
Energy Insurance in the Balance

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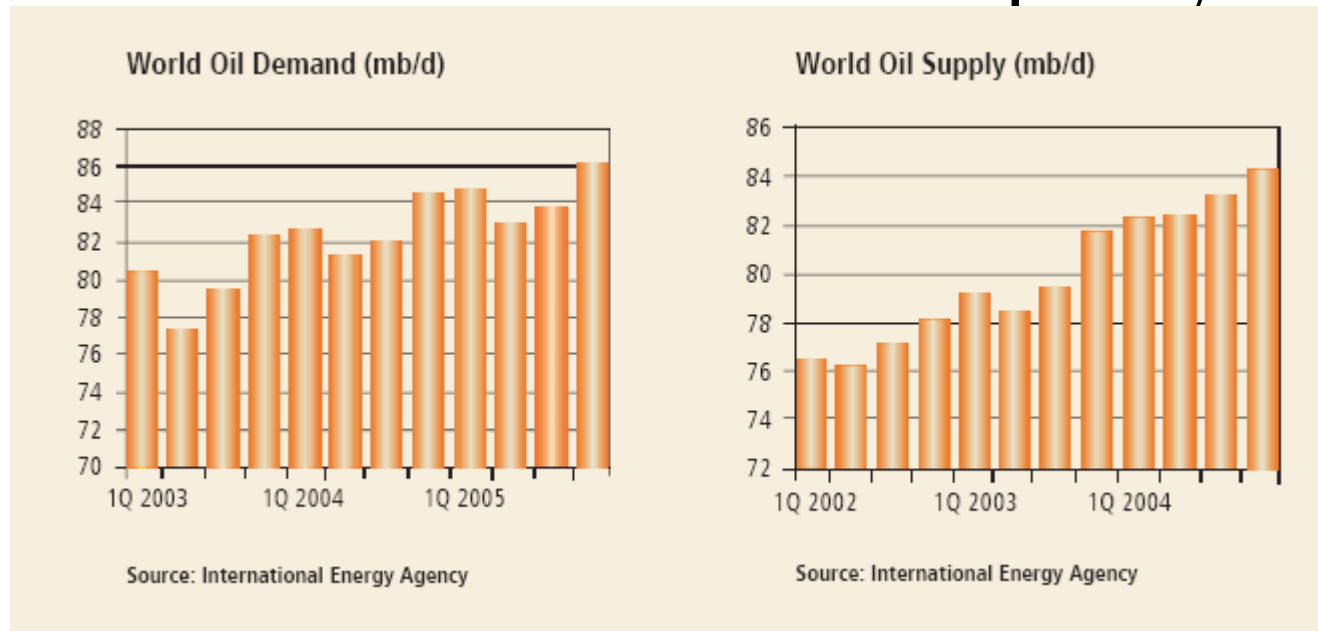
- Economic Viewpoint
- Insurance Market Landscape
- Market Reactions
- Video – “Energy Insurance in the Balance”

