DRAFT MINUTES OF THE BOARD OF DIRECTORS MEETING OF ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.

Electric Reliability Council of Texas, Inc.
7620 Metro Center Drive, Room 206
December 11, 2007 at 1:30 p.m.

Pursuant to notice duly given, the meeting of the Board of Directors of the Electric Reliability Council of Texas, Inc. (ERCOT) convened on the above-referenced date.

Meeting Attendance:

Board Members:

Director	Affiliation	Segment
Armentrout, Mark		Unaffiliated; Board Chairman
Bartley, Steve	CPS Energy	Segment Alternate, Municipally-Owned Utilities
Cox, Brad	Tenaska Power Services	Independent Power Marketers
Dalton, Andrew	Valero Services Inc.	Consumers/Industrial
Fehrenbach, Nick	City of Dallas	Consumers/Commercial
Gent, Michehl		Unaffiliated; Board Vice-Chairman; Proxy for Miguel Espinosa
Helton, Bob	International Power America Services Inc.	Independent Generators
Jenkins, Charles	Oncor Electric Delivery Company	Investor-Owned Utilities
Kahn, Bob	ERCOT President/CEO	
Karnei, Clifton	Brazos Electric Coop	Electric Cooperatives
McClellan, Suzi	OPUC	Consumers/Residential & Small Commercial
Newton, Jan		Unaffiliated; Proxy for Carolyn Lewis Gallagher
Smitherman, Barry T.	PUCT Chairman	PUCT
Thomas, Robert	Green Mountain Energy	Independent Retail Electric Providers

Staff and Guests:

Adams, Rodney	City of Irving
Archambault, Amy	Tara Energy
Arnold, George	True North Association
Ashley, Kristy	Exelon
Barnes, Doug	City of Waxahatchie
Bell, Wendell	Texas Public Power Association
Brandt, Adrianne	Public Utility Commission of Texas
Brenton, Jim	ERCOT
Brewster, Chris	City of Eastland

Brown, David	Hughes & Luce
Bruce, Mark	FPL Energy
Carlson, Trent	Reliant Energy
Coleman, Katie	Texas Industrial Energy Consumers (TIEC)
Crowder, Calvin	American Electric Power
Dumas, John	ERCOT
Dunt, James, Wendell	AREVA
Emery, Keith	Tenaska Power Services Co.
Firestone, Joel	Direct Energy
Fournier,	Competitive Assets
Grable, Mike	ERCOT
Greer, Clayton	J. Aron
Grimm, Larry	Texas Regional Entity
Grisham, Kevin	Reliant Energy
Hayslip, Darrell	Airtricity
Hendrix, Larry	Lower Colorado River Authority (LCRA)
Jenkins, Charles	Oncor
Jones, Dan	Potomac Economics
Jones, Don	TIEC
Jones, Liz	Oncor
Jones, Randy	Calpine
Kurt, Miguel	Smith Trostle
Leech, Bob	Citigroup
Mahilo, Erica	Citigroup
McCalla, David	Greenville Electric Utility System (GEUS)
Moore, John	Navigant Consulting
Moss, Steve	First Choice Power
Olan, Phillip	TIEC
Payton, Tom	Oxy
Rexrode, Caryn	Customized Energy Solutions
Roark, Dottie	ERCOT
Ryall, Jean	Constellation
Sampson, Chip	Allied
Schubert, Eric	BP
Seymour, Cesar	SUEZ
Smoler, Paul	FSA
Somereve, Margaret	City of Farmers Branch
Taylor, William	Calpine
Thomas, Meeva	PUCT
Troxtell, David	ERCOT
Wagner, Marguerite	Reliant
Walker, DeAnn	CenterPoint Energy
Whittle, Brandon	DB Energy
Windler, Jennifer	LCRA
Wullenjohn, William	ERCOT
Zlotnik, Marcie	StarTex Power

Call to Order/Announcements

Mark Armentrout called the meeting to order at 1:30 p.m., pointed out the Antitrust Admonition and determined a quorum was present. He welcomed the new Directors who were installed this morning at the Annual Membership Meeting. Chairman Smitherman called to order an open meeting of the Public Utility Commission of Texas (PUCT).

Mr. Armentrout invited the new Directors and Segment Alternates to provide brief backgrounds about themselves. He then turned the meeting over to Bob Kahn, ERCOT President and Chief Operating Officer (CEO).

Selection of Board Chair and Vice Chair

Mr. Kahn opened the floor to nominations for Board Chair and Vice-Chair. **Clifton Karnei nominated Mark Armentrout for Chairman of the Board of Directors and Michehl Gent for Vice-Chair; Suzi McClellan seconded the motion. The motion passed by a unanimous voice vote with no abstentions.**

Director Assignments to Committees

Chairman Armentrout encouraged all Directors to participate in a committee and asked each Director to submit his/her preference for committee assignments to Andrew Gallo, ERCOT Assistant General Counsel and Assistant Corporate Secretary.

Confirmation of Technical Advisory Committee (TAC) Representatives

Mr. Jenkins moved to approve the 2008 TAC representatives set forth in Attachment A. Mr. Cox seconded the motion. The motion passed by a unanimous voice vote with no abstentions.

Consent Agenda

The following items were handled in the consent agenda:

- 10a (PRR735 & PRR741 only)
- Item 10b (NPRR077 & NPRR083 only)
- Item 10c (LPGRR026)

Mr. Gent moved to approve the items on the Consent Agenda. Mr. Dalton seconded the motion. The motion passed by unanimous voice vote with no abstentions.

Approval of Minutes

Mr. Gallo stated that he had received a request to revise the draft minutes from the November 13, 2007 meeting by changing the word "Replacement" to "Responsive" and the acronym "RPRS" to "RRS" on page six of the draft minutes.

Mr. Fehrenbach moved to approve the minutes as revised. Mr. Kahn seconded the motion. The motion passed by unanimous voice vote with no abstentions.

Adjunct Membership Approval of Panda Energy International, Inc.

Mr. Gallo stated that Panda Energy International, Inc. has applied for adjunct membership because they do not comport with any of the descriptions for Corporate or Associate membership. **Mr. Kahn moved to approve Panda Energy International, Inc. as an adjunct ERCOT member. Mr. Fehrenbach seconded the motion. The motion passed by unanimous voice vote with no abstentions.**

Chief Executive Officer Report

Mr. Kahn reported that ERCOT received its first unqualified SAS70 Audit this year. He commended ERCOT staff for their efforts in leading to that unqualified audit.

He also stated that ERCOT intends to update the Capacity and Demand Report (CDR) in the near future and will provide the report to the Directors soon.

He then noted that the Nodal Program continues to progress well and ERCOT management has confidence in getting the Program completed on time and with good quality.

He then reported on a winter storm drill that recently took place with ERCOT staff and personnel from various Market Participants participating. ERCOT staff is studying the effectiveness of the drill at this time and will conduct a hurricane drill this summer.

He concluded by pointing out that the Board's Strategic Planning meeting will take place at Lakeway Resort in February.

