# The Electric Reliability Council of Texas (ERCOT)

# Self Evaluation Report

## A Report to the Texas Sunset Advisory Commission


**September 2009**

## TABLE OF CONTENTS

# The Electric Reliability Council of Texas (ERCOT)

# Self Evaluation Report

## I. Agency Contact Information

### A. Please fill in the following chart.

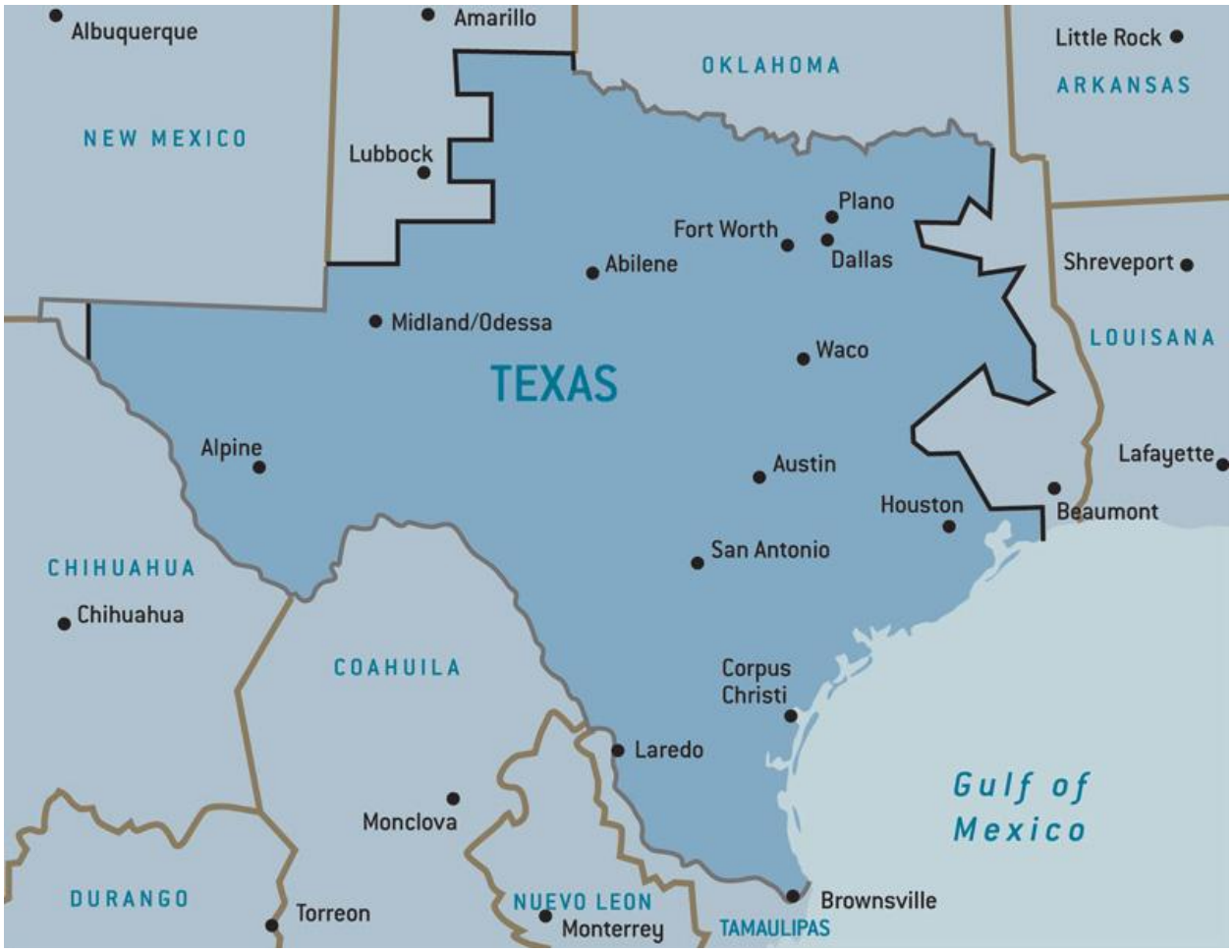
| ERCOT<br>Exhibit 1: Agency Contacts | | | | |
|---|---|---|---|---|
| | **Name** | **Address** | **Telephone & Fax Numbers** | **E-mail Address** |
| **Agency Head** | Bob Kahn, CEO | 7620 Metro Center Drive, Austin, TX 78744 | T: (512) 225-7010<br>F: (512) 225-7079 | bkahn@ercot.com |
| **Agency's Sunset Liaison** | Mike Grable, General Counsel | 7620 Metro Center Drive Austin, TX 78744 | T: (512) 225-7076<br>F: (512) 225-7079 | mgrable@ercot.com |

# II. Key Functions and Performance

## A. Provide an overview of your agency's mission, objectives, and key functions.

The Electric Reliability Council of Texas (ERCOT) is recognized as a world-class independent system operator of reliable, open and non-discriminatory electric markets.

ERCOT facilitates the development of an effective and highly reliable bulk electricity market in Texas by providing independent advice to enable innovation; collaborating with customers, industry members and regulators; delivering high quality and cost-effective services; and developing a highly qualified expert staff.



ERCOT manages the reliable flow of electric power to 22 million Texans - representing 85 percent of the state's retail customers and 75 percent of the Texas land area.

As the Independent Organization for the region, ERCOT schedules power on an electric grid that connects 40,000 miles of transmission lines and more than 550 generation units.

ERCOT also manages financial settlement for the competitive wholesale bulk-power market and administers customer switching for 6.5 million Texans in competitive choice areas.

**ERCOT has four statutory mandates and key functions:**

- Ensure the reliability and adequacy of the regional electric network;
- Ensure access to the transmission and distribution systems for all buyers and sellers;
- Ensure that information relating to a customer's choice of retail electric providers is conveyed in a timely manner to the persons who need the information; and
- Ensure that electricity production and delivery are accounted for among the generators and wholesale buyers and sellers in the region.

These four functions lay the foundation for an independently managed, highly-reliable and efficient retail and wholesale electric market for Texas consumers, and are the basis for ERCOT's strategic planning.

Following is a list of major ERCOT strategies and corresponding programs:

- **Grid Operations**
  - System Operations – Control Center
  - System Operations – Training
  - Operations Engineering
  - Network Modeling
  - Outage Coordination
  - Market Operations Testing
- **Planning Transmission, Resources and Operations**
  - Transmission Planning
  - Generation Interconnection
  - Resource Adequacy
  - Renewables Integration
  - Congestion Management
  - Operations Forecasting
  - Ancillary Services Planning
  - Advanced Network Applications

- **Renewable Energy, Smart Grid, Demand Response & Energy Efficiency**
  - Renewable Energy Credit (REC) Program Administration
  - Smart Grid
    1. Advanced Metering
    2. Demand Response
    3. Plug-in Electric Vehicles (PEV)
    4. Energy Efficiency

- **Market Operations**
  - Market Rules and Stakeholder Support
  - Settlement Metering
  - Energy Analysis and Aggregation
  - Settlements and Billing Operations
  - Retail Customer Choice
  - Retail Market Analysis
  - Commercial Operations Data Integrity and Administration
  - Market Operations Support
  - Retail Client Services
  - Wholesale Client Services

- **Nodal Market Implementation**

- **Compliance**
  - Grid Security
  - NERC/FERC Compliance

- **Texas Regional Entity (TRE)**

- **Credit Risk Management**

**B. Do each of your key functions continue to serve a clear and ongoing objective? Explain why each of these functions is still needed. What harm would come from no longer performing these functions?**

Yes. Each of ERCOT's statutory mandates and key functions continue to serve a clear and ongoing objective—ensuring a highly-reliable and efficient regional electric network for Texas consumers.

- A highly-reliable and efficient regional electric network is fundamentally necessary for the health of Texas' population as well as a competitive business environment and a thriving economy.

- Ensuring nondiscriminatory access to the transmission and distribution system is necessary for an efficient market in which all market participants may compete and innovate without fear that rivals might receive favorable treatment.

- ERCOT's role in ensuring that accurate customer information is distributed to retail electric providers in a timely manner is central to the success of the Texas retail electric market and a cornerstone of customer choice.

- Accurately and quickly accounting for electricity production and delivery among the generators and wholesale buyers and sellers in the region is integral to a well-functioning wholesale market which provides market-based, competitively-priced offerings to Texas consumers in areas that offer customer choice.

**C. What evidence can your agency provide to show your overall effectiveness and efficiency in meeting your objectives?**

- A highly-reliable bulk electric system
    - ERCOT system operators successfully managed record-breaking peak demand of 63,400 MW this summer.
- A successful wholesale market as evidenced by steady generation construction and consistently adequate reserve margins
    - 39,000 MW of new generation has been added in ERCOT since 1996 with 97,000 MW currently in the queue.
- An ERCOT-led industry process that has enabled the construction of thousands of miles of transmission over the past ten years
    - 6,593 circuit miles and $4.4 billion in transmission improvements have been added in ERCOT since 1999 and 2,888 miles are currently under study.
- The most successful competitive retail market in North America
    - More than 5 million retail switches processed since the retail market opened in 2001.
- The successful integration of the most megawatts of renewable energy in the country
    - The ERCOT market leads the nation in wind generation production and has interconnected more than 8,000 MW of wind energy to date.

- An electric market that is widely recognized as one of the best in the country and that contributes to the continued economic prosperity of Texas

**D. Does your agency's enabling law continue to correctly reflect your mission, objectives, and approach to performing your functions? Have you recommended changes to the Legislature in the past to improve your agency's operations? If so, explain. Were the changes adopted?**

Yes. Our enabling language continues to reflect our mission, objectives and approach to performing our functions. ERCOT has not recommended changes to the Legislature in the past.

**E. Do any of your agency's functions overlap or duplicate those of another state or federal agency? Explain if, and why, each of your key functions is most appropriately placed within your agency. How do you ensure against duplication with other related agencies?**

Texas is unique in that ERCOT is the only entity of its type in the United States; no other entity performs a similar range of grid, wholesale market, and retail market operations.

Because of the separateness of the ERCOT grid, the bulk electric system in the ERCOT market is primarily regulated by the Texas Legislature and the Public Utility Commission of Texas as opposed to the Congress and the Federal Energy Regulatory Commission (FERC).

**F. In general, how do other states carry out similar functions?**

For the two-thirds of the U.S. that, like ERCOT, are in restructured electric markets, similar grid operations and wholesale market functions are provided by regional transmission organizations or independent system operators in other states that are regulated by the FERC as well as by one or more state commissions.

**G. What key obstacles impair your agency's ability to achieve its objectives?**

- Staff attraction and retention and creating a pool of resources from which ERCOT can hire (aging population of workers with industry knowledge) continue to be a challenge.
- Attention should be focused on the creation of a long-term and comprehensive energy strategy that is agreed to by key constituencies.
    - For instance, there is an ongoing need to balance perfectly efficient markets and gold-standard reliability.
- Federal and state policymaking bodies can have competing goals, which affect ERCOT operations and actions.
- A significant learning curve exists as ERCOT learns to manage new energy sources (wind, solar and other renewable energy sources, for instance).
- Funding Issues:
    - Pressure to keep the ERCOT fee low or stable while the organization is asked to implement cutting-edge energy technologies
    - Reduction in electric usage (MWh) on which ERCOT fee is based

**H. Discuss any changes that could impact your agency's key functions in the future (e.g., changes in federal law or outstanding court cases).**

- Lawsuits challenging Competitive Renewable Energy Zone (CREZ) determinations brought by industrial customers and municipally-owned utilities may slow or halt construction of CREZ lines.
- Federal legislation regulating carbon emissions as well as a recent Environmental Protection Agency (EPA) determination on Texas Commission on Environmental Quality (TCEQ) air-quality permitting process may impact reserve margins by making it harder for certain energy technologies to obtain permits.
- A new federal administration may institute or implement new policies that may have an effect on ERCOT operations, actions or the market.

- New cybersecurity and anti-terrorism measures from the North American Electric Reliability Corporation (NERC), the Federal Energy Regulatory Commission (FERC) or the U.S. Congress may have an effect on ERCOT operations, actions or the market.

- Funding made available as part of the federal administration's stimulus plan may have an effect on ERCOT operations, actions or the market.

## I. What are your agency's biggest opportunities for improvement in the future?

- ERCOT is evolving from an entity entrusted with overseeing and ensuring a highly-reliable electric grid to an entity that also facilitates a market capable of responding to the pressures and opportunities of 21st century innovations and economic demands.

- ERCOT's focus on Smart Grid initiatives such as advanced metering and increased Demand Response technology will benefit Texas consumers by giving them increased control over their electric usage and boost overall reliability.

- ERCOT's move from an inefficient Zonal market to an advanced Nodal market will significantly increase market efficiency and contribute to the smarter use of the state's energy resources.

- ERCOT's role in expanding energy efficiency and demand response will lead to a more deliberate use of the state's energy resources.

- As ERCOT and Texas continue to be the national leaders in the integration of renewable resources, the state will continue to benefit from the introduction of cleaner energy sources, lower emissions and improved air quality.

**Question J. does not apply to ERCOT.**

# III. History and Major Events

**1941 – Utilities Band Together to Aid War Effort**

At the beginning of World War II, several electric utilities in Texas banded together as the Texas Interconnected System (TIS) to support the war effort. They sent their excess power generation to industrial manufacturing companies on the Gulf Coast to provide reliable supplies of electricity for energy-intensive aluminum smelting.

Recognizing the reliability advantages of remaining interconnected, the TIS members continued to use and develop the interconnected grid. TIS members adopted official operating guides for their interconnected power system and established two monitoring centers within the control centers of two utilities, one in North Texas and one in South Texas.

**1970 – TIS Forms ERCOT to Comply with NERC Requirements**

TIS formed the Electric Reliability Council of Texas (ERCOT) in 1970 to comply with North American Reliability Council (NERC) requirements. ERCOT was staffed by two retired employees from utilities.

**1981 – ERCOT Assumes Central Operating Coordinator Role**

In 1981, TIS members transferred all operating functions to ERCOT, and ERCOT became the central operating coordinator for Texas. ERCOT opened its first office in 1986 and hired four full-time employees.

**1995 – Texas Legislature Votes to Deregulate Wholesale Generation**

In 1995, the Texas Legislature amended the Public Utility Regulatory Act to deregulate the wholesale generation market. The Public Utility Commission of Texas (PUCT) began the process of expanding ERCOT's responsibilities to enable wholesale competition and facilitate efficient use of the power grid by all market participants.

**1996 – ERCOT Becomes First ISO in the US**

On August 21, 1996, the PUCT endorsed an electric utility joint task force recommendation that ERCOT become an Independent System Operator (ISO) to ensure an impartial, third-party organization was overseeing equitable access to the power grid among the competitive market participants.

This change was officially implemented September 11, 1996, when the ERCOT Board of Directors restructured its organization and initiated operations as a not-for-profit ISO, making it the first electric utility industry ISO in the United States.

**1999 – Legislature Votes to Deregulate Retail Electric Market**

On May 21, 1999, the Texas Legislature passed Senate Bill 7 (SB 7) which required the creation of a competitive retail electricity market to give customers the ability to choose their retail electric providers, starting January 1, 2002.

**2000 – Market Protocols Developed through Stakeholder Collaboration**

From 1999 to 2000, ERCOT sponsored a stakeholder process to address how ERCOT's organization would administer its responsibilities to support the competitive retail and wholesale electricity markets while maintaining the reliability of electric services.

In thousands of hours of meetings and mark-up sessions, the stakeholders or market participants worked together to develop new ERCOT protocols – the rules and standards for implementing market functions regarding energy scheduling and dispatch, ancillary services, congestion management, outage coordination, settlement and billing, metering, data acquisition and aggregation, market information systems, transmission and distribution losses, renewable energy credit trading, registration and qualification, market data collection, load profiling and alternative dispute resolution.

**2001 – Ten Control Centers Merged into One Control Center**

On July 31, 2001, the existing 10 control areas in the ERCOT region were consolidated into a single control area.

Wholesale power sales between electric utilities began to operate under the new electric industry restructuring guidelines, including centralization of power scheduling and procurement of ancillary services to ensure reliability.

Commercial functions were centralized to facilitate efficient market operations, including meter data acquisition and aggregation, load profiling and statewide registration of retail premises to facilitate switching by customers between competitive electricity providers.

**2002 – Retail Electric Market Opens, Enabling Customer Choice for 6.5 Million**

On January 1, 2002, ERCOT launched the competitive retail electric market – on time and on budget – allowing individuals and corporations in most cities to choose power suppliers.

SB 7 applied specifically to investor-owned utilities, enabling customer choice for 6.5 million, but allowed municipal utilities and electric cooperatives (approximately 24 percent of the ERCOT load) to decide if they wanted to opt to participate in competition.

**2003 – Nodal Market Design Project Begins**

In September 2003, as part of Project 26376, the PUCT ordered ERCOT to develop a nodal wholesale market design, with the goal of improving market and operating efficiencies through more granular pricing and scheduling of energy services.

**2004 – Major System Upgrade; First Cooperative Joins Competitive Market**

In August 2004, ERCOT launched a major transaction system upgrade, culminating a massive two-year project and representing the largest upgrade of the electronic transaction system since the retail market launch. Switching transactions averaged 38,000 per month and 9,000 per day during 2004.

Nueces Electric Cooperative (NEC) became the first cooperative or municipal utility to "opt in" to participate in the Texas competitive electricity market. NEC enrolled its first customer on September 1, 2004.

**2005 – One Fourth of Residential Customers Switched to Competitor**

By September 2005, more than 2 million total customer switches to a competitive retail provider had been completed. Almost one-fourth of residential customers had switched to a competitive retail provider, in addition to 29 percent of small non-residential customers and 72 percent of large non-residential customers.

That September, the Texas Nodal Team submitted draft nodal protocols to the PUCT.

**2006 – Nodal Market Protocols Approved; Energy Usage Hits 62,339 MW**

On April 5, 2006, the PUCT signed an order approving the stakeholder-developed protocols for the nodal market, with an implementation date of January 1, 2009.

On August 17, 2006, a record high demand of 62,339 megawatts of power was used.
Texas moved ahead of California as the top wind-producing state.

**2007 – Wind Capacity Tops 8,000 MW; Residential Switching at 46 Percent**

A record 3,220 MW of wind generation was added to the ERCOT grid for a total of 8,005 MW, maintaining ERCOT's lead as the top wind-producing state.

Five years after launching the retail market, 46 percent of residential customers had switched from the incumbent utility.

**2008 – New Launch Date for Nodal Market Announced**

A new go-live date of December 2010 for the nodal market implementation was announced.
Almost 6,600 miles of transmission improvements completed since 1999, and approximately 39,000 MW of new generation added since 1996.

**2009 – Peak Demand Hits 63,400 MW**

On July 13, 2009, a new record high peak demand of 63,400 megawatts of power was used.

# IV. Policymaking Structure

**A. Complete the following chart providing information on your policymaking body members.**

| ERCOT<br>Exhibit 3: Policymaking Body | | | |
|---|---|---|---|
| **Member Name** | **Term/<br>Appointment Dates** | **Qualification**<br>(e.g., public member, industry representative) | **City** |
| Jan Newton, Chair | 9/09 – 8/12 | Unaffiliated Member | N/A |
| Michehl Gent, Vice Chair | 3/09 – 2/12 | Unaffiliated Member | N/A |
| Mark G. Armentrout | 12/06 – 11/09 | Unaffiliated Member | N/A |
| Don Ballard | 12/08 – 11/09 | Residential Consumers Segment | N/A |
| Brad Cox | 12/08 – 11/09 | Independent Power Marketers Segment | N/A |
| Andrew J. Dalton | 12/08 – 11/09 | Industrial Consumers Segment | N/A |
| Miguel Espinosa | 12/08 – 11/11 | Unaffiliated Member | N/A |
| Nick Fehrenbach | 12/08 – 11/09 | Commercial Consumers Segment | N/A |
| Robert Helton | 12/08 – 11/09 | Independent Generators Segment | N/A |
| Charles Jenkins | 12/08 – 11/09 | Investor-Owned Utilities Segment | N/A |
| Bob Kahn | 12/08 – 11/09 | ERCOT CEO | N/A |
| Clifton Karnei | 12/08 – 11/09 | Electric Cooperatives Segment | N/A |

| | | | |
|---|---|---|---|
| Alton D. "Dee" Patton | 6/08 – 5/11 | Unaffiliated Member | N/A |
| Barry T. Smitherman (non-voting) | No expiration | Public Utility Commission Chair | N/A |
| Robert Thomas | 12/08 – 11/09 | Independent Retail Electric Providers Segment | N/A |
| Dan Wilkerson | 12/08 – 11/09 | Municipally Owned Utilities Segment | N/A |
| **Segment Alternates** | | | |
| Steve Bartley | 12/08 – 11/09 | Municipally Owned Utilities Segment | N/A |
| Deryl Brown | 12/08 – 11/09 | Independent Retail Electric Providers Segment | N/A |
| Calvin Crowder | 12/08 – 11/09 | Investor-Owned Utilities Segment | N/A |
| Mike Packard | 12/08 – 11/09 | Electric Cooperatives Segment | N/A |
| Jean Ryall | 12/08 – 11/09 | Independent Power Marketers Segment | N/A |
| Mark Walker | 12/08 – 11/09 | Independent Generators Segment | N/A |

**B. Describe the primary role and responsibilities of your policymaking body.**

The Board's primary responsibility is to manage the affairs of ERCOT, including ensuring that ERCOT maintains reliability and operates in a fair, efficient and non-discriminatory manner.

In keeping with its fiduciary duties to ERCOT, the Board shall establish the overall direction and affirm the annual goals and objectives developed by ERCOT staff. The Board shall review such goals and objectives on an ongoing basis, and may issue policies and resolutions setting forth direction of ERCOT management actions to attain such goals and objectives.

The Board is also responsible for overseeing ERCOT's administration of the ERCOT Protocols.

**C. How is the chair selected?**

PURA 39.151 states that the presiding officer of the ERCOT Board of Directors must be an Unaffiliated Member of the Board.

Section 4.4 of the ERCOT Bylaws states that annually, the Board shall elect, from the Board's Unaffiliated membership, a Chair and a Vice Chair.

**D. List any special circumstances or unique features about your policymaking body or its responsibilities.**

ERCOT is governed by a hybrid Board of Directors, which is made up of market participants and unaffiliated members in addition to the ERCOT CEO and the Chair of the Public Utility Commission (non-voting).

**E. In general, how often does your policymaking body meet? How many times did it meet in FY 2008? In FY 2009?**

In general, the Board of Directors meets once a month. The Board may also hold strategic planning meetings, urgent meetings – which can be called on two hours' notice – and special meetings as necessary.

In 2008, the Board met 16 times (including one strategic planning, one special and two urgent meetings).

In 2009, the Board has met 10 times thus far (including one strategic planning and one special meeting).

**F. What type of training do members of your agency's policymaking body receive?**

ERCOT Unaffiliated Board members receive an "Overview and Orientation" at the beginning of their terms provided by the ERCOT General Counsel (the orientation document is voluminous and will be provided upon request).

All Board members receive annual training in Director duties, including antitrust and ethics topics. (this information will also be provided upon request).

**G. Does your agency have policies that describe the respective roles of the policymaking body and agency staff in running the agency? If so, describe these policies.**

The ERCOT Bylaws as well as the ERCOT Board Policies and Procedures set out the parameters and policies that govern the Board of Directors. The Bylaws describe the respective roles of the Board and ERCOT staff in running the entity. (Please see the ERCOT Bylaws in the Attachments section)

**H. What information is regularly presented to your policymaking body to keep them informed of your agency's performance?**

According to the ERCOT Bylaws, the CEO shall make an annual report and periodic reports to the Board concerning the activities of ERCOT.

Additionally, the following reports are presented to the Board at each regular meeting:

- Financial Summary Report
- Market Operations Report
- IT Service Availability Metrics Report
- Grid Operations Report
- Nodal Update
- Special Nodal Program Committee Report
- TAC Report—Protocol Revisions
- Finance & Audit Committee
- HR & Governance Committee

Further reports on specific matters of interest are presented from time to time, either because of Board request or staff suggestion.

**I. How does your policymaking body obtain input from the public regarding issues under the jurisdiction of the agency? How is this input incorporated into the operations of your agency?**

All ERCOT meetings—with the exception of Executive Sessions—are open to the public.

ERCOT must also provide seven days' advance notice of meetings as well as planned agendas, which can be accessed through www.ercot.com.

Members of the public who attend ERCOT meetings have the opportunity to comment on matters under discussion at the meetings.

