Finance and Audit Committee Credit Workshop

March 5, 2007



Antitrust Admonition

ERCOT strictly prohibits market participants and their employees who are participating in ERCOT activities from using their participation in ERCOT activities as a forum for engaging in practices or communications that violate the antitrust laws. The ERCOT Board has approved guidelines for members of ERCOT Committees, subcommittees and Working Groups to be reviewed and followed by each market participant attending ERCOT meetings. If you have not received a copy of these Guidelines, please take one now and review it at this time. Please remember your ongoing obligation to comply with all applicable laws, including the antitrust laws.



Agenda for Credit Workshop

Agenda Item #	Description/Purpose/Action Required	Presenter	Approx Time
	Call to Order	C Karnei	1:00
1.	Review current level of credit exposure and credit risk factors	C Yager	1:00 - 1:30
2.	Overview of legal / policy directives regarding financial stability in the ERCOT Region (e.g. credit issues) • Statutory/regulatory considerations • Other considerations	A Gallo	1:30 - 2:00
3.	 The environment Balance financial stability with potentially competing goals (i.e. market liquidity, barrier to entry issues) Current processes or governance structures in place to accomplish the goal (i.e. Market governance, Credit WG governance, Board oversight, etc) 	M Davies	2:00 - 2:30
4.	What is ERCOT, Inc. and the ERCOT Board of Directors' role with respect to credit in the ERCOT market?	C Kamei	2:30 - 3:30
5	 How to determine an acceptable level of credit risk? How to determine that the market is financially stable? Establish / confirm credit objectives (what is the goal?) Market Opinion Independent assessment Board of Directors Other / PUCT 	C Yager	3:30 - 4:00
6	Next steps	C Karnei	4:00 - 5:00
7	Adjoum	C Karnei	5:00



F&A Credit Workshop March 5, 2007

Credit Exposure and Credit Risk Factors Cheryl Yager



- Losses have been incurred in the market as a result of credit events
 - Losses in 2003
 - Losses in 2005/2006

\$ 15.0 million \$6.0 million

- Actions were taken in 2003 and 2004 to reduce credit exposure after the losses in 2003.
- With the defaults beginning in 2005, the market recognized that credit exposure still existed in the market at a greater than desired level. The market and ERCOT and PUCT staff have worked to reduce the level of credit exposure in the market.
- In September 2006, the market indicated a desire to hold off on further credit tightening for the time being.



- Given that unmitigated credit exposure remains in the market, the BOD tasked the F&A Committee to bring forward next steps re: credit matters.
- The Finance and Audit Committee decided to hold this Credit Workshop to seek input, review key issues and determine next steps to try to address the following questions:
 - Is the *current level* of credit exposure acceptable to maintain a financially stable market?
 - As market rules and conditions *change over time*, how can the market and the BOD help ensure that credit exposure remains acceptable?



Credit objectives

Provide a financially stable market

- Residual credit risk should not endanger the overall financial stability of the market
- Ensure transparency of market participant financial risks associated with residual credit exposure
 - Credit risk is present in the ERCOT market
 - Mass transition losses (magnitude described herein)

Address credit risks as they are identified



- Creditworthiness of QSEs representing load
- Credit exposure



	# of QSEs	Total load	Average daily Ioad	
Load by QSE				
Meets creditworthiness standards	8	5,484,786	176,929	24%
Doesn't meet creditworthiness stds Posts guarantee Posts cash or LC	11 51	12,159,080 5,595,379	392,228 180,496	52% 24%
Total for December 2006	70	23,239,246	749,653	
August indicative load			1,000,000	
Only include QSEs that represent load				



- 76% of QSEs representing load in December 2006 do not meet creditworthiness standards and must post some form of collateral
 - A significant number post guarantees
 - A different credit risk profile
 - Generally from a parent / other entity that meets creditworthiness standards and is willing to stand behind the QSE
 - Corporations often segregate activity into different legal entities to protect from risk
 - Relative to cash / LCs, guarantee is not as strong a form of collateral. Have not had to enforce a guarantee to date.