Operating Reports

Chairman Armentrout invited comments or questions regarding the Financial Summary, Market Operations Report, Grid Operations Report and Information Technology (IT) Report. One question was raised regarding data processing and Mr. Ron Hinsley, ERCOT Chief Information Officer (CIO), explained the situation.

Board Procedures

Mike Grable, ERCOT Assistant General Counsel, briefly introduced this item. Jan Newton then described various changes proposed for the Board Procedures. Ms. Newton suggested that the

Directors take up the Procedures amendments in January, other than the change to Section 2.8, which will be discussed at this meeting.

Chairman Armentrout reminded everyone that Brad Cox had headed up an effort to study compensation issues for unaffiliated Directors. The unaffiliated Directors then left the room so the other Directors could discuss the proposed changes to the Board Procedures. Mr. Cox then described the analysis that took place regarding those compensation issues.

Mr. Cox moved to approve the Resolution attached hereto as Attachment B. Mr. Kahn seconded the motion. The motion passed by unanimous voice vote with five abstentions (Chairman Armentrout, Ms. Newton, Mr. Gent, Mr. Espinosa (by proxy) and Ms. Gallagher (by proxy)).

Technical Advisory Committee Report

Chairman Armentrout invited Mark Dreyfus, TAC Chair, to report on recent TAC activities. Mr. Dreyfus began by reporting on questions raised in connection with PRR733, which the Directors approved last month. He stated that the current, revised language provides more certainty in testing and that a new PRR has been proposed to require additional testing.

Protocol Revision Requests (PRRs) and Load Profiling Guide Revision Request (LPGRR)

The following items were handled in the Consent Agenda: PRR735 and PRR741; NPRR077 and NPRR083; and LPGRR026.

PRR717

This PRR adds new Section 9.5.5, Resettlement of Emergency Interruptible Load Service (EILS), to describe a process for disputing and resettling the EILS Service and renumbers former Section 9.5.5, Disputes for Operational Decisions or Market Rules, to Section 9.5.6. ERCOT posted PRR717 on April 13, 2007. On May 17, 2007 the Protocol Revision Subcommittee (PRS) deferred PRR717 for one (1) month upon request by the submitter. On June 21, 2007, PRS voted to recommend approval of PRR717 as submitted with two (2) abstentions (from Independent Retail Electric Provider (IREP) Market Segment). All Market Segments attended the vote. On July 19, 2007, PRS unanimously voted to forward PRR717 and its Impact Analysis to the TAC. All Market Segments attended the vote. On August 2, 2007, TAC voted to recommend approval of PRR717 as recommended by PRS. The motion passed with four (4) abstentions (IREP (2), Investor Owned Utility (IOU) and Independent Power Marketer (IPM) Market Segments). All Market Segments attended the vote. On September 18, 2007, the Board remanded PRR717 to TAC to address PRR717 within the context of the forthcoming long-term solution recommendation. On November 29, 2007, TAC unanimously voted to recommend approval of PRR717. All Market Segments attended the vote. ERCOT credit staff and the Credit Work Group (WG) have reviewed PRR717 and do not believe it requires changes to credit monitoring activity or the calculation of liability.

PRR746

This PRR revised the Protocols to conform with revisions to Public Utility Commission of Texas (PUCT) Substantive Rule 25.507. ERCOT posted PRR746 on November 7, 2007. The submitter requested Urgent status because the PUCT amendment to P.U.C. SUBST. R. 25.507, PUCT Rulemaking to Amend ERCOT Emergency Interruptible Load Service, would take effect approximately November 26, 2007. The submitter also stated this PRR must be adopted on an Urgent timeline to support the amended Commission Rule because it affects EILS procurement for the February – May 2008 EILS Contract Period. PRS granted Urgent status via email vote on November 9, 2007. On November 15, 2007, PRS voted to recommend approval of PRR746 as revised by the Wholesale Market Subcommittee (WMS), ERCOT Staff, Occidental Chemical Corporation and PRS. PRS also directed its chairman to inform TAC that the "double dipping" issue addressed in the original Occidental Chemical Corporation comments is a concern. There was one (1) opposing vote (IPM Market Segment) and one (1) abstention (Cooperative (Coop) Market Segment). All Market Segments were present for the vote. On November 29, 2007, TAC voted to recommend approval of PRR746 as revised by Occidental Chemical Corporation comments dated November 28, 2007 and TAC with four (4) opposing votes (IREP, Coop (2), and Consumer Market Segments) and three (3) abstentions (IREP, IOU and Consumer Market Segments). All Market Segments attended the vote. An evaluation by the Credit WG is currently pending.

Chairman Armentrout opened discussion on PRR717. **Mr. Gent moved to approve PRR717. Mr. Karnei seconded the motion. The motion passed by unanimous voice vote with one abstention (Mr. Dalton).**

Chairman Armentrout opened discussion on PRR746. Mr. Dreyfus presented a synopsis of the discussion that took place at the TAC meeting in connection with PRR746. He stated that one issue involved the concept of "double-dipping."

Mr. Fehrenbach moved to approve PRR746. Mr. Gent seconded the motion. The motion passed by unanimous voice vote with one abstention (Mr. Dalton).

NPRR076

This NPRR synchronizes the Nodal Protocols with PRR682, Emergency Electric Curtailment Plan (EECP) Event Realignment, approved by the ERCOT Board of Directors on November 14, 2006. ERCOT posted NPRR076 on July 2, 2007. On July 19, 2007, the Protocol Revision Subcommittee (PRS) unanimously voted to refer NPRR076 to the Wholesale Market Subcommittee (WMS). All Market Segments attended the vote. On September 20, 2007, PRS voted unanimously to table NPRR076 until its October meeting. All Market Segments attended the vote. On October 18, 2007, PRS voted to recommend approval of NPRR076 as amended by comments from the Demand Side Working Group, with two (2) opposing votes (Independent Power Marketer (IPM) Market Segment) and five (5) abstentions (Independent Retail Electric Provider (IREP), Independent Generator (IG), Investor Owned Utility (IOU), and Municipal (2) Market Segments). All Market Segments attended the vote. On November 15, 2007, PRS voted to forward NPRR076 and its Impact Analysis to TAC, with one (1) opposing vote (IPM Market

Segment) and two (2) abstentions (Municipal Market Segment). All Market Segments attended the vote. On November 29, 2007, TAC voted to recommend approval of NPRR076 with instruction to ERCOT Staff to design the discount factor portion of the system so it is flexible enough to be removed. There were four (4) opposing votes (IPM, Consumer and IG (2) Market Segments) and four (4) abstentions (IPM, IG (2) and Municipal Market Segments). All Market Segments attended the vote. ERCOT credit staff and the Credit Work Group (WG) have reviewed NPRR076 and do not believe it requires changes to credit monitoring activity or the calculation of liability.