**J. If your policymaking body uses subcommittees or advisory committees to carry out its duties, fill in the following chart. See Exhibit 4 Example or click here to link directly to the example.**

**ERCOT**
**Exhibit 4: Subcommittees and Advisory Committees**

| Name of Subcommittee or Advisory Committee | Size/Composition/How are members appointed? | Purpose/Duties | Legal Basis for Committee |
|---|---|---|---|
| | | | |

| | | | |
|---|---|---|---|
| Human Resources & Governance Committee | 6 members made up of members of the Board of Directors/Board appoints subcommittee members. | Decisions including officer compensation; CEO evaluation; executive compensation; succession planning; employee compensation and benefits; Board training; government relations and messaging | ERCOT Bylaws |
| Finance & Audit Committee | 8 members made up of members of the Board of Directors/Board appoints subcommittee members. | Decisions including ERCOT budget; financing; investments; credit standards; audits (external and internal) | ERCOT Bylaws |
| Special Nodal Program Committee | 8 members made up of members of the Board of Directors/Board appoints subcommittee members. | Decisions regarding Texas Nodal Market implementation | ERCOT Bylaws |
| Nominating Committee | 14 members made up of members of the Board of Directors/Board appoints subcommittee members. | Decisions regarding nominations | ERCOT Bylaws |
| Technical Advisory Committee (TAC) | 30 members made up of market participants, consumer representation | Decisions regarding the ERCOT market and reliability, including revisions to the ERCOT Protocols | ERCOT Bylaws |
| Commercial Operations Subcommittee (COPS) | 14 members made up of market participants; consumer representation | Decisions regarding commercial operations | ERCOT Bylaws |
| Protocol Revisions Subcommittee (PRS) | 28 members made up of market participants; consumer representation | Decisions regarding protocol revisions | ERCOT Bylaws |
| Reliability & Operations Subcommittee (ROS) | 28 members made up of market participants, consumer representation | Decisions regarding reliability and grid operations | ERCOT Bylaws |

| | | | |
|---|---|---|---|
| Retail Market Subcommittee (RMS) | 28 members made up of market participants, consumer representation | Decisions regarding retail market issues | ERCOT Bylaws |
| Wholesale Market Subcommittee (WMS) | 28 members made up of market participants; consumer representation | Decisions regarding wholesale market issues | ERCOT Bylaws |

# V. Funding

**A. Provide a brief description of your agency's funding.**

ERCOT is an independent, nonprofit corporation, governed by a board of directors and fulfilling specific responsibilities assigned to ERCOT under the oversight of the Public Utility Commission of Texas (PUC) and the Texas Legislature. The PUC authorizes all ERCOT fees and reviews and approves the ERCOT system administration fee in a manner similar to a regulated utility rate case. To support the PUC review, ERCOT files a proceeding at the Public Utility Commission each time a change in the system administration fee is requested. The review process allows an opportunity for interested parties to participate in the review and to provide information concerning ERCOT fees directly to the PUC for their consideration.

The system administration fee, which represents approximately 98 percent of ERCOT's total base operating revenue requirement, is assessed on wholesale energy transactions and becomes part of the overall cost of electricity. It does not appear on residential bills, but if it were passed directly through to end-use customers, it would average about 42 cents/month or $5/year, based on 1,000 kilowatt-hour usage/month.

Revenues from the system administration fee (together with the other revenue derived from miscellaneous smaller authorized fees) must be sufficient to cover all portions of the ERCOT budget (including on-going operations, equity for capital projects, administrative overhead, debt service, etc.). In addition to its traditional costs, ERCOT is required to include the cost necessary to fund the Independent Market Monitor and protocol compliance functions performed by the Texas Regional Entity within its annual budget. The Texas Regional Entity also receives pass through funding based on a delegation agreement with the North American Electric Reliability Corporation (NERC).

In addition to the system administration fee, ERCOT is presently collecting additional revenues via a special fee designed to provide recovery of the cost necessary to implement a nodal market as mandated by the PUC. This special nodal surcharge is assessed to generation resources at current rate of $0.169 per megawatt-hour, approximately $0.17 per month for an average household using 1000 kilowatt-hours/month, if passed directly through to end-users. A request to increase this rate to provide recovery of additional costs necessary to implement the nodal market is presently pending before the PUC. Revenues from this special fee may not be used to fund ERCOT's base operating requirements. The authority to collect the special nodal fee will terminate upon recovery of the cost incurred to implement the nodal market.

**B. List all riders that significantly impact your agency's budget.**

N/A

**C. Show your agency's expenditures by strategy. See Exhibit 5 Example or click here to link directly to the example.**

## ERCOT Fiscal Year 2008 Actuals
### Expenditures by Strategy

| Line | Strategy | 2008 Actuals | Outside Services |
|---|---|---|---|
| | | $ | $ |
| 1 | Nodal Market Implementation | 132,544,604 | 84,861,550 |
| 2 | Information Technology | 32,191,329 | 3,610,088 |
| 3 | Market Operations | 13,046,698 | 4,893,968 |
| 4 | Grid Operations | 10,614,271 | 828,252 |
| 5 | TRE | 4,055,538 | 330,326 |
| 6 | Planning Transmission, Resources & Operations | 3,849,577 | 321,777 |
| 7 | Compliance | 2,195,244 | 369,015 |
| 8 | Renewable Energy, Smart Grid, Demand Response & Energy Efficiency | 601,894 | 117,304 |
| 9 | Credit Administration | - | - |
| 10 | Subtotal - Programs | 199,099,155 | 95,332,280 |
| 11 | Corporate Administration | 29,917,438 | 4,080,836 |
| 12 | Other Program Operations | 4,037,072 | 210,421 |
| | | $ | $ |
| 13 | Total - ERCOT | 233,053,665 | 99,623,537 |

Schedule excludes depreciation.

**D. Show your agency's objects of expense for each category of expense listed for your agency in the General Appropriations Act FY 2009-2010. See Exhibit 6 Example or click here to link directly to the example. Add columns and rows as necessary.**

See Attachment 12.

**E. Show your agency's sources of revenue. Include all local, state, and federal appropriations, all professional and operating fees, and all other sources of revenue collected by the agency, including taxes and fines. See Exhibit 7 Example or click here to link directly to the example.**

**ERCOT**
**Exhibit 7: Sources of Revenue C Fiscal Year 2008 (Actual)**

| Source | Amount |
|---|---|
| ERCOT System Administration Fee | 130,079,169 |
| Nodal Surcharge | 47,842,236 |
| NERC Electric Reliability Organization Fee | 5,499,728 |
| Private Wide-area Network Fees | 2,186,518 |
| Interest Income | 1,554,081 |
| Generation Interconnection Study Fees | 897,141 |
| Membership Dues | 309,100 |
| Load Service Entity (LSE) Revenue | 206,289 |
| Application Fees | 27,500 |
| Printing Fees | 6,120 |
| Miscellaneous Revenue | 5,472 |
| **TOTAL** | 188,613,353 |

**F. If you receive funds from multiple federal programs, show the types of federal funding sources. See Exhibit 8 Example or click here to link directly to the example.**

N/A

**G. If applicable, provide detailed information on fees collected by your agency. See Exhibit 9 Example or click here to link directly to the example.**

Market participants are charged fees for participation in some ERCOT activities or to defray the cost of providing certain services, such as generation interconnection study fees.

# VI. Organization

**A. Provide an organizational chart that includes major programs and divisions, and shows the number of FTEs in each program or division.**

See Attachment 8.

**B. If applicable, fill in the chart below listing field or regional offices. See Exhibit 10 Example or click here to link directly to the example.**

**ERCOT**
**Exhibit 10: FTEs by Location C Fiscal Year 2008**

| Headquarters, Region, or Field Office | Location | Number of Authorized FTEs, FY 2008 | Number of Actual FTEs as of August 31, 2008 |
|---|---|---|---|
| Austin Met Center | 7620 Metro Center Drive, Austin, TX 78744 | 51 | 40 |
| Taylor | 2705 West Lake Drive, Taylor, TX 76574 | 694 | 608 |
| **TOTAL** | | 703 | 648 |

**C. What are your agency's FTE caps for fiscal years 2008-2011?**

N/A

**D. How many temporary or contract employees did your agency have as of August 31, 2008?**

In 2008, 519 temporary or contract employees were employed by ERCOT. The bulk of these contract employees were employed by the Nodal market implementation program (described in detail in Section VII).

**E. List each of your agency's key programs or functions, along with expenditures and FTEs by program. See Exhibit 11 Example or click here to link directly to the example.**

| Program | 2008 Actuals | FTEs |
|---|---|---|
| System Operations—Control Center | 5,384,242 | 54 |
| System Operations—Training | 1,002,452 | 9 |
| Operations Engineering | 895,078 | 12 |
| Network Modeling | 1,090,165 | 22 |
| Outage Coordination | 1,206,787 | 11 |
| Market Operations Testing | 1,035,546 | 30 |
| Transmission Planning | 1,222,923 | 19.5 |
| Generation Interconnection | 170,724 | 3.5 |
| Resource Adequacy | 630,936 | 6 |
| Renewables Integration | 497,810 | 5 |
| Congestion Management | 197,680 | 4 |
| Operations Forecasting | 350,119 | 5 |
| Ancillary Services Planning | 307,270 | 4 |
| Advanced Network Applications | 472,115 | 8 |
| REC Program Administration | 601,894 | 4 |
| *Smart Grid | — | — |

| | | |
|---|---|---|
| Market Rules & Stakeholder Support | 579,865 | 9 |
| Settlement Metering | 1,141,635 | 10 |
| Energy Analysis & Aggregation | 1,224,436 | 10 |
| Settlements & Billing Operations | 1,385,209 | 23 |
| Retail Customer Choice | 1,181,155 | 17 |
| Retail Market Analysis | 1,414,571 | 4 |
| Commercial Operations Data Integrity & Administration | 517,282 | 8 |
| Market Operations Support | 2,977,642 | 27 |
| Retail Client Services | 847,924 | 10 |
| Wholesale Client Services | 1,776,980 | 21 |
| Nodal Market Implementation | 132,544,604 | 143 |
| Grid Security | 2,195,244 | 15 |
| **NERC/FERC Compliance | __ | __ |
| TRE | 4,055,538 | 23.5 |
| **Credit Risk Management | __ | __ |

* Smart Grid activities are currently decentralized across ERCOT. Therefore, actual figures for 2008 are not available.

**NERC/FERC Compliance and Credit Risk Management activities were decentralized across ERCOT in 2008. Therefore, actual figures for 2008 are not available.

## VII. Guide to Agency Programs

**A. Provide the following information at the beginning of each program description.**

| | |
|---|---|
| **Name of Program or Function** | **System Operations – Control Center** |
| **Location/Division** | Austin/Taylor, Texas/System Planning and Operations |
| **Contact Name** | Kent Saathoff |
| **Actual Expenditures, FY 2008** | 5,384,242 |
| **Number of FTEs as of August 31, 2008** | 54 |

**B. What is the objective of this program or function? Describe the major activities performed under this program.**

The ERCOT System Operators, working from the ERCOT Control Centers, have the responsibility and authority to direct the real-time actions of all generating plant and transmission line operators in ERCOT to ensure the stable and reliable operation of the Bulk Electric System (BES) during both normal and emergency conditions. ERCOT is the only entity registered with NERC to perform the functions of, Reliability Coordinator, Balancing Authority, Transmission Operator and Interchange Authority in the ERCOT Region.

To accomplish these functions the primary activities performed are:

- Request and receive information required to continually monitor and direct the operation of the ERCOT BES to assure its security and reliability in accordance with the ERCOT Protocols, Operating Guides, and NERC Reliability Standards.

- Operate the ERCOT BES 24 hours a day, 7 days a week utilizing advanced network analysis applications including State Estimator, Real Time Contingency Analysis, Real-Time and Study Mode Operations Power Flow, Voltage Stability Analysis and Dynamic Stability Analysis to continuously monitor the 40,327 miles of transmission lines and 566 generation units in the ERCOT interconnection to assure security and reliability of the ERCOT system.

- Perform security analyses on a Day-Ahead basis and manage congestion on a real-time basis to ensure the ERCOT system is operated in such a manner that the outage of any single facility (Contingency) in the system will not cause the uncontrolled breakup of the transmission system,

loading of transmission facilities above their defined emergency ratings which cannot be eliminated in time to prevent damage or failure, or operation at transmission voltage levels outside system design limits which cannot be corrected through execution of specific, predefined operating procedures before voltage instability or collapse occurs.

- Review the Daily Operations Plan and calculate and post the allocated Responsive Reserve, Regulation, and Non-Spin Reserve Service obligations.

- Operate the Day-ahead Ancillary Service Market to ensure Up Regulation, Down Regulation, Responsive Reserve and Non-Spin Reserves capacity needs are met.

- Run the Day-ahead Replacement Reserve Market to ensure the ERCOT grid has sufficient generation capacity to resolve transmission congestion and meet system load expectations.

- Calculate and enter values necessary to deploy Balancing Energy Service every 15 minutes to minimize the use of Regulation and maximize the use of Balancing Energy.

- Receive all specified notifications from all Market Participants with regard to energy transactions (Balanced Schedules), generation control modes, routine adjustments, and equipment limitations or outages. Ensure compliance with the ERCOT Protocols and Operating Guides on identified transfer limits.

- Implement Energy Emergency Alert(s) when conditions create a potential generation capacity shortage. These actions may include all actions up to and including directing the shedding of firm load to maintain the integrity of the EROCT system.

- Obtain and/or arrange to provide emergency energy over the DC Tie(s) with other Regions to prevent emergency operations within the ERCOT system.

- Issue appropriate operating condition notices, advisories, watches, emergency notices, and coordinate the reduction or cancellation of transmission maintenance outages, re-dispatch of generation, and request, order, or take other action(s) that the System Operator determines is necessary to maintain safe and reliable operating conditions on the ERCOT system in accordance with ERCOT Protocols, Operating Guides, and NERC Reliability Standards.

- Manage the DC-Tie scheduling and inadvertent energy accounting for the five (5) DC Ties ERCOT shares with the Southwest Power Pool (SPP) and Comision Federal de Electricidad (CFE).

- Coordinate the ERCOT System Restoration (Black Start) Plan in the event of an ERCOT-wide power system failure. System Operators will implement the Black Start Plan and direct the reconnection efforts of the islands established by restoration activities. The System Operators coordinate the mutual assistance activities of the ERCOT participants during system restoration activities.

- Facilitate all procedural compliance audits preformed by the ERCOT Internal Audit to ensure procedures are being followed, this information is reported to the ERCOT Board of Directors.

- Represent ERCOT at the following internal ERCOT Stakeholder meetings: Reliability Operations Subcommittee (ROS), Operations Working Group (OWG), QSE's Managers Working Group (QMWG), and Operations Task Force (OTF)

- Represent the ERCOT region at the following NERC subcommittees, working groups, and drafting teams: Reliability Coordinator Working Group (RCWG), Operations Reliability Subcommittee (ORS), ES-ISAC Working Group, Disturbance and Sabotage Reporting SAR Drafting Team, and Situational Awareness NERC, FERC and Regional Entities Working Group.

- Act as Subject Matter Experts for the preparation and interview process of mandated annual NERC Compliance Audit.

- Serve as business resource Subject Matter Experts as needed to facilitate the completion of projects that involve new or enhanced computer systems used by operators.

- Provide training on operations topics at the Annual ERCOT Operations Seminar sponsored by Texas Regional Entity (TRE). This is presented for six consecutive weeks each year, usually in the spring.

**C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.**

System Operators successfully fulfilled their primary mission – maintaining the reliability of the grid – and running the day-to-day operations of the Texas electric market.

Some examples are below of the success of maintaining reliability of the grid during emergency events and hurricanes in 2008.

- On February 26, 2008, a cold front moved through the state resulting in an unexpected drop in wind energy production after the front's passage at the same time that system load was increasing and several other power providers were falling below their scheduled energy production. Faced with a drop in frequency, the operators moved directly to the second stage of emergency procedures which activated ERCOT's demand response program, Loads Acting as Resource (LAARs), adding approximately 1,100 MW of resources within a 10-minute period. LAARs are primarily large industrial and commercial users who are paid to curtail their electricity use as needed for reliable grid operation. Other than the load resources, which were mostly restored within an hour and a half, no customers in the ERCOT region lost power due to the event.

- On June 18, 2008, ERCOT operators initiated emergency procedures when operating generation reserves dropped below the target minimum of 2,300 MW. The primary reason was hotter-than-forecasted temperatures in several areas of the region. Load was 2,100 MW higher than the Day

Ahead load forecast due to temperature predictions lower than actual. Operators brought on additional generation and cancelled the emergency procedures within two hours.

- On July 23, 2008, Hurricane Dolly made landfall at South Padre Island as a Category 1 storm, with 85 mph winds. ERCOT operators managed significant transmission and generation outages in the southern portion of the ERCOT grid. Customer outages during the hurricane's aftermath exceeded 224,600 in the Rio Grande Valley area, and 28 high-voltage transmission lines were knocked out of service.

- On September 13, Hurricane Ike made landfall near Galveston as a Category 2 storm, with winds of 110 mph. ERCOT's system operators quickly responded to the sudden and dramatic losses of electric load caused when the storm disabled electric lines and generating units, keeping the rest of the grid intact. More than 100 high-voltage transmission lines and 36 generation units were knocked out of service initially, affecting service to approximately 2.1 million customers in the ERCOT region. Hurricane Ike became the country's third most destructive hurricane as measured in property damage.

**D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.**

Significant time and effort is focused on NERC compliance and enforcement since the Energy Policy Act of 2005 made reliability standards mandatory and enforceable by FERC and NERC. This effort includes rigorous programs of monitoring, audits and investigations. ERCOT is audited annually which requires much time and energy to maintain a strict culture of compliance.

**E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.**

According to NERC Reliability Standards, ERCOT System Operators must possess a Reliability Coordinator Operator Certification by the NERC prior to independently operating a desk on the control room floor.

This certification is acquired by successfully completing an exam and is maintained by obtaining 200 hours of continuing training requirements as specified by NERC over a three-year period. Out of the 47 employees in this department, all hold this certification except for the Administrative Assistant.

**F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.**

This program is administered by a supervisor and 54 FTEs.

System Operator procedures are highly detailed and are publicly available on the ERCOT website at http://www.ercot.com/mktrules/guides/procedures/.

**G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).**

ERCOT System Administration Fee

**H. Identify any programs, internal or external to your agency, that provides identical or similar services or functions. Describe the similarities and differences.**

There are no other programs that provide identical or similar services or functions in the ERCOT region.

**I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.**

N/A

**J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.**

FERC approves reliability standards applicable to ERCOT and can assess fines for violations of those standards. They do this through NERC as the Electric Reliability Organization (ERO) and TRE. ERCOT System Operations is audited annually by representatives of these organizations for compliance with the FERC-approved reliability standards.

**K. If contracted expenditures are made through this program please provide:**

- **the amount of those expenditures in fiscal year 2008;**
- **the number of contracts accounting for those expenditures;**
- **a short summary of the general purpose of those contracts overall;**
- **the methods used to ensure accountability for funding and performance; and**
- **a short description of any current contracting problems.**

N/A

**L. What statutory changes could be made to assist this program in performing its functions? Explain.**

No statutory changes are necessary at this time.

**M. Provide any additional information needed to gain a preliminary understanding of the program or function.**

ERCOT's primary Control Center is located in Taylor and operators also staff a fully-redundant backup Control Center in Austin. Both sites are manned 24 hours a day/seven days a week and, in the event of the loss of the primary facility, the backup center would become the primary site. This redundancy enables ERCOT to continuously monitor the ERCOT interconnection to assure security and reliability of the ERCOT system in multiple scenarios.

**N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:**

- **why the regulation is needed;**
- **the scope of, and procedures for, inspections or audits of regulated entities;**
- **follow-up activities conducted when non-compliance is identified;**
- **sanctions available to the agency to ensure compliance; and**
- **procedures for handling consumer/public complaints against regulated entities.**

N/A

**Question O. does not apply to this program.**

**A. Provide the following information at the beginning of each program description.**

| | |
|---|---|
| **Name of Program or Function** | **System Operations – Training** |
| **Location/Division** | Austin/Taylor, Texas/System Planning and Operations |
| **Contact Name** | Kent Saathoff |
| **Actual Expenditures, FY 2008** | 1,002,452 |
| **Number of FTEs as of August 31, 2008** | 9 |

**B. What is the objective of this program or function? Describe the major activities performed under this program.**

The ERCOT System Operator Training Program is intended to ensure a System Operator achieves and maintains a level of competency that is acceptable for independent performance of the duties for a specific operating desk.

The primary objective of ERCOT System Operations Training is to train operators such that they will possess the necessary skills and ability to ensure reliable system operations of the ERCOT system in accordance with the ERCOT Protocols, Operating Guides, as well as NERC Reliability Standards, ERCOT plans, and procedures.

- System Operations Trainers perform job and task analysis on each operating desk. The results are used to design and develop system operator training courses and simulations. The training is conducted in instructor-led classroom environments as well as on a full-scale ERCOT Energy Management and Market Management Systems simulator.
- The performance of system operators in these training environments is evaluated and feedback is given to the individual Operators and their Shift supervisors
- Based upon feedback (course/instructor evaluations) from the operators, the training department makes necessary modifications to training for quality improvement.
- Members of the training staff design, develop and facilitate the annual system restoration (Blackstart) training ERCOT-wide. This training is required by the ERCOT Protocols and is provided to approximately 800 operators representing transmission, generation and the market.

- Members of the training staff design, develop and facilitate the annual severe weather training drills as required by the ERCOT Operating Guides.
- Three members of the training staff represent the ERCOT region on three NERC committees or subcommittees: The NERC Personnel Certification Governance Committee, the NERC Personnel Subcommittee, and the NERC Certification Exam Working Group. Collectively, these organizations establish standards for certification and training that affect all US, and most Canadian electric system operators.
- System Operations Training personnel may be assigned as business resource Subject Matter Experts as needed to facilitate the completion of projects that involve system operator activities, procedures and associated training.
- System Operations Training personnel provide one or more hours of training on operations topics at the Annual ERCOT Operations Seminar sponsored by the TRE. This is presented for six consecutive weeks each year, usually in the spring.

**C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.**

Every ERCOT System Operator has achieved and maintained required NERC Operator certification. This requires passing the written NERC certification exam and maintaining required annual approved Continuing Education Hours (CEHs). System Operations Training is responsible for preparing operators for the exam and assuring all operators receive the required number of NERC approved CEHs.

Over the past four years, improvements in operating procedures and training on those procedures has resulted in near-perfect (over 99%) scores on annual operational audits for procedure compliance. System Operations Training was responsible for the development of those procedures and the associated training.

Operator feedback has consistently held that training using the operations training simulator has prepared them to be able to effectively respond to similar real-life scenarios as they occurred, which helped in mitigating the consequences of those events.

Feedback from market participants who have attended the annual Blackstart training and severe weather exercises has maintained that the training and exercises helped them be better prepared for events such as hurricanes and severe weather events.

**D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.**

In 2000, the System Operations Training group was formed to assist with the initial training of operators on the new Energy Management System (EMS), Market Management System (MMS) and procedures associated with their new responsibilities. After the new market go-live in 2001, a continuing training program was formed.

The training group has focused primarily on system operator training activities. New market standards have increased the training requirements for ERCOT system operators. With the acquisition of the Operator Training Simulator (OTS) in 2007, it was necessary to add instructors and system engineers to support the simulator and develop and facilitate simulation training.

**E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.**

According to certain NERC Reliability Standards, ERCOT System Operators must possess a Reliability Coordinator Operator Certification by the North American Electric Reliability Corporation (NERC) prior to independently operating a desk on the control room floor.

This certification is maintained by meeting certain continuing training requirements as specified by NERC over a three-year period. The training offered by System Operations Training for ERCOT System Operators is applied to these continuing education requirements in order to maintain their certification.

Other NERC Reliability Standards require that a training program be provided that will offer training that develops specific knowledge and skills necessary for an operator to perform the tasks required to maintain the reliability of the Bulk Electric System. There are specific requirements for emergency operations training and other operational topics.

The services provided by the System Operations trainers affect 42 system operators, six shift engineers and other personnel who maintain NERC operator certification.

According to other NERC Reliability Standards, ERCOT System Operations trainers must be competent in both knowledge of system operations and instructional capabilities.

- All trainers are NERC-Certified (Reliability Coordinator) and have experience on at least the ERCOT operating desks. This NERC Certification must be maintained in the same way as the system operators.

- In addition, the training staff must complete a minimum amount of continuing training each year related to instructional skills.

**F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.**

This program is administered by a supervisor and 9 FTEs.

System Operations Training staff provides training for new-hire system operators as well as continuing training for incumbent operators. Other ERCOT staff who are not system operators but are maintaining their NERC Certification may also attend this scheduled training.

NERC Reliability Standards require that system operators be provided training time and locations that are distinctly separate from their normal operations. To ensure compliance, ERCOT system operators are scheduled in a rotating shift that provides one week out of every six for training activities. There are 8

such weeks available each year for each crew. The training provided is a blend of classroom and simulator training that focuses on ERCOT system operations procedures, power system theory, NERC Reliability Standards, and ERCOT Protocols/Operating Guides.

The training staff also provides the administrative support necessary to coordinate all referenced training and document that training both in ERCOT records and in the NERC System Operator Certification Continuing Education Database.

**G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).**

ERCOT System Administration Fee

**H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.**

There are no other programs that provide identical or similar services or functions in the ERCOT region.

**I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.**

N/A

**J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.**

N/A

**K. If contracted expenditures are made through this program please provide:**

- **the amount of those expenditures in fiscal year 2008;**
- **the number of contracts accounting for those expenditures;**
- **a short summary of the general purpose of those contracts overall;**
- **the methods used to ensure accountability for funding and performance; and**
- **a short description of any current contracting problems.**

- ERCOT System Operations Training spent $64,509 in 2008 on outside services.
- The expenditure was for one third of a three-year program of computer based online training courses designed to provide operations training to NERC-certified system operators in 2008.
- The purpose of this contract was to supplement the training provided by System Operations trainers who were heavily committed for development of procedures and training related to the nodal market transition.
- ERCOT's Legal Division reviews terms and conditions of each contract. Ongoing contract administration relies on the expertise of specific program managers and supervisors and ERCOT contract management staff to determine value received.
- No contracting problems currently exist.

