

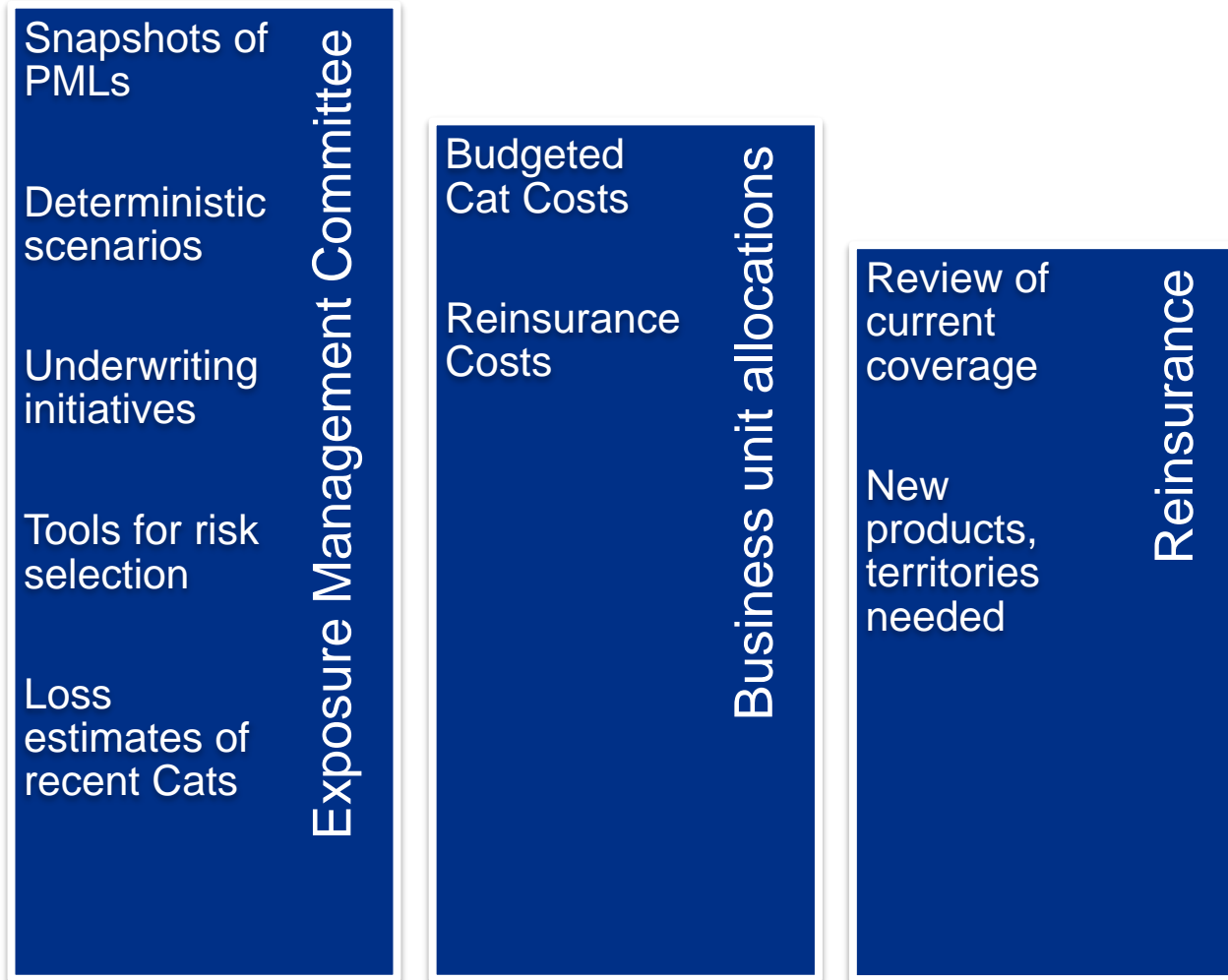


EXPOSURE MANAGEMENT: INSURANCE COMPANY PERSPECTIVE

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EXPOSURE MANAGEMENT ACTIVITIES

Review for steering; allocate; transfer



EXPOSURES & PERILS

Both Peak and Non-Peak

WHERE IS THE RISK CONCENTRATED?

