Potential Credit Loss Model

Quarterly Update: FYE-08 Financials

F&A Committee
August 18, 2009

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Summary Results

While the impact of various model factors changed…

Base case credit risk remains comparable to initial Oliver Wyman model

- Market factors have reduced risk
- QSE factors have increased risk
- Net effect – overall risk slightly down

Current case credit risk increased when compared to initial Oliver Wyman model

- Excess collateral held (collateral in excess of that required by Protocols) has decreased, resulting in increased risk

Background

- **The Board of Directors approved the Market Credit Risk Standard in May 2009, requiring ERCOT to report on credit risk in the market.**
  - This presentation is a summary of the results of the Potential Credit Loss Model based on the financial statement information provided by QSEs as of December 31, 2008.
  - Information is compared to the results presented by Oliver Wyman in February 2008

- **The Potential Credit Loss Model uses Monte Carlo simulation to simulate potential credit losses across all ERCOT QSEs, while taking into account key risk factors such as:**
  - Default probabilities of QSEs (which reflect credit quality)
  - Exposure parameters (such as outstanding liability & potential for volume escalation upon default)
  - Market prices and price volatility
  - Collateral (as required by ERCOT Protocols)
  - Relationships between this factors

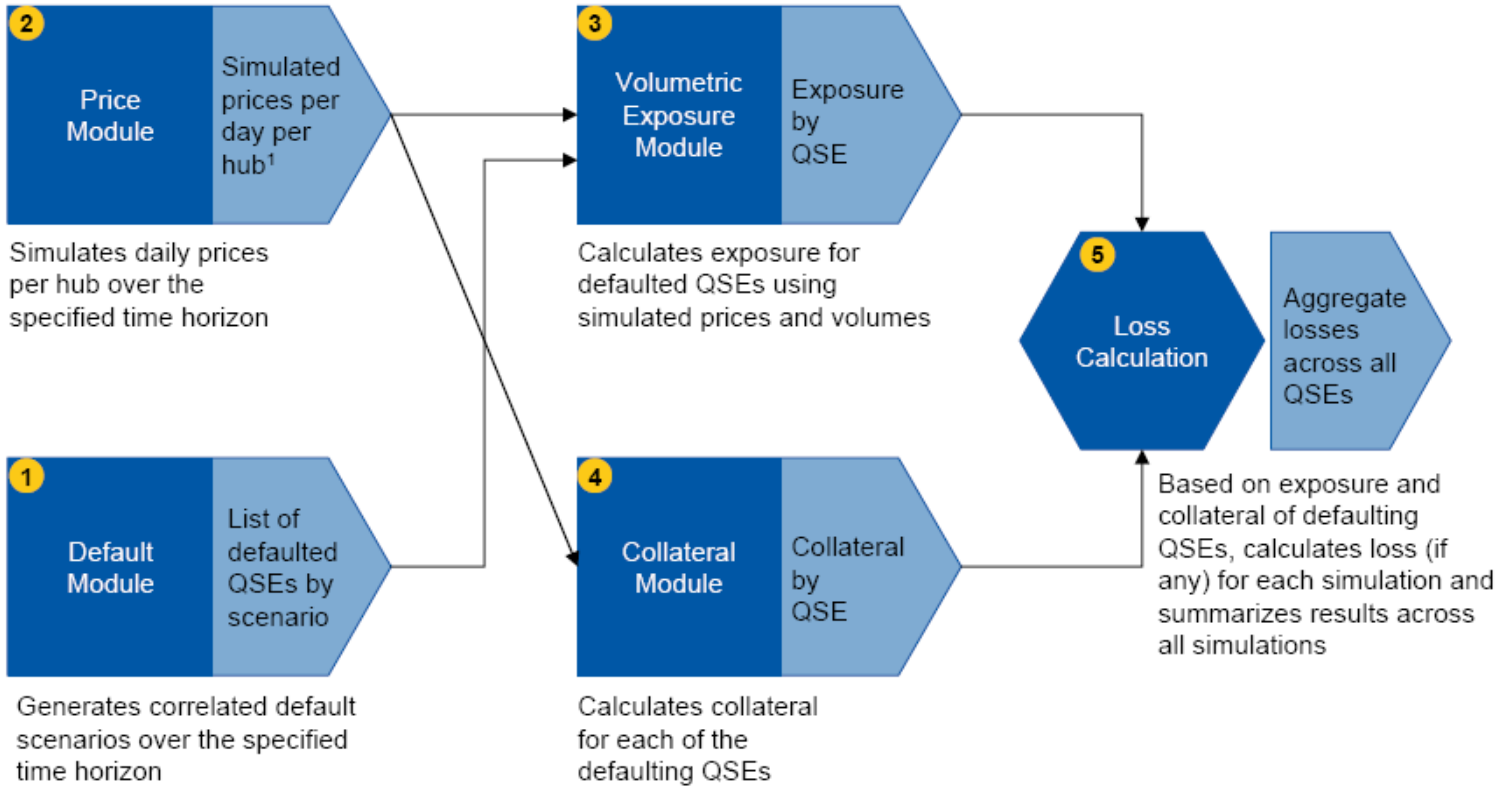
Background (continued)