Chairman Armentrout opened the floor to discussion on NPRR076. Mr. Gent inquired about the reason for abstentions at TAC. Mr. Dreyfus provided a synopsis of the issues raised. Mr. Hinsley stated that the cost of this NPRR is slightly over $500,000. Mr. Dalton asked why ERCOT needs the Reserve Discount Factor (RDF) as part of the Nodal market design. John Dumas of ERCOT System Operations stated that the RDF is in the current Protocols and results from work done with the Reliability and Operations Subcommittee (ROS). The intention is to work with stakeholders to reduce or eliminate the RDF over time but, by putting it in place in the Nodal design, ERCOT would have the flexibility to adjust the RDF or change it to zero, if prudent. Mr. Dalton then asked if it would be cheaper to add this after Nodal go-live. Mr. Hinsley stated that, typically, if you add functionality after an application goes into production, it is more expensive than doing it while the system is being built. Chairman Armentrout stated that, usually, the longer you wait, the more a design change costs.

Chairman Armentrout stated that he spoke with representatives of other Independent System Operators (ISOs) and they indicated they also use a reserve discount factor. Mr. Gent stated that he cannot envision operating an electric grid without some sort of reserve discount.

Mr. Cox suggested deferring this issue until after the discussion regarding the TAC recommendation on Responsive Reserve Service (RRS). Commissioner Parsley asked how North American Electric Reliability Corporation (NERC) feels about having to use a discount factor to deal with generation that does not show up when called upon. Mr. Jenkins stated that he believes there would not be a violation of NERC standards involved. Essentially, he stated that NERC understands that generators cannot always know the high limit of a resource. Mr. Helton then stated that other parts of the Nodal market design should help with reliability concerns (*e.g.* the reserve monitoring tool). Mr. Dumas stated that, at this point, ERCOT staff cannot know if the discount factor can be eliminated in the Nodal market design.

Mr. Fehrenbach moved to approve NPRR076. Mr. Kahn seconded the motion. Chairman Armentrout then opened the floor for additional discussion.

Mr. Dalton pointed out that, over the last few months, many different steps have been taken to improve reliability (*e.g.* EILS). He has concerns that all of these items add costs to the marketplace. Mr. Cox asked Mr. Dumas to describe how the RDF works. Mr. Dumas explained that, in analyzing the April 17, 2006 event, ERCOT staff looked at the timing of declaring an EECP event and found that, if they applied a 7% RDF, they would have declared an EECP event earlier and, perhaps, avoided firm Load shed. He also pointed out that a 7% RDF does not

completely address the issue, but is appropriate to attempt to avoid firm Load shedding in the future.

Mr. Dalton asked if ERCOT staff had applied the 7% RDF to historical data to see if it might have improved reliability in the past. Mr. Dumas said the data was not available.

Chairman Armentrout called the question. **The motion passed by a vote of 13 in favor, one opposed (Mr. Dalton) and one abstention (Mr. Helton).**

NPRR082

NPRR082, *Section 8, Performance Monitoring and Compliance, Revisions to Monitoring and Qualification Test.* This NPRR makes the testing and compliance requirements consistent with NPRR049, Generation Subsystem Changes to Incorporate Approved Whitepapers and the white papers "Generation Resource Responsive Reserve Deployment and Recall" and "Non-Spin Deployment Notification and Availability" approved by Texas Nodal Transition Plan Task Force (TPTF). ERCOT posted NPRR082 on September 11, 2007. On September 20, 2007, PRS voted to remand NPRR082 to TPTF to consider the Occidental Chemical Corporation comments and determine whether NPRR082 should be integrated into the overhaul of Nodal Protocol Section 8, with one (1) opposing vote (IPM Market Segment) and one (1) abstention (IPM Market Segment). All Market Segments attended the vote. On November 15, 2007, PRS voted to forward NPRR082 and its Impact Analysis to TAC with one (1) abstention (IG Market Segment). All Market Segments attended the vote. On November 29, 2007, TAC unanimously voted to recommend approval of NPRR082 as revised by TAC. All Market Segments attended the vote. ERCOT credit staff and the Credit WG have reviewed NPRR082 and do not believe it requires changes to credit monitoring activity or the calculation of liability.

Mr. Fehrenbach stated that he requested to take this NPRR out of the consent agenda because he believes it represents bad policy. He sees this NPRR as changing Section 8 of the Nodal Protocols while, at the same time, the TPTF is considering an NPRR to significantly overhaul Section 8 of the Nodal Protocols. He understands that this NPRR will not conflict with the TPTF work, but he still believes all changes should be done together, rather than piecemeal.

John Adams, ERCOT Director of Grid Operations, stated that ERCOT staff created a white paper regarding the generation reserves available to the Scheduling, Pricing and Dispatch (SPD) software and an issue arose regarding Nodal Protocol sections that conflicted. This NPRR was intended to allow continued work on a design consistent with the way ERCOT handles RRS.

Mr. Karnei moved to approve NPRR082 and Mr. Jenkins seconded the motion. The motion passed by a unanimous voice vote and one abstention (Mr. Fehrenbach).

TAC Recommendation to Refine the Amount of Additional Responsive Reserve Service (RRS)

Mr. Dreyfus explained that the TAC originally sent a recommendation to the Directors in October 2007 to approve an increase in the amount of RRS ERCOT procures by 500 MWs for certain hours of each day. At that time, the Directors sent the issue back to the TAC with a list of

questions to answer. TAC established a task force (the "Balancing EILS and Extra Reserve Task Force") to address the issues raised by the Directors. After several meetings, the task force approved a "white paper" on the topic and recommended a revised proposal for RRS procurement. The TAC reviewed the work product of the task force and the revised proposal at a meeting on November 29, 2007.

Chairman Armentrout asked why the RDF was not set at 7% during shoulder months and 4% in summer and winter. Mr. Adams explained that the uncertainty in the high sustained limit is probably temperature related.

Mr. Dreyfus also stated that, at the conclusion of the TAC discussion, the group agreed that, if refining the RDF and creating a testing requirement succeed, the need for additional RRS should decrease or perhaps even cease.

Chairman Smitherman asked whether ERCOT pays for the gross amount or the discounted amount (i.e. after application of the RDF)? Messrs. Dreyfus and Dumas explained that the total amount of High Operating Limits (HOLs) of all Resources is used for "reserves" and not all Resources will have sold RRS. ERCOT System Operations staff looks for Resources' HOLs regardless of whether the Resource is bid into RRS. Dan Jones, the Independent Market Monitor, explained that ERCOT procures RRS, but looks at all reserves available and discounts that total amount. Chairman Smitherman stated that it appears ERCOT pays for more reserves than it receives from Resources. Mr. Dreyfus stated that ERCOT does not discount the RRS amount, it discounts *all* reserves available, which will include the Resources bid into RRS. Clayton Greer of J. Aron & Company pointed out that not all of the available reserves are bid into RRS and, therefore, not all those Resources will receive compensation through the RRS payments. Consequently, there is no way to claw back money from Resources that may not have received compensation in the first place. Trent Carlson of Reliant then described his experience in California during their energy crisis some years ago. He explained that the California PUC instituted a rule that if a generator indicates its HOL is 100 MW and then is called to run at 100 MW and cannot do so, an investigation is triggered. He also stated that market participants in California get paid only for the actual MWs delivered. He also mentioned that NERC standards may be implicated in connection with this issue.