**L. What statutory changes could be made to assist this program in performing its functions? Explain.**

No statutory changes are necessary at this time.

**M. Provide any additional information needed to gain a preliminary understanding of the program or function.**

N/A

**N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:**

- **why the regulation is needed;**
- **the scope of, and procedures for, inspections or audits of regulated entities;**
- **follow-up activities conducted when non-compliance is identified;**
- **sanctions available to the agency to ensure compliance; and**
- **procedures for handling consumer/public complaints against regulated entities.**

N/A

**Question O. does not apply to this program.**

**A. Provide the following information at the beginning of each program description.**

| | |
|---|---|
| **Name of Program or Function** | **Operations Engineering** |
| **Location/Division** | Austin/Taylor, Texas/System Planning and Operations |
| **Contact Name** | Kent Saathoff |
| **Actual Expenditures, FY 2008** | $895,078 |
| **Number of FTEs as of August 31, 2008** | 12 |

**B. What is the objective of this program or function? Describe the major activities performed under this program.**

ERCOT Operations Engineering mission is to assist ERCOT System Operators to solve real-time reliability issues. This involves development of Remedial Action Plans, Temporary Outage Action Plans and Mitigation Plans. Also, ERCOT Operations Engineering provides engineering support for control room personnel in the execution of operating procedures and analysis of operations.

Operations Engineers calculate and post day-ahead transmission system limits for publishing to the ERCOT Market. The intent of ERCOT's day-ahead limit calculation is to set and enforce limits to prevent ERCOT from entering an insecure state in which the outage of a single facility (it might be a single transmission line or double circuit transmission lines on the same structure) could lead to other transmission facilities' overload or system instability.

Operations Engineers are responsible for responding to recurring transmission congestion in ERCOT by verifying the following information with the Transmission owners within ERCOT:

- Equipment Ratings
- System Topology (when there is a discrepancy between Transmission Owner and ERCOT analysis)
- Review possible transmission operations that could mitigate congestion

Operations Engineering is responsible for the process for data-gathering, investigation, development, review, and distribution of reports for the ERCOT Reliability Operations Subcommittee (ROS). These reports are as follows:

- ERCOT Monthly Operations Report
- Preliminary Energy Emergency Alert (EEA) Reports

ERCOT Operations Engineering is responsible for identifying and monitoring System Operating Limits (SOL) which have the potential to be an Interconnection Reliability Operating Limits (IROL) as a result of changing system topology, configuration, or flows. IROLs could expose ERCOT to instability, cascading outages, or uncontrolled separations that adversely impact the reliability of the Bulk Electric System. ERCOT must notify NERC and the Texas Regional Entity (TRE) within 72 hours when a predetermined subset of System Operating Limits (SOLs), called potential Interconnection Reliability Operating Limits (IROLs), have been exceeded.

**C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.**

- In 2008, ERCOT withstood two hurricanes, Dolly and Ike. Ike was the largest hurricane to make landfall in Texas in the last 25 years. Hurricane Ike was a storm of significant size which resulted in a path of damage equal to 200 miles by 1,600 miles. During these storms, ERCOT Operations Engineering supported control room staff 24 hours a day/seven days a week by running special studies to support reliable operation of the grid as conditions rapidly changed.

- Approximately 1,700 megawatts (MW) of wind energy was added to the ERCOT grid in 2007. Approximately 3,400 MW of wind energy was added in 2008. Because wind generators have very different operating characteristics than conventional nuclear and fossil-fueled generators, ERCOT Operations Engineering studies are necessary to assist in reliably integrating wind into the grid. ERCOT operators have been recognized for their efforts in wind integration.

- ERCOT Operations Engineering has developed over 50 Mitigation Plans, Remedial Action Plans and Temporary Outage Action Plans in 2009. These plans are special actions that can be taken to maintain a secure system during unusual system conditions or configurations.

**D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.**

In 2008 Operations Engineering began providing 24 hours a day/seven days a week on-site staff support for system operators. Prior to this time, on-site staffing was only during business hours with after- hours call-in.

**E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.**

The Operations Engineering program affects all market participants directly and affects all entities in the ERCOT region indirectly.

**F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.**

This program is administered by a supervisor and 12 FTEs.

**G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).**

ERCOT System Administration Fee

**H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.**

There are no other programs that provide identical or similar services or functions in the ERCOT region.

**I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.**

N/A

**J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.**

N/A

**K. If contracted expenditures are made through this program please provide:**

- **the amount of those expenditures in fiscal year 2008;**
- **the number of contracts accounting for those expenditures;**
- **a short summary of the general purpose of those contracts overall;**
- **the methods used to ensure accountability for funding and performance; and**
- **a short description of any current contracting problems.**

N/A

**L. What statutory changes could be made to assist this program in performing its functions? Explain.**

No statutory changes are necessary at this time.

**M. Provide any additional information needed to gain a preliminary understanding of the program or function.**

N/A

**N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:**

- **why the regulation is needed;**
- **the scope of, and procedures for, inspections or audits of regulated entities;**
- **follow-up activities conducted when non-compliance is identified;**
- **sanctions available to the agency to ensure compliance; and**
- **procedures for handling consumer/public complaints against regulated entities.**

N/A

**Question O. does not apply to this program.**

**A. Provide the following information at the beginning of each program description.**

| | |
|---|---|
| **Name of Program or Function** | **Network Modeling** |
| **Location/Division** | Austin/Taylor, Texas/System Planning and Operations |
| **Contact Name** | Kent Saathoff |
| **Actual Expenditures, FY 2008** | $1,090,165 |
| **Number of FTEs as of August 31, 2008** | 22 |

**B. What is the objective of this program or function? Describe the major activities performed under this program.**

ERCOT Network Modeling group develops, refines, and implements tools and processes to produce an accurate model of the ERCOT electric grid that is used in planning and operating a reliable electric system and facilitating the market.

At the core of the modeling effort is the Network Model Management System (NMMS). NMMS acts as a single point of entry for network, market, and data for both ERCOT and market participants. ERCOT Network Modeling manages access to this tool, validates data entered into the tool, and translates this information into models of the system that are used by market participants and ERCOT.

**C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.**

The NMMS model contains approximately 2.24 million data instances, 4.31 million data associations, and 24.12 million data attributes. Updates and maintenance of these data instances, associations, and attributes account for more than 100,000 changes each year to the Network Model. Each of these changes must go through a five-step validation process before ultimately being incorporated in time-dependent models that are used to control and monitor the ERCOT system. Inaccurate validation of modeling data can result in problems that prevent the timely loading of the most recent information into the system. For the period of 8/2008 through 8/2009 no Network Modeling errors were associated with the delay of database loads.

**D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.**

The original ERCOT Network Operations Model was developed in 2000 and derived from the ERCOT System Planning Case. At that time, planning cases were built through a joint effort by market participants from the nine original control areas in ERCOT. ERCOT staff expanded these System Planning Cases into a Network Model that included electrical buses and switching devices. This Operational Model was originally used solely for reliability analysis of the ERCOT grid. Subsequent development has continued through many stages that have added new data categories and expanded the use of the model. The Network Model now found in NMMS will supply data for Planning, Operations, Market, and System Protection uses in the nodal market.

**E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.**

NMMS has ties to nine major applications used in controlling and planning the ERCOT grid, as well as facilitating the ERCOT market. In addition, temporal models and model updates are used by ERCOT and numerous market participants for making both reliability and market decisions. The ERCOT applications consuming data from the Network Model include:

1. Generation Control System
2. Congestion Management
3. Outage Scheduler
4. State Estimator
5. Study Network Analysis
6. Contingency Analysis
7. Market Analysis
8. Power Flow
9. SCADA System

**F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.**

This program is administered by a supervisor and 22 FTEs.

**G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).**

ERCOT System Administration Fee

**H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.**

There are no other programs that provide identical of similar services or functions in the ERCOT region.

**I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.**

N/A

**J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.**

N/A

**K. If contracted expenditures are made through this program please provide:**

- **the amount of those expenditures in fiscal year 2008;**
- **the number of contracts accounting for those expenditures;**
- **a short summary of the general purpose of those contracts overall;**
- **the methods used to ensure accountability for funding and performance; and**
- **a short description of any current contracting problems.**

N/A

**L. What statutory changes could be made to assist this program in performing its functions? Explain.**

No statutory changes are necessary at this time.

**M. Provide any additional information needed to gain a preliminary understanding of the program or function.**

N/A

**N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:**

- **why the regulation is needed;**
- **the scope of, and procedures for, inspections or audits of regulated entities;**
- **follow-up activities conducted when non-compliance is identified;**
- **sanctions available to the agency to ensure compliance; and**
- **procedures for handling consumer/public complaints against regulated entities.**

N/A

**Question O. does not apply to this program.**

**A. Provide the following information at the beginning of each program description.**

| | |
|---|---|
| **Name of Program or Function** | **Outage Coordination** |
| **Location/Division** | Austin/Taylor, Texas/System Planning and Operations |
| **Contact Name** | Kent Saathoff |
| **Actual Expenditures, FY 2008** | $1,206,787 |
| **Number of FTEs as of August 31, 2008** | 11 |

**B. What is the objective of this program or function? Describe the major activities performed under this program.**

The primary purpose of the Outage Coordination program is to determine if transmission outages planned for maintenance reasons should be allowed without compromising reliability.

The program receives and processes outage requests in accordance with ERCOT and NERC reliability standards, protocols and procedures. ERCOT Outage Coordination processes requests to determine whether they contain all the required information, conducts security analysis studies of the ERCOT system, as appropriate, for the relevant timeframe, and approves or rejects the requests.

ERCOT works with the transmission coordinators of each transmission provider in ERCOT and with appropriate personnel at the Qualified Scheduling Entity (QSE) or generating facilities in managing outage requests.

**C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.**

During 2008, ERCOT processed a total of 34,544 outages. This number includes both transmission and generation outages. Approximately 75% of these outages (25,280) were planned and therefore included at least 3 days notice prior to their start. One point of interest is a 25% increase in the number of forced outages in 2008, mainly attributable to Hurricane Ike.

**D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.**

N/A

**E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.**

ERCOT uses reasonable efforts to accept or approve all outage schedules for maintenance, repair, and construction of both transmission and resources facilities within the ERCOT System.

**F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.**

This program is administered by a supervisor and 11 FTEs.

**G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).**

ERCOT System Administration Fee

**H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.**

There are no other programs that provide identical of similar services or functions in the ERCOT region.

**I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.**

N/A

**J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.**

N/A

**K. If contracted expenditures are made through this program please provide:**

- **the amount of those expenditures in fiscal year 2008;**
- **the number of contracts accounting for those expenditures;**
- **a short summary of the general purpose of those contracts overall;**
- **the methods used to ensure accountability for funding and performance; and**
- **a short description of any current contracting problems.**

N/A

**L. What statutory changes could be made to assist this program in performing its functions? Explain.**

No statutory changes are necessary at this time.

**M. Provide any additional information needed to gain a preliminary understanding of the program or function.**

N/A

**N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:**

- **why the regulation is needed;**
- **the scope of, and procedures for, inspections or audits of regulated entities;**
- **follow-up activities conducted when non-compliance is identified;**
- **sanctions available to the agency to ensure compliance; and**
- **procedures for handling consumer/public complaints against regulated entities.**

N/A

**Question O. does not apply to this program.**

**A. Provide the following information at the beginning of each program description.**

| | |
|---|---|
| **Name of Program or Function** | **Market Operations Testing** |
| **Location/Division** | Austin/Taylor, Texas/System Planning and Operations |
| **Contact Name** | Kent Saathoff |
| **Actual Expenditures, FY 2008** | $1,035,546 |
| **Number of FTEs as of August 31, 2008** | 30 |

**B. What is the objective of this program or function? Describe the major activities performed under this program.**

ERCOT Market Operations Testing's mission is to produce accurate and timely data gathered during testing execution to provide information needed to assess the quality of applications and integration prior to production migrations as defined by our business customer's requirements.

**C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.**

Defects identified through testing ERCOT's Zonal Functions since January 1, 2008 have resulted in the identification and subsequent resolution of more than 1,000 defects, 900 of which were considered critical to ERCOT and/or market participants.

**D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.**

N/A

**E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.**

This program affects the quality and usability of applications used by ERCOT and market participant staff.

**F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.**

This program is administered by a supervisor and 30 FTEs.

**G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).**

ERCOT System Administration Fee

**H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.**

ERCOT Information Technology (IT) also performs testing of some energy and market management systems.

**I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.**

ERCOT Market Operations Testing coordinates with IT staff in the testing of applications to ensure there is no overlap or duplication of effort.

**J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.**

N/A

**K. If contracted expenditures are made through this program please provide:**

- **the amount of those expenditures in fiscal year 2008;**
- **the number of contracts accounting for those expenditures;**
- **a short summary of the general purpose of those contracts overall;**
- **the methods used to ensure accountability for funding and performance; and**
- **a short description of any current contracting problems.**

N/A

**L. What statutory changes could be made to assist this program in performing its functions? Explain.**

No statutory changes are necessary at this time.

**M. Provide any additional information needed to gain a preliminary understanding of the program or function.**

N/A

**N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:**

- **why the regulation is needed;**
- **the scope of, and procedures for, inspections or audits of regulated entities;**
- **follow-up activities conducted when non-compliance is identified;**
- **sanctions available to the agency to ensure compliance; and**
- **procedures for handling consumer/public complaints against regulated entities.**

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

| | |
|---|---|
| Name of Program or Function | **Transmission Planning** |
| Location/Division | Austin/Taylor, Texas/System Planning and Grid Operations |
| Contact Name | Kent Saathoff |
| Actual Expenditures, FY 2008 | $1,222,923 |
| Number of FTEs as of August 31, 2008 | 19.5 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

Transmission Planning is one of ERCOT's core responsibilities, directly supporting the SB7 requirements to maintain the reliability of the system and provide non-discriminatory access to the system. ERCOT is also the only NERC-registered Planning Authority for the ERCOT Interconnection. The key parts of this program include:

1. Transmission Planning Case Development
2. Annual Five-Year Transmission Plan
3. Regional Planning Group (RPG) Reviews
4. Long-Term System Assessment
5. NERC Compliance

Transmission Planning Case Development provides the foundation for all other transmission planning activities accomplished by ERCOT, the Transmission and Distribution Service Providers (TDSPs) and other stakeholders. These cases are computer simulation input datasets describing the future topology of the transmission system. Two sets of base cases are created each year in coordination with the TDSPs, and are updated quarterly.

The annual ERCOT Five-Year Transmission Plan is developed by ERCOT in conjunction with the TDSPs and the Regional Planning Group (RPG). The plan addresses region-wide transmission needs and the planned improvements to meet those needs for the upcoming five years. The ERCOT system is evaluated to determine transmission system improvements that are required to meet NERC and ERCOT reliability standards as well as improvements that can cost-effectively lower the overall cost of serving demand in the ERCOT Region.

The RPG, managed by ERCOT Transmission Planning, is the forum that provides transparency and input into the planning process for all ERCOT stakeholders. This consensus-based group is open to all interested parties, including TDSPs, generators, marketers, consumer groups, environmental groups, landowners, governmental officials, and PUC staff.

The RPG Charter and Procedures sets out the functions and procedures under which the RPG operates. The RPG allows stakeholders to review and comment on all major transmission projects.

Except for minor transmission projects that have only localized impacts and projects that are directly associated with the interconnection of new generation, all transmission projects in the ERCOT region undergo a formal review by the RPG to ensure an open and fair transmission planning process. This formal review process is facilitated by ERCOT and provides an opportunity for any interested party to comment or ask questions about proposed projects. In addition, ERCOT performs an independent analysis of the need for major transmission projects that are submitted for RPG Review. The affirmative result of this review is formal endorsement of the project by ERCOT. This ERCOT Project Endorsement is intended to support, to the extent applicable, a finding by the PUCT that a project is necessary for the service, accommodation, convenience, or safety of the public within the meaning of PURA §37.056 and PUCT Substantive Rule § 25.101.

In each even-numbered year, ERCOT investigates the longer-term transmission needs of the ERCOT System in the Long-Term System Assessment (LTSA). This scenario-driven assessment looks ten or more years into the future to see what long-lead-time transmission projects may be needed and to assess the cost-effectiveness of larger projects in lieu of numerous smaller projects.

Many of the studies described above are also used to demonstrate compliance with NERC Reliability Standards. ERCOT is registered as the Planning Authority for the ERCOT Interconnection and as such has a number of reliability standards with which it must demonstrate compliance.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

The Transmission Planning function at ERCOT ensures that system reliability is maintained and cost effectively increases the efficiency of serving customer demand. In many cases ERCOT worked with the stakeholders who proposed these projects in an effort to revise and improve the transmission system improvements originally proposed.

D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.

N/A

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

Entities participating in the Planning process:

(1) Investor Owned Transmission Companies
(2) Municipality Owned Transmission Companies
(3) Electric Cooperatives and the Lower Colorado River Authority
(4) Generation Companies
(5) Electric Consumers

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

This program is administered by a supervisor and 19.5 FTEs.

G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

ERCOT System Administration Fee

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical or similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

N/A

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary at this time.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

N/A

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:

- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

| | |
|---|---|
| Name of Program or Function | **Generation Interconnection** |
| Location/Division | Austin/Taylor, Texas/System Planning and Operations |
| Contact Name | Kent Saathoff |
| Actual Expenditures, FY 2008 | $170,724 |
| Number of FTEs as of August 31, 2008 | 3.5 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

The key objective of this program is to provide non-discriminatory open access to the transmission system, while maintaining the reliability of the system. All newly proposed generation projects of sufficient size that connect to the ERCOT transmission system must go through the ERCOT generation interconnection process. This process facilitates the interconnection of new generation units in the ERCOT region by assessing the transmission upgrades necessary for new generating units to operate reliably. ERCOT performs a feasibility study, also known as a security screening study, for each new generation project as required by PUC Substantive Rule § 25.198. ERCOT also coordinates subsequent studies performed by the transmission companies as the interconnection process progresses for each generation project.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

ERCOT facilitates one of the most active generation interconnection queues in the United States. Since 1997 ERCOT has added 39,297 MW of new generation capacity, including over 8000 MW of wind generation. This has allowed ERCOT to maintain a reserve margin of greater than the target of 12.5% since deregulation began in ERCOT. The table below shows the amount of generation interconnection requests processed by ERCOT from 2006 through 2008.

| Year | Number of generation interconnection projects |
|---|---|
| 2006 | 99 |
| 2007 | 106 |
| 2008 | 100 |

D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.

The overall increase in the number of new generation interconnection applications has had an effect on the performance of this activity. As described above, the last several years have seen an average of over one hundred new generation interconnection requests per year. In 2004, only 19 generation interconnection requests were received by ERCOT. This dramatic increase seems to be due to multiple factors including the relatively strong Texas economy, a vibrant wholesale energy market in ERCOT, a stable regulatory environment in Texas, the retirement of older, less efficient generation plants, and a shift towards new renewable generation sources.

This trend is likely to continue for the foreseeable future, in part due to the new transmission lines that are being constructed as part of the Competitive Renewable Energy Zone (CREZ) process to interconnect large amounts of generation, predominantly wind, in west Texas. Once these lines have been constructed it is expected that many new plants will request to interconnect to the ERCOT system.

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

Entities participating in the Planning process:

(1) Investor Owned Transmission Companies;
(2) Municipality Owned Transmission Companies;
(3) Electric Cooperatives and the Lower Colorado River Authority;
(4) Generation Companies;
(5) Electric Consumers

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

This program is administered by a supervisor and 3.5 FTEs.

G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

- ERCOT System Administration Fee
- ERCOT charges a fee ($1000-5000 depending on the size of the generation plant) for performing generation interconnection screening studies. Additionally, ERCOT charges a $15/ MW fee for new generation plants requesting a full interconnection study in order to recover administration and modeling costs.

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical or similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

N/A

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary at this time.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

N/A

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:
- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

| | |
|---|---|
| Name of Program or Function | **Resource Adequacy** |
| Location/Division | Austin/Taylor, Texas/System Planning and Operations |
| Contact Name | Kent Saathoff |
| Actual Expenditures, FY 2008 | $630,936 |
| Number of FTEs as of August 31, 2008 | 6 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

The primary function of this program is to produce the long-term load forecast and track the generating resources available in the ERCOT region in order to project future resource adequacy. This program is responsible for providing an estimate of ERCOT's reserve margin, or the amount of generation expected to be available at peak times.

The program also provides a market and regulatory reporting function, and conducts analysis of the likely future relationship between customer demand and available generation, to meet NERC, FERC and ERCOT protocols reporting requirements.

This program produces the Capacity, Demand, and Reserves (CDR) report, the Constraints and Needs report, the Hourly Load Forecasting report, and supports development of the Long-Term System Assessment. In addition, this team is responsible for completion of Loss of Load Probability (LOLP) studies. The group is also responsible for meeting several seasonal and annual NERC reporting requirements, including the Long Term Reliability Assessment (LTRA) and the Summer and Winter Seasonal Assessments.

The "Annual Electric Balancing Authority Area and Planning Area Report" is filed with the FERC each May. Members of this group also participate in the NERC Reliability Assessment Subcommittee as well as the NERC Resources Issues Subcommittee.

This team is also responsible for the tracking of new or modified generation interconnections within the ERCOT region. Each generation project is tracked from conception to inception, with the pertinent data collected for use in the planning engineering models. This group also collects and stores data from the Annual Load Data Request.

These reports are further described in the following paragraphs:

### 1. Capacity, Demand, and Reserves Report

The Capacity, Demand, Reserves Report summarizes the forecasted customer demand and expected generation resources on the ERCOT grid over the next 5 years for both the summer and winter seasons. The report includes detailed information regarding installed capacity by fuel type and zone. In addition, summer and winter coincident and non-coincident peak demand, installed generation, and imports/exports by county are included.

### 2. Constraints and Needs Report

This report identifies and analyzes existing and potential constraints in the transmission system that could either pose reliability concerns or increase costs to the electric power market and, ultimately, to Texas consumers. It documents the results of the annual Five-Year Transmission Plan, the analysis of the transmission needs of the ERCOT system for the next five years.

This report satisfies the annual reporting requirements of Public Utility Regulatory Act (PURA) Section 39.155(b) and Public Utility Commission Substantive Rule25.361(c)(15) and a portion of the requirements of Substantive Rule 25.505(c).

### 3. Loss of Load Probability Studies

The Loss of Load Probability studies quantify the relationship between the amount of excess generation capacity on the system and the probability that, in any given hour throughout the year, there will be insufficient generation available to meet load. Typically conducted using generation dispatch models, these studies include Monte Carlo analysis of the variability of daily load shapes, generation maintenance and other outages, and wind generation. These studies can be used to determine the effective capacity value of variable generation sources (the effective load carrying capability), and well as to define the target generation reserve margin for the ERCOT region. These studies are conducted every two to three years, and the results are documented in a report which is provided to all interested stakeholders.

### 4. Hourly Peak Demand and Energy Forecast

The Long-Term Demand and Energy Forecast (LTDEF) provides a forecast of customer demand for the ERCOT region for the next 10 years. This study is based on a set of econometric models describing the hourly load in the region as a function of certain economic and weather variables (primarily temperatures, heating and cooling degree-days). Economic and demographic data, by county, are obtained from Moody's Economy.com. Fourteen years of weather data are provided by DTN Meteorologix for 20 weather stations throughout ERCOT. These data are used as input to the energy and demand forecast models.

### 5. Long Term System Assessment

This group participates in a portion of the development of the Long Term System Assessment (LTSA) for the ERCOT Region, meeting the requirements shown in the first two bullets below. The LTSA is intended to provide a longer-term view by:

• Analyzing different load growth scenarios;

• Developing an assessment of the type and general locations of the new generation that the market might build in the future, based on an economic analysis, for several scenarios of key drivers of those decisions;

• Evaluating the need for new transmission under each of these load and generation scenarios; and,

• Identifying projects and general conclusions that are common across the different scenarios and can be used to provide guidance to nearer term transmission plans.

The LTSA, along with the annual Report on Constraints and Needs and the Analysis of Transmission Alternatives for Competitive Renewable Energy Zones in Texas (CREZ Study), is intended to meet the requirements of Public Utility Regulatory Act Section 39.904 (k) for ERCOT and the Public Utility Commission of Texas (PUCT) to study the need for increased transmission and generation capacity throughout this state and report to the Legislature the results of the study.

### 6. Long Term Resource Assessment

Long-Term Reliability Assessments, as compiled by NERC, annually assess the adequacy of the bulk electric system in the United States and Canada over a ten-year period. The report projects electricity supply and demand, evaluates transmission system adequacy, and discusses key issues and trends that could affect reliability. The Resource Assessment group is responsible for completing the ERCOT portion of this report, and then supporting the analysis in meetings of the Resource Adequacy Subcommittee as the LTRA is compiled.

### 7. Summer and Winter Seasonal Assessments

As filed with NERC, the Summer and Winter Assessments assess the adequacy of regional electricity supplies in the United States and Canada for the upcoming summer and winter peak demand periods.

### 8. Annual Electric Balancing Authority Area and Planning Area Report

FERC collects data from electric utility balancing authority and planning areas in the United States. The Form 714 is authorized by the Federal Power Act and is a regulatory support requirement as provided by 18 CFR Section 141.51.