Hurricane



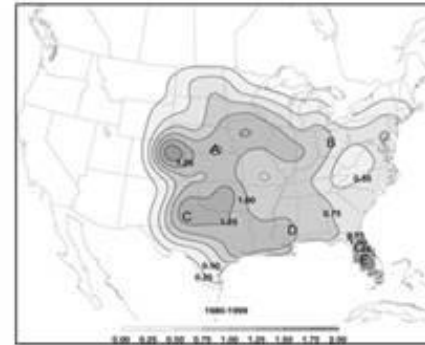
Earthquake¹



Wild Fires



Severe Convective Storm: Tornado²



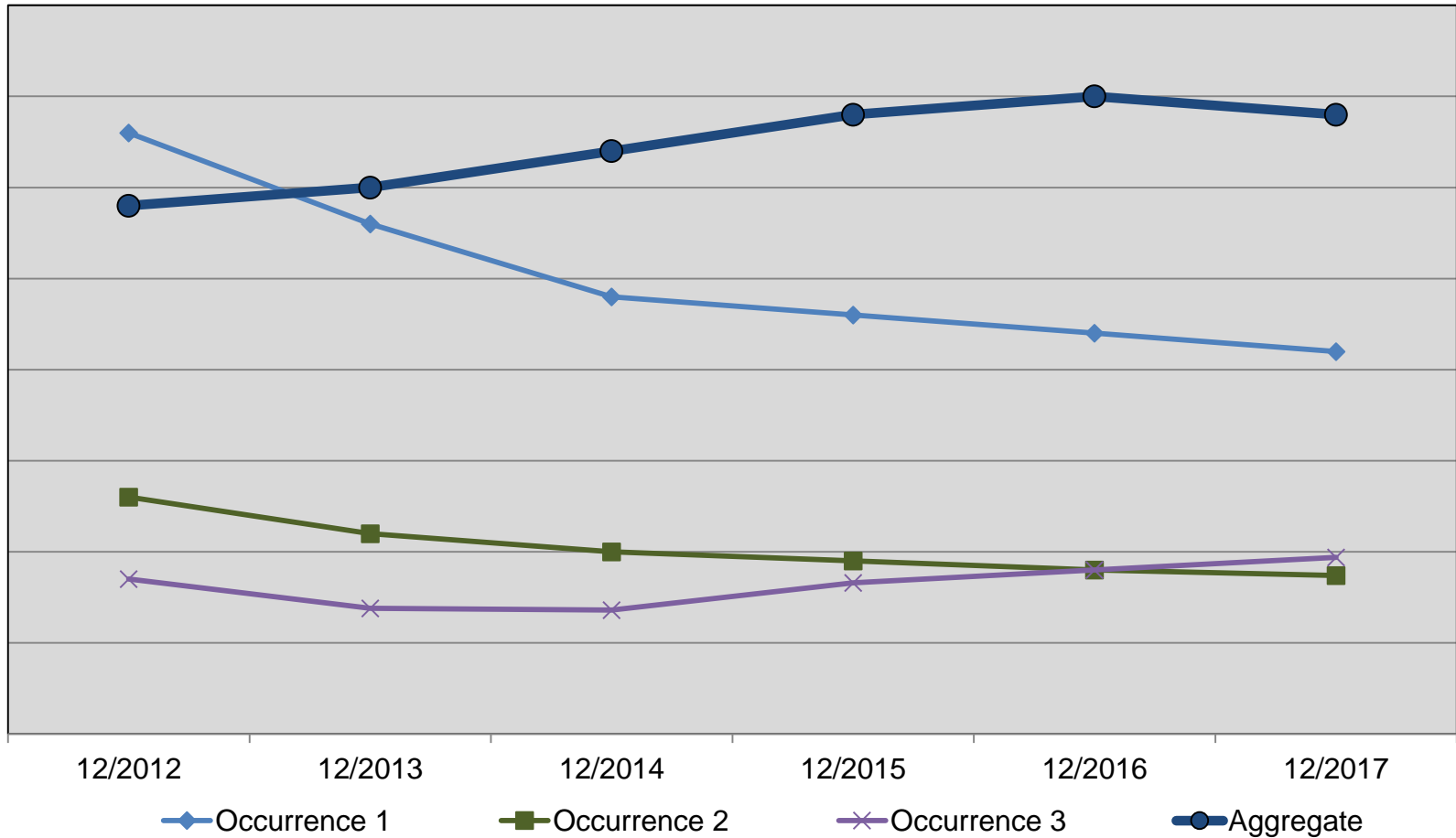
Notes:

1. Earthquake: 2014 USGS Map, Peak Ground Acceleration (2% Probability of Exceedance in 50 Years)
2. Tornado: Mean Tornado Days Per Year 1980-1999

EVERYONE LOVES CURVES

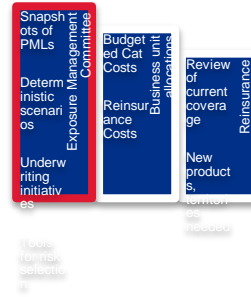
Regional Deterministic Losses vs Enterprise Aggregate PML