Mr. Helton stated that it is better to have spinning reserves than to send dispatch instructions to idle resources and hope they timely respond.

Mr. Dreyfus then presented the TAC's response to each question posed by the Directors at the October Board meeting (all of which were provided to Directors in their Board meeting packet). Mr. Dreyfus then stated that the TAC ultimately approved the following recommendation:

> TAC recommends modifying the original TAC recommendation to the October 16, 2007 Board, regarding an increase in RRS of 500 MW, by linking the amount of additional RRS to a day-ahead forecast of the Reserve Discount Factor (RDF) in the hours ending 7 through 22, as follows:

- ERCOT will use the higher of the hourly forecast temperature for North Central or the Coastal weather zone to predict the amount of RDF that will be applied in real-time.

- For each hour when the RDF is projected to be above 2%, ERCOT will adjust the Day-Ahead hourly RRS obligation upward by 100 MW per percentage point.

    - For example:
        - For an hour when the RDF is projected to be 2% or less, ERCOT will not adjust the Day-Ahead hourly RRS obligation.
        - For an hour when the RDF is projected to be 3%, ERCOT will adjust the Day-Ahead hourly RRS obligation upwards by 100 MW.
        - For an hour when the RDF is projected to be 7%, ERCOT will adjust the Day-Ahead hourly RRS obligation upwards by 500 MW.

- ERCOT will not adjust the Responsive Reserve requirement such that it is less than the minimum Responsive Reserve requirement nor greater than 500 MW more than the minimum Responsive Reserve requirement.

Mr. Carlson stated that Reliant presented its concerns about this issue in a letter to the Directors dated December 7, 2007 and believes this is not a reliability issue, but a pricing issue. Reliant would prefer that generators should have to face a compliance audit if they do not supply all the reserves they represent are available.

Chairman Armentrout opened the floor to comments. Mr. Thomas asked whether TAC adopted the cost estimates from the LCG study Mr. Dreyfus mentioned. Mr. Dreyfus stated that TAC could not adopt the numbers from the study, but that the methodology of the study is generally accepted. Mr. Thomas asked if TAC considered data from other studies. Mr. Dreyfus stated that data from a Frontier study were considered, but the TAC did not agree with that study's methodology. **Mr. Helton moved to approve the TAC recommendation and the proposed changes to the *2007-2008 ERCOT Methodologies for Determining Ancillary Service Requirements* attached hereto as Attachment C.** Mr. Karnei asked about the vote results at the TAC and Mr. Dreyfus stated the vote was 21 in favor to 9 opposed. **Mr. Karnei then seconded the motion.**
Mr. Thomas asked Mr. Dreyfus whether this proposal is consistent with the ERCOT Protocols. Mr. Dreyfus deferred to Andrew Gallo, who explained that, in the opinion of the ERCOT Legal Department, this proposal is consistent with the ERCOT Protocols.

Chairman Armentrout asked about the dollar amounts in the LCG study and the level of confidence in those dollar amounts.

Mr. Dalton stated that the Directors approved the Ancillary Services methodology document earlier this year and it used 2,300 MW for RRS. He then asked what facts have changed since that approval to warrant a change in RRS procurement. Mr. Dreyfus stated that a significant number of Alerts and EECP events have occurred since then and brought this issue to the forefront. Mr. Dalton asked if ERCOT staff agrees with Mr. Dreyfus's comments. Mr. Dumas

responded by stating that the original 2,300 MWs comes from a transient stability study done many years ago that assumes all 2,300 MWs are available and ERCOT staff addressed the undeliverable MWs by employing the RDF. Mr. Dalton asked if ERCOT staff believes this proposal has reliability benefits. Mr. Dumas replied in the affirmative. Mr. Gent stated that data have been provided indicating that Advisories and Alerts have increased. Each time an Advisory or Alert occurs, reliability is an issue.

Commissioner Parsley asked about the cost of sending OOME Dispatch Instructions when these reliability issues arise. Mr. Dan Jones stated that anytime ERCOT sends OOME instructions, costs are incurred, but he does not believe anyone has tallied those costs. Joel Mickey, ERCOT Director of Wholesale Market Operations Support, stated that ERCOT has not run those numbers, but stated that OOM instructions are, by definition, "out of merit" and, from a market perspective, using market-based solutions is preferable to using out-of-market solutions. Mr. Fehrenbach stated that the Balancing EILS and Extra Reserves (BEER) task force clearly stated that ERCOT's reliability needs are met through its ability to send OOME Dispatch Instructions. He believes this recommendation does not make sense.

Chairman Armentrout called the question. **The motion passed by a vote of eleven in favor and four opposed (Ms. McClellan, Messrs. Fehrenbach, Dalton and Thomas) with no abstentions.**

Finance & Audit (F&A) Committee Report

Mr. Karnei, F&A Committee Chair, stated that the committee met this morning and considered the following matters:

- 2008 Audit Committee meeting planner
- ERCOT received its first unqualified SAS70 audit. He complimented the ERCOT staff
- A report from the Internal Audit Department
- A report from the Credit Working Group
- Committee self-assessment
- ERCOT management's opinions on the Internal Audit Department's work
- A proposal to change D&O insurance coverage limits

H.R. & Governance Committee

Jan Newton, the committee Vice-Chair, stated that the committee met this morning and considered the following:

- Proposed revisions to the Board Procedures. Ms. Newton stated the committee invites feedback, which Directors should provide to Mike Grable.
- Personnel issues.

Other Business

No other business was raised.

Future Agenda Items

Chairman Armentrout invited anyone to raise items they wish to be addressed at future meetings. None were raised.

Executive Session

Chairman Armentrout adjourned the meeting to Executive Session at approximately 4:00 p.m.

Voting on Executive Session Items

Chairman Armentrout re-opened the open portion of the meeting when the Executive Session ended at approximately 5:05 p.m.

Chairman Armentrout moved to approve the Resolution attached to the Executive Session minutes as Attachment A. Mr. Gent seconded the motion. The motion passed by a vote of twelve in favor and one opposed with two abstentions.

Mr. Gent moved to approve the Resolution attached to the Executive Session minutes as Attachment B. Ms. Newton seconded the motion. The motion passed by a vote of fourteen in favor and none opposed, with one abstention.

Adjournment

Chairman Armentrout adjourned the meeting at approximately 5:10 p.m.

Board materials and presentations from the meeting are available on ERCOT's website at

http://www.ercot.com/committees/board/index.html.