The data is used to obtain a broad picture of interconnected balancing authority area operations including comprehensive information of balancing authority area generation, actual and scheduled inter-balancing authority area power transfers, and load; and to prepare status reports on the electric utility industry including review of inter-balancing authority area bulk power trade information.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

All reports and data required by ERCOT Protocols, PUCT Rules and NERC and FERC requirements have been provided complete and on deadline.

D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.

N/A

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

Entities participating in the Planning process:

(1) Investor Owned Transmission Companies
(2) Municipality Owned Transmission Companies;
(3) Electric Cooperatives and the Lower Colorado River Authority;
(4) Generation Companies;
(5) Electric Consumers

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

This program is administered by a supervisor and 6 FTEs.

G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

ERCOT System Administration Fee

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical or similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

N/A

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary at this time.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

N/A

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:
- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

| | |
|---|---|
| Name of Program or Function | **Renewables Integration** |
| Location/Division | Austin/Taylor, Texas/System Planning and Grid Operations |
| Contact Name | Kent Saathoff |
| Actual Expenditures, FY 2008 | $497,810 |
| Number of FTEs as of August 31, 2008 | 5 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

ERCOT System Planning has participated in several studies of renewable generation resource integration at the PUC's request. As stipulated in Senate Bill 20, ERCOT supported the PUC in the evaluation of areas of the state which exhibit abundant wind generation potential and ERCOT System Planning completed a report documenting potential transmission solutions to integrate these renewable resources into the transmission grid. In the Interim Order in PUCT Docket 33672, ERCOT System Planning was asked by the PUCT to developed integrated transmission solutions for four levels of wind generation (from 12,053 MW up to 24,859 MW). ERCOT System Planning worked with the transmission companies in ERCOT, as well as the larger stakeholder community, to develop the most cost-effective transmission solutions for these four wind scenarios.

In order to ensure that the most cost-effective solution was selected, ERCOT planning staff developed solutions using several different types of transmission technologies, including 345-kV transmission, 765-kV transmission, and high-voltage direct current (HVDC) circuits. Solutions for each of these different technologies were refined until they could be compared based on system capacity and cost. Following this comparison, the most cost-effective solutions were refined and documented.

ERCOT System Planning also worked with an outside consultant to develop an analysis of the impact of the integration of variable generation on system reliability and the need for ancillary reliability services. Similar to customer load, variable generation resources such as wind cannot be predicted, even several hours in advance, with complete accuracy. As such, as more variable generation is developed in the ERCOT area, additional system operating reserves must be maintained in order to reliably serve system load. In this wind integration analysis, the ancillary services needs of the ERCOT system were analyzed with up to 15,000 MW of integrated wind generation. This study also included an analysis of the capability of the existing generation fleet in ERCOT to meet the need for ancillary services at the various

levels of wind generation integration.

Following the designation of Competitive Renewable Energy Zones (CREZ) by the PUCT, and designation of transmission improvements to integrate these CREZ into the ERCOT transmission system,

ERCOT System Planning has continued to support the timely completion of the selected transmission improvements. At the request of the PUC, ERCOT System Planning recently provided recommendations regarding the scheduling of applications for routing approvals for many of the CREZ transmission facilities. ERCOT is also coordinating a study to optimize the use of reactive power devices as part of the CREZ plan, and ERCOT is evaluating the potential impact due to construction of the CREZ facilities on system operations and system congestion, and evaluating ways to minimize these impacts.

ERCOT System Planning, through the long-range planning process, is also evaluating the potential impacts of other renewable generation technologies, such as solar photovoltaic and solar thermal generation, and of technologies that may facilitate the integration of variable generation, such as energy storage technologies, demand-response technologies, and devices that are designed to enhance system reliability.

At the request of ERCOT stakeholders, ERCOT System Planning is completing an analysis of the potential impacts to system reliability from the capability of existing wind generation facilities to remain connected to the system through local system disturbances (transmission line faults). When stakeholders were completing a new standard for future wind generation to be able to "ride-through" or remain connected to the system through a reduction of local system voltage due to a fault, the stakeholder committees could not decide if it was appropriate to require existing wind generation to meet this same new standard. The costs to retrofit the existing wind generation facilities were unknown, but was said to be significant. Stakeholders requested that ERCOT System Planning complete a study of the likely impacts to system reliability given the current capabilities of existing wind generation.

ERCOT participates in NERC and other national committees on the integration of variable generation.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

The effectiveness of the ERCOT Renewables Integration Program is shown through the success of the CREZ program to date, and through ERCOT's ability to maintain system reliability through major renewable energy-related events. The Renewables Integration team was able to provide the PUC with timely analysis of regions of the State with significant wind resources and potential transmission solutions to connect these areas to the ERCOT system. Following the Interim Order in PUCT Docket 33672, ERCOT System Planning was able to provide cost-effective transmission solutions for the four scenarios defined by the PUC within the specified timeframe.

D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.

As described in Section B, much of the activities in this program are a direct result of the requirements of Senate Bill 20, due to the requirement for the PUC to designate Competitive Renewable Energy Zones, and to order specific transmission improvements to allow renewable generation from these zones to have access to the ERCOT transmission system.

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

Entities participating in the Planning process:

(1) Investor Owned Transmission Companies;
(2) Municipality Owned Transmission Companies;
(3) Electric Cooperatives and the Lower Colorado River Authority;
(4) Generation Companies;
(5) Electric Consumers

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

This program is administered by a supervisor and 5 FTEs.

G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

ERCOT System Administration Fee

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical of similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

N/A

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary at this time.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

N/A

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:

- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

| | |
|---|---|
| Name of Program or Function | **Congestion Management** |
| Location/Division | Austin/Taylor, Texas/System Planning and Grid Operations |
| Contact Name | Kent Saathoff |
| Actual Expenditures, FY 2008 | $197,680 |
| Number of FTEs as of August 31, 2008 | 4 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

The Congestion Analysis program is intended to provide information necessary to allow the management of transmission constraints through zonal market mechanisms, to provide market reports on congestion management activities and costs, and to identify near-term system and operational improvements that allow more efficient management of system constraints. The major activities of this program include:

1. Commercially Significant Constraints and Closely Related Elements Study
2. Congestion Analysis
3. Medium-Term Projected Assessment of System Adequacy (PASA)
4. Reliability Must Run Studies
5. Special Protection System Studies
6. Transmission Congestion Rights Calculations
7. Residual Congestion Recommendations

The determination of Commercially Significant Constraints (CSCs) and Closely Related Elements (CREs) is an annual process conducted in compliance with Protocols Sections 7.2.1 and 7.2.3. The CSC and CRE process is initiated in July with a target completion date of November 1. CSCs and CREs are used in resolving inter-zonal congestion. CSCs and CREs must be identified before the Annual TCR Auction can take place.

In performing congestion analysis tasks ERCOT staff provides monthly reports to the Reliability Operations Subcommittee and the Wholesale Market Subcommittee. ERCOT staff also assists in the facilitation of Congestion Management Working Group meetings. The congestion analysis staff works closely with ERCOT System Operations Staff to provide timely responses to Market Participant inquiries on congestion issues that occur during real-time operations.

The Medium-Term Projected Assessment of System Adequacy Report is a three year projection of the

availability of resources. This report is required by PUC Substantive Rule §25.505(d) which states that

"ERCOT shall provide market participants with information to assess the adequacy of resources and transmission facilities to meet projected demand." The Medium-Term PASA report is updated every month.

Pursuant to Protocol Section 6.5.9.1, Long-term Outage Notifications and Initiation and Approval of RMR Agreements, Reliability Must Run (RMR) studies are performed, upon receipt of a Notice of Suspension of Operations from a Generation Entity. RMR studies evaluate the reliability of the ERCOT system with the absence of the resource whose generation is proposed for suspension. When RMR studies indicate that the resource is needed in order to operate reliably an RMR Agreement is established with the resource until system upgrades can be completed which permit the exit of the RMR Agreement.

Special Protection System (SPS) is a reliability tool that allows ERCOT to take pre-planned corrective actions to provide acceptable system performance when abnormal system conditions are detected. In analyzing SPSs ERCOT evaluates whether the SPS adversely impacts other transmission elements in the system and if the SPS supplies the relief that it is intended to provide. SPS guidelines are stated in Operating Guides Section 7.2.2.

Transmission Congestion Rights (TCRs) are calculated for Annual and Monthly TCR Auctions as required by Protocol Section 7.5.2. TCRs are a financial tool used by Market Participants to hedge against inter-zonal congestion costs.

Finally, ERCOT evaluates actual congestion on the system and determine whether this congestion is expected to be recurring, whether transmission upgrades have been planned to resolve it, whether additional upgrades are warranted, and whether interim solutions such as RAPs or SPSs may be appropriate.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

To date, there has not been a blackout of the ERCOT bulk electric system. This is the result of sound engineering practices from ERCOT Planning and Operations.

D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.

The initial intent of the congestion analysis function was to provide market participants with answers to questions on real-time congestion events. The function of this program has evolved into providing market participants with information that can be used to prioritize transmission projects and even identify where transmission improvements are needed. The congestion analysis function will continue to evolve as models are defined to better capture future congestion. As ERCOT transitions from a zonal market to a nodal market congestion analysis will continue to provide an essential function as market participants

attempt to validate real-time congestion prices and propose mitigation projects that assist in reducing congestions costs.

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

Entities participating in the Planning process:

(1) Investor Owned Transmission Companies;
(2) Municipality Owned Transmission Companies;
(3) Electric Cooperatives and the Lower Colorado River Authority;
(4) Generation Companies;
(5) Electric Consumers

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

This program is administered by a supervisor and 4 FTEs.

G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

ERCOT System Administration Fee

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical or similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

N/A

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary at this time.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

N/A

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:

- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

**A. Provide the following information at the beginning of each program description.**

| | |
|---|---|
| **Name of Program or Function** | **Operations Forecasting** |
| **Location/Division** | Austin/Taylor, Texas/System Planning and Operations |
| **Contact Name** | Kent Saathoff |
| **Actual Expenditures, FY 2008** | $350,119 |
| **Number of FTEs as of August 31, 2008** | 5 |

**B. What is the objective of this program or function? Describe the major activities performed under this program.**

The objective of Operations Forecasting is to provide ERCOT system operators with a proper assessment of the ERCOT system to ensure grid reliability needs are met. The major activities performed under this program include Load Forecasting, Wind Generation Forecasting, Voltage Profile Assessment, Resource Net Dependable Capability Assessment, and Stability Studies.

The Load Forecasting application uses historical observations and forecasts of meteorological data to determine load demand in MWs for future time periods. The ERCOT system is broken up into eight weather zones and forecasts are produced for each of these zones. The values produced are the expected hourly average load for each zone looking from the upcoming hour to one week into the future (168 hours).

The Wind Generation Forecasting application provides MW load forecasts for both the aggregate ERCOT system and for all the individual wind generation resources. Two values are provided as part of each forecast for each hour for a rolling 48-hour period. Both of the values are hourly average values. The first is a forecast of the most likely average MW value for that hour. The second is an 80% level of confidence forecast. This means that the forecast is biased such that it is expected that the actual MW is greater than the forecasted value 80% of the time. This gives ERCOT both a likely actual target and a conservative estimate of the MW output from the wind generation resources.

The Voltage Profile Assessment is performed to meet ERCOT Protocol and NERC Reliability Standards requirements, which call for a voltage profile to be developed for the ERCOT region. ERCOT reevaluates the voltage profile twice a year (or more often if necessary) to ensure reliable voltage control on the ERCOT system.

The Resource Net Dependable Capability Assessment is performed to ensure that the ERCOT systems have the most accurate values for each resource's High Sustainable Limit (HSL), Leading Reactive

Capability and Lagging Reactive Capability as required by the ERCOT Operating Guides. Each season, between 400 and 450 resource HSLs are submitted to ERCOT by the Qualified Scheduling Entities (QSEs) representing the resources. This Unannounced Test program calls for selected resources to be tested without prior notification to ensure that the resources tested can meet the HSLs reported by the QSEs. If the resources cannot meet their HSL, ERCOT Protocols require QSEs to lower the HSL to the value sustained in the Unannounced Test. This process ensures that the total available capacity calculated in ERCOT systems is accurate. Leading and Lagging Reactive Capability tests are conducted biennially as required by the ERCOT Operating Guides. The results of these tests are assessed by ERCOT Operations Planning, and if accepted, are incorporated into ERCOT systems as necessary. This testing ensures that ERCOT systems have the most up-to-date reactive capability curves so any voltage stability studies performed are as accurate as possible. A web-based application known as the NDCRC (Net Dependable Capability / Reactive Capability) tool was deployed in late 2008 to streamline the recordkeeping of all these tests. With the information now on the ERCOT Portal, QSEs can log in and view historical information on their resources.

The operational Stability Studies are performed as needed to ensure proper monitoring of the grid and to meet NERC Reliability Standards (FAC). ERCOT performs a dynamic stability assessment to evaluate potential system inter-area oscillation issues under various system conditions. In order to maintain system reliability, a West – North Transfer Limit is established and monitored on a designed interface between west Texas and the rest of ERCOT, and is used in real-time operations.

**C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.**

The following table shows the accuracy of the Load Forecast over the last four years. A Mean Absolute Percent Error (MAPE) was calculated for each month by comparing the ERCOT system observed load to the aggregated forecast from 16:00 in the day ahead. The Load Forecast has improved each year.

| | **MAPE for MTLF at 16:00 Day-Ahead** | | | |
|---|---|---|---|---|
| **Month** | **2006** | **2007** | **2008** | **2009** |
| ***January*** | *4.79* | *4.55* | *3.30* | *4.11* |
| ***February*** | *4.81* | *3.75* | *3.59* | *3.49* |
| ***March*** | *4.95* | *2.70* | *3.29* | *3.24* |
| ***April*** | *5.59* | *3.00* | *2.45* | *2.66* |
| ***May*** | *3.59* | *3.22* | *3.01* | *2.83* |
| ***June*** | *2.65* | *4.46* | *2.81* | *2.89* |
| ***July*** | *2.62* | *4.29* | *2.55* | *NA* |
| ***August*** | *2.09* | *3.11* | *3.65* | *NA* |
| ***September*** | *4.03* | *3.78* | *4.99* | *NA* |
| ***October*** | *3.63* | *3.08* | *2.79* | *NA* |
| ***November*** | *3.28* | *2.95* | *2.60* | *NA* |

| | | | | |
|---|---|---|---|---|
| ***December*** | *3.44* | *3.74* | *4.54* | *NA* |
| ***Annual Average*** | ***3.79*** | ***3.55*** | ***3.30*** | ***3.20*** |

The following table provides some metrics for the Wind Forecast for the months of May and June 2009. These values were calculated by comparing an estimated (non-curtailed) wind output to the wind forecasts available at 16:00 in the day ahead.

| | **Mean Absolute Percent Error of Day Ahead "Most Likely" Forecast** | **Percent of Hours the Day Ahead Output >= "80% Level of Confidence" Forecast** |
|---|---|---|
| **May 09** | 9.17% | 71.64% |
| **June 09** | 10.73% | 69.31% |

Before the NDCRC application was deployed, ERCOT Operations Planning received all capability test results via e-mail. All the submitted test results were printed, processed, and, once approved, filed in the ERCOT Control Room. The test results were then manually added to ERCOT systems.

Now, the process is more streamlined, and is paper-free, and even provides summary reports for compliance and tracking purposes. Incorporating the test results into ERCOT systems has been automated as well. This has increased the efficiency of the task by nearly 80 %. The results of Unannounced Unit testing have led to more reliable HSL values and a reduction in the required amount of the Responsive Reserve Ancillary Service required, potentially lowering the cost to provide that service.

**D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.**

Wind Forecasting has been used in production by ERCOT since July 1, 2008.

**E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.**

This program is administered by a supervisor and 5 FTEs.

The Load Forecasting application is used in the ERCOT market systems to ensure that sufficient reserves will be available to meet the load demand.

The Wind Forecasts are used to provide situational awareness information to the Operators. The Qualified Scheduling Entities (QSEs) which represent Wind Generation Resources are also required to use the forecast as the planned level of output in the Day Ahead capacity studies.

The Voltage Profile function affects all Generation resources in ERCOT which are required to provide Voltage Support Service to the ERCOT transmission grid, the Transmission Operators, and the ERCOT System Operations staff.

The Resource Net Dependable Capability Assessment results affect the amount of available capacity seen on the system, which may lead to additional resources needed to be procured to meet capacity needs in real-time or in the day-ahead process. It also provides a more accurate input for voltage stability studies, which enables ERCOT System Operators to meet voltage stability needs in real-time or in the day-ahead process.

The operational Stability Studies function affects all Generation resources in ERCOT, the Transmission Operators, and the ERCOT System Operations staff.

**F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.**

Once an hour, forecasted meteorological data is received by the Load Forecast application. Using this data and archived observation data, the application produces hourly forecasts for each weather zone for the rest of the current day and next six days.

Once an hour, the Wind Forecast vendor collects data from both ERCOT and a number other sources (i.e. National Weather Service data). The forecasts are produced by the vendor and delivered to ERCOT at approximately ten minutes after each hour. These forecasts and then stored by ERCOT and made available for the QSEs.

The Voltage Profile study is conducted twice a year (April-May for Summer/Fall Profiles and September-October for Winter/Fall Profiles). ERCOT performs contingency analysis on the forecasted peak planning case for the profile period studied, and shares the results with the Transmission Operators. ERCOT and the Transmission Operators meet in person, and discuss via e-mail to resolve all the voltage violations in the study and develop mitigation plans for the violations that cannot be cleared using existing transmission equipment or by changing the generator voltage profiles. After all the violations are addressed, ERCOT posts the voltage profiles on all the generator high-side busses for the period.

The Stability Studies are conducted as necessary to meet ERCOT needs and to fulfill NERC Reliability Standards (FAC) requirements. The West – North Zone Stability study is conducted annually, utilizing the planning case for the summer peak season to establish the W-N stability Limit.

**G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).**

ERCOT System Administration Fee

**H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.**

There are no other programs that provide identical of similar services or functions in the ERCOT region.

**I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.**

N/A

**J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.**

N/A

**K. If contracted expenditures are made through this program please provide:**

- **the amount of those expenditures in fiscal year 2008;**
- **the number of contracts accounting for those expenditures;**
- **a short summary of the general purpose of those contracts overall;**
- **the methods used to ensure accountability for funding and performance; and**
- **a short description of any current contracting problems.**

- ERCOT Operations Forecasting spent the following on outside services in 2008:
    - AWS -- $223,102
    - DTN -- $44,295
    - PRT -- $103,098.98

- The expenditure was for three contracts (listed above).
- The purpose of the contracts was to collect information related to wind generation output and weather forecasting.
- ERCOT's Legal Division reviews terms and conditions of each contract. Ongoing contract administration relies on the expertise of specific program managers and supervisors and ERCOT contract management staff to determine value received.
- No contracting problems currently exist.

**L. What statutory changes could be made to assist this program in performing its functions? Explain.**

No statutory changes are necessary at this time.

**M. Provide any additional information needed to gain a preliminary understanding of the program or function.**

N/A

**N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:**

- **why the regulation is needed;**
- **the scope of, and procedures for, inspections or audits of regulated entities;**
- **follow-up activities conducted when non-compliance is identified;**
- **sanctions available to the agency to ensure compliance; and**
- **procedures for handling consumer/public complaints against regulated entities.**

N/A

**Question O. does not apply to this program.**

**A. Provide the following information at the beginning of each program description.**

| | |
|---|---|
| **Name of Program or Function** | **Ancillary Services Planning** |
| **Location/Division** | Austin/Taylor, Texas/System Planning and Grid Operations |
| **Contact Name** | Kent Saathoff |
| **Actual Expenditures, FY 2008** | $307,270 |
| **Number of FTEs as of August 31, 2008** | 4 |

**B. What is the objective of this program or function? Describe the major activities performed under this program.**

The objective of Ancillary Services Planning is to provide ERCOT System Operators and ERCOT stakeholders (market participants) with the best information and guidance possible, to ensure the proper balance of grid reliability and market efficiency. The major activities include updating and carrying out the Black Start Selection Process (or Black Start Plan) and the calculation of Ancillary Services requirements, including maintenance of the ERCOT Ancillary Services Methodology. This program also includes ensuring that NERC Reliability Standards requirements applicable to the Operations Horizon are met.

The goal of the Black Start Plan is to coordinate the restoration of the grid in case of the complete collapse of the ERCOT system in whole or in part. A Black Start plan or a System Restoration plan is mandated both by ERCOT protocols and NERC Reliability Standards (EOP). ERCOT receives and evaluates black start resource bids and performs black start resource selection analysis to identify a group of generating units that can start without off-site power which meet the selection criteria with a minimum cost. ERCOT then performs black start tests on units which are selected for the Black Start service, and enter into contracts for the service period. ERCOT then works with the transmission operators to come up with the ERCOT Black Start plan to determine transmission corridors and synchronization points.

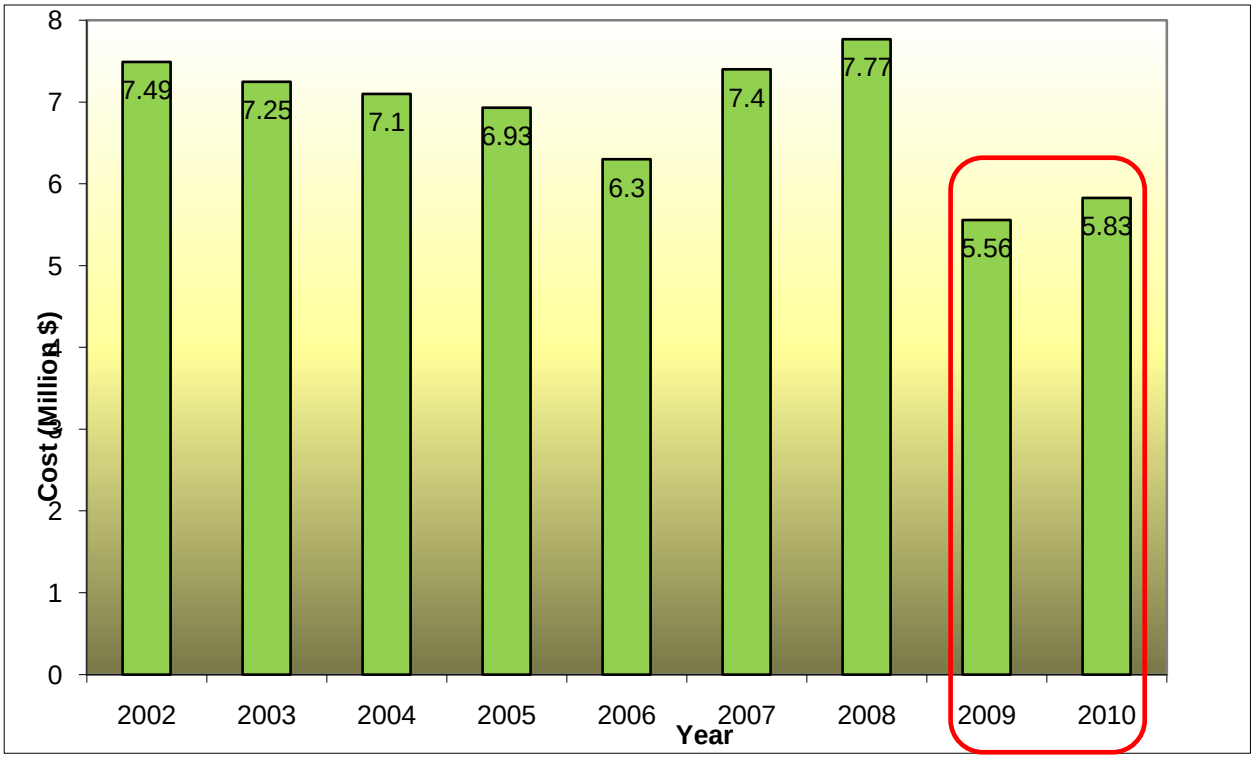
Ancillary Services (Regulation and Non-Spin) requirements are calculated each month by using historical data to reevaluate ERCOT system needs. The calculation is done pursuant to the requirements outlined in the Ancillary Services Methodology. This document is reviewed by ERCOT Inc. as well as ERCOT stakeholders at least annually to ensure the methodology is efficient and takes into consideration any new system conditions, balancing grid reliability and market efficiency. The Ancillary Services Methodology document must be approved by the ERCOT Board of Directors before its changes go into effect.

The goal of the NERC Reliability Standards compliance program is to ensure that ERCOT meets or exceeds requirements of the NERC Reliability Standards applicable to the Operations Planning component of the Operations Horizon. This includes participation in annual compliance audits by NERC, system Event Investigations initiated by NERC, FERC, or the Texas Regional Entity (TRE), and Compliance Violation Investigations initiated by either of these parties. The major activities of this program include completion of NERC Questionnaires and Reliability Standard Audit Worksheets (QR) for audit purposes, and preparation of reports, charts, and other data as requested for Event and Compliance Violation investigations.

**C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.**

ERCOT is currently working on developing a Black Start simulator program which will demonstrate the results of the Black Start Selection study and act as a training tool for operations support engineers and system operators.