- How are current and near term changes in the market expected to impact credit quality of market participants?
 - Removal of price to beat?
 - Offer cap increase?
- Is the market seeing a trend of QSEs that are stronger or weaker financially?
 - QSEs that are financially weaker generally
 - Are less able to withstand market shocks and
 - Have less ability to absorb losses
- The measure of financial stability in the market is directly related to the sum of the risks of individual entities.
- To create a financially stable market:
 - Should / do market rules take into consideration the current and expected average financial strength/depth of the market participants in determining how much loss can be absorbed? Can it be quantified?
 - Should / do current market rules / competition encourage / discourage entities from strengthening their financial position so that they are better able to withstand market shocks?



- Significant exposure can occur before it is identified by ERCOT and collateralized
 - From unexpected market shocks (curtailments, weather events, etc)
 - From individual market participant behavior
- BES prices are significantly impacted by the amount of MWhs taken from BES and can fluctuate dramatically and unexpectedly
- QSEs taking energy from BES are price takers

Does creating a financially stable market include insuring that the market, as a whole, can withstand some level of "shock" or is it acceptable to assume only "normal" levels of activity?



Large dollar example

Total market - average daily MWh for one day in August	1,000,000
Percent of market	10%
Troubled entity (ies) unexpectedly 100% in BES	 100,000
Over a weekend	3
Price spike due to weather / extra demand on BES / other	\$ 300
Liability	\$ 90,000,000
Collateral for 21 days at 10% BES use (14 at \$50 + 7 at \$75)	\$ 12,250,000
Shortfall - Entity(ies) file bankruptcy	\$ 77,750,000

Note: This example represents a combination of shocks (100% in BES for several entities and high prices) which is <u>not</u> the norm in the market, but a "perfect storm". The example is intended to illustrate that:

- 1) Dollar impact can get very large, very quickly
- 2) From a credit perspective, ERCOT must deal with this kind of exposure after the fact



Credit risk factor - Credit exposure (cont)

- ERCOT's ability to measure exposure accurately and timely (incl resettlements and dispute resolutions, etc)
- Collateral calculation is based on historical usage, which, in most cases, isn't sufficient to cover forward exposure (in worst case scenarios)
- ISO cannot (in the short term) limit MWh use of BES
 - Determined by QSE
 - By default, if a QSE does not have a bilateral contract, load is met through BES
- Length of time (from identification of a problem) it takes to move a problem entity out of the market
- Impact of bankruptcies



 Through significant effort by the market (TAC, WMS, RMS, Texas SET, CWG), PUCT staff and ERCOT staff, credit exposure related to Mass Transition has been significantly reduced.

Potential loss (simplified - w / 3 weeks of collateral) (in 000's)

	Previous	Today	2Q 2007
Approx number of days for process	22-26	15-17	10-12 (a)
Collateral held (1) 1,000 MWh/day x \$100/MWh = x 10% x 21 days	\$ 140	\$ 210	\$ 210
At default 1,000 MWh/day x \$100/MWh = x 100% x ? days	<u>\$ 2,200</u>	<u>\$ 1,500</u>	<u>\$ 1,000</u>
Potential market loss	\$ 2,060	\$ 1,290	\$ 790
For 100 MWh/day For 10,000 MWh/day	\$206 \$20,600	\$ 129 \$ 12,900	\$79 \$7,900
Relative exposure		63%	38%

However, although the situation has improved, a "gap" still exists between collateral held and exposure

(a) Other ISOs are able to accomplish transitions in roughly half this time. Other ISOs do not have to deal with retail switches to accomplish a transition. See supplemental section for additional information.



Parties bearing financial risk

- The market is financially settled in a two day process. Amounts due TO ERCOT are made on day one (usually Thursday) and amounts due FROM ERCOT are paid out on day two (usually Friday).
- When an Invoice payment is not received by ERCOT on day one: Step 1: Short payment. Those that are expecting payment from ERCOT on day two are paid less than the full amount owed on the next business day (on a pro rata basis).
 - Step 2: Uplift. If the amount due is not subsequently collected from the defaulting entity, the short paid amounts are uplifted to QSEs representing load in the market based on the pro rata portion of that load. Uplift begins around180 days after the default occurs. No more than \$2,500,000 in total may be uplifted to the market at a time and short payment invoices are issued at least 30 days apart.



Questions?