Economic Viewpoint

Understanding the Global Energy Segment

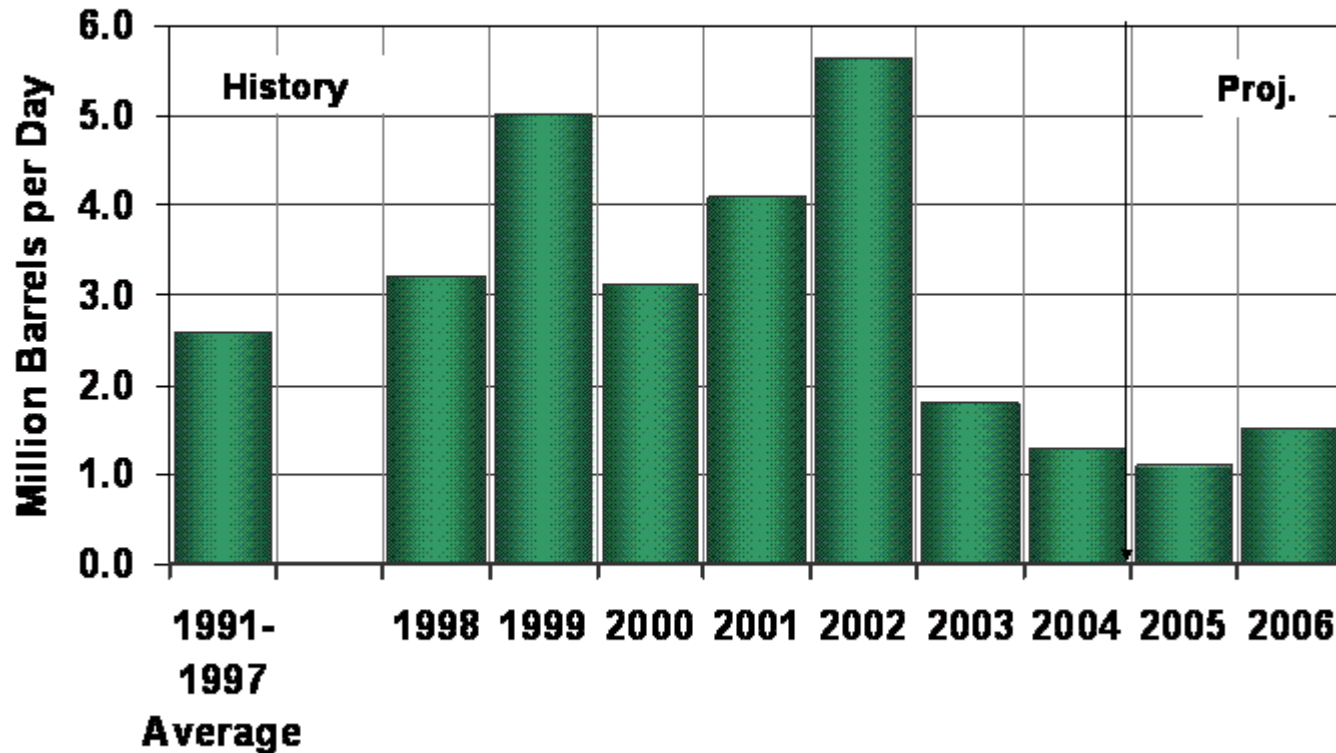
Global Economics - Production

- World uses 30 Billion Barrels a year.
- 1.2 Trillion Barrels of proven reserves still in ground.
- Saudi Arabian oil has peaked.
- World production is 85 Million Barrels per day while world demand is 86 Million Barrels per day.



