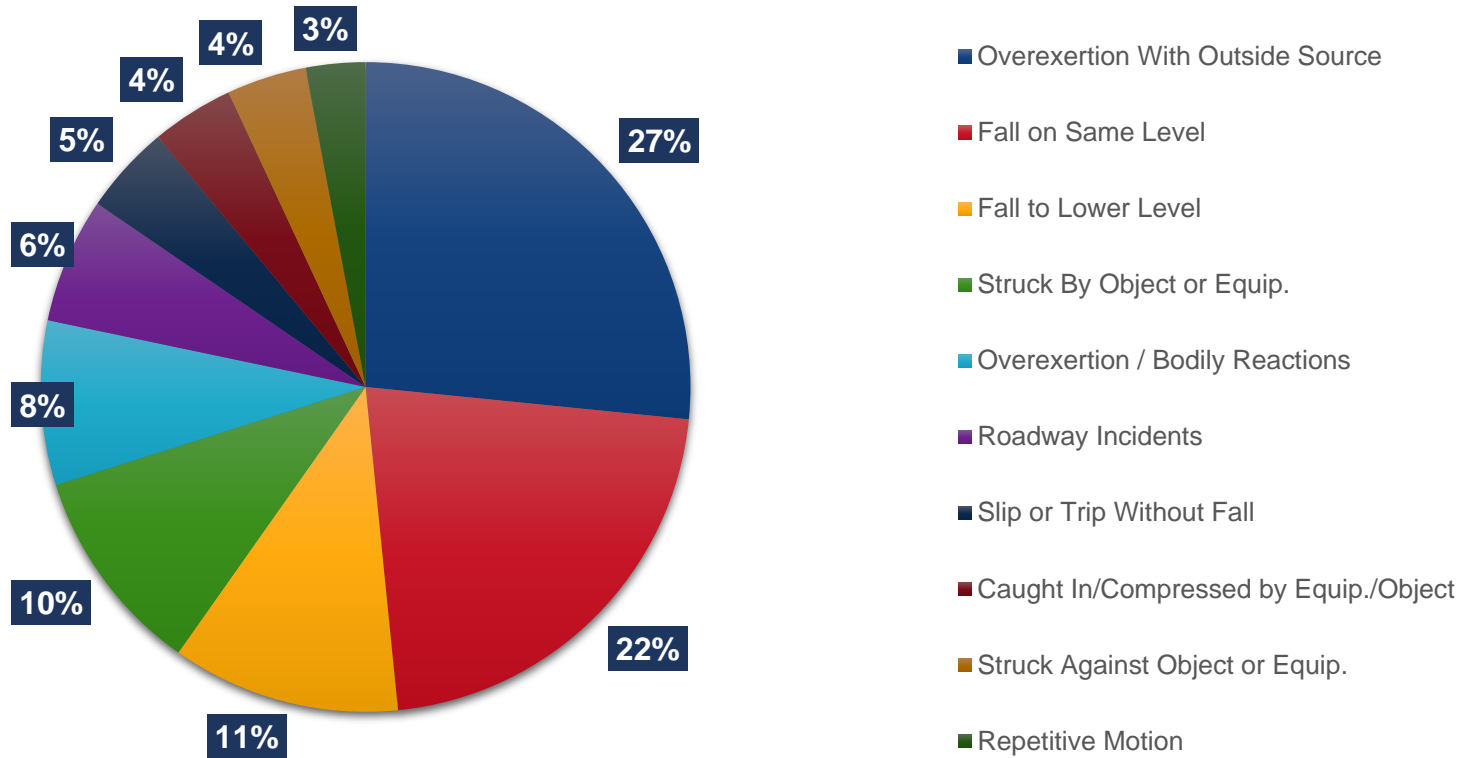


# WC Update

- Highly Competitive casualty segment
- Commercial carriers and mutual offerings available
- Focus on right sizing deductible/retention to align with safety programs, risk appetite, and collateral demands
- Review performance of Third Party Administrator and adjuster staff with internal stakeholders experience
- Markets more interested in a “real” opportunity than a mass marketing
- AEGIS can write Excess WC or provide a fronted guaranteed cost program through their alliance partner, Everest.
- Starr, AIG, Liberty Mutual, Chubb, Travelers, Hartford, Zurich, Swiss and Arch are all competing domestically with aggressive targets for new business in 2018