Supplemental Information



ISO comparison

	ERCOT	NYISO	NE-ISO	MISO	PJM
# of business days to post collateral	2 Collateral call	1-3 If exposure	0	0	0
	made bef 3pm	exceeds collateral,			It is an event of
	Tues, due by 3pm	Collateral call	It is an event of	It is an event of	default for
	Thurs, call made	made on Tues, due	default for	default for	exposure to
	after 3pm Tues,	by 4pm on	exposure to	exposure to	exceed 85% of
	due by 5 pm Thurs	Wednes	exceed collateral	exceed collateral	collateral
# of business days to cure					
breach/default (for collateral)	2	3	1-2 Notice of breach sent on Tues (a) before 10am or (b)	2	3
	Notice of breach		after 10 am; cure		
	sent on Thurs or	Notice of breach	must be made by	Notice of default	Notice of breach
	Fri: cure must be	sent on Wednes:	(a) noon Wed or	sent on Tues; cure	sent on Tues; cure
	made by EOB Mon	cure must be	(b) noon Thurs to	must be made by	must be made by
	or Tues	made by 4pm Mon	cure	EOB Thurs	4:00 pm Fri
# of business days to accomplish move to POLR					
(including notice day)	3	0	0	0	0
	Notice to the			Notice of	
	market on Tues or	Load can		suspension sent	Load can
	Wed; all load	effectively be	Switch to POLR	on Friday; load	effectively be
	moved to POLR by	moved to POLR on	made Wed or	moved to POLR on	moved to POLR on
	EOB Thurs or Fri	Mon evening	Thurs afternoon	Mon evening	Fri evening
Total # of business days of risk	7 - 8	4	1-2	4	3

NOTE: Summary information provided above are for a general case. Individual situations may vary.



	Prev	<u>Today</u>	2 nd Qtr 2007
Identify problem / make collateral call	0	0	0
Notice periods			
Collateral due	2	2	2
 Notice of breach given 	3	2	2
 BDays to cure breach 	6	4	4
Mass transition			
 Conference call to begin Mass Transition 	7	5	5
 Switches initiated 	10-12	7-8	5
 Time until switch complete by TDSP 	13-18	10-11	7
Calendar days (approx)	<u>22-26</u>	<u>15-17</u>	<u>10-12</u>

Note 1: Timelines may vary based on specific circumstances.

Note 2: Above timeline begins at identification of problem. One-four days of exposure can already exist before problem is identified (due to weekends and holidays)



Size by MWh / day	# of QSEs	Average Daily Load - Dec 2006	% to Total	Average Daily Load per QSE · Dec 2006	Extrapolated Average Daily Load - Aug	Extrapolated Average Daily Load per QSE · Aug
<200	20	1,789	0.2%	89	2,000	100
200-2,000	20	15,803	2.1%	790	21,000	1,050
2,000-20,000	19	134,366	17.9%	7,072	179,000	9,421
>20,000	11	597,695	79.7%	54,336	797,000	72,455
	70	749,653	100.0%	62,287	1,000,000	83,026



Numerous improvements have been made to date including:

- Mass Transition timeline reduced from about 22 days to approximately 15 days
 - By June 2007 an additional 5 days will be cut
- PRR 625 increased notice period for QSE dropping an LSE from 5 business days to 12 business days (effectively collateral)
- PRR 568 reduces settlement date from 17 to 10 days after operating day
- PRR 638 changes the settlement invoice due date from 16 calendar days to 5 business days
- PRR 643 reduces the number of days allowed to cure a breach from 3 days to 2 days



Overview of Legal/Policy Directives Re: Financial Stability in the ERCOT Region

Andrew Gallo ERCOT Asst. General Counsel, Litigation & Business Operations

March 5, 2007



Statutory/Regulatory Considerations

- Board members have a Fiduciary Duty to ERCOT, Inc.
 - "Duty of Care"
 - Art. 1396-2.28 Texas Non-Profit Corporation Act
 - A director shall discharge the director's duties, including the director's duties as a member of a committee, *in good faith*, with *ordinary care*, and in a manner the director reasonably believes to be *in the best interest of the corporation*. Must act in a manner s/he reasonably believes to be in the best interest of the corporation
 - "Duty of Loyalty"
 - Requires a director, *affirmatively and in good faith*, to protect the interests of the company and refrain from doing anything that would injure the company