While the number of units selected and the total cost of Black Start service is highly dependent upon which units bid into the service and at what price, it can be seen from the graph below that the total cost of the Black Start Service has gone down considerably in the last two years. Improvements to the Black Start selection program were made which search for optimal / sub-optimal solutions, though the addition of new functionality, including time sequence and parallel searching algorithms.



In 2007, the Ancillary Services Methodology was updated so that the Regulation requirement calculation looked at individual hours of the day to ensure that Regulation was being procured during the hours in which it was actually needed. Prior to this change, the procurement of Regulation was determined by blocking similar hours together. In this configuration, much more regulation may have been procured for some hours in which it was not actually needed. In 2008, the Ancillary Services Methodology was revised to incorporate the effects of wind resources in the ERCOT system on the need for Ancillary Services.

**D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.**

N/A

**E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.**

The Black Start Plan affects the generation resources which are capable of providing Black Start service and the transmission operators that will use the contracted resources under ERCOT direction to restore the grid by reenergizing transmission corridors and synchronizing electrical islands

The Ancillary Services Methodology affects the entire ERCOT market, which is why the document is reviewed annually in the stakeholder process and is approved by the ERCOT Board of Directors. QSEs are the participants who bid into the Ancillary Services market.

The NERC Reliability Standards compliance program affects both ERCOT and the market participants, as noncompliance sanctions can be costly.

**F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.**

This program is administered by a supervisor and 4 FTEs.

The Black Start Plan is administered with the Black Start Task Force (BSTF) which reports to the Operations Working Group (OWG). The OWG itself reports to the Reliability and Operations Subcommittee (ROS). The BSTF consists of ERCOT staff and market participants who assist in the planning for Black-Start services and suggest improvements in the black start processes.

The Black Start Selection is done once every two (2) years, with the items below outlining the major tasks of the process:

- ERCOT sends out a Request For Proposals (RFP) to the ERCOT market by April 1st of the study year
- The resources capable of providing the service are required to respond with Black Start Bids by July 1st
- ERCOT performs the Black Start selection study and selects a group of resources which meets the selection criteria with a minimum cost and announce the preliminary results by August 1st
- All the resources on the preliminary list will be tested for Basic Black Start, Line Energization, Load Carrying and Next Start tests before end of October
- ERCOT receives the individual Transmission Owner Black Start Plans by November and combines the individual Plans to prepare the ERCOT Black Start Plan

Ancillary Services requirements must be made available to the ERCOT Market prior to the 20th each month for the coming month. ERCOT Operations Planning performs the studies detailed in the Ancillary Services Methodology by that date. After the studies are performed, the results of those studies are posted the ERCOT website so that anyone who wishes can view the upcoming Ancillary Services Requirements.

**G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).**

ERCOT System Administration Fee

**H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.**

There are no other programs that provide identical or similar services or functions in the ERCOT region.

**I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.**

N/A

**J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.**

N/A

**K. If contracted expenditures are made through this program please provide:**

- **the amount of those expenditures in fiscal year 2008;**
- **the number of contracts accounting for those expenditures;**
- **a short summary of the general purpose of those contracts overall;**
- **the methods used to ensure accountability for funding and performance; and**
- **a short description of any current contracting problems.**

N/A

**L. What statutory changes could be made to assist this program in performing its functions? Explain.**

No statutory changes are necessary at this time.

**M. Provide any additional information needed to gain a preliminary understanding of the program or function.**

N/A

**N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:**

- **why the regulation is needed;**
- **the scope of, and procedures for, inspections or audits of regulated entities;**
- **follow-up activities conducted when non-compliance is identified;**
- **sanctions available to the agency to ensure compliance; and**
- **procedures for handling consumer/public complaints against regulated entities.**

N/A

**Question O. does not apply to this program.**

**A. Provide the following information at the beginning of each program description.**

| | |
|---|---|
| **Name of Program or Function** | **Advanced Network Applications** |
| **Location/Division** | Austin/Taylor, Texas/System Planning and Operations |
| **Contact Name** | Kent Saathoff |
| **Actual Expenditures, FY 2008** | $472,115 |
| **Number of FTEs as of August 31, 2008** | 8 |

**B. What is the objective of this program or function? Describe the major activities performed under this program.**

Advanced Network Applications is responsible for the maintenance, reliability, accuracy and operational development of ERCOT advanced network applications, including State Estimator, Real Time Contingency Analysis, Contingency Analysis, Real-Time and Study Mode Operations Power Flow, Voltage Stability Analysis and Dynamic Stability Analysis. Coordinate and interface with other ERCOT teams in System Operations Support, Network Modeling, EMMS Production Support, Market Operations Support and System Operations to develop procedures and maintenance guides to assure proper performance and quality solutions of ERCOT advanced network applications.

**C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.**

Advanced Network Applications personnel are on-call 24 hours a day/seven days a week to address real-time issues with network applications used by ERCOT Operators in the control room. For the ERCOT State Estimator, the backbone of all other network applications used in real-time operation of the ERCOT Power System, reports are generated monthly to maintain evidence of performance. The State Estimator has maintained a greater than 92% convergence rate.

**D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.**

Advanced Network Analysis was formed in 2007. The functions of this group have been performed since 2001 when ERCOT became the single control area for the ERCOT power system. The responsibility for the advanced network applications being developed for use in the ERCOT Nodal Systems have subsequently been added to the responsibilities of this group.

**E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.**

Advanced Network Analysis affects the real-time 24/7 readiness of all advanced network applications in use in the ERCOT Energy Management System (EMS) by ERCOT. Primary users are the ERCOT Operators who rely on the EMS advanced network applications to maintain situational awareness and reliability of the ERCOT Power System. ERCOT market participants, including transmission owners, generation owners and end users (electricity customers) all depend on the effectiveness of the advanced network applications to prevent damage to their equipment and ensure the ERCOT Power System remains a reliable source of power to fill their needs.

**F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.**

This program is administered by a supervisor and 8 FTEs.

**G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).**

ERCOT System Administration Fee

**H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.**

There are no other programs that provide identical of similar services or functions in the ERCOT region.

**I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.**

N/A

**J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.**

N/A

**K. If contracted expenditures are made through this program please provide:**

- **the amount of those expenditures in fiscal year 2008;**
- **the number of contracts accounting for those expenditures;**
- **a short summary of the general purpose of those contracts overall;**
- **the methods used to ensure accountability for funding and performance; and**
- **a short description of any current contracting problems.**

N/A

**L. What statutory changes could be made to assist this program in performing its functions? Explain.**

No statutory changes are necessary at this time.

**M. Provide any additional information needed to gain a preliminary understanding of the program or function.**

N/A

**N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:**

- **why the regulation is needed;**
- **the scope of, and procedures for, inspections or audits of regulated entities;**
- **follow-up activities conducted when non-compliance is identified;**
- **sanctions available to the agency to ensure compliance; and**
- **procedures for handling consumer/public complaints against regulated entities.**

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

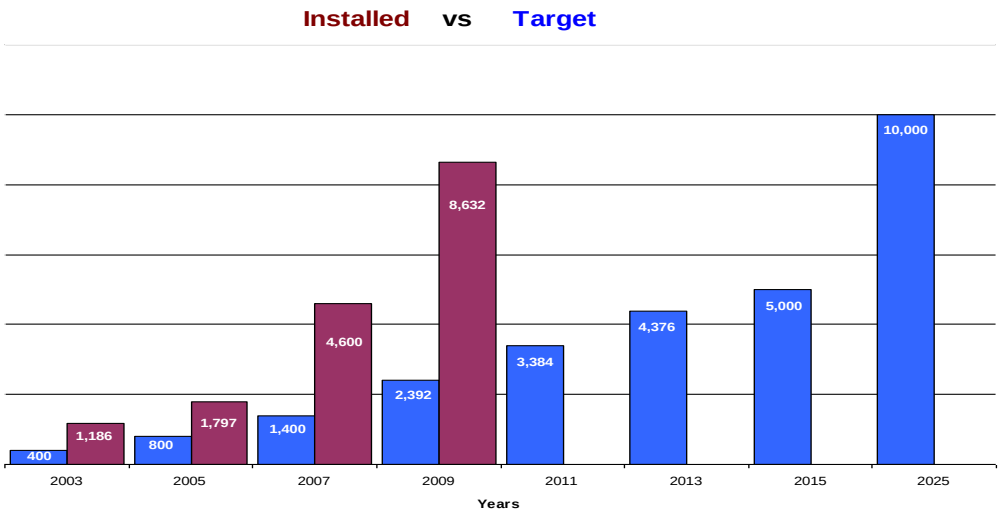
| | |
|---|---|
| Name of Program or Function | **Renewable Energy Credit (REC) Program Administration** |
| Location/Division | Austin/Taylor, Texas/Market Operations |
| Contact Name | Trip Doggett |
| Actual Expenditures, FY 2008 | $601,894 |
| Number of FTEs as of August 31, 2008 | 4 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

The Renewable Energy Credit (REC) Program Administration program is responsible for fulfilling the obligations of Texas Senate Bills 7 and 20 via administration of PUC Sub Rule 25.173, "Goal for Renewable Energy". This is the Texas Renewable Portfolio Standard (RPS). The program provides incentives to generating companies that locate in Texas and build renewable resource generation facilities. When these facilities generate one MWh of renewable energy, they earn one Renewable Energy Credit (REC). That credit is tradable on the open market and will also be used by Competitive Retail Electricity Providers to fulfill mandates in compliance with PUC rule.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

The primary purpose of the Texas REC Program is to incent new renewable energy generation to move into Texas and generate electricity. The PUC established capacity targets for accomplishing the goals. While the Texas REC program is not the only factor in attracting new renewable generation to the state, it has provided an additional incentive for wind generators to locate in the state. As a result, the growth in renewable capacity in Texas has far outpaced the targets.




D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.

Having been so successful in reaching and surpassing the original goal of 2,000 MW of capacity by 2009, as stipulated in Senate Bill 7, the Texas Legislature in Senate Bill 20 amended the target capacity to 5,000 MW by 2015 and 10,000 by 2025.

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

All entities participating in the Texas REC/RPS program must sign an ERCOT participation agreement. They must also be registered with the Texas Secretary of State as a legal entity doing business in Texas.

Specific entities:

Renewable Generation Companies;

a. Register with and be approved as a Renewable generator by the PUC;
b. Register with the Program Administrator and set up REC trading account;
c. Generate electricity and earn RECs.

Competitive Retail Electricity Providers (REP);

d. Register with and be approved as a Competitive REP by the PUC
e. Register with the Program Administrator and set up REC trading account;
f. Must comply with annual mandate to retire RECs.

Cities, Municipalities, Rural Electric Cooperatives and the Lower Colorado River Authority;

g. Are exempt from compliance with the Texas RPS until such time as they opt in to Texas' retail deregulation.

Traders, Marketers and Brokers;

h. Register with the Program Administrator and set up their REC trading account.

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

This program is administered by a supervisor and 4 FTEs.

G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

ERCOT System Administration Fee

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical or similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

N/A

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary at this time.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

N/A

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:

- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

**A. Provide the following information at the beginning of each program description.**

| | |
|---|---|
| **Name of Program or Function** | **Smart Grid Activities** |
| **Location/Division** | Austin/Taylor, Texas/Market Operations |
| **Contact Names** | Trip Doggett |
| **Actual Expenditures, FY 2008** | Smart Grid activities are currently decentralized across ERCOT. Therefore, actual figures for 2008 are not available. |
| **Number of FTEs as of August 31, 2008** | See above. |

**B. What is the objective of this program or function? Describe the major activities performed under this program.**

"Smart Grid" is a term that generally represents an array of modern, primarily digital upgrades to the electric system with the goals of saving energy, reducing cost, and improving reliability, efficiency and transparency. Many of these upgrades are driven by federal, state and local policy initiatives; in other cases, utilities, market participants and grid operators are implementing Smart Grid upgrades as part of their natural course of business. ERCOT, as the independent system operator for its region, is actively engaged in facilitating and enabling several aspects of the Smart Grid and hereby provides an overview of those activities in four areas:

- Advanced Metering Infrastructure
- Demand Response
- Energy Efficiency
- Plug-in Electric Vehicles

**Advanced Metering Infrastructure**

ERCOT, as the registrar for the retail market and settlement agent for the wholesale market, is playing a key role in implementing the Advanced Metering Infrastructure (AMI) authorized by the Texas State Legislature in House Bill 2129, 79th Legislature Regular Session, 2005, and further authorized by PUC Sub Rule §25.130, "Advanced Metering." That legislation and rule provided for accelerated cost recovery for voluntary AMI deployment by investor-owned transmission and distribution utilities (TDUs)

in Texas. As a result, TDUs have filed plans for deployment of approximately 6 million advanced meters in the ERCOT region; the PUC has approved plans for the two largest TDUs in ERCOT (Oncor and Centerpoint), accounting for approximately 5 million meters.

Sub Rule §25.130 established a deadline of January 31, 2010, for ERCOT to begin using 15-minute interval data for wholesale settlement. ERCOT will complete a project to begin settling AMI-equipped customers on 15-minute interval data by November, 2009.

The objective of AMI, as described in the PUC's *2008 Report to the Legislature on Advanced Metering*, is to provide Texas consumers with the tools necessary to make informed decisions to control their electric demand. By enabling all AMI-equipped customers to be settled on their actual 15-minute interval electricity usage data, ERCOT's role in AMI will enable transformation of the Retail and Wholesale Markets in the ERCOT Region and provide the foundation for the market to receive full value from AMI deployment.

AMI will enable the following major activities in the ERCOT market:

1. Wholesale Settlements
    a. Processing and aggregation of 15-minute interval load data for approximately 6 million retail electric accounts in the competitive choice areas of the ERCOT Region (these are known as Electric Service Identifiers, or ESI IDs).
    b. Processing and aggregation of 15-minute interval data for distributed renewable generation
2. Retail Transaction Processing
    a. Enhanced timelines and processes for switches, move-in and move-out
    b. Utilization of new Transmission & Distribution Service Provider (TDSP) common web portal for usage information
    c. Enhanced timelines for reconnects
3. Retail product offerings
    a. Enhanced offerings to promote conservation, efficiency or improved load shapes
    b. Enabling prepaid programs
    c. Enabling price responsiveness

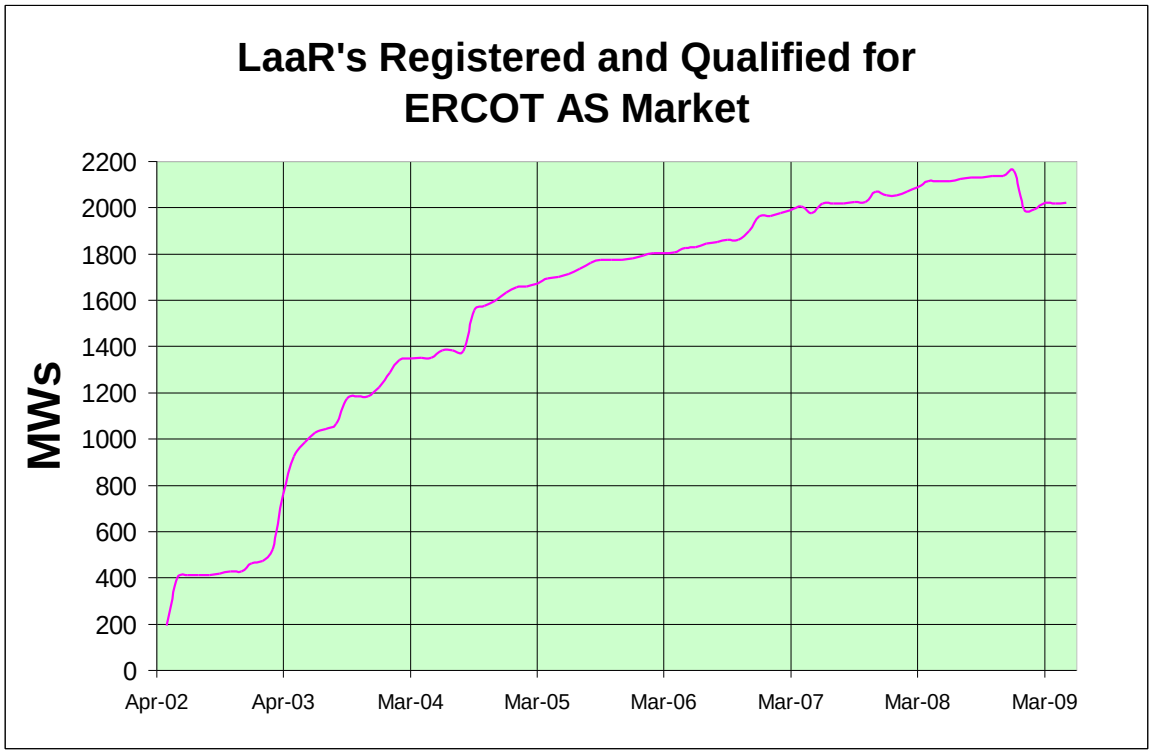
**Demand Response**

Demand Response (DR) is defined as a temporary change in electricity consumption by an energy consumer in response to market or reliability conditions. Demand reductions have the same effect as increases in generation on the balance of supply and demand on the grid. DR capability — for both system operations and for price elasticity of demand — is widely considered to be an important element in the future Smart Grid.

Economic demand response, triggered by load-serving entities or customers themselves at times of high wholesale market prices, can lower prices for all customers, not just those who respond to the prices. Interval metering is an enabling technology for economic DR, and to date has been limited to larger commercial and industrial customers who are required to have interval metering installed. Mass market AMI, as described above, will extend this important tool for economic DR to the vast majority of consumers in ERCOT, including residential customers.

In addition to facilitating economic DR through its settlement initiatives, ERCOT is among the world leaders in integrating demand-side resources into its grid operations. Loads in ERCOT play a key role in grid operations and round-the-clock electric reliability.

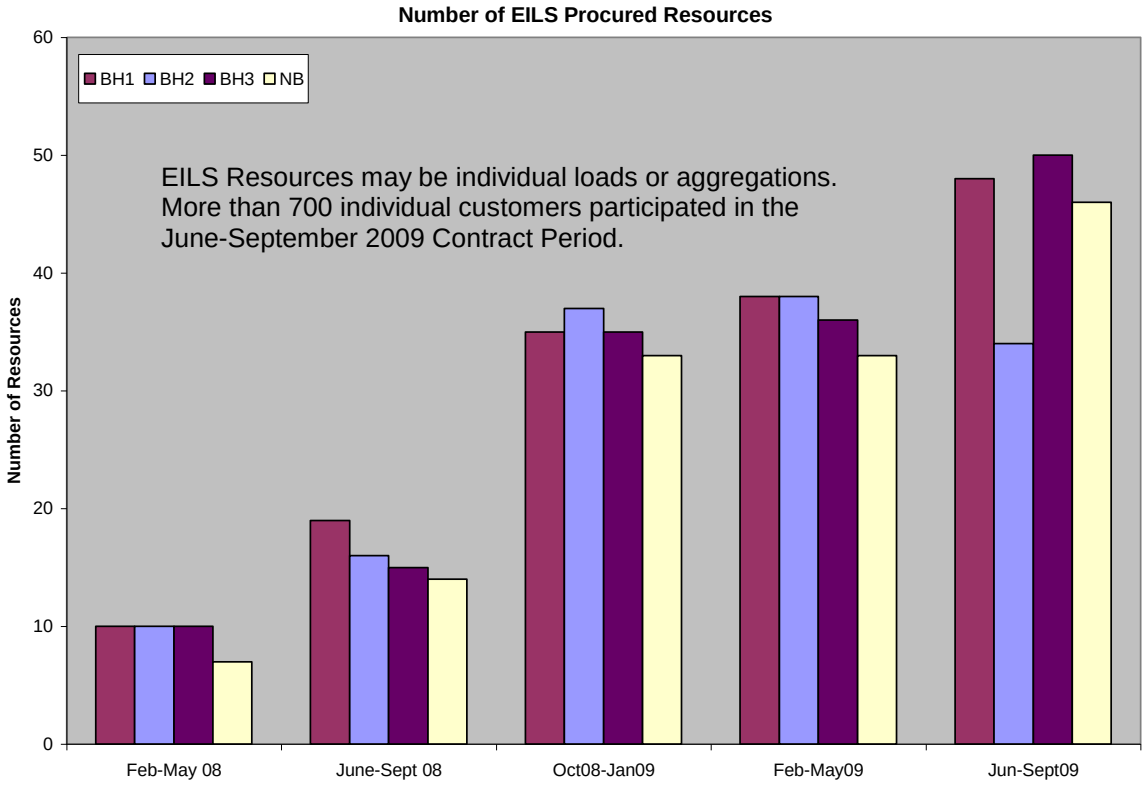
In the regulated environment, utilities offered special, discounted electric rates to certain large customers who made their load available for interruption during specified emergency conditions. When the restructured markets were launched in 2002, these interruptible tariffs were discontinued, and stakeholders worked with ERCOT Staff to develop a market-based alternative. The result was the opening of the ERCOT Ancillary Services markets to participation by Loads Acting as a Resource (LaaRs), which are customers qualified by ERCOT to interrupt their load under certain grid conditions and eligible to compete head-to-head with generation resources in those markets. Ancillary Services include Balancing Energy Service and the operating reserves that ERCOT procures to ensure reliability in case of grid contingencies (Responsive Reserves, Non-spin Reserves, Regulation Service, and Replacement Reserves). The number of qualified LaaRs in the ERCOT region has grown steadily since their inception, to a present level of more than 2,000 Megawatts (MW) in registered total capacity, as showing in the following graphic:




To date, LaaRs have participated primarily in the Responsive Reserve Service (RRS) market. ERCOT procures RRS 24 hours every day, usually at a level of 2300 MW per hour. LaaRs are eligible to provide 50% of that total, and for most hours the LaaR ceiling of 1150 MW is full. LaaRs providing RRS may be deployed either by verbal instruction from ERCOT operators, in which case they must reduce their load by the committed amount within 10 minutes, or by automatic trip from an Under-Frequency Relay (equipment that automatically detects a deviation in the frequency of the grid and causes the Load to curtail within a third of a second).

LaaRs provide an average of over 1,100 MW of operating reserves across all 8,760 hours of the year, a level of participation that easily exceeds that of any comparable demand response program anywhere in the world.

In addition to LaaRs providing Ancillary Services, ERCOT also administers Emergency Interruptible Load Service (EILS), a demand response program designed to provide an extra layer of insurance against rotating outages (a.k.a., "rolling blackouts"). This program, which is required by Public Utility Commission Rule §25.507, adopted in 2007, is open to smaller loads which may be aggregated to reach the minimum bid threshold of 1 MW. Consistent with Smart Grid goals, the rollout of AMI will dramatically increase the number of eligible interval-metered small customer EILS participants. EILS participation has grown steadily since the first procurement in February 2008, as shown in the following graphic:



EILS Resources are deployed verbally by ERCOT Operators after LaaRs have been deployed, and also have a 10-minute requirement to reduce their load. EILS is procured by ERCOT three times each year for four-month Contract Periods, which in turn are divided into four Time Periods. ERCOT procured the following EILS MW capacity for the Time Periods in the June through September 2009 Contract Period:

| Time Period | MW Procured |
|---|---|
| Business Hours 1<br>(8 a.m. to 1 p.m., Monday thru Friday except ERCOT Holidays) | 276.4 |
| Business Hours 2<br>(1 p.m. to 4 p.m., Monday thru Friday except ERCOT Holidays) | 154.7 |
| Business Hours 3<br>(4 p.m. to 8 p.m., Monday thru Friday except ERCOT Holidays) | 237.3 |
| Non-Business Hours<br>(All other hours: overnights, weekends and holidays) | 255.6 |

**Energy Efficiency**

Energy efficiency (EE) initiatives — some driven by Smart Grid public policy and some occurring naturally due to heightened consumer sensitivity to energy costs — are having increasing impacts on regional load, and therefore on ERCOT's long-term load forecasting. ERCOT is actively working to integrate these impacts into its load forecasting methodology. ERCOT does not administer energy efficiency programs, nor are energy efficiency programs eligible to participate directly in the ERCOT markets.

ERCOT's long-term load forecasting process supports the following areas of ERCOT's operations:

- Economic transmission planning;
- Resource adequacy assessment process;
- Reporting to the North American Electric Reliability Corporation (NERC) and the Energy Information Administration (EIA) of the U.S. Department of Energy;
- Preparation of annual updates to peak demand and energy forecasts for the ERCOT system;
- Preparation of the 36-month weekly peak load forecast;
- Production of hourly load forecasts for local congestion regions for use in economic transmission planning;
- Documentation and regulatory support for all forecasts;
- Information gathering from Transmission Service Providers (TSPs) to obtain information through the NERC Annual Load Data Request (ALDR) or similar mechanism.

The accuracy of the load forecasting process depends on a number of crucial inputs including economic and demographic variables, weather, energy efficiency, and demand response estimates. Recent events, including public policy initiatives increasing energy efficiency goals and funding, have placed energy efficiency and demand response in a prominent role as major components in the estimation of future electrical demand. The most prominent example of this is the statutory mandate for ERCOT to incorporate enhanced energy efficiency into its long-term load forecast (HB 3693, Texas State Legislature, 2007 Regular Session):

(b-4) "*The commission and ERCOT shall develop a method to account for the projected efficiency impacts under Subsection (b-3) in ERCOT 's annual forecasts of future capacity, demands, and reserves."*

ERCOT employs a regression-based methodology to develop its long-term load forecast, using long-term economic trends to quantify the load growth over the next ten years. This methodology does not explicitly incorporate the energy efficiency goals mandated in HB 3693; rather, the forecasts reflect the savings from energy efficiency and demand response trends already embedded in the historical data, and project these forward, assuming similar levels will continue to carry on into the future.