# WC Update

## Top 10 Causes of Large WC Claims



# Wildfire Liability

## Carrier Requests:

- Seeking additional information such as population density, geographic location of assets, and capex spend for upgrading equipment
- Actuarial modeling for Probable Maximum Losses and Aggregate Annual Losses (CoreLogic, Swiss Re Cat Net, RMSi, RMS)
- Detailed description of transmission lines – length, voltage, location

## Carrier Reactions:

- Reducing capacity – up to \$500M witnessed on a single program
- Increasing pricing – some on a “take it or leave it” basis
- Exiting the marketplace
- Apollo – no new capacity
- AIG – max of \$25M



# Governmental Immunity

- Across the board – review state constitutions and case law in your jurisdiction
- Governmental functions vs. proprietary functions / ministerial vs. discretionary
  - In most states a public utility is categorized as a proprietary function
- Different levels of court have different opinion
- Different levels of personnel within each utility have a different opinion

# Liability Buying Trends for Public Power Utilities

- 8 utilities benchmarked:
  - Min: \$35M
  - Max: > \$250M
  - Avg: \$100M+
- Removing 2 largest
  - Min: \$35M
  - Max: >\$100M
  - Avg: \$68M
- 50% of the sample utilities include Employment Practices Liability Insurance (“EPLI”) within AEGIS placement
- Average retention/Self-Insured Retention (“SIR”) of \$1,500,000 per occurrence





# AEGIS Update

- 2017 Results: Overall combined ratio of 91%
  - Surplus increased from \$1.370 Billion to \$1.56 Billion the highest surplus ever achieved
  - Bill Hillman is now CUO and actively involved in large account negotiations
  - Pushing for inflationary increases (3-5%), while each account underwritten on its own merits
  - Offering up to \$50 Million per occurrence/\$100 Million Aggregate with possible \$70 million per occurrence/\$140 million aggregate for select members
  - “A” rating from A.M. Best and Fitch with S&P awarding a rating of “A-”
  - AEGIS bought Sompo’s book of Forced Outage/Contingent Outage that allows for expanded offerings from the industry mutual.
  - Announced Member Loyalty Credit Pool
    - Eligible for members purchasing four of six specified coverages in a given year- Excess Liability, D&O, Property, Cyber, Workers Compensation or Generation Outage
    - Credit equal to 20% of the sum of all products’ continuity and premium credits.
- Credit issued as a check rather a credit against future premiums, after the 2018-19 credit period.



# EIM Update

- A.M. Best rating remains A (Excellent) and in May 2018 upgraded from “stable” to “positive” outlook
- 2017 Highlights
  - Policyholder surplus grew to \$1.183B as of 6/30/18 audit
  - Net Combined Loss Ratio 67%
- EIM paid a \$40MM distribution to policy holders in March 2018, up from \$25MM in 2017
- EIM is targeting a distribution of \$50M each year for 2019 and 2020
- Underwriting focus remains consistent with AEGIS – focus on dated, unprotected, cast iron piping and Wildfire exposures
- Looking for flat to small inflationary increases across the book
- EIM now offering to attach at \$25MM for some risks - gas and large exposures remain difficult at this attachment
  - AEGIS credit to reduce limit may not be sufficient
- Willing to offer a 3 year rate guarantee, with caveats for loss history, acquisitions, etc.
- Mixed response to AEGIS offering of additional limit and the EIM attachment point. They would prefer not to reduce their pricing if they are pushed up by \$15MM (from \$35MM attachment to \$50MM), but have agreed to review on a case by case basis
- Compare ratio of AEGIS:EIM



# International Market Update

London/European markets remain interested in energy business and have been strong competitors to Bermuda in some cases