- **The model is not a predictor of the future as it does not represent what will happen, but provides insight into what may happen along with the probability of various outcomes.**

- **The model uses as many relevant factors as possible, however it isn't capable of encompassing every factor and scenario.**

High-level Configuration

The model consists of four modules: Default, Price, Volumetric and Collateral, which represent the key risk factors in the ERCOT Market.



The model will be run thousands of times in order to estimate a credit loss distribution – this schematic represents one simulation

1. Hub refers to a zone, settlement point, location or market

- **Two cases are represented –**

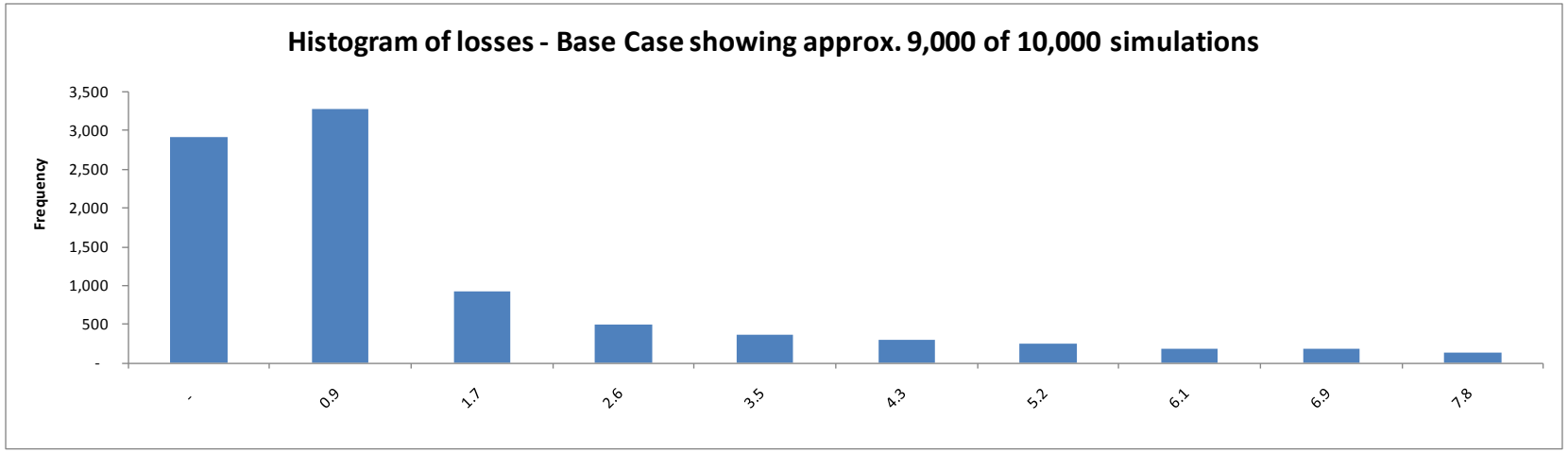
Base Case

- Does not include current collateral held by ERCOT
- Fundamental assumption for this case deems collateral balances to be at least consistent with current protocols until a default occurs
- Unless otherwise indicated, this case is represented in all slides since it represents what ERCOT can enforce per existing Protocols

Current Case

- Uses current levels and forms of collateral for each QSE held by ERCOT at $Time_0$ at a minimum (Beginning of simulated period)