Thus, to incorporate the enhanced energy efficiency requirements required by HB 3693, which are established as a percentage of regional load growth, a line item adjustment is now incorporated into in the ERCOT Capacity, Demand & Reserves report with the enhanced EE quantified as step changes from historical levels. The forecasts of energy efficiency are developed by the TSPs, which are the EE program administrators, and then provided to the Public Utility Commission and ERCOT.

In addition, ERCOT is developing a tool to incorporate more detailed energy efficiency impacts into its long-term load forecast. The initial base for these estimates are drawn from the 2008 study, *Assessment of the Feasible and Achievable Levels of Electricity Savings for Investor Owned Utilities in Texas: 2009-2018*, conducted by Itron for the PUC and electric utilities in Texas.

**Plug-in Electric Vehicles**

Plug-in Electric Vehicles (PEVs), including Plug-in Hybrid Electric Vehicles (PHEVs), which are expected to begin entering the American marketplace in 2010, represent the potential to shift a significant portion of the transportation sector from liquid fuels to electricity. Widespread use of PEVs promises to have significant impacts on electric grid operations and planning. Large-scale PEV integration creates both opportunities and challenges for ERCOT as the grid operator. PEVs potentially represent a portable form of energy storage, a reliability resource that can discharge energy back into the grid, a source of interruptible load, and a new market for renewable energy. However, absent the right incentives for charging at appropriate times (off-peak), PEVs could create challenges for grid operations and reliability.

ERCOT is preparing for the transformation by engaging in key areas of PEV study.

- ERCOT is working with the other Independent System Operators (ISOs) and Regional Transmission Organizations (RTOs) in North America under the auspices of the ISO-RTO Council (IRC) on a detailed study of many aspects of PEV integration. The project has these primary goals:
    - Identify products and services that PEVs could provide under existing market and reliability structures within the ISO/RTO markets;
    - Analyze what the impacts will be to ISO/RTO business and system operations to integrate high volumes of PEVs into ISO/RTO markets;
    - Make recommendations with regard to ensuring the integration of PEVs into ISO/RTO markets.

  ERCOT Staff is represented on all three IRC subcommittees on this project: Markets, Operations, and Information Technology. The project is scheduled to be completed by November 2009.

- ERCOT is a co-participant, along with Austin Energy and the University of Texas at Austin, with the Chrysler Corporation in a U.S. Department of Energy Transportation Electrification grant authorized by the American Recovery and Reinvestment Act of 2009. Vice President Joe Biden announced on August 5, 2009, that Chrysler's application for these stimulus funds had been approved. ERCOT's participation in this three-year project will be to evaluate the potential for PHEVs to provide Ancillary Services in an ISO-operated wholesale market. ERCOT will focus on identifying the business case for aggregators to provide the necessary communication links with the ISO, identifying any necessary changes to market rules and protocols, and evaluating a potential pilot project for PHEV provision of Ancillary Services.

**C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.**

**Advanced Metering Infrastructure**

This is difficult to assess until full deployment of advanced metering is complete. Over time the expectation is that the access to more granular energy usage data afforded by AMI will lead to enhanced offerings by Retail Electric Providers (REPs) to promote energy conservation, energy efficiency, and response to wholesale price fluctuations. In other regions, AMI deployments are frequently accompanied by regulatory requirements for time-of-use pricing, direct load control programs, or other tariffs. Because the AMI deployment in the ERCOT region is specific to areas open to competitive choice, similar offerings will need to emerge from competitive REPs rather than from regulated and vertically-integrated utilities. Introductions of such products are expected to be more readily enabled by the presence of common platforms for home area networks, which are intended to allow an in-home energy-control infrastructure — designed to help customers reduce costs by managing their energy usage — to remain constant rather than making it specific to the REP. This will preserve competition by allowing customers to switch providers without the need to remove installed equipment.

**Demand Response**

LaaRs have been deployed a total of 10 times since April 2006 and have provided significant operational value each time.

LaaRs also provide economic benefits to ERCOT consumers. In order to ensure procurement under the 1,150 MW participation cap, LaaRs submit their bids into the RRS market at $0, which is the floor established in the Protocols. These $0 bids displace up to half of what would otherwise be positive dollar values submitted by generators, thus resulting in lower clearing prices. While the value of these $0 bids is impossible to determine because their overall effect on generator bidding behavior cannot be known, it is reasonable to assume that LaaRs are saving the market tens if not hundreds of millions of dollars per year. (An increase of $5 per hour in the cost of RRS over a year would equate to approximately $100 million in additional costs. RRS average clearing prices are near $10 per hour year-to-date in 2009, but have

exceeded $15 per hour in prior years.) Ancillary Service charges are allocated at the wholesale level to Qualified Scheduling Entities representing Load, based on their load ratio share, and it is generally assumed that these costs are passed through to consumers.

**Energy Efficiency**

Unlike DR, which is event-driven, Energy Efficiency measures reduce electric demand around the clock. ERCOT anticipates continuously increasing amounts of EE in the region as the result of Smart Grid public policy initiatives and improving awareness of and sensitivity to energy costs by consumers. ERCOT's challenge will be to continue to produce accurate long-term load forecasts through evolving, more sophisticated modeling that incorporates the effects of the additional EE as it is integrated.

ERCOT's mission in this area is to produce accurate forecasting of system peak demand and hourly loads across the ERCOT grid, and it has a record of producing highly accurate forecasts. One of the statistics used to evaluate load forecasting effectiveness is a validation exercise that calculates the percent error assuming that the actual weather was known at the time the forecast was produced. The result shows the error due to the model itself, and the error attributable to the miss in the forecasting of other inputs, such as the economic and demographic variables. As the following chart shows, ERCOT's weather-adjusted forecasts have been accurate to within 1% since 2005:

**Load Forecast in Megawatts**

| Year | Actual MW Peak Demand | Forecast MW Peak Demand | Forecast Adj. for Actual Weather | Forecast % Error | Weather-Adjusted % Error |
|---|---|---|---|---|---|
| 2005 | 60,214 | 60,475 | 60,380 | (0.433) | (0.276) |
| 2006 | 62,339 | 61,656 | 61,846 | 1.096 | 0.791 |
| 2007 | 62,188 | 63,794 | 62,731 | (2.582) | (0.873) |
| 2008 | 63,861* | 64,927 | 63,946 | (1.669) | (0.133) |
| 2009 | 63,453 | 63,491 | | (0.060) | |
| * Adjusted for effects of Tropical Storm Edouard. | | | | | |

**D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.**

**Advanced Metering Infrastructure**

Timeline of major Advanced Metering Activities:

2005 Passage of HB 2129 (79th Regular Session, Texas Legislature)

"In recognition that …new metering and meter information technologies, have the potential to increase the reliability of the regional electrical network, encourage dynamic pricing and demand response, make better use of transmission and generation assets, and provide more choices for consumers, the legislature encourages the adoption of these technologies by electric utilities in this state."

2007 PUC Advanced Metering Systems Rulemaking – Project No. 31418
Revised Substantive Rule 25.130 as related to advanced metering
25.130 (h) It is the objective of this rule that ERCOT shall be able to use 15-minute meter information from advanced metering systems for wholesale settlement, not later than January 31, 2010

2007 Passage of HB 3693 (80th R)
Expressed the intent of the legislature that net metering and "advanced meter data networks be deployed as rapidly as possible."

2008 PUC Project 34610
Six sub-projects related to implementation of Advanced Metering

2008 ERCOT projects
70057 – Study for Long-term Settlement Solution - completed
80027 – Interim Solution for Settlement – in progress

**Demand Response**

The focus and intent of Emergency Interruptible Load Service (EILS) was altered when the PUC adopted amendments to Substantive Rule §25.507 in November 2007. The rule revisions changed two key provisions: eliminated the original 500 Megawatt (MW) procurement floor, which had not been reached in the first three bid cycles, and raised the annual cost cap from $20 million to $50 million. The bid floor and the original cost cap had been recommended by ERCOT when EILS was contemplated purely as an operational tool. The rule amendments, supported by language in the preamble, designated EILS additionally as a vehicle for the growth of demand response in the ERCOT region.

Timeline:

- Initial EILS Rulemaking, adopted April 2007, Project 33457
- Amendments to EILS Rule, adopted November 2007, Project 34706

**E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.**

**Advanced Metering Infrastructure**

AMI will have significant impacts on the following entities:

- Qualifed Scheduling Entities (QSEs) representing loads (83)
- Retail Electric Providers (REPs) serving load (88)
- Transmission & Distribution Service Providers (TDSPs) (5)
- Texas consumers (up to 6 million residential premises in competitive areas of ERCOT)

**Demand Response**

LaaRs are Loads, usually industrial, ranging in size from less than 1 MW to greater than 100 MW.

EILS is open to all customers and has attracted a wide range of participation from various business sectors including industrial facilities, manufacturers, retailers, hospitals, data centers, and oil field services.

ERCOT's demand response services also affect Market Participants including QSEs representing EILS, QSEs representing Loads, and TDSPs.

**Energy Efficiency**

The long-term load forecast is an important tool used widely by Market Participants, regulatory authorities, and the investment community to inform decisions affecting generation planning, outage coordination, financial planning, transmission planning, and facility siting. Enhancing the accuracy of the forecast by integrating more precise energy efficiency metrics will provide better tools for this decision-making.

**F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.**

ERCOT's Market Operations staff is managing the transition to Advanced Metering Infrastructure (AMI) 15-minute settlement, and administers Load Acting as a Resource (LaaR) and Emergency Interrtuptible Load Service (EILS) participation. ERCOT's System Planning staff calculates the long-term load forecast. Study of Plug-in Electric Vehicle (PEV) integration is being coordinated among numerous ERCOT departments including Market Operations, System Planning, Operations Planning, and System Operations.

**G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).**

ERCOT System Administration Fee

**H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.**

There are no other programs that provide identical of similar services or functions in the ERCOT region.

**I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.**

N/A

**J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.**

N/A

**K. If contracted expenditures are made through this program please provide:**

- **the amount of those expenditures in fiscal year 2008;**
- **the number of contracts accounting for those expenditures;**
- **a short summary of the general purpose of those contracts overall;**
- **the methods used to ensure accountability for funding and performance; and**
- **a short description of any current contracting problems.**

**Advanced Metering Infrastructure**

- The AMI settlement project spent approximately $30,000 in 2008.
- The expenditure was for four contractors
- The purpose of the contracts was the development of enhancements to the wholesale settlement software system.
- ERCOT's Legal Division reviews terms and conditions of each contract. Ongoing contract administration relies on the expertise of specific program managers and supervisors and ERCOT contract management staff to determine value received.
- No contracting problems currently exist.

**L. What statutory changes could be made to assist this program in performing its functions? Explain.**

No statutory changes are necessary at this time.

**M. Provide any additional information needed to gain a preliminary understanding of the program or function.**

This section is intended to provide a high-level overview of ERCOT's activities in implementing Smart Grid initiatives and technologies. ERCOT Staff as listed in Section A is available to provide detail or additional documentation related to any specific questions.

**Advanced Metering Infrastructure**

ERCOT is enabling the AMI market transformation by working with Public Utility Commission Staff and Market Participants to define the scope of system changes and then manage internal projects to implement the required functionality for 15-minute interval data settlement. Completion of the ERCOT system changes defined in these projects requires expertise and involvement from numerous ERCOT departments and groups, including the following:

- Project Management
- Wholesale Settlements and Retail Transaction Processing Departments
- Information Technology Development
- System Architecture
- Security

Projects associated with this transformation are projected to be multi-year efforts that implement modified processes and transaction flows enabled by advanced metering systems.

**Energy Efficiency**

In light of recent and current public policy initiatives and other events, ERCOT planning staff expects a potentially significant increase in the impacts and effects of energy efficiency and demand response on the ERCOT grid. For example, estimates from the American Council for an Energy-Efficient Economy (ACEEE) suggest dramatic potential for both energy efficiency and demand response to provide significant long-term capacity resources. Overall, ACEEE projects that 17% of electrical demand could be met by energy efficiency alone by the year 2023, and another 13% may be met by demand response for Texas peak electrical demand system-wide.

As discussed in Section C, ERCOT has launched a major effort to extend its long-term load forecasting capabilities to rigorously incorporate the potential impacts of both energy efficiency and demand response. ERCOT will incorporate energy efficiency metrics by leveraging the detailed data provided by the aforementioned Itron report. Annual data on measure-specific savings accomplished at each IOU in Texas will be mapped into ERCOT's weather zones. Each measure's savings will then be time-differentiated to provide hourly impacts at the weather zone level of granularity. These measure-specific hourly impacts will then be aggregated and subtracted from the original forecast (with no incremental energy efficiency accounted for) as delivered by the econometric system. Six separate scenarios will be extracted from the Itron report (naturally-occurring, base, and high incentives scenarios for both a low-cost and a high-avoided-cost forecast). This capability will enable a long-term forecast that integrates detailed impacts from energy efficiency and provides a highly flexible forecasting capability for examining long-term resource planning implications.

A similar capability for extending the forecasting system to incorporate a detailed set of demand response impacts will be implemented by adapting the methodologies laid out by the Federal Energy Regulatory Commission's June 2009 staff report, "A National Assessment of Demand Response Potential."

**Plug-in Electric Vehicles**

Despite gasoline prices that are down from their heights of 2008, the automobile industry and the electric industry are collaborating in many areas as the prospect of wide-scale PEV integration grows. The Chevy Volt Plug-in Hybrid Electric Vehicle (PHEV) remains targeted for showrooms in Nov. 2010; the Ford Escape PHEV is expected to debut a couple of years later. Toyota, BMW, Volkswagen, Nissan, and Daimler are all working on PEVs or PHEVs.

A study by the Electric Power Research Institute (EPRI) projects a total of 20 million PEVs on the road nationwide by the year 2030.

Nationwide, such penetration would amount to approximately 24,000 Megawatts of new load (at 1.5 kilowatts per vehicle, which is the estimated demand for the Chevy Volt). If ERCOT can be expected to attract 10% of the PEVs nationally, that would add 2,400 MW of new Load to the system over 20 years; for comparison purposes, peak demand on the ERCOT grid is approximately 64,000 MW. ERCOT and the other ISOs and RTOs agree that PEV ownership must be married to "smart charging" electric rate design or price offerings that provide incentives to charge during off-peak hours, and that educating PEV customers about on- and off-peak charging should be a critical part of the sales equation.

ERCOT's research into PEVs is primarily the result of a prevailing assumption among carmakers, regulators and utilities that stored energy from PEVs will be able to provide Ancillary Services. In particular, PEVs may be suited to provide Regulation Service, which would require continuous charging and discharging of the PEV in response to changes in grid frequency. ERCOT will also consider PEVs' potential interruptible load value as candidates for demand response services. Any provision of ancillary services by PEVs will require development of a dependable aggregated telemetry platform for communicating information about the PEVs' available capacity to Independent System Operators such as ERCOT in real time.

PEVs are one example of an emerging focus in the electric industry on the broader issue of energy storage. Large-scale battery packs, flywheels, and compressed air energy storage all are potential elements of the future smart grid that ERCOT will be monitoring and studying in the coming months and years.

**N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:**

- **why the regulation is needed;**
- **the scope of, and procedures for, inspections or audits of regulated entities;**
- **follow-up activities conducted when non-compliance is identified;**
- **sanctions available to the agency to ensure compliance; and**
- **procedures for handling consumer/public complaints against regulated entities.**

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

| | |
|---|---|
| Name of Program or Function | **Market Rules and Stakeholder Support** |
| Location/Division | Market Operations |
| Contact Name | Trip Doggett |
| Actual Expenditures, FY 2008 | $579,865 |
| Number of FTEs as of August 31, 2008 | 9 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

The purpose of the Market Rules and Stakeholder Support program is to provide coordination for and transparency into the ERCOT governance process.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

Market Rules and Stakeholder Support staff played a critical role in the stakeholder process by providing meeting management and technical support for numerous stakeholder meetings in 2008 to maintain process transparency.

In 2008, the Market Rules staff managed all activities for 156 new Protocol revision requests and completed 553 recommendation reports to document the committee votes, recommended language and discussions related to the revision requests. The recommendation reports provide a procedural history and document decisions to maintain transparency for all interested parties.

Market Rules staff also revised the source Protocol and Market Guide documents to reflect the new rules of the market as the revision requests completed the rule change process. In 2008, market rules staff prepared 25 Protocol PUC filings and website postings and 22 Market Guide postings. Of the postings, 100% were made within the Protocol/guide requirement of at least one day prior to the effective date. Protocols were posted on average at least four days prior to their effective date and Market Guides were posted on average at least five days prior to their effective date. Note that these posting statistics are earlier than the Protocol/guide requirement of one day prior to the effective date.

Stakeholder Services responded to more than 1,800 requests for new meetings in 2008 with 99% of the requests completed within the department target of two business days and 93% completed same day as request. The team also provided support to TAC and its subcommittees for more than 140 days of meetings.

Every two years, ERCOT conducts a survey of Board members, TAC and Subcommittee members, and market participant staff. In the 2008 Market Participant Survey, on a question related to ERCOT Staff's performance with regards to administrating the PRR process, ERCOT staff received a high score which suggested that on the whole, market participants feel that ERCOT staff administers the PRR process in a manner which ensures integrity, transparency and consistency. This perception increased significantly since 2006 as shown by the increase in the mean scores for both all market participants from 7.9 in 2006 to 8.3 in 2008 and market participant staff from 7.6 in 2006 to 8.3 in 2008. Possible scores ranged from lowest (1) to highest (10). Respondents also felt that ERCOT staff is performing well in terms of demonstrating an understanding of the implications of various PRRs to all market participants. These findings were consistent with data from 2006.

Finally, in the 2008 Market Participant Survey, committee participants provided a very favorable mean rating for the level of detail provided in meeting minutes (7.9 on a scale of 1 to 10).

D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.

Since the Market Rules and Stakeholder Support department was created, it has taken on additional responsibilities. For example, the number of Protocols and Market Guides managed has increased over time to centralize the change control process for both the organization and the market. The department originally only managed the zonal Protocols and the Operating Guides. Below is a list of how the number of documents the department is responsible for managing has increased over time from the original zonal Protocols and Operating Guides:

- Settlements Metering Operating Guide (January 2002)
- Load Profiling Guide (May 2002)
- Retail Market Guide (June 2003)
- Competitive Metering Guide (December 2003)
- Nodal Protocols (March 2005)
- Commercial Operations Market Guide (March 2006)
- Nodal Operating Guide (November 2007)

The department has also taken on the meeting management responsibilities for the Protocol Revision Subcommittee (PRS) and TAC. Responsibilities include agenda development/management, ERCOT resource coordination for the meetings to ensure ERCOT resources are utilized effectively, and reporting decisions and action items back to the organization to limit the number of resources participating in the

meeting. Also, the department has increased the level of services provided to TAC and its subcommittees for centralized coordination of meeting materials, consistent meeting discussion and vote documentation. Finally, the department has taken on the responsibility of facilitating the annual and replacement segment representative seating for the ERCOT Board, TAC and subcommittees.

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

The Market Rules and Stakeholder Support department provides coordination for and transparency into the ERCOT governance process for anyone interested in the rules or proceedings of the ERCOT market including the following:

- All market participants,
- Any entity that is an ERCOT member,
- PUC staff,
- ERCOT staff,
- Any entity that resides (or represents residents) in Texas or operates in the Texas electricity market, and
- Any entity that can demonstrate that the entity (or those it represents) is affected by the Customer Registration or Renewable Energy Credit Program Sections of the Protocols.

The Market Rules and Stakeholder Support department interacts with the above parties by contributing to their understanding of the revision request process and assisting with their participation in the revision request process. The department also documents the revision request process to provide procedural histories and document decisions to maintain transparency for all interested parties.

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

This program is administered by a supervisor and 9 FTEs.

G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

ERCOT System Administration Fee

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical or similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

- Market Rules and Stakeholder Support spent $2,500 in 2008 on outside services
- The expenditure was for one contract with G&M Catering
- The purpose of this contract was to determine the price for the cashiered lunches for ERCOT Board meetings. Meeting participants purchase their own lunches. However, ERCOT must provide the vendor a guarantee of the number of plates to secure the vendor. If the guaranteed number of lunches is not sold, ERCOT pays the difference between the number of plates sold and the guaranteed amount.
- ERCOT's Legal Division reviews terms and conditions of each contract. Ongoing contract administration relies on the expertise of specific program managers and supervisors and ERCOT contract management staff to determine value received.
- No contracting problems currently exist.

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary at this time.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

N/A

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:
- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

| | |
|---|---|
| Name of Program or Function | **Settlement Metering** |
| Location/Division | Market Operations |
| Contact Name | Trip Doggett |
| Actual Expenditures, FY 2008 | $1,141,635 |
| Number of FTEs as of August 31, 2008 | 10 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

The Settlement Metering program supports the Texas wholesale electric by ensuring the accuracy and timeliness of ERCOT Polled Settlement (EPS) meter usage data and distribution loss factor methodologies and assist in EPS meter point modeling and mapping for the Network Model.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

Settlement Metering staff process and manage the ERCOT Polled Settlement Meter Data that support the estimated $34 billion market. This is a critical function of market operations.

In 2008, key accomplishments included:

- Resolved 1,300+ EPS Meter data notification issues
- Processed compliance information and interval data for over 650 EPS metering points
- Reviewed/approved 49 metering designs, ~380+ site certification submissions, and ~1,175 annual meter test results
- Reviewed and approved 49 EPS Metering Designs to ensure correct measurement and settlement of energy.
- Reviewed and approved 82 Temporary Exemptions, 12 of 82 required data correction.
- Performed 6 EPS Site Audits, closed 2 audits from this year and 2 from previous years.
- Reviewed and approved the DLF Coefficients for 2009 submitted by TDSPs.
- Reviewed 386 Site Meter Point Documentations, approved 171, and provisionally approved 65.
- Reviewed 1173 Annual Meter Test Reports for correctness and compliance.

D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.

The core services and function provided by the Settlement Metering department has been extended to include support and preparation for the ERCOT Nodal market implementation.

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

EPS Metering Facilities measure the energy flows for all transmission-connected generation in the ERCOT market. These energy flows are used as the basis for wholesale settlements in the ERCOT market which impact all market participants. This program has significant interaction with transmission and/or distribution service providers and limited interaction with resource entities.

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

This program is administered by a supervisor and 10 FTEs.

G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

ERCOT System Administration Fee

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical or similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

N/A

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary at this time.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

N/A

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:

- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

| | |
|---|---|
| Name of Program or Function | **Energy Analysis and Aggregation** |
| Location/Division | Market Operations |
| Contact Name | Trip Doggett |
| Actual Expenditures, FY 2008 | $1,224,436 |
| Number of FTEs as of August 31, 2008 | 10 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

The Energy Analysis and Aggregation Department is responsible for ensuring the accuracy and timeliness of bill determinants used in settlements.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

The Percent of Interval Data Recorder data captured at the time of true-up settlement has achieved a 99% goal.

D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.

The core services and function provided by the Energy Analysis and Aggregation department has been extended to include support and preparation for the ERCOT Nodal market implementation.

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

ERCOT settlement system currently has approximately 400 Qualified Scheduling Entities. Data Aggregation creates the billing determinants which are used in the settlements process to create invoices for Qualified Scheduling Entities (QSEs).

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

This program is administered by a supervisor and 10 FTEs.

G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

ERCOT System Administration Fee

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical or similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

N/A

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary at this time.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

N/A

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:

- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

| | |
|---|---|
| Name of Program or Function | **Settlements and Billing Operations** |
| Location/Division | Austin/Taylor, Texas/Market Operations |
| Contact Name | Trip Doggett |
| Actual Expenditures, FY 2008 | $1,385,209 |
| Number of FTEs as of August 31, 2008 | 23 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

The Settlements and Billing Operations program ensures that electricity production and delivery are accurately accounted for among generators and wholesale buyers and sellers in the ERCOT region.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

Settlements and Billing staff process and manage the data and the wholesale settlements and billings processes that support the estimated $34 billion market. This is a critical function of market operations.

In 2008, ERCOT staff processed more than 145,604 wholesale Settlement Statements with over 99 percent within protocol, and 8,244 Settlement Invoices with 100 percent timeliness. The 2008 invoices account for annual billings of approximately $3 billion.

D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.

The core services and function provided by the Settlements and Billing department has been extended to include support and preparation for the ERCOT Nodal market implementation.

Settlements and Billing staff took on the TCR auction and invoicing function in 2007, and subsequently transferred the function to the Market Operations team in late 2008.

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

The ERCOT Settlements and Billing department provides service to all Qualified Scheduling Entities (QSEs) actively participating in the ERCOT market, by processing Settlement Statements and Settlement Invoices which are reflective of each QSE's participation in the market. QSEs are subject to registration, qualification, and creditworthiness criteria as required by ERCOT Protocols Section 16: Registration and Qualification of Market Participants.

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

This program is administered by a supervisor and 23 FTEs.