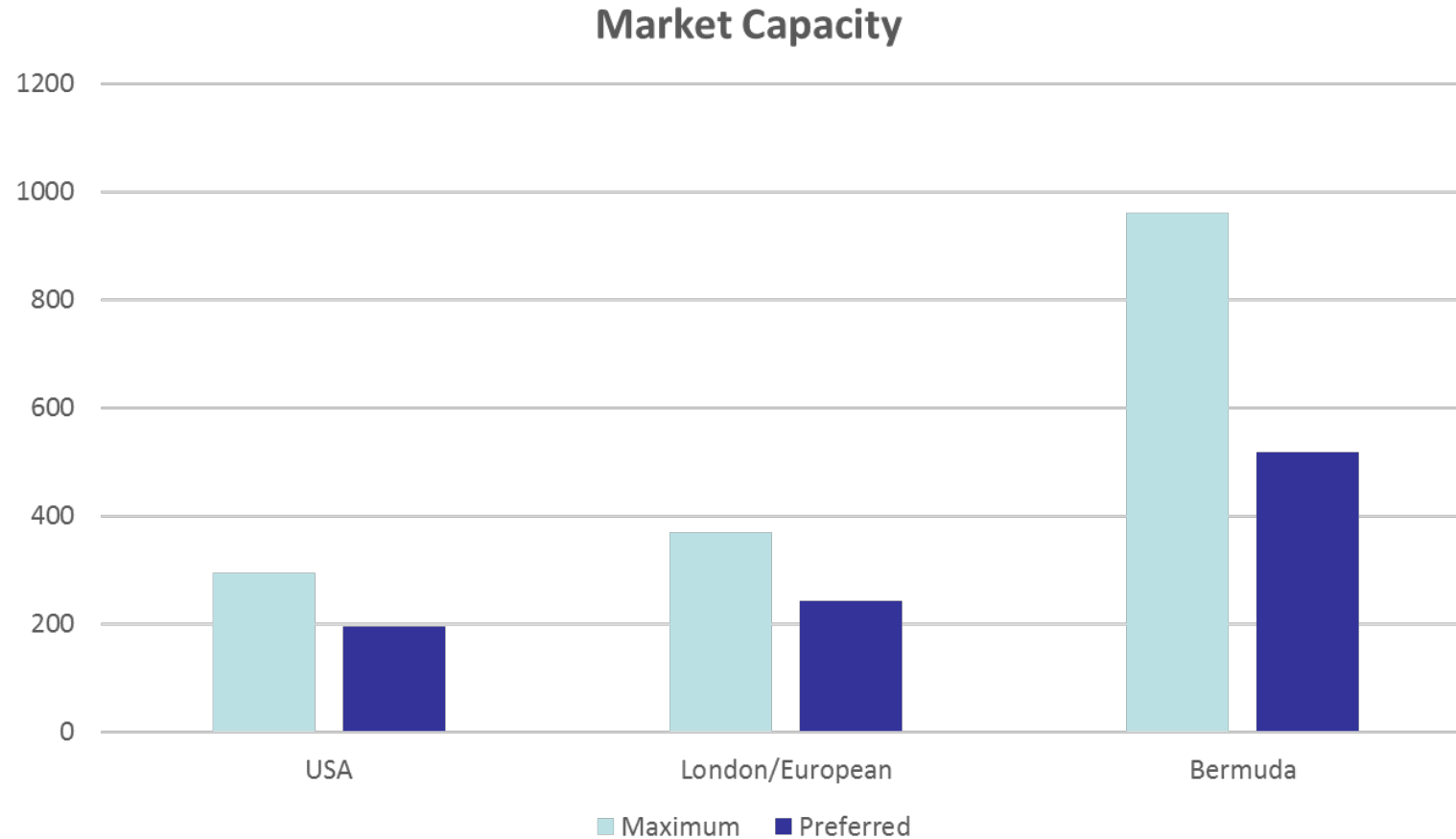
- 2017 was a tough market for insurers/reinsurers globally following significant CAT losses in the US and internationally, however London and European markets remain stable in the US power and utility liability sector

Bermuda markets remain strong with total capacity in excess of \$900M

- Market under pressure, pricing is stable and largely driven by underlying layers

Category	Market Response
Wildfire	Given wildfire loss experience, anticipate additional scrutiny of processes employed by the utility to manage this exposure. Vegetation Management protocols, tree trimming, and monitoring protocols and contracts (Limitations of Liability and Indemnification with 3 <sup>rd</sup> party providers).
Dams	Carriers will appreciate as much information as is available including latest surveys and reports, in addition to very comprehensive slides included in market presentations.
Drones	Update around involvement, procedures, corporate stance, intentions, and view towards use of drone technology.
Cyber	Review and articulate the utilities coordinated approach to cyber security, any investment into assessment and testing, response planning, and risk transfer programs established.
Change in Appetite	Reductions in capacity for California wildfire.