- Assumes some degree of overcollateralization will be maintained until a default occurs, i.e. the resulting loss distribution is lower

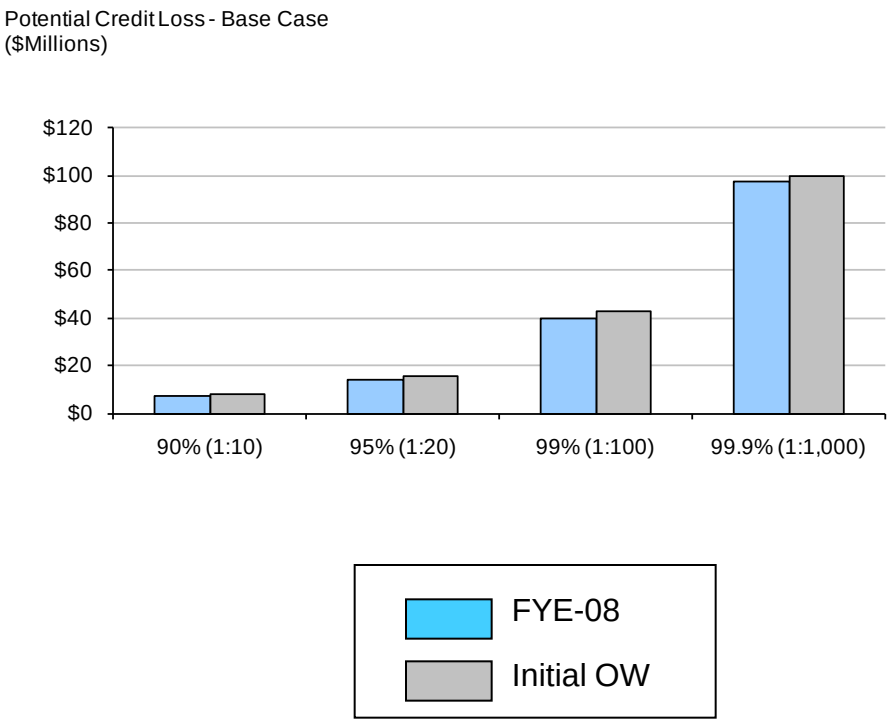
Summary of Most Common Outcomes – Base Case



- Histogram above shows the number of simulations with credit losses less than or equal to $7.8 million dollars
- Losses of equal to or less than $900,000 are the most common results
  - Over 29% (2,921) of simulations had no losses, either from no defaults or defaults with adequate collateral
  - Over 70% of simulations resulted in losses of less than or equal to $1.7 million
  - Results assume that market conditions and QSE credit ratings continue to be relatively unchanged over the next twelve months
- The average loss (expected value) across all simulations is approximately $3 million
  - Most simulations result in losses well below the average
  - The “Average” does not represent “the most common outcome”, but the long-run average across all outcomes (the Expected Loss)
- Typical characteristic of this simulation - **heavily skewed to the right, showing extreme losses to be very rare**
- Recent results are comparable to those presented by Oliver Wyman in February 2008