SOURCE: NY Times; RigZone; Simmons Company; Energy Information Agency

Figure 4. World Oil Spare Production Capacity



Short-Term Energy Outlook, September 2005



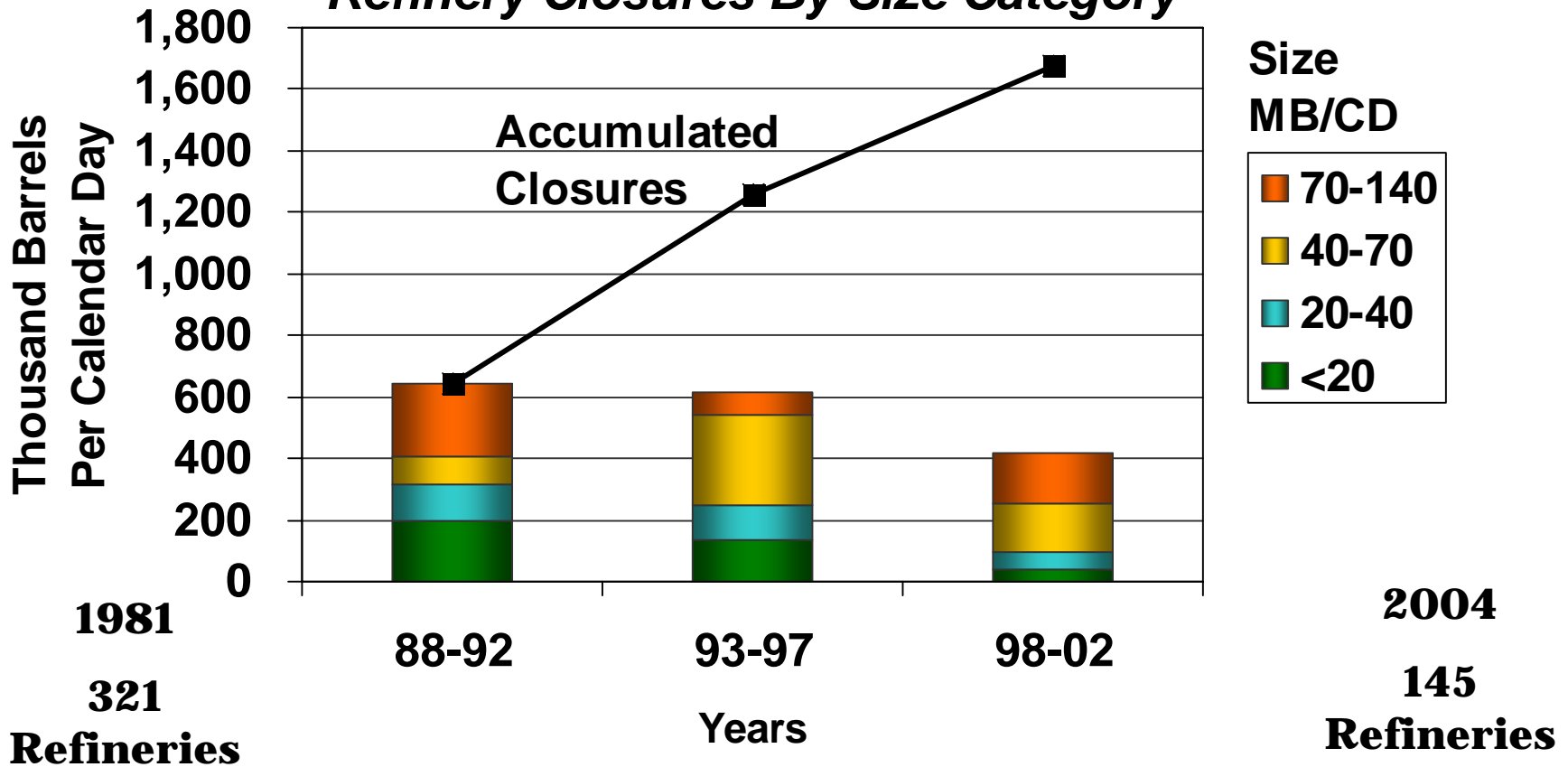
Global Economics – Refining

- World Refineries are operating at 85 to 87% capacity.
- US Refineries are operating at 96% capacity.
- Ideal is to operate at 85 – 90% capacity. >90%????
- The Central Gulf Coast accounts for 10% of US refining capacity. This is in addition to accounting for 30% of US oil production, 20% of US natural gas production