# Market Capacity



# Large Losses – Utility Sector

Year	Cause	Location	Estimated Loss Amount
2007	Water from hydroelectric power plant damaged nearby property	USA	\$173 million
2007	Wildfire	USA	\$2.2 billion
2007	Utility company vessel crashed into anchored oil tanker causing spill	China	\$142 million
2007	Wildfire	USA	\$370 million
2008	Impoundment failure	USA	\$1.1 billion
2008	Gas line explosion resulted in fatality and injuries	USA	\$25 million
2009	Explosion at hydroelectric plant with multiple fatalities	Russia	3 <sup>rd</sup> party Unknown
2009	Electrocution caused fatality	USA	\$109 million
2009	Bushfire resulted in multiple fatalities and property damage	Australia	\$379 million
2009	Bushfire resulted in property damage	Australia	\$50 million
2010	Pipeline explosion with multiple fatalities and third party property damage	USA	\$650 million
2010	Natural gas pipeline explosion with multiple fatalities	USA	\$27 million
2012	A natural gas pipeline explosion with multiple injuries and property damage	USA	Pending
2012	Downed power line caused electrocution and resulted in fatality	USA	\$60 million
2013	Tree collapsed causing fatality and multiple injuries	USA	Pending
2013	Gas explosion resulted in fatality and multiple injuries	USA	Pending
2013	Multiple fatalities as a result of electrocution	USA	Pending
2013	Alleged negligence during maintenance resulting in serious injuries	USA	\$22 million
2014	Gas explosion at residential building resulted in multiple fatalities and injuries	USA	\$153 million
2014	Contamination of drinking water	USA	Pending
2014	Home explosion resulted in fatality and multiple injuries	USA	Pending
2014	Alleged negligence resulted in apartment explosion	USA	Pending
2015	Wildfire	USA	\$750 million
2015	Gas leak caused explosion at residence resulting in third party property damage and several injuries	USA	Pending
2015	Natural gas leak resulted in alleged illnesses and mandatory evacuation of a few thousand families	USA	\$717 million
2016	Gas Buildup in apartment basement lead to explosion and fatalities	USA	Pending
2016	Dam / Reservoir spillway release alleged to contribute to the flooding damage of hundreds of homes	USA	Pending

Source: CHUBB 2017 Liability Limit Benchmarks & Large Loss Profile by Industry Sector



# Internal Programs that Influence Premiums

- Safety Culture / Operations and Risk at the same table
- Employee Safety Training
- Current Safety Handbooks and quick access guides for specific scenarios encountered by workforce
- Close Call Communications
- Stop Work Protocol
- Days Away, Restricted Duty, Job Transfer (DART incident per 100 employees) – aggressively manage and incentivize employee base to achieve these results
- Lineman Training
- Fleet Management / Drive Training
- Public Safety Programs – Elementary Schools – Down Wires and Gas Leaks
- Direct Mail / Outreach
- Pole Maintenance
- Bare Open Wire Replacement
- Drought Conditions
- Vegetation Management / Budgeted Spend Annually
- Wire Down Reporting and Response
- Auto Accidents and Frequency
- Drone Usage – in House vs 3<sup>rd</sup> Party
- Cyber / IT Fortification Measures
- Dam Inspections
- Pipeline Rehab Programs – Trenchless Technology
- Asset Integrity Programs – Primary Focus on Replacing Cast Iron
- Red Flag warning for wind/humidity conditions that enhance wildfire likelihood
- Replacing Cast Iron



# Public Power Management Liability Insurance

## Typical Coverage Suite may include:

- Public Entity Management Liability (Directors and Officers Liability)
- Public Entity Professional Liability
- Employment Practices Liability
- Fiduciary Liability
- Crime Coverage
- Special Coverages
- Cyber Insurance



# Public Power Management Liability Insurance

## Public Entity Management Liability

- Extends protection to the management of the public entity (elected and appointed officials, members of commissions, boards, employees, similar depts. or units within the budget of the public entity).
- Personal liability coverage for the officials (Side A) when the entity is prohibited or not legally required to indemnify.
- Public entity reimbursement (Side B) - reimbursement for the entity when it indemnifies the officials.
- Public entity liability (Side C)

## Important Items to Consider

- Sovereign Immunity does not come into play under federal laws (regulatory / EPL / antitrust / etc).
- Municipal bonds are debt obligations issued by a municipality to fund activities and project within the municipality. Not all forms will cover this exposure.
- Only certain forms will cover non-monetary / injunctive relief claims up to the full policy limit.