Comparisons – Base Case

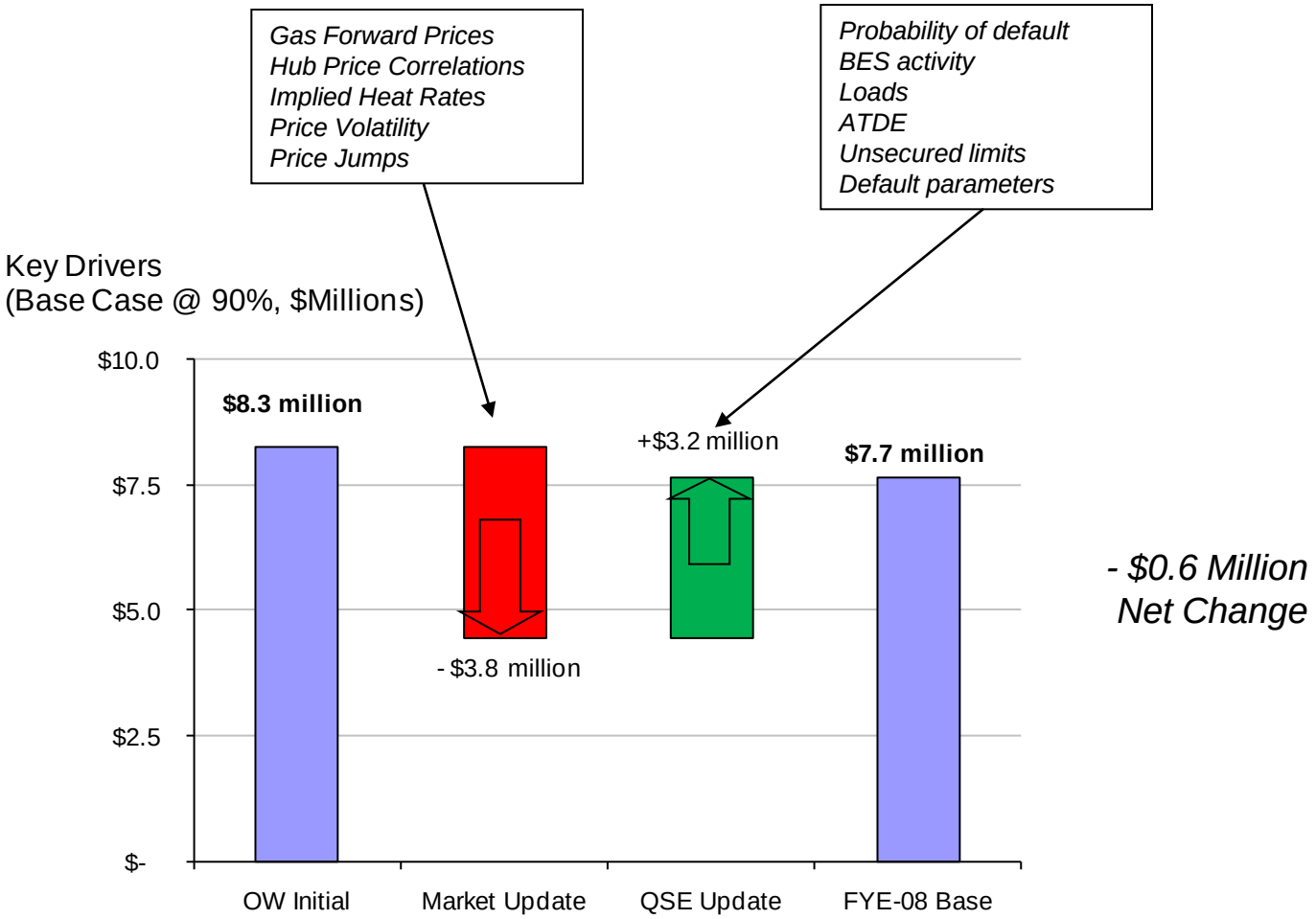
Simulations using Initial OW data and FYE-08 Financials