- Snapshots of PMLs
- Budgeted Cat Costs
- Review of current coverage
- Reinsurance
- Business unit allocations
- Reinsurance Costs
- New product S...
- Exposure Management Committee
- Deterministic scenarios
- Underwriting initiatives



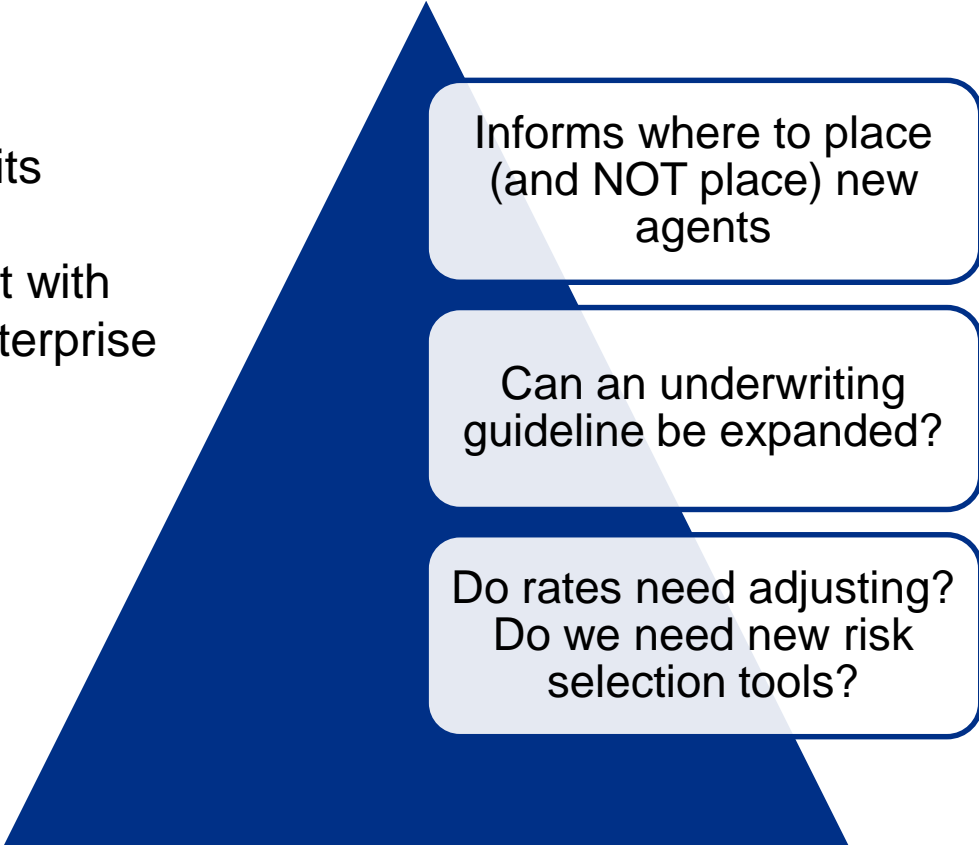
STEERING ACTIONS

What do the Business Units do with the information



Goal:

Business Units control their portfolios, but with the entire Enterprise in mind

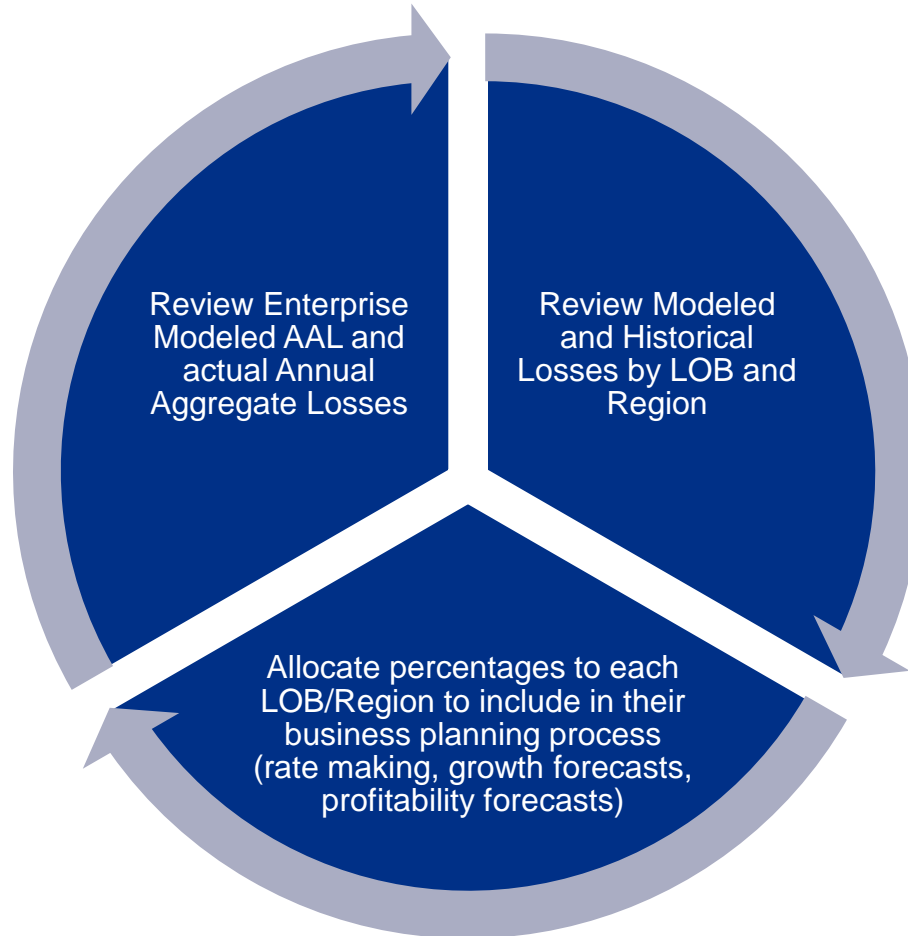


ALLOCATING COSTS INTERNALLY

Who pays for all this?

Snapshots of PMLs	Budgeted Cat Costs	Review of current coverage
Deterministic scenarios	Reinsurance Costs	Reinsurance
Underwriting initiatives	Business unit allocations	New product S...
Exposure Management Committee		

For planned Cat Budget allocations: more weight on frequency events, than severity: ie Tor/Hail, and “retained” HU. Means more weight on experience.



For Reinsurance Cost allocations: more weight on high severity events. Means more weight on Modeling.

SAMPLE ALLOCATION

Drivers of Loss by Layer, for each Line of Business



2018 Programs	LOB 1	LOB 2	LOB 3	LOB 4	LOB 5	LOB 6	LOB 7	LOB 8	Total All Lines
Layer 1	5	6	7	4	1	1	4	1	29
Layer 2	2	6	4	1	1	1	2	1	18
Layer 3	2	5	3	1	1	1	1	1	15
Layer 4	12	7	9	2	1	1	6	1	39
Layer 5	8	6	6	2	-	-	4	1	27
Layer 6	10	4	2	1	-	-	1	1	19
Layer 7	9	3	2	1	-	-	1	-	16
Grand Total	48	37	33	12	4	4	19	6	163
Prem Distribution	29.4%	22.7%	20.2%	7.4%	2.5%	2.5%	11.7%	3.7%	100.0%






These dollars go into the annual plan for each of these Lines of Business, as a cost that they have to cover

REINSURANCE

How much to transfer?



Internal Risk Metrics

- Aggregate: risk no more than X% of PHS above Plan 
- Per Occurrence: risk no more than Y% of PHS 
- Per Occ, by Region: risk no more than Z% of PHS 
- Risk Based Capital modeling 
- Cost and Business Unit constraints 

External Risk Metrics

- AM Best 
- S&P 

SAMPLE TEST OF EXPOSURE RISK METRIC

Zones modeled and compared to tolerances

Sample threshold: if X% of Surplus = \$500m

Peril	Region	Gross Loss	Net Pre-Tax	Net Post-Tax	YE 2017: Net Post-Tax
Hurricane	1	\$612	\$265	\$209 ✓	\$212
	2	\$802	\$284	\$224 ✓	\$244
Earthquake	1	\$997	\$512	\$404 ✓	\$299
	2	\$35	\$28	\$22 ✓	\$38
	3	\$88	\$66	\$52 ✓	\$44
Wild Fire	1	\$840	\$412	\$325 ✓	\$333
Tornado/Hail	1	\$777	\$313	\$247 ✓	\$251

REINSURANCE

How to Structure?



Coverage: Occurrence vs Aggregate

- Some features in an Occurrence tower mimic Aggregate coverage
- What drives the Aggregate curve? Perhaps Occurrence has a big impact?
- Triggers: Indemnity vs Parametric
- Definitions of Loss: goal is if we call it a cat, then it is ceded
- Growth of portfolio: in current peak zones (Occ issue) or new zones (Agg issue)

Efficiency: make all limits work as hard as possible

- Shared Limits
- Cascading Layers
- Section A and B retentions
- Inuring reinsurance
- Option layers that turn on only in scenarios you care about

Cost: get what you pay for; and be prepared to pay for what you get

- Avoid minimum ROLs
- Avoid “dollar trading”
- Consider limitations by peril or geography
- Reinstatement premiums paid upfront or with loss
- Second Event covers
- Aggregate Annual Deductibles