# Public Power Management Liability Insurance

## Public Entity Management Liability

- Liability protection for the company and its management for claims arising out alleged “wrong” decisions made on behalf of the organization.
- Directors and officers are protected by the business judgment rule, however many decisions can fall under question and result in allegations that management:
  - Breached fiduciary duty to the company
  - Was fraudulent
  - Misrepresented
  - Conducted unfair dealings
- Organizations typically have a duty to indemnify their directors and officers if they are brought into a suit based on the decisions they make; sometimes indemnity is unavailable from the organization.
- Management Liability/D&O insurance can provide “sleep” insurance for management when no indemnity is available.
- When indemnity is available, insurance can provide reimbursement for the organization’s indemnity obligation or provide balance sheet protection for the organization.



# Public Power Management Liability Insurance

## Public Entity Professional Liability

- Professional liability coverage for the entity and officials and employees in the performance of duties
  - o Failure to provide services
  - o Budget issues
  - o Zoning and land use
  - o Employed professional coverage for lawyers, architects, engineers and accountants



# Public Power Management Liability Insurance

## Management Liability / Employment Practices Liability Claims Examples

- Competitor sued company and several former employees alleging misappropriation of trade secrets. Competitor alleged several of its former employees, upon termination, took sales lists which they used when they were hired by the defendant company.
- Employee hired in 2001 resigned employment in 2004 claiming sexual harassment and gender discrimination. Named four managers/directors as wrongdoers. Company performed investigation and terminated three of the four people involved. The evidence collected included long series of sexually explicit emails, jokes and comments in the workplace. Claimant was making \$45K a year.
- Plaintiff alleged company discriminated against him on the basis of age and disability. He further alleged that he was terminated in retaliation for filing a workers compensation claim and for complaining about discrimination. Defendant company contended that the plaintiff was not able to perform the essential functions of the job and that he was discharged for legitimate, nondiscriminatory and non-retaliatory reasons.



# Public Power Management Liability Insurance

## Employment Practices Liability

- Corporate balance sheet protection for your liability around employment practices; includes protection for claims arising out of discrimination and harassment.
- Common claims allege wrongful employment torts such as:
  - Wrongful termination
  - Failure to hire
  - Failure to promote
  - Discrimination (age, sex, race, gender, etc)
  - Harassment (sexual and non-sexual)
  - Retaliation
  - Wage and Hour/Fair Labor Standards Act (may not be included on all policies)
- Claims can be brought by employees against the Insured or by third parties who interact with Insured's employees and allege discrimination and harassment claims

## Factors affecting need for purchase:

- Economic Climate
- Increased oversight by regulators like Equal Employment Opportunity Commission (EEOC), State Employment Agencies and The Department of Labor
- Active Plaintiff Bar
- Changing Workforce
- Sexual harassment claim trends



# Public Power Management Liability Insurance

## Fiduciary Liability

- Errors and omissions coverage for the administration of health/welfare/retirement plans
  - Many utilities participate in a larger multiemployer retirement plan, so the fiduciary liability exposure is administrative
- ERISA law violation/fines and penalties
- Extends to breaches of fiduciary duty alleged against Plan sponsors
- Department of Labor requires a fiduciary to monitor those they appoint to perform fiduciary duties. Failure to do so could lead to an ERISA claim.
  - Hiring Third Party Administrators does not remove liability
- Changes in laws governing employee benefit plans make it more challenging than ever for employees to navigate
- Employee downsizing gives rise to ERISA exposure
  - Handling plan records
  - Properly calculating employee benefits
  - Providing appropriate notice to terminated employees



# Public Power Management Liability Insurance

## Crime Coverage

Protection of corporate assets from theft of money securities and other property

### 1<sup>st</sup> Party Commits Loss:

- Employee Theft
- Client/Third Party Coverage

### 3<sup>rd</sup> Party Commits Loss:

- On Premises
- In Transit
- Funds Transfer
- Money Orders & Counterfeit Currency
- Computer Fraud
- Credit/Debit Card Fraud
- Social Engineering Fraud



# Public Power Management Liability Insurance

## Crime Claim Examples

- A company with 200 employees and \$80 mil in revenues uses seasonal temporary help during peak work periods. Over a 5 year period the HR department manager set up 2 fictitious temporary employees and cashed their checks.
- Employee receives an email that appeared to be from his CFO, requesting a wire transfer to a bank account in China in order to complete the purchase of business equipment. The email stressed the urgency of the request and the employee did not call the CFO to verify the transaction. Employee wires funds and later it is discovered that the CFO's email was hacked and funds cannot be recovered from the bank. *Social Engineering Fraud*