- Reviewed Statutes, Rules, Protocols
 - No clear statement assigning responsibility for ensuring the *financial stability* of the market in the ERCOT Region
 - PURA, PUCT Rules and Protocols deal primarily with *reliability* and *financial* <u>accounting</u>; e.g. §39.151 of PURA:
 - ensure access to the transmission and distribution systems for all buyers and sellers of electricity on nondiscriminatory terms;
 - ensure the reliability and adequacy of the regional electrical network;
 - ensure that information relating to a customer's choice of retail electric provider is conveyed in a timely manner to the persons who need that information; and
 - ensure that electricity production and delivery are accurately accounted for among the generators and wholesale buyers and sellers in the region.



Public Utility Regulatory Act

• §39.151(d) of PURA:

The commission shall adopt and enforce rules relating to the reliability of the regional electrical network and accounting for the production and delivery of electricity among generators and all other market participants, or may delegate to an independent organization responsibilities for establishing or enforcing such rules. Any such rules adopted by an independent organization and any enforcement actions taken by the organization are subject to commission oversight and review. An independent organization certified by the commission is directly responsible and accountable to the *commission*. The commission has *complete authority to oversee* and investigate the organization's finances, budget, and operations as necessary to ensure the organization's accountability and to ensure that the organization adequately performs the organization's functions and duties.



• §39.151(d-1) of PURA:

The commission may:

* * *

(3) *conduct audits of an independent organization's performance* of the functions prescribed by this section or *relating to* its revenues, expenses, and *other financial matters*



PUCT Rules

- §25.503
 - Efficient operation of the market defined as, "Operation of the markets administered by ERCOT...that is characterized by the fullest use of competitive auctions to procure ancillary services, *minimal cost socialization*....
- §25.361(c) provides that ERCOT shall:
 - (2) administer settlement and billing for services provided by ERCOT, including assessing creditworthiness of market participants and *establishing and enforcing reasonable security requirements* in relation to their responsibilities in ERCOT-operated markets
 - Does "ERCOT" mean Market Participants or ERCOT Staff?



Protocols

- §1.1 of Protocols ("ERCOT staff may develop procedures, forms and applications for the implementation of and operation under these Protocols.")
- §1.2 of Protocols ("In fulfilling [its] duties subject to the settlement process in these Protocols," ERCOT "acts only as an agent on behalf of the various Market Participants.")



• Reliability

- Could a significant, negative financial event have an affect on reliability?
- If a significant, negative financial event occurred, would an entity be held accountable for oversight even if responsibility had not been specifically assigned?
 - Who might be held responsible
 - Market Participants?
 - ERCOT?
 - PUCT?



Other Considerations

- Who is in the best position to Monitor activity and take appropriate action
 - Unbiased
 - Most data
 - Credit/financial expertise and experience



Discussion



F&A Credit Workshop March 5, 2007

The Environment Morgan Davies



The current environment in which we operate

- Balance financial stability with potentially competing goals (i.e. market liquidity, barrier to entry issues, etc.)
- Current processes and governance structures in place to accomplish the goal (i.e. Market governance, Credit WG governance, Board of Directors oversight, etc.)



Market - wide

Financial Stability

Maintain a financially stable / viable market place
Attract and retain entities that demonstrate financial strength
Ensure costs are consistent with risks

Market Liquidity / Barriers to Entry

Support market liquidity No unnecessarily restrictive barriers to entry into the market

Individual Market Participants

Uplift risk

Ensure that the risk of loss from potential uplifts is acceptable

Cost to mitigate risk

For entities that <u>do not</u> meet credit requirements, ensure the cost to mitigate risk is not prohibitive For entities that <u>do</u> meet credit requirements, ensure they need not subsidize the cost for those that are less financially sound



• The market and the Board

- recognize the potential conflicts inherent in balancing these goals and
- recognize the value of having a system of checks and balances to help assure desired results
- Current checks and balances related to credit issues
 - Market processes and governance
 - BOD oversight
 - F&A oversight
 - Credit WG processes and governance
 - ERCOT credit staff


Market processes and governance

- The TAC and its subcommittees have established Charters and procedures to make changes to Protocols (including changes to Protocols related to credit requirements) and market processes
 - These Charters and procedures ensure that all market segments participate in setting rules
 - Changes are made through negotiation among market segments which generally produces a result that the market as a whole can live with