	FYE-08 Financials	Initial OW
	Base Case	Base Case
Horizon (in days)	365	365
Simulations	10,000	10,000
Total defaults	44,884	46,229
Simulations with defaults	9,538	9,536
Simulations without defaults	462	464
Default simulations with zero loss	2,459	2,670
Total simulations with zero loss	2,921	3,134
($Millions)		
Expected Loss	$3.0	$3.0
Median (1:2)	$0.3	$0.2
90% (1:10)	$7.7	$8.3
95% (1:20)	$14.3	$15.8
99% (1:100)	$39.7	$42.6
99.9% (1:1,000)	$97.4	$99.8
Max (1:10,000)	$173.6	$213.0

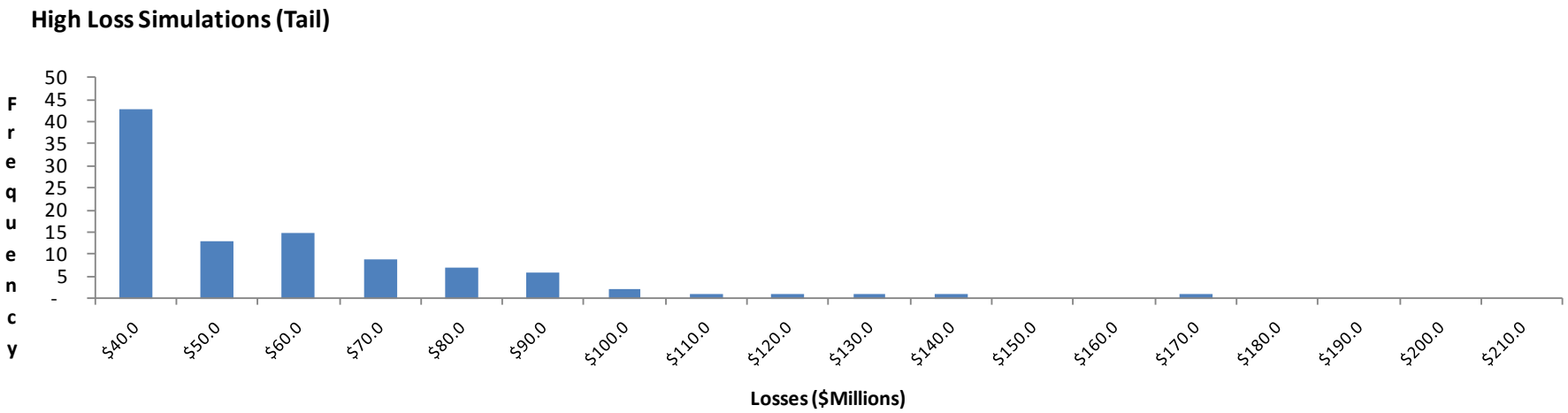
What Has Changed – FYE 2008

(US$ Millions, 90% confidence)



- $0.6 Million Net Change

Base Case – Top 1%



- Histogram above shows the top **1%** loss simulations (Tail risk, a.k.a. “Extreme Events”)
- Precisely 1% (100) of the simulations resulted in losses in excess of $39.7 million
- This is down slightly from the initial Oliver Wyman run of the model ($42.6 million)