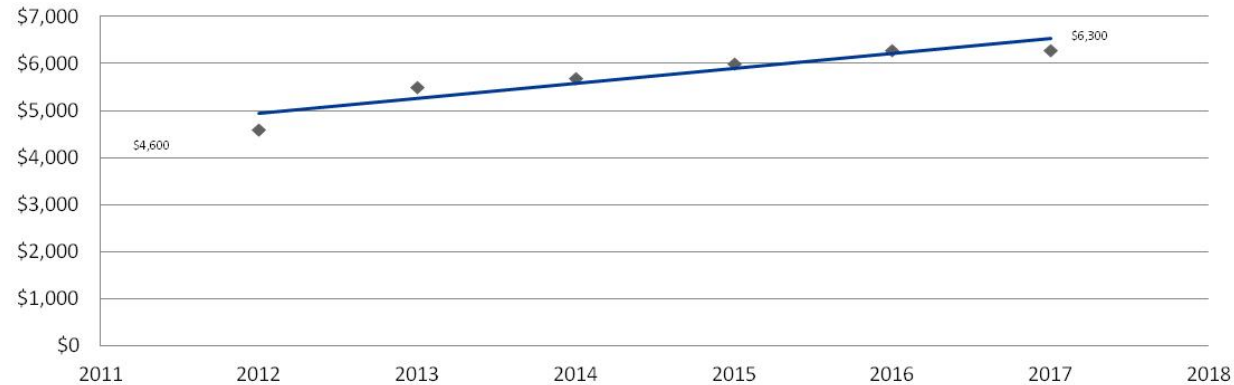
# Public Power Management Liability Insurance

## Buying Trends & Rates

*The Private and Not For Profit market has continued to be flat with some select hardening. Most carriers continue to report above normal D&O and EPL claims with loss ratios well above 100%.*

*Most public power clients purchase combined D&O/EPL Program – Fiduciary and Crime (and Cyber) purchased separately.*

**Private Company Directors & Officer’s Liability (Source: Advisen)**  
Median Rate Per Million







# Public Power Cyber Liability Insurance

Policy addresses first and third party liabilities and costs associated with a data or computer network breach. Coverage sections may include:

- Privacy and Network Security Liability
- Regulatory Defense and Penalties
- Media Liability
- Privacy Notification and Expense Reimbursement
- Business Interruption
- Data Asset Restoration
- Cyber Extortion

# Public Power Cyber Liability Insurance


Third Party Liability Coverages	Coverage Description
Privacy and Network Security Liability	Protection for liability arising out of allegations of security and privacy wrongful acts against the Insured. Damages and claims expenses incurred as a result of a covered claim are included.
Regulatory Defense and Penalties	Protection for those amounts Insured is obligated to pay arising out of certain privacy regulatory actions. Defense costs and certain fines/penalties included (such as NERC CIP fines). Payment Card Industry Fines, Penalties and Assessments generally available via endorsement or separate insuring clause.
Media Liability	Protection for liability arising out of allegations of multimedia wrongful acts, such as allegations of libel, slander, invasion of privacy, emotional distress, mental anguish - all in connection with the Insured's multimedia.

First Party Coverages	Coverage Description
Notification Expense/Credit Monitoring	Reimburses Insured for first party notification expenses incurred by insured following a privacy event or security breach. May extend to credit monitoring services, call center services, and other event management response expenses.
Network Interruption and Data Asset Restoration	Reimbursement for loss of net income and extra expenses following a security breach; also provides reimbursement for reasonable costs to restore, replace or reproduce damaged or destroyed computer programs, software and electronic data.
Extortion Expenses	Money and expenses paid at the recommendation of an approved service provider relating to cyber extortion and ransomware demands.