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A. Andrew Gallo
Assistant General Counsel & Assistant Corporate Secretary

Attachment A

2008 Technical Advisory Committee Representatives

Segment	Representative
Consumer (Commercial)	Phillip Boyd (City of Lewisville) Chris Brewster (City of Eastland)
Consumer (Industrial)	Oscar Robinson (Austin White Lime Co.) Bill Smith (Air Liquide Large Industries US LP)
Consumer (Residential)	Laurie Pappas (OPUC) Shannon McClendon (Residential)
Cooperative	Brad Belk (Lower Colorado River Authority) Hugh Lenox (Brazos Electric Power Cooperative Inc.) John L. Sims (Nueces Electric Cooperative Inc.) Henry Wood (South Texas Electric Cooperative Inc.)
Independent Generator (IG)	Mark Bruce (FPL Energy LLC) Randy Jones (Calpine Corp.) Adrian Pieniazek (NRG Texas LLC) Cesar Seymour (Suez Energy Marketing NA Inc.)
Independent Power Marketer (IPM)	Kristy Ashley (Exelon Generation Company LLC) Jeff Brown (Coral Power LLC) Clayton Greer (J Aron & Company) Brandon Whittle (DB Energy Trading LLC)
Independent Retail Electric Provider (IREP)	Read Comstock (Strategic Energy LLC) Eric Hendrick (Stream SPE Ltd. d/b/a Stream Energy) William Lewis (Cirro Group Inc.) Marcie Zlotnik (StarTex Power)
Investor Owned Utility (IOU)	Brad Jones (Luminant Generation Company LLC) Steven Moss (First Choice Power Special Purpose LP) Paul Rocha (CenterPoint Houston Electric LLC) Richard Ross(American Electric Power Service Corp.)
Municipal	Les Barrow (CPS Energy) Mark Dreyfus (Austin Energy) Tom Hancock (Bryan Texas Utilities) David McCalla (GEUS)

Attachment B

ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.
ISO BOARD OF DIRECTORS RESOLUTION

WHEREAS, the Board of Directors ("Board") of Electric Reliability Council of Texas, Inc. ("ERCOT") deems it desirable and in ERCOT's best interest to approve new Section 2.8 of the ERCOT Board Policies and Procedures, which documents the compensation strategy for Unaffiliated Directors;

THEREFORE, be it RESOLVED, that the current Section 2.8 of the ERCOT Board Policies and Procedures shall be removed in its entirety and replaced with the Section 2.8 attached hereto as Exhibit A.

CORPORATE SECRETARY'S CERTIFICATE

I, A. Andrew Gallo, Assistant Corporate Secretary of ERCOT, do hereby certify that, at the December 11, 2007 ERCOT ISO Board Meeting, the Directors of ERCOT approved the above referenced Resolution. The Motion passed by unanimous voice vote with five abstentions.

IN WITNESS WHEREOF, I have hereunto set my hand this _____ day of _____, 200__.

_____
Assistant Corporate Secretary

Exhibit A to Attachment B
to the Minutes of the ERCOT Board Meeting of
December 11, 2007

2.8 Compensation and Expense Reimbursement for Unaffiliated Directors

2.8.1 Compensation. Each Unaffiliated Director will receive the following:

2.8.1.1 Annual Retainer: $40,000

2.8.1.2 Board Meeting Fee: $2,000 per day for each Board meeting attended in person, including the annual Board Retreat; provided that no more than one Board Meeting fee may be earned for any day, regardless of whether multiple Board Meetings are attended

2.8.1.3 Special Board Meeting Fee: $200 for each special Board meeting attended via telephone, in lieu of in-person Board Meeting Fee

2.8.1.4 Committee Meeting Fee: $900 per meeting for each Board Committee meeting attended in person; provided that no more than one Committee Meeting Fee may be earned for any day, regardless of whether multiple Board Committee or Subcommittee meetings are attended

2.8.1.5 Special Committee Meeting Fee: $200 for each special Board Committee meeting attended via telephone, in lieu of in-person Committee Meeting Fee

2.8.1.6 Board Chair Compensation: $10,000 per year, in addition to Annual Retainer

2.8.2 Expense Reimbursement

2.8.2.1 Affiliated Directors are expected to be reimbursed by their employers. Unaffiliated Directors shall comply with the ERCOT Business Expense Reimbursement Corporate Standard

2.8.2.2 General Counsel shall provide Directors with the Business Expense Reimbursement Corporate Standard and a summary thereof, upon new Directors joining the Board and also whenever modifications are made to the Standard

Attachment C

ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.
ISO BOARD OF DIRECTORS RESOLUTION

WHEREAS, the Board of Directors (Board) of Electric Reliability Council of Texas, Inc. (ERCOT) deems it desirable and in ERCOT's best interest to revise the *2007-2008 ERCOT Methodologies for Determining Ancillary Service Requirements* document to incorporate changes recommended by the ERCOT Technical Advisory Committee (TAC) at the December 2007 ERCOT ISO Board meeting.

THEREFORE, be it RESOLVED, that the Directors hereby approved the revised *2007-2008 ERCOT Methodologies for Determining Ancillary Service Requirements* document as set forth in Exhibit "A" to this Resolution.

CORPORATE SECRETARY'S CERTIFICATE

I, Andrew Gallo, Assistant Corporate Secretary of ERCOT, do hereby certify that, at the December 11, 2007 ERCOT ISO Board Meeting, the ERCOT Board of Directors approved the above referenced Resolution. The Motion passed by a vote of eleven in favor and four opposed with no abstentions.

IN WITNESS WHEREOF, I have hereunto set my hand this _____ day of _____, 200__.

_____
Assistant Corporate Secretary

Exhibit A to Attachment C
to the Minutes of the ERCOT Board Meeting of
December 11, 2007

2007 - 2008
ERCOT Methodologies for Determining Ancillary Service Requirements

TABLE OF CONTENTS

Executive Summary

Introduction

ERCOT Protocol 6.4.1(2) requires that methodologies for determining the amounts of Ancillary Services to be required by ERCOT must be developed at least annually. Protocol 6.4.1(4) requires approval of this methodology by the ERCOT Board of Directors.

This document discusses the various Ancillary Services for which requirements are to be developed. Further, detailed methodologies for determining those requirements are attached as part of this document.

The approach taken is to summarize the details that are built into the operations systems purchased for the purpose of implementing the operations requirements of ERCOT Protocols and to provide the individual procedures that ERCOT will use for those services whose quantity requirements are not determined within the operations systems.

Overview of ERCOT AS Methodology

Methodologies are required for the determination of the quantities of Regulation Service (RGS) and Non Spinning Reserve Service (NSRS) required to maintain system reliability. Those procedures are discussed below.

The ERCOT Operating Guides establish a minimum requirement of 2300 MW of Responsive Reserve Service (RRS). This quantity will be increased for Hour Ending 0700 to Hour Ending 2200 by linking the amount of RRS to a day-ahead forecast of the Reserve Discount Factor (RDF) until it is determined that a change is appropriate. At that time, the changed methodology will be developed and presented to ERCOT TAC and the ERCOT Board for approval.

Regulation Service (RGS) Requirement

ERCOT has developed a procedure for determination of the base requirement for Regulation Service. The base requirement will be calculated as follows:

Calculate the 98.8 percentile for the up and down Regulation Service deployed in the previous month, and for the same month of the previous year by hour.[1] For each of these months calculate the amount of Regulation Service required by hour to provide an adequate supply of Regulation Service capability 98.8% of the time.