G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

ERCOT System Administration Fee

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical or similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

- ERCOT entered into one contract with a vendor to review Reliability Must-Run (RMR) cost submittals, unit performance, and RMR contracts associated with various months in 2006 and 2007. Such review is substantiated by Section 13 I of the ERCOT Standard Form Reliability Must-Run Agreement. The vendor selected for this task is an ERCOT approved vendor. The vendor was procured through a single contract for a deliverable; expenditures for this contract were $46,500. All deliverables were provided per the scope, timeline, and budget.

- ERCOT is contracted with Platts to obtain the Fuel Index Price and the Fuel Oil Prices as directed by Protocols Section 2: Definitions and Acronyms. In 2008, this department incurred the cost of such services for the months of January through August. The cost of the service transferred to the Market Operations department in September 2008. The total 2008 monthly expenditures for Platt's services which were incurred by the Settlements and Billing department totaled $3212.20.

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary at this time.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

N/A

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:
- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

| | |
|---|---|
| Name of Program or Function | **Retail Customer Choice** |
| Location/Division | Austin/Taylor, Texas/Market Operations |
| Contact Name | Trip Doggett |
| Actual Expenditures, FY 2008 | $1,181,155 |
| Number of FTEs as of August 31, 2008 | 17 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

The Retail Customer Choice team is responsible for ensuring that information on retail customer choice is conveyed accurately and in a timely manner to those Market Participants who need that information. RCC will be the retail transaction market experts providing superior customer service and issue resolution.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

ERCOT is unique among independent system operators due to its central role in assuring conveyance of retail customer switch requests, move-ins and move-outs, and meter-read data.

In 2008, ERCOT processed 4.7 million retail transactions including retail switches, move-ins and move-outs and other transactions – above the 98 percent performance target for all four quarters. The total number of retail transactions completed since the market opened June 1, 2001 topped 31 million at the end of 2008. The Texas retail electricity market continued to set the standard nationally for active customer switching. By year's end, 45 percent of residential customers were served by a retail electric provider other than the incumbent utility, compared with 41 percent in 2007. Also, 50 percent of the small commercial load and 75 percent of industrial load was served by a non-incumbent provider. ERCOT coordinated and executed five market-wide mass-transition events during the year for competitive retailers who exited the market. The total number of transfers was 44,109 (comprised of 5,943 transferred to an acquiring competitive retailer and 38,166 transferred to a retailer designated as provider-of-last-resort). Each event was executed within the new timelines outlined by the market in 2007.

D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.

N/A

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

There are 88 active Retail Electric Providers and 5 Transmission and Distribution Service Providers supported by this function.

All Texans in competitive retail choice areas are indirectly, and sometimes directly, supported by this program.

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

This program is administered by a supervisor and 17 FTEs.

G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

ERCOT System Administration Fee

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical or similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

N/A

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary at this time.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

N/A

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:

- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

| | |
|---|---|
| Name of Program or Function | **Retail Market Analysis** |
| Location/Division | Austin/Taylor, Texas/Market Operations |
| Contact Name | Trip Doggett |
| Actual Expenditures, FY 2008 | $1,414,571 |
| Number of FTEs as of August 31, 2008 | 4 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

The Retail Market Analysis program provides market service and communication, accurate and timely market reporting, quality assurance and stable delivery of market systems, seamless administration of the governance process and provides support to the nodal implementation program.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

The customer care process is monitored on a daily basis for the number of records submitted to the outsourced vendor. Irregularities are identified and the proper parties are notified. Both ERCOT and vendor systems are monitored thorough a series of spreadsheets, emails and queries to insure the process is performing as intended.

D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.

- ERCOT and the market were not tasked with retail transaction performance reporting at the inception of the market. Over time, the PUC saw the need for monitoring transaction flow between the market participants to identify potential issues. With PUC input, ERCOT began providing statistical data for one thousand ESI IDs (electric premises) each month. Beginning with the first quarter in 2003, 100% of the switch, move-in and drop to POLR transactions began to be reported. In 2008, the PUC required move in transactions to be reported in two categories,

standard and priority. In addition, move-out transactions and ESI ID add and maintain transactions were added into the reporting requirement. Data is provided from the Electronic Transaction System (ETS) and transformed into the PUCT and market agreed reporting format. The DataTrak system will replace ETS as the source of data with implementation in phase II of the project.

- With the implementation of the retail open market, notification for the end-use customer was required as a customer protection from "slamming" or the unauthorized switching of a customer's electric service. As a part of the customer protection process, the ability to cancel the switch was also implemented. In addition, a notification was provided to move in end-use customers as well as those who were dropped to the provider of last resort (POLR). The requirements have changed with Provider of Last Resort (POLR) rule updates. Beginning in March 2007, the POLR notification was eliminated. Beginning in July, 2008, the move-in mailer was eliminated. Changes in the switch notification wording were made in 2008. Additional changes are required beginning August 16, 2009. The switch notification will no longer provide an automated process for cancellation with the August 16, 2009 release of the expedited switch rule. New POLR rule requirements provide for a notification to end-use customers. As a part of the POLR notification process, a phone call and email notification are also required where data is available for customer contact.

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

The Retail Market Analysis program potentially affects all end-use retail electric customers in Texas.

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

This program is administered by a supervisor and 4 FTEs.

G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

ERCOT System Administration Fee

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical or similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

- Retail Market Analysis spent $1,052,960.00 in 2008 on outside services.
- The expenditure was for one contract with Twenty First Century.
- The purpose of this contract was notification of end-use customers for Switch and Move-In notifications and provided for call center functionality. The call center is available 24 hours a day/seven days a week supporting English and Spanish automated call center or live agents for cancelling a switch or identifying the retailer to contact.
- ERCOT's Legal Division reviews terms and conditions of each contract. Ongoing contract administration relies on the expertise of specific program managers and supervisors and ERCOT contract management staff to determine value received.
- No contracting problems currently exist.

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary at this time.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

The Retail Market Analysis Department (RMA) provides retail market data reports to the Texas Electric Choice Market and the Public Utility Commission of Texas as well as ERCOT Management and the Board. This is accomplished through the delivery of the "PUCT quarterly Performance Measures. Included in this reporting is the preparation and delivery of "Market Metrics" for working group requests and market activity reporting for the Retail Market Subcommittee. The RMA also supports ERCOT Executive Management and ERCOT internal departments in the preparation, delivery, and presentation of retail market data, such as the "Rep of Record" report to ERCOT Executive Management and ad hoc on-demand reporting for individual market participants. Additionally, and as a core function, the RMA administers the switch notification and POLR notification process for the Texas Electric Choice Market by contract, performance, and budget management of the outsourced vendor responsible for the Customer Care process.

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:
- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

| | |
|---|---|
| Name of Program or Function | **Commercial Operations Data Integrity and Administration** |
| Location/Division | Austin/Taylor, Texas/Market Operations |
| Contact Name | Trip Doggett |
| Actual Expenditures, FY 2008 | $517,282 |
| Number of FTEs as of August 31, 2008 | 8 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

The Data Integrity & Administration program is responsible for ensuring the integrity of registration and common master data used across retail and wholesale systems in support of ERCOT's settlement processes. The department also ensures that the delivery of data to the market is both complete and timely in support of Retail and Wholesale Markets.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

- Percent of interval usage data captured by true-up as requested from Meter Reading Entities
    - Year end results were 99.93% - reporting supported by Data Aggregation in Markets Group
    - Market participants and internal loading business process supported by Data Integrity & Administration in Market Operations/Support Group for ~22,000 interval usage reads a month

D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.

The core services and functions provided by the Data Integrity & Administration department have been extended to include support and preparation for the Nodal market implementation program.

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

- Retail Transaction Processing
- Integrity of Retail and Market Participant data used in Settlements process
- Extract & Reporting processes
- Data Retention Compliance

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

This program is administered by a supervisor and 8 FTEs.

G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

ERCOT System Administration Fee

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical or similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

N/A

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary at this time.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

N/A

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:

- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

| | |
|---|---|
| Name of Program or Function | **Market Operations Support** |
| Location/Division | Austin/Taylor, Texas/Market Operations |
| Contact Name | Trip Doggett |
| Actual Expenditures, FY 2008 | $2,977,642 |
| Number of FTEs as of August 31, 2008 | 27 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

The Market Operations Support program resides at the intersection of Market Operations and System Operations, administering critical system applications and personnel functions that support ERCOT's overall goal of assuring electric grid reliability through market-based mechanisms.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

One measure of the effectiveness of the Market Operations Support program is the wide range of questions and issues that are raised by market participants regarding the Day Ahead Market that Market Operations Support facilitates. A brief summary that conveys the effectiveness of the program is as follows.

- Market Operations Support assists participants in understanding flow limits of Commercially Significant Constraints (CSC) so that they can more accurately forecast and schedule for their load, generation, and schedules.
- Market Operations Support performs on-site visits on request to market participant locations to give training on several aspects of the zonal system and how to effectively participate in the market.

- Market Operations Support gives explanation on market solution deployment instructions as well as work-around instructions to mitigate the limitations of the zonal market.
- Market Operations Support provide explanation of the relationships between market clearing prices for energy, deployment awards to market participants, and system limitation issues such as ramp rates and transmission congestion.
- Market Operations Support provides explanation of ERCOT Protocols, NERC Standards, Operations Procedures and Guides in order to maintain continuity among ERCOT and market participants with each of the binding documents.
- Market Operations Support also creates daily and monthly reports that communicate operations and economic information to the market participants in order to promote an equitable and transparent market environment in accordance with NERC and PUC requirements.

D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.

Several Protocol Revision Requests (PRR) have changed how the Market Operations Support program operates. A list of these PRRs will be provided upon request.

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

Some of the entities directly affected by Market Operations Support are as follows.

- Levels 1-4 Qualified Scheduling Entities
- Independent Market Monitor
- ERCOT Wholesale Account Managers
- ERCOT Communications (info at ERCOT.com)
- ERCOT System Operations
- Internal ERCOT Compliance
- ERCOT Settlements and Billing
- ERCOT Credit

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

This program is administered by a supervisor and 27 FTEs.

G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

ERCOT System Administration Fee

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical or similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

N/A

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary at this time.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

N/A

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:

- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

| | |
|---|---|
| Name of Program or Function | **Retail Client Services** |
| Location/Division | Austin/Taylor, Texas/Market Operations |
| Contact Name | Trip Doggett |
| Actual Expenditures, FY 2008 | $847,924 |
| Number of FTEs as of August 31, 2008 | 10 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

The Retail Client Services program is responsible for providing market communication, accurate and timely market reporting, quality assurance and stable delivery of market systems, seamless administration of the governance process and for providing support to the nodal market implementation program.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

Retail Client Services staff provided business support for 138 market participant entities involved in day-to-day ERCOT operations, drafted and distributed 459 retail market notices, and delivered structured education sessions for 460 individuals. Retail Client Services provided support and acted as meeting facilitators for 123 retail subcommittees, working groups and task force meetings.

D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.

N/A

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

This function provides support to approximately 138 Retail Electric providers and six Transmission and Distribution System Providers (TDSPs). Client services also coordinate and facilitate mass transitions in situations of market participant default and voluntary withdrawal from the market. We are the single point of contact for retail market participants.

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

This program is administered by a supervisor and 10 FTEs.

G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

ERCOT System Administration Fee

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical or similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

N/A

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary at this time.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

N/A

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:

- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

| | |
|---|---|
| Name of Program or Function | **Wholesale Client Services** |
| Location/Division | Austin/Taylor, Texas/Market Operations |
| Contact Name | Trip Doggett |
| Actual Expenditures, FY 2008 | $1,776,980 |
| Number of FTEs as of August 31, 2008 | 21 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

The Wholesale Client Services program is responsible for facilitating the accurate exchange of information among generators and wholesale buyers and sellers while building and improving market participant satisfaction with their business transactions with ERCOT.

This program provides market service and communication, accurate and timely market registration, qualification, reporting, and provides support to the nodal market implementation program. WCS fulfills its objectives with the delivery of the following services to the wholesale market in support of ERCOT's protocol responsibilities.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

In 2008 Wholesale Client Services maintained a 99.35 percent rate for timely resolution of settlement disputes with a dispute volume averaging 129 disputes per month. Wholesale Client Services also delivered 364 hours of structured market training to 700 market participants and facilitated the complex start-up process of 19 new generation sites.

D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent

Client Service support of market participants started at the onset of the 2000 initiative to implement SB-7. The group started in 2000 as a group of five and by 2002 increased to a team of thirteen. At that point the

number of market participants grew rapidly, competitive retailers, qualified scheduling entities, resource entities. ERCOT met this growth in number and demands for assistance by implementing innovative processes while managing the growth of the staff to the level it is today.

Services for the most part were the same in 2000 as they are today; namely, provide support to Market Participants in fulfilling their business obligations with ERCOT. Business services became more complex over the years as new power market and control systems, market participant data, and web services were deployed.

Since 2000, ERCOT's support of market participant transactions with have become more complex and of higher volume. Efficiencies were gained through deployment of improved data and information management that made it possible to maintain business services with a much higher ERCOT staff to market participant ratio.

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

ERCOT Wholesale Client Services interacts with market participants:

- Qualified Scheduling Entity (QSE; Total of 303): Interacts with QSEs regarding registration, qualification, and day-to-day business services related to market operation, power operation, protocol application, settlement and billing transactions with ERCOT, and digital certificate access to ERCOT systems.

- Resource Entity (RE; Total of 281): Interacts with REs regarding registration, Resource asset registration, protocol application, digital certificate access to ERCOT systems, and coordination of new Resources preparing for first operation through ERCOT interconnection.

- Non-Opt In Load Servicing Entity (LSE, Total of 82): Interacts with NOIE LSEs regarding registration, protocol application, and with proper registration of wholesale delivery points.

- Transmission Service Providers (TSP) and Distribution Service Providers (DSP) (Total of 155): Interacts with TSP and DSP regarding registration, protocol application, digital certificate access to ERCOT systems, and registration of NOIE wholesale delivery points and Block Load Transfers.

- Congestion Revenue Rights Account Holders (CRRAH: Total of 88): Interacts with CRRAH regarding registration, qualification, protocol application, and digital certificate access to ERCOT systems.

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

This program is administered by a supervisor and 21 FTEs.

G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

ERCOT System Administration Fee

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical or similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

- Wholesale Client Services spent approximately $15,000 in 2008 on outside services.
- The expenditure was for one contract.
- The purpose of the contract was to enable and manage self-subscripted and controlled email communications across market participants, ERCOT governance, and the general public.
- ERCOT's Legal Division reviews terms and conditions of each contract. Ongoing contract administration relies on the expertise of specific program managers and supervisors and ERCOT contract management staff to determine value received.
- No contracting problems currently exist.

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary at this time.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

N/A

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:

- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

A. Provide the following information at the beginning of each program description.

| | |
|---|---|
| Name of Program or Function | **Nodal Market Implementation** |
| Location/Division | Austin/Taylor, Texas/Nodal |
| Contact Name | Mike Cleary |
| Actual Expenditures, FY 2008 | $132,544,604 |
| Number of FTEs as of August 31, 2008 | 143 |

B. What is the objective of this program or function? Describe the major activities performed under this program.

The key objective of this program is to implement changes associated with a nodal wholesale market redesign. The transition to a nodal market will require significant changes to processes and systems.

**The major components that will impact ERCOT's current business model include the following:**

- Day-ahead market (DAM)
- Reliability unit commitment (RUC)
- Real-time or security constrained economic dispatch (SCED)
- Congestion revenue rights (CRRs)

Each of these components is either new or will replace a current process.

**ERCOT is charged with delivering the capability to:**

- Directly assign congestion costs;
- Increase transparency of energy prices; and
- Enhance reliability and increase market efficiency.

**By:**

- Computing LMPs for 100 percent of settlement points, 100 percent of the time;
- Moving from portfolio-based dispatch to resource-specific dispatch;

- Running and settling the nodal markets to comply with 100 percent of the nodal protocol requirements, as measured by the accuracy of calculations, and compliance with prescribed operational timelines; and
- Creating a CRR market to adequately hedge the directly assigned congestion charges/credits.

**While achieving agreed program targets of:**

- Zonal market continuity, as measured by adherence to existing target levels of availability;
- Customer satisfaction, as measured by surveys of market participant and internal satisfaction with the program; and constituent projects' timeliness, as measured by achievement of key program milestones; and
- Budget, as measured by achievement of budget goals.

C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.

This will not be possible until after nodal go-live. However, estimates have been made on benefits to the market.

In December 2008, CRA International and Resero Consulting updated a previous cost-benefit analysis of the nodal program's costs and benefits. Their report "suggests that these other benefits are likely to be even greater in total than those characterized in the 2004 CBA."

The December 2008 CBA estimated consumer savings of approximately $5.6 billion over the first ten years of the nodal market.

D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.

In September 2003, PUC ordered ERCOT to develop a nodal wholesale market design. According to the finalized order, "the rule is expected to yield important benefits, such as a reduction in local congestion costs; reduced opportunities for gaming and manipulation in the wholesale electricity market; increased price transparency and liquidity in the wholesale electricity day-ahead energy market; increased locational price transparency for resources; more efficient and transparent dispatch of resources in real-time; improved siting of new resources; and a reduction in the amount of new transmission facilities needed to support the reliability of, and competition in, the wholesale electricity market.

These benefits will provide participants in the wholesale and retail markets with more accurate wholesale prices, which will facilitate better-informed price responses by customers in those markets.

More accurate pricing will lead to more efficient consumption decisions by end-use customers, and the rule may lead to large-scale deployment of advanced demand-response technologies and distributed generation resources, more sophisticated services, and increased efficiency in the consumption of electricity."

The Texas Nodal Program was initiated to implement the changes in PUC Substantive Rule §25.501, relating to Wholesale Market Design for the Electric Reliability Council of Texas.

The Texas Nodal Program exists to facilitate the transition from a zonal to a nodal market, and affects many business processes and systems, including: a day-ahead market (DAM), reliability unit commitment (RUC), real-time or security constrained economic dispatch (SCED), and congestion revenue rights (CRRs).

The redesigned grid will consist of more than 4,000 nodes, and will replace the current congestion management zones (CMZs).

The implementation of the nodal market design is expected to deliver the following benefits:

- Improved price signals
- Improved dispatch efficiencies
- Direct assignment of local congestion

E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.

This program affects all players in the ERCOT wholesale electric market.

F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.

**NODAL GOVERNANCE**

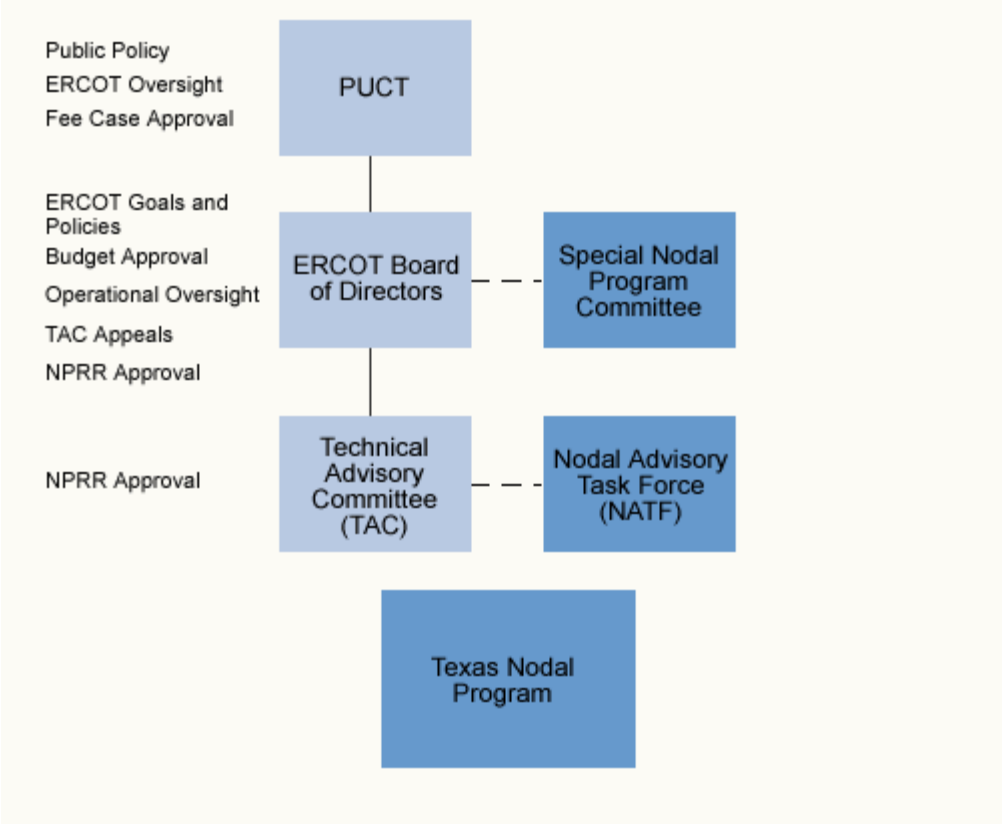
The Texas Nodal Program receives oversight from multiple groups. The PUC, ERCOT Board of Directors and Technical Advisory Committee (TAC) are responsible for policy. Two additional groups focus exclusively on the Nodal Program:

*Special Nodal Program Committee*

- Assists the ERCOT Board of Directors with oversight of the Nodal Program
- Reviews program budget, schedule, and scope
- Reviews program internal and external audit findings

*Nodal Advisory Task Force*

- Responds to ERCOT requests for Market Participant input on the nodal project
- Assists TAC Subcommittees with the transition to nodal
- Assists ERCOT in reviewing business processes and procedures
- Ensures consistency between Nodal Protocols and system design




G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).

The ERCOT Board of Directors approved a not-to-exceed budget of $643.8 million for the nodal market redesign program and the PUC has authorized recovery of that amount through a fee, the Nodal Implementation Surcharge, assessed to all qualified scheduling entities representing net metered generation in the ERCOT region.

At present, the PUC has approved and ERCOT assesses the Nodal Implementation Surcharge at a rate of $0.169 per megawatt-hour, approximately $0.17 per month for an average consumer using 1000 kilowatt-hours per month, if passed directly through to end-users.

A request to increase this rate to provide recovery of additional costs necessary to implement the nodal market redesign program is presently pending before the PUC. Revenues from this special fee may not be used to fund ERCOT's base operating requirements. The authority to collect the Nodal Implementation Surcharge will terminate upon recovery of the cost incurred to implement the nodal market redesign program.

To ensure the accuracy and completeness of the costs to implement the nodal market redesign program, the PUC has established a requirement for ERCOT to validate the cost of implementation shortly after nodal market go-live. Similarly, to ensure the Nodal Surcharge is terminated at the appropriate time,

shortly after ERCOT stops assessing the Nodal Implementation Surcharge the PUC will initiate proceeding to formally and officially determine that the Nodal Implementation Surcharge has been used by ERCOT to collect only those costs incurred to implement the nodal market redesign project.

ERCOT receives no federal grants, pass-through monies, nor state funding to fund the nodal market redesign program.

H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.

There are no other programs that provide identical or similar services or functions in the ERCOT region.

I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.

N/A

J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.