# Public Power Cyber Liability Insurance

## Cyber Insurer Appetite

- Full prior acts
- Computer Crime/Social Engineering Fraud extensions
- Bitcoin payments in ransomware demands
- General Data Protection Act wording
- No sublimits (including PCI fines/penalties)
- Standalone Business Interruption
- Contingent Business Interruption
- System Failure Business Interruption Trigger
- Failure to supply liability
- Theft of intellectual property/intangible assets
- Internet of Things Extensions
- "Bricking" and Costs to Improve Computer Systems Reimbursement
- Reputational Damage
- Difference-in-conditions wording
- Resultant Bodily Injury/Property Damage Products
- Large capacity facilities





# Cyber Insurance Carrier Services/Consultants

- **Privacy Attorney Legal Services**
  - Includes breach counseling to determine scope and severity of breach, as well as assess Insured's obligations under applicable breach notice laws. Outside counsel may often act as "quarterback" to facilitate breach response and coordination of various outside vendors.
- **Privacy/Security Breach Event Hotlines**
  - First point of contact for insured in the event of a breach. Most carriers offer a 1-800 number with 24/7 response time capabilities.
- **Privacy Event Notification Services**
  - Assistance in preparing notification letters that comply with applicable regulatory requirements.
- **Credit Monitoring / ID Theft restoration Services**



# Cyber Insurance Carrier Services/Consultants

- **Call Center Services**
  - Available to field FAQs and provide support to affected individuals in the event of a breach.
- **IT Forensic Consultants**
  - Provides technical investigation into the scope and cause of a breach.
- **Public Relations/Crisis Management Services**
  - Assistance in managing and restoring Insured's business reputation following a breach.
- **Pre-Breach Mitigation Services**
  - Most carriers offer loss prevention risk management portals to assist with incident response plan templates, tracking of regulatory requirements and legislation changes, and other educational resources.
  - Select carriers may offer more expansive pre-breach services or other risk management tools.





# Public Power Cyber Liability Insurance

## Industrial Control System Breaches

Target	ICS Breach	Date
US Power Utilities	DHS disclosed that Russian hackers penetrated control systems	2018
Saudi Arabia Petrochemical Plant	Triton malware targeted Triconex industrial safety technology from Schneider Electric SE	2018
US Nuclear	Energetic Bear / DragonFly	2017
Ukraine	Power outage (1 & 2)	2015 & 2016
Bowman Avenue (Rye, NY)	Iranian hack discovered	2015
Steel mill, Germany	Caused explosion and physical damage	2014
Offshore oil	Malicious software, tilt of oil rig, disabled dynamic positioning thrusters	2013 – 2015
Natanz nuclear facilities	Stuxnet virus	2009
Browns Ferry Nuclear Plant	PLC failure	2006
Davis Besse	Slammer worm	2003



# Public Power Cyber Liability Insurance

## Enterprise / IT System Breaches

Target	IT Breach	Date
Entergy	Malware resulted in disconnection with MISO systems and general system interruption	2018
Energy Services Group	Cyber breach caused business interruption for several USA power utilities, retail electricity marketers, and pipelines.	2018
Unnamed California Utility	FERC penalty of \$2.7 million for critical infrastructure data available online	2018
Wolf Creek Nuclear Power Plant	Evidence of Hackers Targeting	2017
Chernobyl Nuclear Power Plant	Petya breach in monitoring systems	2017
Burlington Electric	Laptop malware	2016
Lansing Board of Water & Light	Ransomware. Loss involved business interruption and extortion.	2016
Israel Power Authority	Ransomware	2016
South Korean Nuclear Plant	Blueprint leaks	2015
Saudi Aramco	Shamoon virus with data exfiltration & destruction of 35,000 workstations	2012, 2016
New York State Electric & Gas	Data breach 2 million customers	2012
Other P&U Events	Phishing, social engineering, data theft	2012 - 2017



# Public Power Cyber Liability Insurance

- Cyber is no longer considered an emerging risk and insurance products key component of renewal discussion. Utilities are most frequent buyers within the Energy sector.
- Total US market premium continues to evidence rapid growth with written premium estimates exceeding \$4B<sup>1</sup> (up from \$3.25B in 2016) and projected to be in excess of \$7B by 2020.
- 70+ insurance markets available globally with frequent introduction of new entrants, new policy forms, and innovative policy language.
- Market capacity is now estimated in excess of \$1B, however programs in excess of \$200mm are still rare.
- Cyber risk transfer through captives is achievable, but given the availability of traditional market coverage at competitive pricing, most organizations are not considering this avenue.
- Online quoting and short form applications available for many insureds and program business is on the rise.
- Alternative critical infrastructure products for energy companies still available, but low uptake rate due to negotiations of carvebacks for cyber exclusions on property/liability programs.