Experience has shown that, although the total amount of Regulation Service appears to be sufficient for most hours using the methodology described above, the maximum ramp rate of deployment [defined by protocols as the amount procured divided by 10] appears to be insufficient during the 0600 and 2200 time periods each day. For this reason, ERCOT will examine these time periods each month for maximum ramp rate requirements and; if greater than the amount calculated above, will set a higher RGRS requirement for these periods.

Each month ERCOT will perform a back-cast of last month's actual exhaustion rate. If the exhaustion rate exceeded 1.2% in any given hour, ERCOT will determine the amount of increase necessary to achieve an exhaustion rate of 1.2 % for that hour.

Non-Spinning Reserve Service (NSRS) Requirements

ERCOT has developed a heuristic procedure for determining of the requirement for Non Spinning Reserve Service. The plan is described in detail in the attached sections. In simple terms, ERCOT will plan to purchase NSRS equal to or greater than the largest unit planned to be in operation for periods of projected higher risk. This is intended to cover the exposure to loss of the largest unit and also to provide for load forecast error. ERCOT will monitor the continued need for NSRS as the RPRS market matures.

Replacement Reserve (RPRS) and Balancing Energy Requirements

ERCOT operations systems develop internally the requirements for Replacement Reserve Service and Balancing Energy Service as part of the on-line real-time market operations and power operations activities. These quantities may vary, depending upon the parameters described in the attached descriptions.

Minimum Balancing Energy Down Requirement

The balancing energy down requirement will be determined by examining the previous month and the same month of the previous year to determine how much balancing energy down will be required for ERCOT 99.9% of the time. The procedure for estimating this requirement is described in the attached sections.

Responsive Reserve (RRS) Requirement

Responsive Reserves are resources ERCOT maintains to restore the frequency of the ERCOT System within the first few minutes of an event that causes a significant deviation from the standard frequency.

[1] ERCOT has the option to use only the current year's data if its analysis indicates a significant change in market behavior since the previous year.

The ERCOT Operating Guides set the minimum RRS requirement at 2300 MW for all hours under normal conditions. The Operating Guides allow ERCOT to increase that requirement under extreme conditions.

Regulation Service (RGS) Requirement Details

Introduction

Regulation Service consists of resources that can be deployed by ERCOT in response to changes in ERCOT System frequency to maintain the target ERCOT System frequency within predetermined limits according to the Operating Guides. ERCOT is required to evaluate normal requirements for Regulation Service – Up (regulation up) and Regulation Service – Down (regulation down) on an annual basis. It is ERCOT's intent to use historical rates of Regulation Service usage to perform this evaluation. Regulation Service is deployed in order to correct actual frequency to scheduled frequency.
This normal Regulation Service requirement may be increased by a multiple of two (2) during projected severe stress conditions such as forecasted extreme weather days.

Summary

To evaluate Regulation Service requirements, ERCOT collects monthly historic deployed Regulation Service data. This data is used to calculate average historically deployed Regulation Service for one-minute periods. By calculating the 98.8 percentile of the amounts of deployed regulation up and deployed regulation down by hour, ERCOT will estimate the expected needs for similar months.

ERCOT provides the mathematical expectation that sufficient Regulation Service will be available 98.8% of all periods. This implies that 1.2% of every month, or 35 intervals/month; ERCOT expects to exhaust available Regulation Service and will perform a back-cast of last month's actual exhaustion rate. If the exhaustion rate exceeded 1.2% in any given hour, ERCOT will determine the amount of increase necessary to achieve an exhaustion rate of 1.2 % for that hour.

Procedure

Using archived data, ERCOT will calculate the 98.8 percentile of actual Regulation Service deployed hourly for the previous month and the same month of the previous year.
During the 0600 & 2200 time periods, large schedule changes typically occur, related to 16 hour block energy sale products. Because of these large energy swings, ERCOT often finds its maximum deployment rate of Regulation Service insufficient to control frequency.[2]. During these times, ERCOT may see the need for extra Regulation Service to be available to cover the amount needed to respond to such large schedule changes. ERCOT may also include historic deployment of Responsive Reserve as a part of Regulation Service deployment in this analysis.

ERCOT will calculate and post this requirement by the 20th of each month for the succeeding month as required by the protocols.

ERCOT will post this requirement for each day of the month as required by the Protocols.

[2] ERCOTs maximum deployment of RRS is defined as the amount procured, divided by 10 multiplied by 1.25. This restrictions is specified in protocol section 6.10.5.3 which states "ERCOT shall limit the deployment of RGS Services to QSEs for each control cycle equal to one hundred twenty five percent (125%) of the total amount of RGS Service in ERCOT divided by the number of control cycles in ten (10) minutes. "

Non-Spinning Reserve Service (NSRS) Requirements

Introduction

Non-Spinning Reserve Service (NSRS) consists of resources capable of being ramped to a specified output level within thirty (30) minutes or Loads acting as a Resource that are capable of being interrupted within thirty (30) minutes and that are capable of running (or being interrupted) at a specified output level for at least one (1) hour. NSRS may be deployed to replace loss of generating capacity, to compensate for load forecast errors on days in which large amounts of reserve are not available online or when 95% or more of Balancing Energy bid into the market is projected to be used.

Summary

ERCOT will purchase NSRS when projected risk of insufficiency is higher than normal.

Using this methodology ERCOT procures NSRS when hot weather, cold weather, or uncertain weather is expected.

Discussion

Historically, the need for NSRS has occurred during hot weather, during cold weather, during unexpected changes in weather, or during large unit trips when large amounts of spinning reserve have not been on line (spinning reserve in this document represents un-deployed online generation capacity).

Examples of circumstances when NSRS has been used are:

- Across peak hours during spring and fall months when hotter than expected weather with large amounts of capacity offline resulted in EECP events.
- Afternoons during Summer seasons when high loads and unit outages outstripped the capability of base load and normal cyclic units.
- Cold weather events when early morning load pickup outpaced the ability of generation to follow.
- Major unit trips when large amounts of spinning reserve were not online.

Currently NSRS can be provided from on-line or off-line generation resources that can be started and ramped up in 30 minutes or less.

The April-May and October transition months are not considered “normal” due to the larger than normal probability of significant load forecast error.

Extreme weather days are defined as days in which the forecast peak temperature for ERCOT is projected to be higher than 95 degrees, or the forecast high temperature is lower than 30 degrees, or days in which ERCOT has issued a Security Notice. On extreme weather days, ERCOT will purchase an amount of NSRS no less than the largest unit online for on-peak hours, and may purchase amounts of NSRS greater than this amount in extreme circumstances.

ERCOT will use the following in determining the amount of NSRS needed:

1. Review the weather forecast for the next day and see if it differs significantly from the current day.

2. If the next day forecast is "similar" to the current day forecast, and the current day forecast high temperature is <95 degrees in Dallas/Ft. Worth or Houston, and the current day low temperature is greater than 30 degrees and the current month is not April, May, or October, THEN no NSRS is considered to be required all day for the next day.
3. Else: Purchase NSRS using the following:

- If the current month is April, May or October, then purchase NSRS in amounts no less than the largest unit online for the hours projected within 85% of peak hour.
- If today's and tomorrow's ERCOT high temperature is projected above 95 degrees in Dallas/Ft. Worth or Houston, then purchase NSRS in amounts no less than the largest unit online for the hours projected warmer than 95 degrees.
- If tomorrow's low temperature forecast is projected below 30 degrees in Dallas/Ft. Worth or Houston, then purchase NSRS in amounts no less than the largest unit online for the projected morning load pickup hours and hours projected within 85% of peak hour.
- Review the next day Resource Plans after the 1800 RPRS run and open a supplemental NSRS market for hours in which the Market Analyst Interface indicates less than 3300 MW of spinning reserve.