SOURCE: NY Times; RigZone

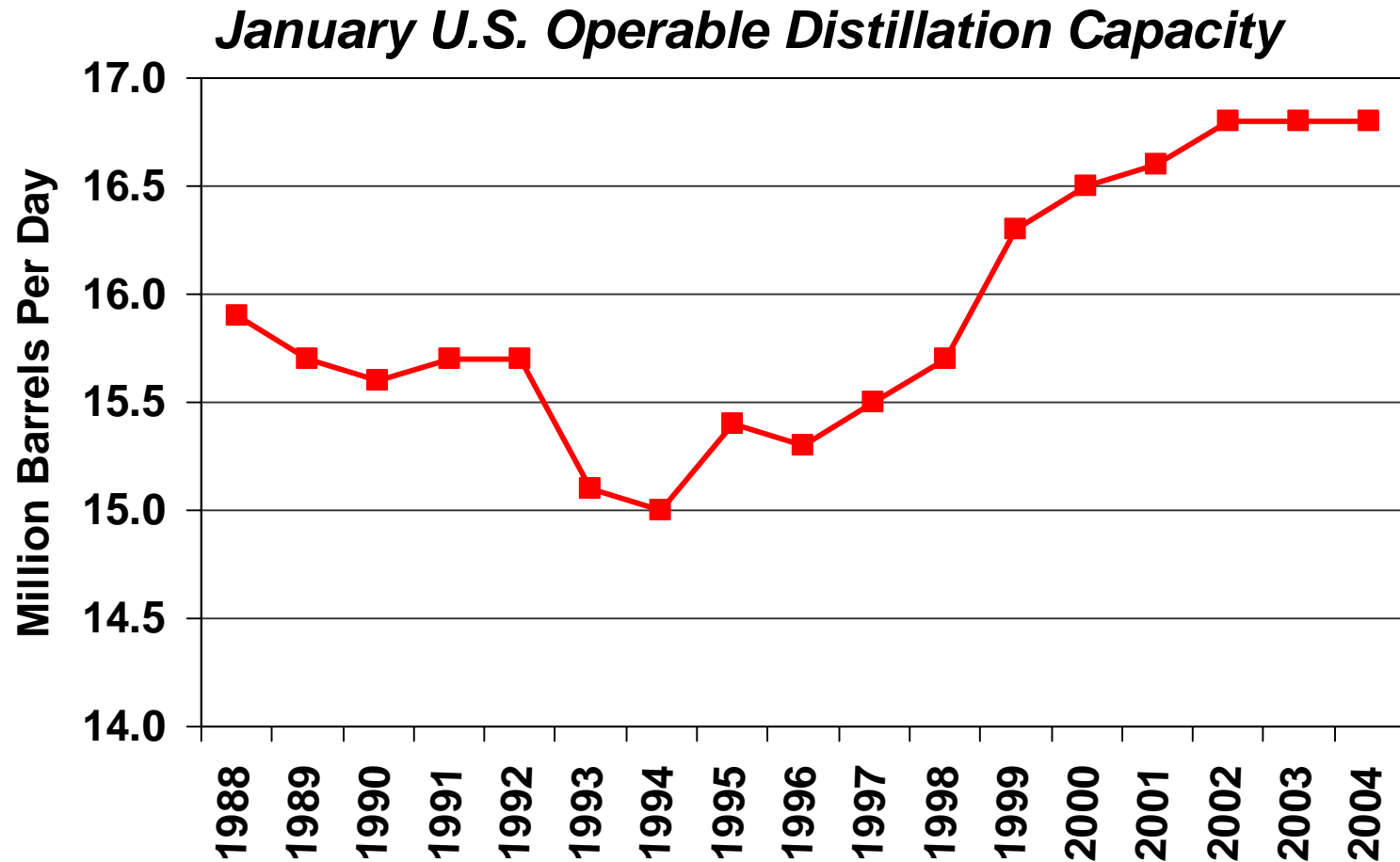
United States Refinery Closures

Refinery Closures By Size Category



SOURCE: Energy Information Administration

United States Distillation Capacity



SOURCE: Energy Information Administration

Business Interruption

Average Refining Margins U. S. Gulf Coast Region – August 2005 Per Barrel Processed

Product Revenues	\$69.47
Feedstock Costs	-55.73
Gross Margin	\$13.74
Variable Operating Costs	-3.03
Contribution Margin	\$10.71
Fixed Operating Costs	-1.60
Cash Operating Margin	\$ 9.11

Refining Margins Over Time Per Barrel Processed

Cash Operating Margin	U.S. Gulf	U.S. West	SE Asia
June 2005	\$8.71	\$12.08	\$2.34
2005 Average	10.07	16.90	1.81
2004 Average	6.49	12.20	2.17
2003 Average	3.21	5.82	-0.01
2002 Average	2.02	3.24	-1.06

SOURCE: Muse, Stancil & Co. as Published in *Oil & Gas Journal*

Economics Conclusions

- Tight supplies are here long term.
- Near-term supply tightness exacerbated by Katrina.
- Refinery capacity increases needed
- OPEC looking to maintain higher prices.