- Currently, what does the Board of Directors do with regard to credit issues?
 - Approves PRRs and NPRRs proposed by TAC, credit and otherwise
 - The BOD stays informed on credit issues
 - The BOD ensures that credit topics are regularly reviewed. The F&A Committee charter notes that F&A shall "review the Company's credit policies and make recommendations to the Board of Directors re same"



- Currently, what does the F&A Committee do with regard to credit issues?
 - > The F&A Committee stays informed on credit issues
 - Credit WG reports directly to the F&A Committee to ensure that the BOD has direct input from credit professionals on credit issues
 - F&A reviews and approves the Credit WG Charter at least annually
 - > F&A approves the appointment of the Credit WG Chair
 - F&A receives updates for the Credit WG Chair at least semiannually and as needed
 - F&A established Credit WG membership qualifications to help ensure that the BOD receives a robust, experienced-based independent evaluation of credit matters



- The Credit WG works in partnership with TAC and its subcommittees to evaluate the credit implications of changes in the market and work on credit solutions when needed
 - TAC or a sub-committee request Credit WG participation as needed on specific topics or refer questions to Credit WG for input
 - Credit WG appreciates and relies on TAC and sub-committee subject matter experts' participation with Credit WG to develop effective credit risk mitigation strategies
 - This partnership was particularly effective in the development of the Nodal credit requirements
 - Through 2006 Credit WG members and ERCOT credit staff met with various market groups (PRS, WMS, RMS, Texas Set, etc) to support their work to reduce market exposure



- The Credit WG charter currently requires, among other things, that Credit WG:
 - Review Protocols that impact credit and provide recommendations to the F&A Committee
 - Update the TAC Chair and Vice Chair on recommendations CWG may make regarding credit
 - Provide policy input to PRRs and NPRRs that impact credit
 - Provide input into Creditworthiness Standards
 - Make recommendations, from time to time, to systems, projects, Protocols and policies and procedures that impact credit.
- The Credit WG has no direct authority. It acts in an advisory capacity only.



ERCOT Credit staff

- Identify credit risk for the market and the BOD
- Provide information and support to the market in evaluating credit policy/procedure
- Administer the approved credit Protocols for the market
- Enforce penalties and default provisions and pursue collection of receivables on behalf of the market



Credit WG has updated its charter and will send to F&A for review

Credit WG proposes a number of changes to the charter to provide more structure to this group. Key changes include establishing:

- Ability of members to name Alternate Members or proxies (Alternate Members must meet Qualification Guidelines, proxies need not)
- A Vice Chair position in addition to the Chair
- Quorum requirements
- Requirements for meeting notices / postings
- Guidance by Roberts Rules of Order
- Requirement to taking minutes of meetings
- A voting structure that weights by segment
- The requirements for passing a motion (including that 67% of voting individuals meet Qualification Guidelines)



Questions



F&A Credit Workshop March 5, 2007

Board of Directors' and ERCOT, Inc.'s role Clifton Karnei



From previous presentations:

- We've discussed the statutory requirements and reputation considerations and
- reviewed what the Board is currently doing
- Considering not only the *current* gap between exposure and risk mitigation but the fact that *credit risk factors are fluid and change over time*:
 - Is the BOD doing what it should be doing to monitor for the financial stability of the market?
 - Is the established system of checks and balances adequate for the need?



Board of Directors

- Is the current level of involvement adequate / appropriate to help ensure the financial stability of the ERCOT market?
 - Are we satisfied that credit issues are being resolved timely and effectively?
- How can this group's involvement on credit issues be enhanced and/or made more efficient?



F&A Committee

- Is the current level of involvement adequate / appropriate to help ensure the financial stability of the ERCOT market?
 - Are we satisfied that credit issues are being resolved timely and effectively?
- How can this group's involvement on credit issues be enhanced and/or made more efficient?



Credit WG

- Is the current level of involvement adequate / appropriate to help ensure the financial stability of the ERCOT market?
 - Are we satisfied that credit issues are being resolved timely and effectively?
- How can this group's involvement on credit issues be enhanced and/or made more efficient?



ERCOT, Inc.