Replacement Reserve Service (RPRS) Requirements

Replacement Reserve Service (RPRS) is procured by ERCOT if resources are needed to provide additional Zonal or Local Balancing Energy Service. The RPRS analysis performs look-ahead analysis of the physical system for each of the hourly time intervals in either the Day Ahead or Adjustment Period Time frame. Based on the study, RPRS procurements are made if the submitted resource plans indicate capacity inadequacy or potential zonal congestion requiring additional resources or local congestion requiring specific resources. The procured capacity from these resources must be bid into the Balancing Energy Service market, which clears during the Operating Period.

The purpose of RPRS is to insure the availability of capacity from resources such that the energy from those resources would be available to solve the following system security violations:

a) Local congestion
b) ERCOT system capacity insufficiency
c) Zonal Congestion

Also, the procurement mechanism for resolving local congestion needs to be separate from the mechanism for resolving capacity insufficiency/ zonal congestion. The procurement for resolving local congestion is based on a minimal cost approach that uses generic costs for resources and the procurement for capacity insufficiency and zonal congestion is based on a minimal cost approach that uses resource bids or generic costs from the participants. Hence, the objective of the proposed RPRS market clearing is to minimize the total cost of procuring the RPRS bids for the whole duration of the Replacement market (i.e. the whole day for Day Ahead Market and the specified time duration for the Adjustment Period) subject to the unit specific temporal constraints and ERCOT transmission security constraints not being violated.

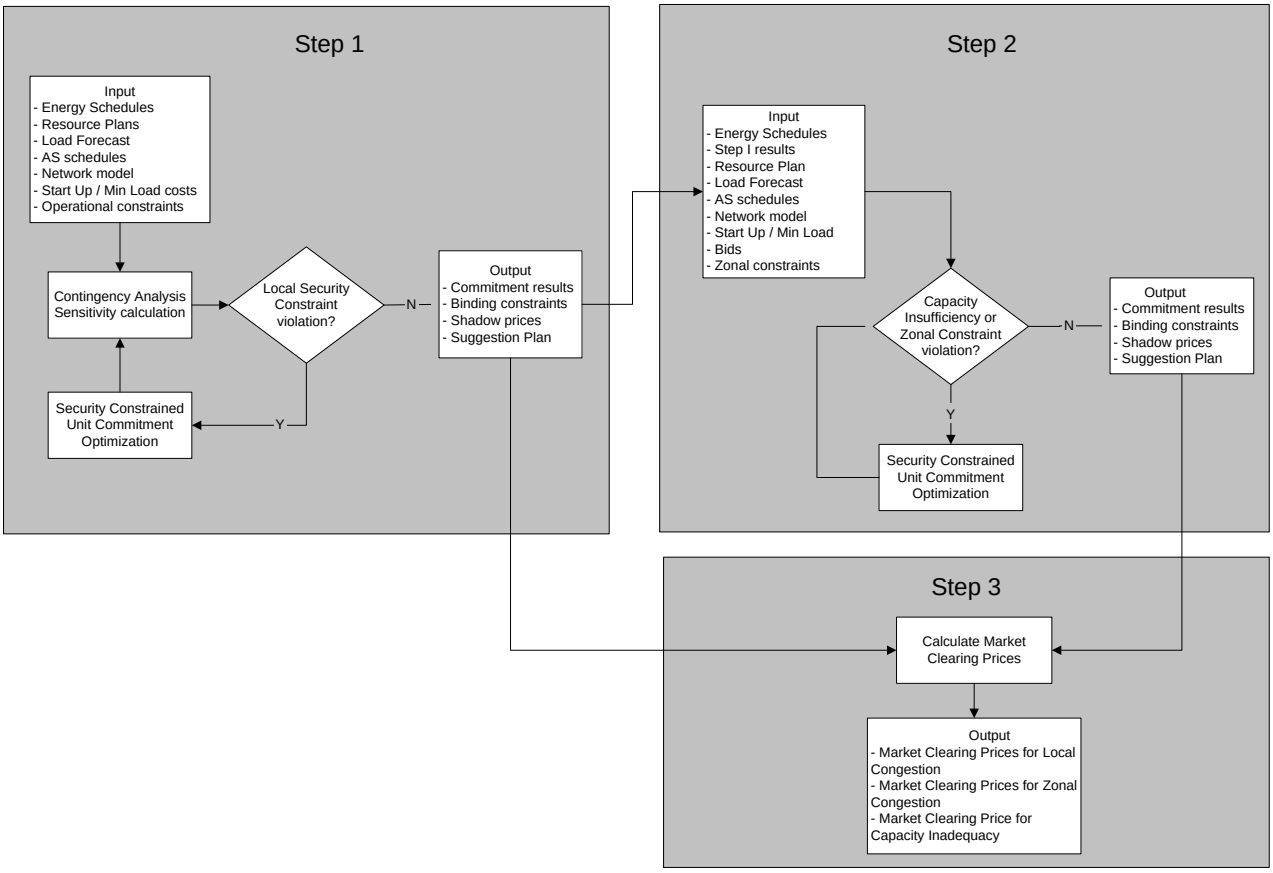

Figure - Flow diagram for the RPRS market clearing engine

Balancing Energy Requirement

Balancing Energy is incremental or decremental energy dispatched by ERCOT for each by 15-minute Settlement Interval to meet the difference between generation scheduled by the market and ERCOT System load. Local Balancing Energy Service is also used to resolve local transmission congestion. Balancing Energy is deployed by ERCOT with the goals that (1) Regulation Service in either direction not be depleted during the interval, (2) Regulation Service up and down energy is deployed in each Settlement Interval such that the net energy in Regulation Service is minimized, and (3) to provide for frequency control when frequency is high, especially during minimum load intervals. The latter will be included in the determination of BES Down Bid Percentage Requirements. ERCOT will estimate

Balancing Energy needs based on the actual Load, the difference in forecasted Loads and bilateral schedules, deployed Regulation Service, and forecasted Congestion.

The following three-step approach is used to determine amount and location of BES needed in each Settlement Interval.

Step 1 is to determine balancing energy service needs to resolve generation-load balance and Zonal Congestion. Balancing Energy Service is procured with Local Congestion ignored, i.e., only recognizing Zonal Congestion.

The output of the application will be zonal MCPE, shadow prices of Zonal Congestion and Portfolio Incremental/Decremental balancing service MW needed by QSE and CM zone. An estimate will be made of Resource-specific MW outputs (this is intermediate solution and does not indicate resource-specific dispatch instructions).