Energy Insurance Market Landscape Capacity, Premium & Losses

Need to Manage Risk

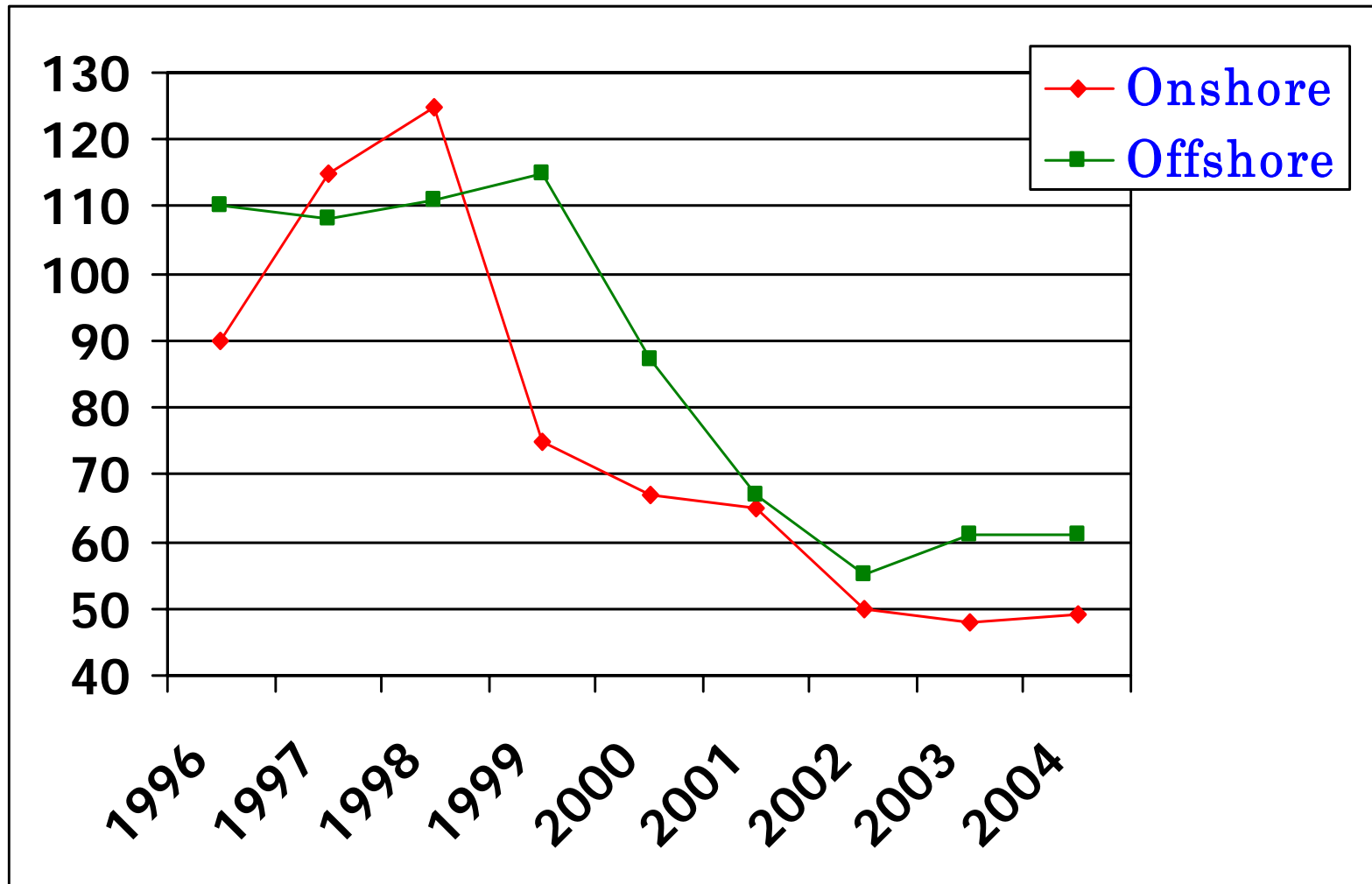
Estimated Global Energy Market Capacity* Offshore/Upstream vs Onshore Property

	Offshore/Upstream		Onshore Property	
	\$Millions	%	\$ Millions	%
Lloyd's	1100	48	525	24
Companies	1200	52	1675	76
Total	2300	100	2200	100

* estimate of economically viable capacity. Theoretical maximum is considerably higher
 Note: OIL and SEnergy add a further US\$ 250 million and US\$ 200 million for PD & BI respectively to the above totals.