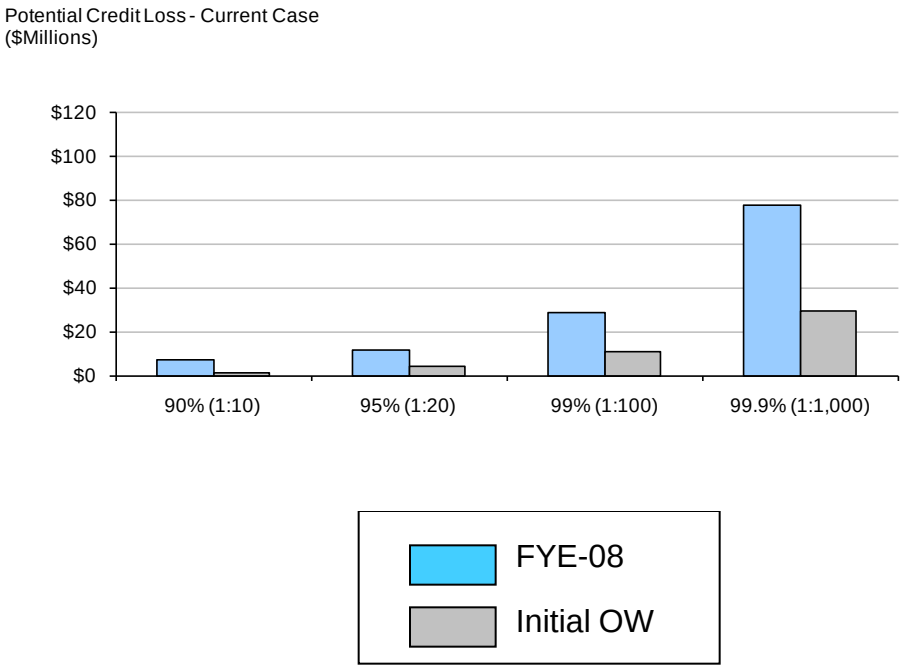
Current Case Simulations

- **Uses current levels and forms of collateral by QSE, at a minimum, held by ERCOT at Time$_0$**

- **ERCOT uses Group Logic to determine QSE Probability of Default ("PD")**
  - This approach applies a combination of the QSE's PD and the Parent's PD, resulting in a PD between the QSE's and Parent's PD based on the strength of the relationship between the QSE and the Parent
  - Implies some level of support from a parent regardless of whether a guarantee is in place or not
  - This approach assumes that a QSE default occurs separately from a parent default and that a guarantee has value as collateral

- **Credit Working Group (CWG) requested to see a different approach applied to the Current Case (Guarantor PD approach)**
  - Recognize the acceptance of a guarantee as granting unsecured credit rather than as collateral
  - Set QSE's PD equal to the Parent's PD when a parent guarantee is in place for a strategic subsidiary (and use Group Logic when no guarantee is in place or when guarantee is for a nonstrategic subsidiary)
  - This approach assumes that a QSE will only default when the guarantor defaults

Simulations using Initial OW data and FYE-08 Financials



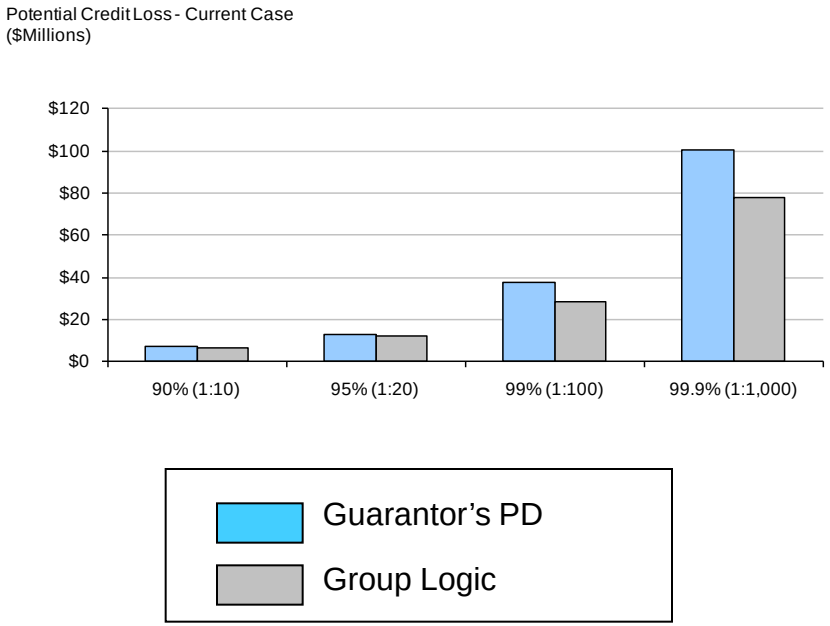
	FYE-08 Financials	Initial OW
	Current Case	Current Case
Horizon (in days)	365	365
Simulations	10,000	10,000
Total defaults	45,078	46,548
Simulations with defaults	9,530	9,537
Simulations without defaults	470	463
Default simulations with zero loss	2,979	3,950
Total simulations with zero loss	3,449	4,413
($Millions)		
Expected Loss	$2.5	$0.7
Median (1:2)	$0.2	$0.03
90% (1:10)	$6.8	$1.4
95% (1:20)	$11.9	$4.0
99% (1:100)	$28.6	$10.9
99.9% (1:1,000)	$77.9	$29.8
Max (1:10,000)	$172.7	$156.0