Step 2 is to determine balancing energy service needs to resolve Local Congestion as well as generation-load balance and Zonal Congestion.

1) The transmission security analysis is performed using the Resource Plan for both the starting with the dispatch and each unit's minimum/maximum capabilities MW solutions from Step 1 for checking operational security.
2) If no operational constraint violation is detected, the solution from Step 1 is the final solution to the balancing energy service market.
3) When any Local Congestion is violated, the solution proceeds as follows:
   3.1) The resource-specific incremental premium is taken as the prices for resource-specific incremental bids.
   3.2) The resource-specific decremental premium is taken as the prices for resource-specific decremental bids.
   3.3) The portfolio balancing service MW solutions by QSE and CM zone obtained in Step 1 are kept the same at the portfolio level.
   3.4) The amount and location of balancing energy service is recalculated with the sum of the incremental and decremental bids cleared due to relieve Local Congestion across all zones. All constraints, including Zonal Congestion and OC, are observed. The objective of Step 1 solution is to minimize the cost of Local Congestion. The output of the application will be as follows:
   - Portfolio Incremental/Decremental balancing service MW solutions by QSE and CM zone
   - Resource-specific MW outputs (resources that are identified to receive premiums will be sent resource-specific dispatch instructions.)
   - Shadow prices of Local Congestion

Step 2 is to determine balancing energy service needs to resolve generation-load balance and Zonal Congestion. Balancing Energy Service is procured while maintaining Local Congestion constraints

- The output of Step 2 will be zonal MCPE, shadow prices of Zonal Congestion and Portfolio Incremental/Decremental balancing service MW needed by QSE and CM zone. An estimate will be made of Resource-specific MW outputs (this is intermediate solution and does not indicate resource-specific dispatch instructions).
- A complete list of all RPRS unit commitment with the ability for the Operator to de-select any individual unit/hour.

Step 3 is to determine balancing energy service needs to resolve generation-load balance and Zonal Congestion subject to the local constraint deployments made in step 2. The market clearing prices from

Step 3 will represent the marginal cost for the solution of each constraint and will be produced as an output of the mathematical optimization application. The output of the application will be as follows:

- zonal MCPE
- shadow prices of Zonal Congestion
- Portfolio Incremental/Decremental balancing service MW needed by QSE and CM zone
- Resource-specific MW outputs (this is intermediate solution and does not indicate resource-specific dispatch instructions).
- A final RPRS unit commitment for all study hours

Minimum Balancing Energy Service (BES) Down Bid Percentage Requirement

For Frequency Control (to correct high frequency)

Minimum Balancing Energy Service (BES) Down Bid Percentage Requirement will be set for all intervals of each day. A down bid percentage requirement will be determined to allow for correcting for high frequency. This is a potential need for all intervals, but is especially needed during minimum load periods.

ERCOT will normally calculate the minimum down balancing requirement for QSE's as follows.

ERCOT will collect the amount of BES (up and down) deployed and the sum of schedules for each operating period for the two time frames described below:

1) The monthly data one year previous to the month to be posted.

2) The month to date data on the current month (month previous to the month being analyzed). This interval will generally end on the 19th of the month previous to the month to be posted as the requirements will be posted on the 20th of the preceding month.

From this data ERCOT will calculate the mean balancing energy deployed and a standard deviation An amount of down balancing service expected to be sufficient to avoid exhausting the down balancing stack 99.9% of intervals will then be calculated. This amount of down balancing service, expressed as a percentage, will normally be posted as the down balancing percentage requirement. (Note – single outlying historic deployments may be selected in place of this statistical analysis if review indicates such a requirement is justified.)

ERCOT may post this value to be the continuous requirement, or may further analyze the needs to provide a varying requirement by:

- Zone

- On Peak and Off Peak hours

ERCOT may change this requirement during the month if experience shows that the initially proposed requirement is insufficient.

For Congestion Management

If a need for additional down balancing is required in a single zone, or zones for congestion management, it is expected by ERCOT that zonal assessment of the data discussed above will allow detection and posting of the need in advance. If this expectation is not correct, ERCOT may adjust the zonal down balancing requirement to address specific congestion events observed.

Responsive Reserve Service (RRS) Requirement

The ERCOT Operating Guides set the minimum RRS requirement at 2300 MW for all hours under normal conditions. The Operating Guides allow ERCOT to increase that requirement under extreme conditions. ERCOT will increase the amount of RRS purchased for Hour Ending 0700 through Hour Ending 2200 by linking the amount of RRS to a day-ahead forecast of the RDF. ERCOT will use the higher of the hourly forecast temperature for the North Central or the Coastal weather zone to predict the amount of RDF to apply in real-time. For each hour in which the RDF is projected to be greater than 2%, ERCOT will adjust the Day-Ahead hourly RRS obligation upward by 100 MW per percentage point. ERCOT will not adjust the RRS requirement below the minimum RRS requirement set forth in the ERCOT Operating Guides nor greater than 500 MW above the minimum RRS requirement in the ERCOT Operating Guides. The 2300 MW requirement was derived based on studies done in the past to determine the amount of RRS that might be required to prevent the shedding of firm Load upon the simultaneous loss of the two largest Generation Resources in the ERCOT Region.

One type of RRS is Interruptible Responsive Reserve. Interruptible Responsive Reserve is Load Acting as a Resource (LaaR) that is automatically interrupted when system frequency decreases to 59.7 Hz. The ERCOT Protocols state, "[t]he amount of Resources on high-set under-frequency relays providing RRS will be limited to 50% of the total ERCOT RRS requirement. ERCOT may reduce this limit if it believes that this amount will have a negative impact on reliability or if this limit would require additional Regulation Service to be deployed as prescribed in section 6.4.1, Standards for Determining Ancillary Services Quantities." The total amount of LaaR procured in any hour will be limited to 1150 MW until additional studies are performed and a determination is made that the ERCOT System will remain reliable using increased amounts of LaaR.

Self-arranged RRS used to fulfill a QSE's RRS requirement will be limited to 50% from LAARs for hours in which the total RRS obligation is 2300 MW. For hours in which the RRS requirement exceeds 2300 MW, the LaaR portion of RRS shall be limited to a proportionate weighting of the total RRS obligation such that the total amount of LaaR pro ured in any hour does not exceed 1150 MW. ERCOT procured RRS to provide the difference between the RRS system requirement and the amount of RRS self-arranged by all QSEs must also be limited to no more than 1150 MW from LaaRs.

If the minimum LAAR % level specified in the Protocols is changed, that change will be reflected in these requirements.

Responsive Reserve % LAAR

Protocols allow ERCOT to set the percentage of Responsive Reserve that may be served by LAARs. ERCOT calculates the maximum secure RRS that can be provided by LAARS by performing stability analysis of several power flow cases modeling the ERCOT transmission/generation system at different states. ERCOT will examine these models response to generator trip events and the response of LAARS/Generation to recover frequency using different generation/LAAR amounts. Unless indicated otherwise by these studies or adverse operating experience, LAARs will be allowed to provide up to 50% of the minimum ERCOT Responsive Requirement of 2300 MW.