Source: Willis Research

Number of Energy Insurers Worldwide



Source: AON

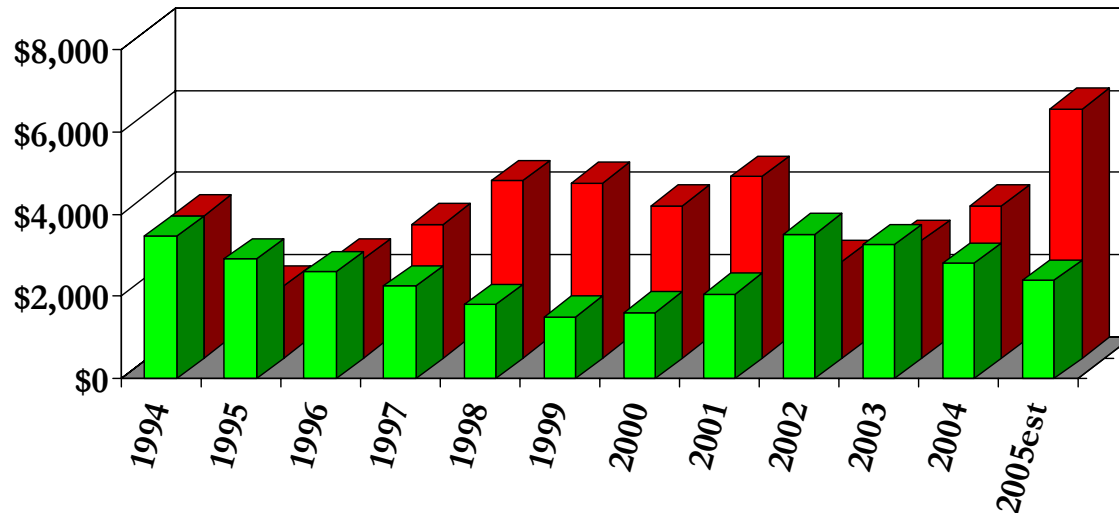
Energy Losses 1994 – 2005 est

Global Energy Premium vs. Claims

Onshore and Offshore

■ Est Premium ■ Actual Claims

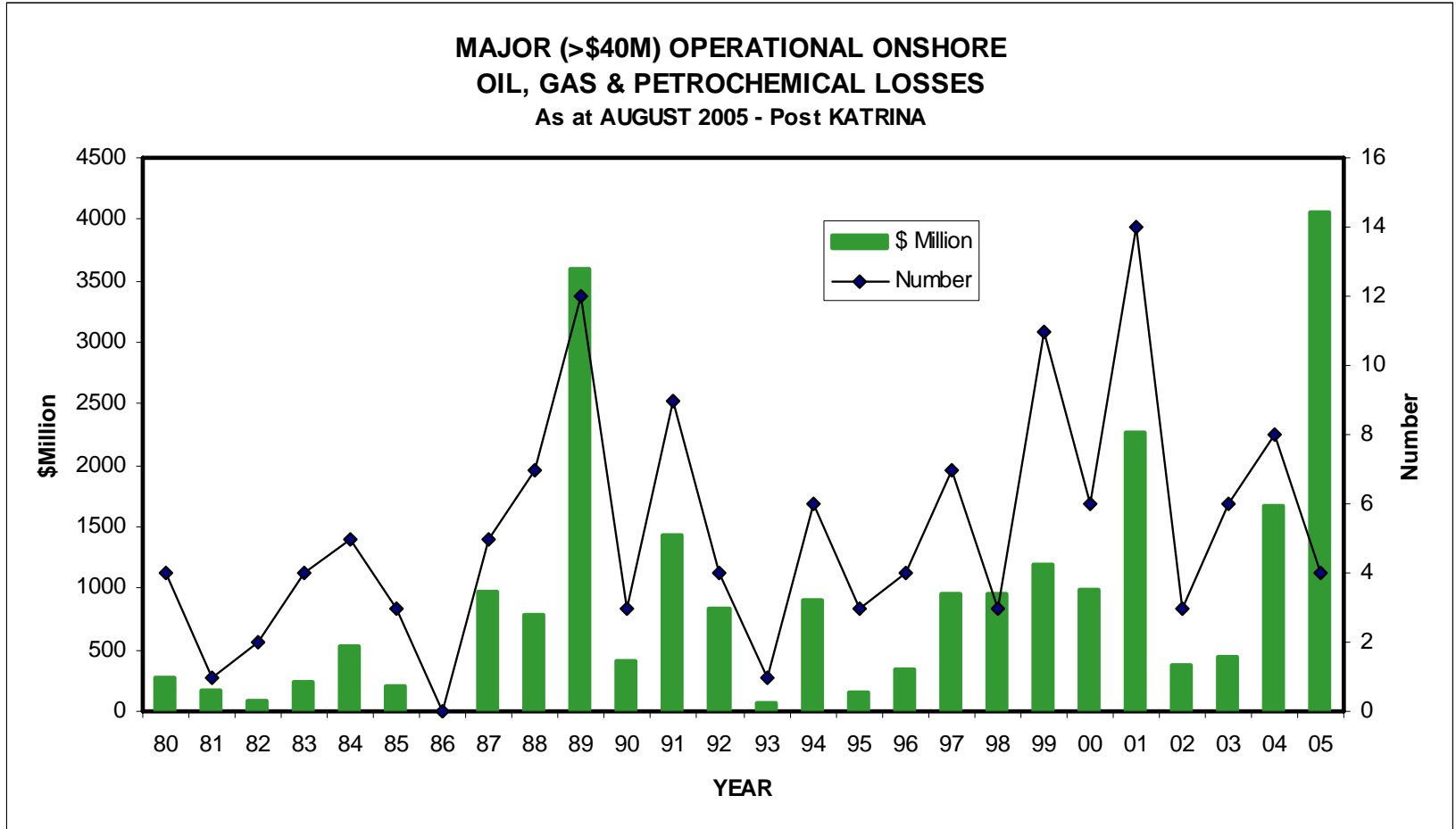
	1994 - 2004	1994 - 2005 est
GWP	\$27,850	\$30,080
Claims	\$35,000	\$42,450
L/R	1.26	1.41



Values in \$US Millions

SOURCE: Willis Energy Market Review + LIU 2005 estimate

Major Energy Losses Post – Katrina?



SOURCE: LIU Large Loss Database as of August 2005

Major Onshore Energy Losses 2004 – 2005

Site	Location	Date	Plant Type	Event	Cause of Loss
Moomba	Australia	1-Jan-04	Gas Plant	VCE	Piping failure
Skikda	Algeria	19-Jan-04	LNG Plant	VCE	Combustion Safeguards failure
Gresik	Indonesia	20-Jan-04	PA Plant	Fire	Electrical Fault on machine
Texas City	TX	30-Mar-04	Refinery	Fire	Mechanical failure
Gresik	Indonesia	8-Apr-05	MA Plant	Fire	Electrical Fault on machine
Illioopolis	IL	23-Apr-04	PVC Plant	VCE	Mechanical failure
Haifa	Israel	16-Jun-04	Refinery	Explosion	Combustion Safeguards failure, Operator Error
Secunda	South Africa	22-Jun-04	Petrochemical	VCE	Improper Maintenance Preps
Ft McMurray	AB	4-Jan-05	Tar Sands Plant	Fire	Piping failure
Sodom	Israel	21-Feb-05	Chemical	Flood	Flood
Texas City	TX	23-Mar-05	Refinery	VCE	Operator Error