- Is the current level of involvement adequate / appropriate to help ensure the financial stability of the ERCOT market?
 - Are we satisfied that credit issues are being resolved timely and effectively?
- How can involvement by ERCOT Credit staff on credit issues be enhanced and/or made more efficient?



Discussion



F&A Credit Workshop March 5, 2007

How to determine an acceptable level of credit risk? (How to determine if the market is financially stable?)

> Presentation by Cheryl Yager Discussion led by Clifton Karnei



Summary

- Establish / confirm credit objectives
- Background
- Market opinion of acceptable credit risk
- Other ways to evaluate acceptable credit risk
- Board of Directors' and others' input
- Next steps



ERCOT believes the credit objectives are as follows:

- Provide a financially stable market, taking into consideration credit risk factors
 - Residual credit risk should not endanger the overall financial stability of the market

Ensure transparency of market participant financial risks associated with residual credit exposure

- Credit risk is present in the ERCOT market
- Mass transition losses (magnitude described herein)
- > Address credit risks as they are identified

For F&A and the BOD: are these the correct credit objectives?



Background

- TAC recognized the need to address credit risk in 2005 when the failure of entities in the market generated losses
- Through the last half of 2005 and 2006, TAC and its subcommittees, along with PUCT staff, worked to reduce market exposure.
 - Credit WG members and ERCOT staff supported their work to reduce market exposure
- The market arrived at its solutions through negotiation among its market participants; however,
 - As mitigation strategies were finalized, it became clear that credit exposure was not expected to be fully eliminated.



- Once it became clear that credit exposure was not expected to be fully mitigated, the F&A Committee asked the Credit WG to discuss options to further mitigate credit exposure.
- The Credit WG considered many options
- Ultimately, Credit WG reached a significant level of agreement (14 of 18 members with 6 segments voting) to:
 - Reduce time to post collateral from 2 bus days to 1 bus day
 - munis and coops may continue to have 2 bus days
 - Reduce time to cure a breach from 2 bus days to 1 bus days
 - Create a working credit limit which allows an entity to utilize up to 85% of posted collateral + unsecured credit limit (rather than 100%)
 - Leave collateral calculation at 40 days
- The F&A Committee asked Credit WG to file a PRR for the proposal so that the full market could review and provide input into the proposed solution. Credit WG's proposed solution was reviewed as PRR 683 – Reduce Timeline for Notice and Cure and Create a Working Capital Limit



- Based on the September 2006 PRS minutes, the market, through PRS's rejection of the Credit WG sponsored PRR 683, indicated its desire to halt further credit tightening for the time being.
 - Have not reconfirmed with TAC/PRS whether it still wishes to hold off or whether it desires to continue to pursue mitigation measures



Market opinion of acceptable credit risk

- Negotiation method of determining "acceptable credit risk"
 - Advantages
 - Most market participants bear direct financial risk, either by being subject to a short payment or an uplift. They have a vested interest in making a good decision.
 - Market participants are very knowledgeable about the market and what each of them can and cannot accomplish in the market
 - Disadvantages
 - Each individual company has potentially competing concerns about the cost of risk mitigation compared to the potential of losses
 - A negotiated solution factors in each entity's piece of the market but may not consider the big picture (e.g. the financial health of the market as a whole)



Other ways to evaluate acceptable credit risk

- Independent assessment by a third party (such as S&P or Moody's)
 - PJM had their market and credit rules reviewed when they went through a significant change in 2001/2002
 - NYISO is currently going through a review process
 - Advantages
 - Provides independent input into the evaluation
 - May be able to establish a statistical way to evaluate and discuss credit exposure
 - Disadvantages
 - Cost in terms of dollars and time to ensure an effective result
 - May not have the same depth of understanding of how the market works as market participants



Other ways to evaluate acceptable credit risk

- Seek to establish a "zero" level of credit risk. Try to fully mitigate all credit exposure.
 - Advantages
 - Most likely to ensure ongoing financial stability
 - Disadvantages
 - Full mitigation would cost more



Board of Directors' and others' input

- How would the BOD and F&A like to measure/consider credit risk in the market?
 - Confirm the market's assessment?
 - Seek an independent assessment?
 - Compare to "zero" risk?
 - Other?
- What other input should be solicited in this process?



What next steps would F&A and the BOD like to pursue, if any?