- **Current case exposure has increased because security posted by Market Participants has decreased overall**
  - *Particularly by lower-rated counterparties*
  - *ERCOT retains collateral required by Protocols*

Changes in Collateral Held
(QSEs common to both runs)

	Collateral Held ($Millions)								
	FYE08 Report		Initial OW Report		Total Change				
By Implied Credit Rating	Guarantee	L/C	Guarantee	L/C	Guarantee	L/C	Total		
AAA+	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
AA+ to A-	$ -	$ -	$ 40	$ -	$ (40)	$ -	$ (40)		
BBB+ to BBB-	$ 121	$ 59	$ 78	$ 140	$ 43	$ (81)	$ (38)		
BB+ to B-	$ 144	$ 77	$ 93	$ 76	$ 51	$ 1	$ 52		
CCC+	$ 6	$ 31	$ 57	$ 15	$ (51)	$ 16	$ (35)		
Total	$ 271	$ 167	$ 268	$ 231	$ 3	$ (64)	$ (61)		

Simulations using FYE-08 Financials



	Guarantor's PD	Group Logic
	Current Case	Current Case
Horizon (in days)	365	365
Simulations	10,000	10,000
Total defaults	41,391	45,078
Simulations with defaults	9,503	9,530
Simulations without defaults	497	470
Default simulations with zero loss	2,628	2,979
Total simulations with zero loss	3,125	3,449
($Millions)		
Expected Loss	$2.7	$2.5
Median (1:2)	$0.2	$0.2
90% (1:10)	$7.1	$6.8
95% (1:20)	$12.9	$11.9
99% (1:100)	$37.4	$28.6
99.9% (1:1,000)	$100.6	$77.9
Max (1:10,000)	$204.4	$172.7

- **The difference in losses is not remarkable between these two approaches when comparing confidence levels of 95% or less.**

- **However, at confidence levels above 95%, the Guarantor PD Approach indicates significantly higher losses.**
  - Using the Guarantor's PD, which is usually lower, indicates a reduced risk of default for the QSE; however, when there is a default, losses may be higher due to the unsecured credit granted to the QSE

- **Negative Prices in West Zone**
  - Negative prices interfere with calculations of price zone correlations and mean reversion factors
  - Upon discussion with OW, a flat $20 price is substituted for negative prices
  - Impact on simulation results may understate risk but is negligible

- **Price Correlations**
  - Originally considered holding correlations constant; however, we believe that current trends in weaker price correlations should be used
  - Price correlations are calculated using historical prices of the most recent 12 months

- **Resources for Potential Credit Loss Model**
  - Staffing
    - Director of Credit Risk Management
    - Data management resource (future)

- **Frequency of running the Model**
  - ERCOT currently examining options for running the model more frequently, i.e. monthly
  - Data management issues require resolution

Next Steps

- **Model updates in the coming months –**
  - Q1 Financials September 2009
  - Q2 Financials October 2009
  - Q3 Financials December 2009