Major Loss is > \$US 40 Million

SOURCE: LIU Large Loss Database as of August 2005

Principle Causes of These Losses

- **START-UP**

- **PIPEWORK**
 - Maintenance / Inspection

- **OPERATOR ERROR**
 - Management Systems
 - Procedures

Market Reaction

The Way Going Forward

Impacts

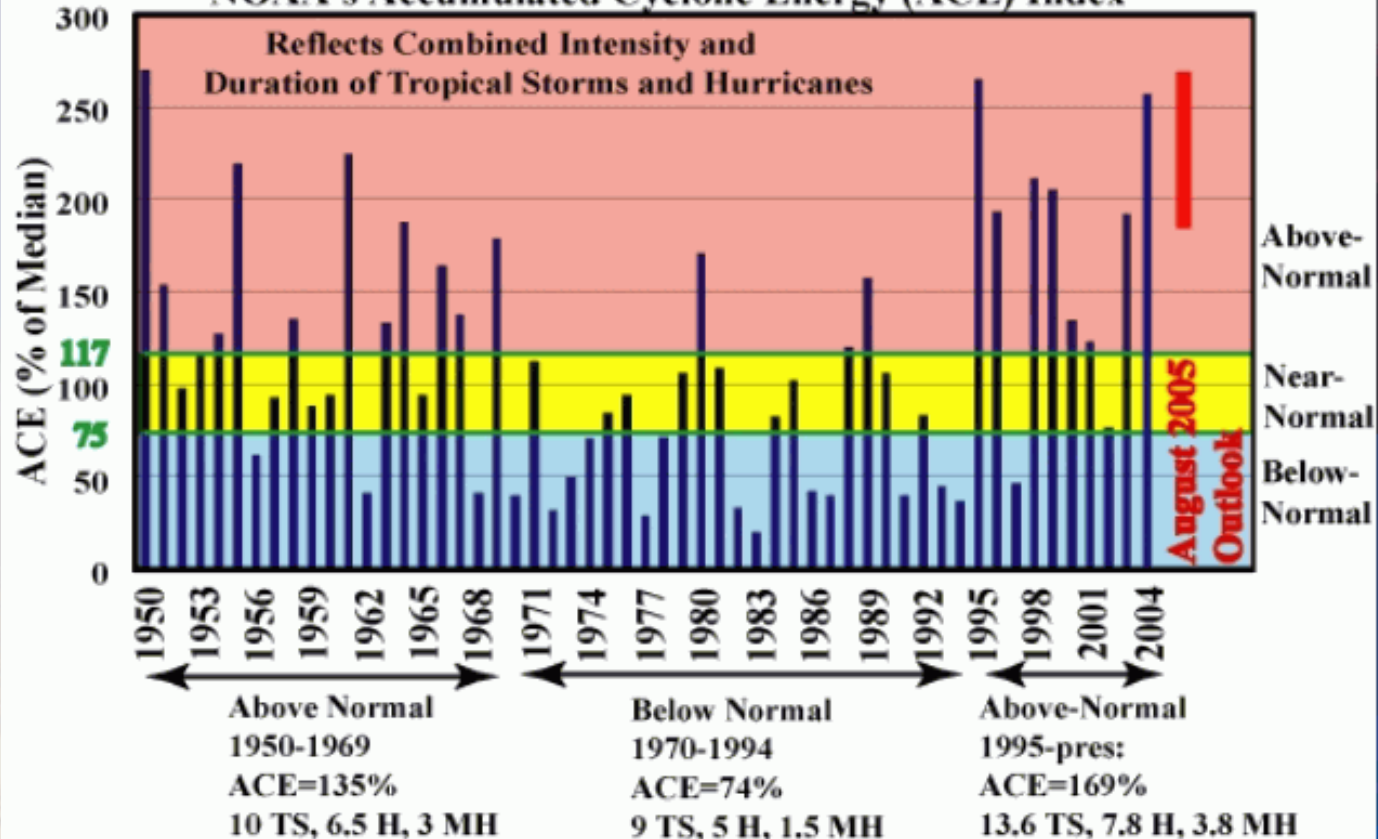
- Reinsurance
- Underwriting
- Business Interruption Exposure

Risk Engineering Response

- Concerns
- Prior Knowledge Still Applies
- Learn from Katrina and Be proactive



North Atlantic Hurricane Season Activity NOAA's Accumulated Cyclone Energy (ACE) Index



Katrina

- Insured Loss Estimates by Major Modeling Firms

(\$US Billions)	Low	High
RMS	40	60
AIR	17	25
EQECAT	14	22

NOTE: Flood losses are likely to be biggest swing factor for total industry loss. Business interruption losses will be significant not only for those who were displaced but also for those companies that bought CBI.

SOURCE: RMS, AIR, EQECAT

No Margin for Error



Source: National Geographic

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