N/A

K. If contracted expenditures are made through this program please provide:

- the amount of those expenditures in fiscal year 2008;
- the number of contracts accounting for those expenditures;
- a short summary of the general purpose of those contracts overall;
- the methods used to ensure accountability for funding and performance; and
- a short description of any current contracting problems.

| **Vendor** | **Contract Summary** | **Methods Used to Ensure Accountability for Funding and Performance** | **Current Contracting Problems** | **FY 2008 Spend** |
|---|---|---|---|---|
| ABB | Software license for Market Management System (MMS) and Outage Scheduler (OS)<br><br>Consulting services to | Initial contract was competitively bid.<br><br>Time and materials contract for consulting services; ERCOT project team | ERCOT had issues with limited visibility into non-core code and was unable to fix some of the defects in-house. | $ 20,944,613 |

| | | | | |
|---|---|---|---|---|
| | modify MMS/OS software to meet protocol requirements | prioritized functionality to be provided for each release, reviewed estimates in advance, and inventoried functionality delivered; all Severity 1 and 2 defects in the Functional Acceptance Testing (FAT) environment were fixed prior to payment for the release, incenting the vendor to deliver high quality code. | In 2008, ABB did not always deliver the work that was prioritized in the expected release; ABB estimates were high; and ABB project management overhead was excessive.<br>OS software quality delivery was poor in 2008 with several re-opened defects; audit provisions for Professional Services Agreement (PSA) and license termination rights were unfavorable to ERCOT<br><br>In 2nd quarter 2009, ERCOT engaged EquaTerra to renegotiate the contracts with ABB and agreed upon a method to allow ERCOT to view code for estimation purposes for core code and for ERCOT to have access to non-core code. Additionally, ERCOT took over management of ABB's resources by putting an ERCOT Project Manager at ABB's site effective July 2009 ; put processes in place to enable faster turnaround times for defects; modified PSA audit and license termination rights to be reasonable; reduced hourly rates | |
| Areva | Software license for Energy Management System (EMS)<br><br>Consulting services to modify EMS software to meet protocol requirements | Initial contract was competitively bid.<br><br>Time and materials contract for consulting services; ERCOT project team prioritized functionality to be provided for each release, reviewed estimates in advance, and inventoried functionality delivered; all Severity 1 and 2 defects in the Functional Acceptance | Contract ended in July, 2009, leaving no software maintenance support between this date and go-live, expected in Dec 2010.<br>In 2nd quarter, 2009, ERCOT engaged EquaTerra to renegotiate Areva's contract through Dec 2010. Hourly rates were reduced. | $8,540,302 |

| | | | | |
|---|---|---|---|---|
| | | Testing (FAT) environment were fixed prior to payment for the release, incenting the vendor to deliver high quality code. | | |
| Siemens | Software license for Network Model Management System (NMMS)<br><br>Consulting services to modify NMMS software and network model to meet protocol requirements | Initial contract was competitively bid.<br><br>Fixed price deliverables based on defined project milestones for initial software releases; subsequent maintenance releases based on time and materials with agreed upon functionality; ERCOT project team reviewed estimates in advance; all Severity 1 and 2 defects in the Functional Acceptance Testing (FAT) environment were fixed prior to payment for the release, incenting the vendor to deliver high quality code. | In 2nd quarter, 2009, ERCOT engaged EquaTerra to renegotiate Siemen's contract through Dec 2010; modified PSA audit and license termination rights to be reasonable; reduced hourly rates | $4,634,067 |
| Nexant | Software license for Congestion Revenue Rights (CRR) software<br><br>Consulting services to modify CRR software to meet protocol requirements | Initial contract was competitively bid.<br><br>Fixed price deliverables based on defined project milestones; all Severity 1 and 2 defects in the Functional Acceptance Testing (FAT) environment were fixed prior to payment for the release, incenting the vendor to deliver high quality code. | In 2nd quarter, 2009, ERCOT renegotiated contract with Nexant where final milestone payments are conditional upon successful completion of annual auction post go-live. | $1,605,989 |
| Rome/ TriplePoint | Software license for Credit Monitoring and Management (CMM)<br><br>Consulting services to modify CMM software to meet protocol requirements | Fixed price deliverables based on defined project milestones; all Severity 1 and 2 defects in the Functional Acceptance Testing (FAT) environment were fixed prior to payment for the release. | Code quality was poor; defect rates were unacceptable; significant delays in code drops; high turnover.<br><br>ERCOT renegotiated the contract to take over project management; removed several deliverables from vendor and moved in-house; reduced contract amount. | $646,274 |
| Various | Information Technology | N/a | N/a | $12,145,858 |

| | | | | |
|---|---|---|---|---|
| | Infrastructure | | | |
| Various | Contingent Labor | N/a | N/a | $55,373,087 |

L. What statutory changes could be made to assist this program in performing its functions? Explain.

No statutory changes are necessary to assist the program implementation.

M. Provide any additional information needed to gain a preliminary understanding of the program or function.

N/A

N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:
- why the regulation is needed;
- the scope of, and procedures for, inspections or audits of regulated entities;
- follow-up activities conducted when non-compliance is identified;
- sanctions available to the agency to ensure compliance; and
- procedures for handling consumer/public complaints against regulated entities.

N/A

**Question O. does not apply to this program.**

**A. Provide the following information at the beginning of each program description.**

| | |
|---|---|
| **Name of Program or Function** | **Grid Security** |
| **Location/Division** | Austin/Taylor, Texas/Compliance |
| **Contact Name** | Charles Manning |
| **Actual Expenditures, FY 2008** | $2,195,244 |
| **Number of FTEs as of August 31, 2008** | 15 |

**B. What is the objective of this program or function? Describe the major activities performed under this program.**

The Grid Security program consists of the following functional areas: Cyber Security Operations, Architecture and Consulting, Policy and Process, and Physical Security. The major activities for each of the functional areas are described below.

Cyber Security Operations:

- Manages Enterprise Security Operations
- Designs, configures and operates security Intrusion Detection/Protection and Security Event Management systems
- Provides security monitoring and controls for ERCOT's control systems infrastructure
- Manages security threat & vulnerability systems & responses
- Leads cyber incident response
- Develops & leads cyber security investigations & forensics
- Provides security metrics & trend reports
- Evaluates & administers security technologies & systems

Architecture and Consulting:

- Architects & designs enterprise security solutions
- Consults on capital and O&M projects
- Leads technical aspect of security initiatives
- Researches security technologies
- Provides critical infrastructure protection and security research
- Leads and facilitates ERCOT member security activities
- Provides SME project support

Policy and Process:

- Develops & implements information security policies
- Develops & implements security awareness & training
- Develops & performs preventive or detective compliance controls
- Manages the security advisory committee and communication

Physical Security:

- Performs security operations including: 3 layer perimeter monitoring, control access for personnel and visitors, provide access availability as needed, incident response, investigations, fire and security patrols and equipment maintenance.
- Implements a security protection strategy that includes layered security technologies that integrate into a single security platform.
- Establishes security policies, standards and procedures that meet regulatory and corporate compliance requirements.
- Provides guidelines and recommendations for the understanding and use of the physical security access control equipment.
- Performs preventive maintenance, repair and inspection of all physical security equipment to ensure compliance to corporate and regulatory requirements.
- Provides SME project support

**C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.**

ERCOT ISO has successfully mitigated and prevented cyber and physical security threats through the effective implementation and operation of its Grid Security program. Grid Security monitoring metrics are produced on a monthly and quarterly basis and regularly reviewed by management to ensure the program remains effective and efficient.

**D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.**

The Grid Security program was established at the early inception of ERCOT and reorganized as a separate program in 2005. It supports the NERC Critical Infrastructure Protection requirements as well as SAS70 Control Objectives.

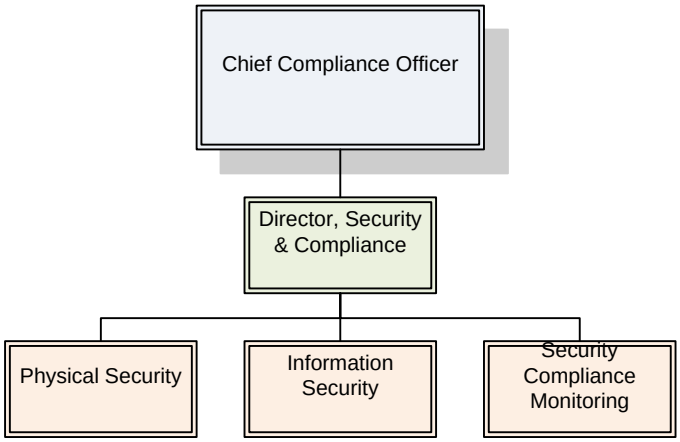
**E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.**

The Grid Security program affects ERCOT ISO infrastructure and personnel. The Grid Security program is integral to the functioning of the ERCOT market.

**F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.**

This program is administered by a supervisor and 15 FTEs.

The following depicts the organization of the program and how it is managed.




**G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).**

ERCOT System Administration Fee

**H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.**

There are no other programs that provide identical or similar services or functions in the ERCOT region.

**I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.**

N/A

**J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.**

N/A

**K. If contracted expenditures are made through this program please provide:**

- **the amount of those expenditures in fiscal year 2008;**
- **the number of contracts accounting for those expenditures;**
- **a short summary of the general purpose of those contracts overall;**
- **the methods used to ensure accountability for funding and performance; and**
- **a short description of any current contracting problems.**

- ERCOT Grid Security spent $1,118,602 in 2008 on outside services.
- The expenditures were for four contracts
- The purpose of these contracts was for security assessments, compliance gap assessments, application tool template creation, and contract security guard force.
- ERCOT's Legal Division reviews terms and conditions of each contract. Ongoing contract administration relies on the expertise of specific program managers and supervisors and ERCOT contract management staff to determine value received.
- No contracting problems currently exist.

**L. What statutory changes could be made to assist this program in performing its functions? Explain.**

No statutory changes are necessary at this time.

**M. Provide any additional information needed to gain a preliminary understanding of the program or function.**

N/A

**N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:**

- **why the regulation is needed;**
- **the scope of, and procedures for, inspections or audits of regulated entities;**
- **follow-up activities conducted when non-compliance is identified;**
- **sanctions available to the agency to ensure compliance; and**
- **procedures for handling consumer/public complaints against regulated entities.**

N/A

**Question O. does not apply to this program.**

**A. Provide the following information at the beginning of each program description.**

| | |
|---|---|
| **Name of Program or Function** | **NERC/FERC Compliance** |
| **Location/Division** | Austin/Taylor, Texas/Compliance |
| **Contact Name** | Charles Manning |
| **Actual Expenditures, FY 2008** | NERC/FERC Compliance activities were decentralized across ERCOT in 2008. Therefore, actual figures for 2008 are not available. |
| **Number of FTEs as of August 31, 2008** | See above. |

**B. What is the objective of this program or function? Describe the major activities performed under this program.**

The key services of the NERC/FERC Compliance program are to monitor and document ERCOT ISO's compliance with all relevant statutory and non-statutory requirements; monitor and participate in the development of these standards; and to demonstrate ERCOT ISO's compliance at audits.

**C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.**

1. ERCOT is registered as seven entities with NERC and must be compliant with 80 standards equating to 820 requirements (as of 2009). The number of standards and requirements will increase when FERC approves more standards. The Compliance group prepares all supporting documentation for the audit and ensures that ERCOT is prepared for the audit.

2. The Compliance program also identifies possible non-compliance with the NERC standards and helps ERCOT Self Report and develop mitigation plans. The Compliance function also helps ERCOT develop mitigation plans for potential notices of non-compliance identified by NERC from Final Audit Reports and Final Compliance Violation Investigation reports.

3. Compliance function has submitted and received NERC approval for 15 Mitigation Plans. As of September, 2009, the Compliance function is responsible for developing an additional 17

Mitigation Plans as the result of the 2008 Final Audit Report and the 2008 CVI Preliminary Report.

4. In addition to the increase in approved standards, the current approved standards and requirements are undergoing revision and are changing through the NERC Standards Revisions process. The Compliance function is responsible for participating in this process. The Compliance function is also responsible for voting on NERC ballots and providing comments on NERC Standards and interpretations etc. As of July 14th, 2009, NERC had 49 Standard Drafting Teams open for participation and 21 Interpretations open for comments.

5. ERCOT is audited by NERC each year and must be audibly compliant with all FERC-approved standards and requirements (currently 80 standards equating to 820 requirements for 2009). Compliance function is to ensure that ERCOT is prepared for the annual audit.

**D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.**

ERCOT established a centralized Compliance and Security division in 2008, headed by a Chief Compliance Officer (CCO). The CCO is responsible for ERCOT ISO compliance and for reporting all compliance activities to the ERCOT Board.

The function was created to monitor and demonstrate ERCOT ISO's compliance with FERC and NERC statutory requirements, and with ERCOT Protocols and Operating Guides.

As a result of the Energy Policy Act 2005, on July 20, 2006, the Federal Energy Regulatory Commission (FERC) issued an order in Docket No. RR06-1-000 certifying the North American Electric Reliability Corporation ("NERC") as the nation's Electric Reliability Organization ("ERO") under Section 215 of the Federal Power Act. The FERC Order defines the authorities and responsibilities of the ERO, approved regional entities, and the bulk power system owners, operators, and users subject to FERC and ERO jurisdiction. FERC started approving NERC reliability standards, establishing them as mandatory (therefore enforceable) as of June 18th, 2007.

The Standards Compliance and Development functions were created to monitor and demonstrate ERCOT ISO's compliance with FERC and NERC statutory requirements.

**E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.**

The NERC/FERC Compliance program affects the whole of the ERCOT organization, through the demonstration of a culture of compliance and the need for each responsible business unit being responsible for monitoring and demonstrating compliance with relevant statutory and non-statutory standards and requirements. Because ERCOT ISO is registered as seven entities with NERC, some of the standards and requirements are shared with market participants in the ERCOT Region.

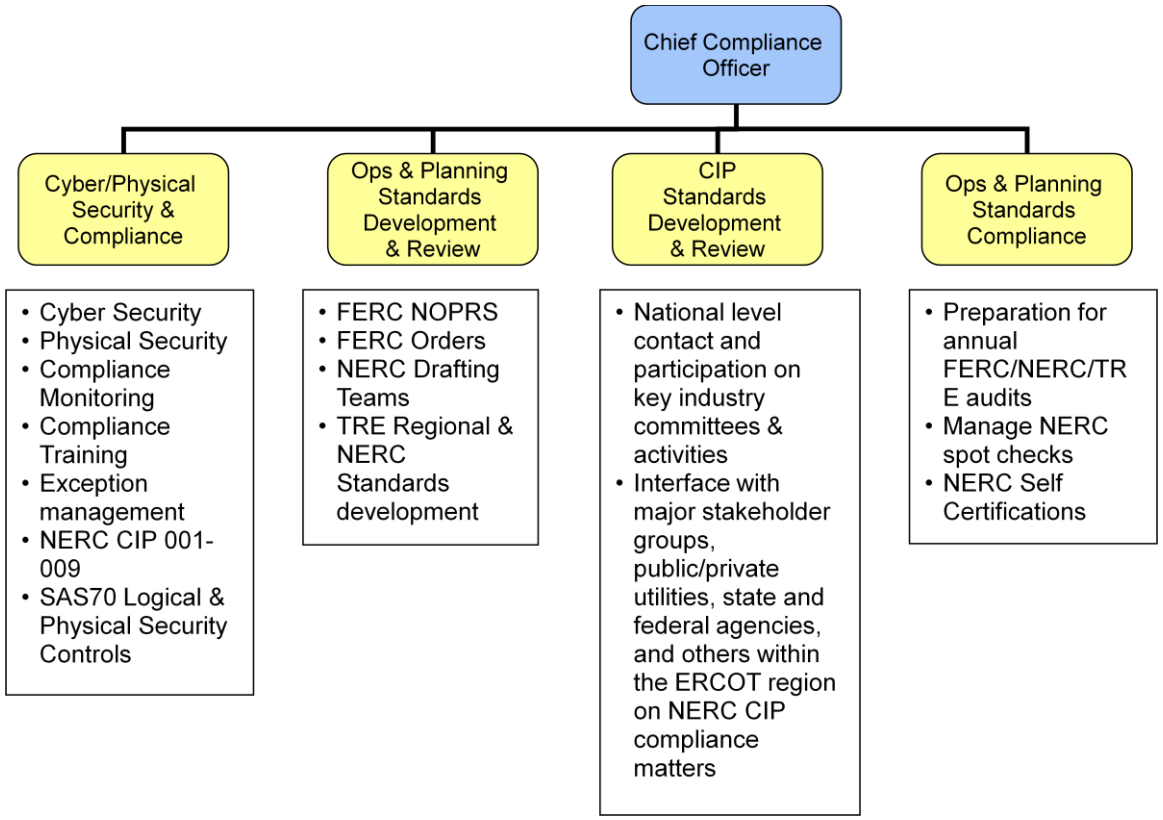
**F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.**

This program is administered by a supervisor and 11 FTEs.

All FERC, NERC and Regional Entity (TRE) functions for the NERC Reliability Standards are administered as per the requirements and timelines detailed in the NERC Rules of Procedure. Therefore the Compliance division's functions are also administered to that described in the NERC Rules of Procedures which includes (but not limited) the following:

- Audits and associated documentation
- Spot Checks
- Self Reporting
- Event Driven Reports
- Compliance Monitoring
- Enforcement Program and Settlements
- Requests For Information (RFI)
- Compliance Violation Investigation (CVI)
- Organization Registration and Certification
- Reliability Readiness Evaluation and Improvement

The Compliance division is also responsible to meet the administrative requirements and timelines outlined in the ERCOT Protocols, Operating Guides and all PUC rules.




**G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).**

ERCOT System Administration Fee

**H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.**

There are no other programs that provide identical or similar services or functions in the ERCOT region.

**I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.**

N/A

**J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.**

N/A

**K. If contracted expenditures are made through this program please provide:**

- **the amount of those expenditures in fiscal year 2008;**
- **the number of contracts accounting for those expenditures;**
- **a short summary of the general purpose of those contracts overall;**
- **the methods used to ensure accountability for funding and performance; and**
- **a short description of any current contracting problems.**

N/A

**L. What statutory changes could be made to assist this program in performing its functions? Explain.**

No statutory changes are necessary at this time.

**M. Provide any additional information needed to gain a preliminary understanding of the program or function.**

N/A

**N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:**

- **why the regulation is needed;**
- **the scope of, and procedures for, inspections or audits of regulated entities;**
- **follow-up activities conducted when non-compliance is identified;**
- **sanctions available to the agency to ensure compliance; and**
- **procedures for handling consumer/public complaints against regulated entities.**

N/A

**Question O. does not apply to this program.**

**A. Provide the following information at the beginning of each program description.**

| | |
|---|---|
| **Name of Program or Function** | **Texas Regional Entity (TRE)** |
| **Location/Division** | 2700 Via Fortuna, Suite 225, Austin, TX, 78746 |
| **Contact Name** | Susan Vincent, Director, Legal Affairs |
| **Actual Expenditures, FY 2008** | $4,055,538 |
| **Number of FTEs as of August 31, 2008** | 23.5 |

**B. What is the objective of this program or function? Describe the major activities performed under this program.**

The objective of the Texas Regional Entity (TRE) program is to preserve and enhance reliability across the ERCOT region by encouraging a culture of compliance among all users, owners, and operators of the ERCOT region bulk-power system.

TRE is a functionally independent division of ERCOT that was formed to perform the following two types of activities:

1. Monitor and report to the PUC on compliance by ERCOT and electric market participants with the ERCOT procedures and monitor implementation of corrective actions (mitigation plans) by market entities who are found to be non-compliant, pursuant to the Public Utility Regulatory Act and
2. Develop, monitor, report, and enforce compliance by users, owners, and operators of the ERCOT region bulk-power system with NERC Reliability Standards and perform other activities as delegated by NERC, pursuant to Section 215 of the Federal Power Act.

PURA Activities comprise approximately 15% of the time and expenses of TRE personnel. The major activities performed by TRE as PURA activities include:

1. Monitoring of compliance with the Protocols by market entities by:

    - Performing compliance audits
    - Creating and reviewing responses to self-certifications
    - Analyzing and investigating significant events
    - Reviewing and processing complaints (of possible non-compliance) and incident reports
    - Reviewing data and information required by the Protocols and other electric reliability-related data to determine compliance or non-compliance with the Protocols

2. Requiring, reviewing, and monitoring the implementation of mitigation plans to correct non-compliance with the Protocols
3. Reporting confirmed violations of Protocols to the PUC
4. Informing PUC staff regarding the status of PURA activities
5. During 2009, TRE also assisted the PUC staff in facilitating the development of reliability metrics for the new Nodal market redesign in the ERCOT region and in commenting on the reliability impact of other proposed Protocol Revision Requests.

NERC Activities comprise approximately 85% of the time and expenses of TRE personnel. The major activities performed by TRE as NERC activities include:

1. Proposing and facilitating the development of regional reliability standards through the TRE Reliability Standards Development Process
2. Participating in the continent-wide Standards development process
3. Managing the registration of responsible entities (users, owners, and operators of the ERCOT region bulk-power system) with NERC
4. Monitoring of compliance with the Standards by Registered Entities by:

    - Performing compliance audits
    - Creating and reviewing responses to self-certifications
    - Analyzing and investigating significant events
    - Reviewing and processing complaints (of possible non-compliance) and incident reports
    - Spot checking
    - Receiving, reviewing, and responding to registered entity self reports of violations of Standards
    - Reviewing data and information required by the NERC Reliability Standards and other electric reliability-related data to determine compliance or non-compliance with the standards

5. Requiring, reviewing, and monitoring the implementation of mitigation plans to correct non-compliance with Standards
6. Reporting possible and confirmed violations of Standards to NERC
7. Informing NERC staff regarding the status of NERC Activities
8. Documenting and communicating with Registered Entities regarding possible and confirmed violations of Standards
9. Determining penalties for confirmed violations of Standards
10. Negotiating settlements for confirmed violations of Standards
11. Prosecuting enforcement actions for contested violations of Standards against registered entities
12. Handling appeals of contested violations and registrations matters
13. Coordinating and reviewing reliability assessments in the ERCOT region

14. Maintaining on-going training for and communications with registered entities regarding their Standards compliance obligations
15. Collaborating with and coordinating activities with other regional entities and NERC related to standards development, compliance monitoring, and enforcement

**C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.**

**2008 PURA Activities Statistics**:

| Audits | Complaints | Events Analyzed | Self Reports | Violations reported to PUCT |
|---|---|---|---|---|
| 13 | 10 | 77 | 1 | 24 (1 later dismissed) |

**2008 NERC Activities Statistics**:

| Entities Registered | Audits | Complaints | Events Analyzed | Self-Certifications |
|---|---|---|---|---|
| 214 | 40 | 4 | 77 | 466 |

| Spot Checks | Self Reports | Alleged Violations (by violation date) | Standard Authorization Requests Processed |
|---|---|---|---|
| 9 | 11 | 39 (2 later dismissed) | 7 |

**D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.**

The former Compliance department of ERCOT historically performed all PURA activities for the ERCOT region. Traditionally (until 2005), the Federal Energy Regulatory Commission (FERC) did not have jurisdiction in the ERCOT region, because transmission and distribution facilities in the ERCOT region do not synchronously connect with any electric utilities operating outside of Texas.

After the northeast blackout in August 2003, the Energy Policy Act of 2005, which, among other things,

authorized the creation of a self regulatory electric reliability organization to establish and enforce reliability standards for the bulk-power system, subject to review by FERC, was passed by Congress and signed into law in August 2005. This became Section 215 of the Federal Power Act. NERC was selected by FERC as the authorized electric reliability organization for the United States. NERC was authorized to delegate responsibility for the development, monitoring, assessment, and enforcement of the reliability standards to one or more regional entities. Section 215 of the Federal Power Act provides for FERC to have jurisdiction within the United States to any regional entity and to all users, owners, and operators of the bulk-power system, (for purposes of approving and enforcing reliability standards), including those users, owners, and operators in the ERCOT region.

TRE was created and began acting as a functionally independent division of ERCOT ISO on May 18, 2007, when TRE approved delegation agreement with NERC was filed with the FERC. As mandated by its delegation agreement, TRE performs the regional entity functions described in the Energy Policy Act of 2005 for the ERCOT region. TRE is authorized by NERC to develop, monitor, assess, and enforce compliance with NERC reliability standards within the geographic boundaries of the ERCOT region.

**E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.**

The program primarily affects the users, owners, and operators of the bulk-power system and specifically market entities of ERCOT that have reliability-based obligations under the ERCOT Protocols and Operating Guides and Registered Entities.

The affected market entities in ERCOT are the Transmission Distribution Service Providers, Qualified Scheduling Entities representing resources, distribution providers, and resources identified in the ERCOT materials.

There were 214 Registered Entities with 327 registered functions in the ERCOT region as of December 31, 2008. ERCOT was (and is) the only Reliability Coordinator, Balancing Authority, Planning Authority, Resource Planner, Transmission Operator, Transmission Service Provider, and Interchange Authority. On December 31, 2008 there were 43 Distribution Providers, 110 Generator Owners, 75 Generator Operators, 39 Purchasing Selling Entities, 29 Transmission Owners, and 24 Transmission Planners. Some of these entities perform multiple NERC registered functions. The NERC Statement of Registry Criteria listing the characteristic for each NERC function is available on the NERC website at http://www.nerc.com/files/Statement_Compliance_Registry_Criteria-V5-0.pdf.

**F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.**

For PURA Activities, TRE follows the ERCOT Compliance Process, which was approved by the PUC in 2006 and is being revised to address the changes needed due to the TRE's modified role.

For NERC Activities, TRE follows its Delegation Agreement with NERC, the NERC Rules of Procedure including the Compliance Monitoring and Enforcement Program (CMEP), and the TRE Standards Development Process.

**G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).**

TRE received total revenue of $3,944,516 for 2008. TRE has separate budgets and funding sources for its PURA Activities and its NERC Activities.

**PURA Activities**: TRE is paid (as a division of ERCOT) through the ERCOT System Administration Fee for its PURA Activities. For 2008, TRE had an approved budget of $848,782, but it is paid only the amount needed to reimburse its actual expenses for the PURA Activities; so TRE received funding from the System Administration Fee of **$648,450** for 2008 PURA Activities.

**NERC Activities**: For 2008, TRE had funding for NERC Activities of **$3,296,066**. TRE is paid the amount of its approved annual budget by NERC, pursuant to its Delegation Agreement, on a quarterly basis. NERC assesses an annual fee (NERC Fee) which includes: (1) a pro-rata share (based upon electric load in the ERCOT region compared to the load in the total of all 8 regions) of the approved budgeted cost of NERC's activities under Section 215 of the Federal Power Act and (2) the approved TRE budget (revenue) for its NERC Activities. ERCOT ISO acts as the billing agent for NERC, pursuant to the TRE Delegation Agreement. ERCOT sends invoices to and collects the amount of the NERC Fee from QSEs on a pro-rata basis, based upon each QSE's load. ERCOT then sends the collected revenues to NERC on a quarterly basis. NERC then pays TRE its quarterly payment and retains the remainder to cover its portion of the Fee. (ERCOT only has to send NERC the amount it actually collects and ERCOT will notify NERC of any funds it has been unable to collect after using commercially reasonable efforts.)

**Pass-Through Monies**: TRE hosts an annual System Operations Training Seminar and collects a fee from all participants. The participation fee offsets the cost of the Seminar. Any excess funds would be used for NERC Activities.

**H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.**

**PURA Activities:** No other entity performs identical or similar services or functions to TRE's PURA Activities in Texas. The Independent Market Monitor (who is currently Potomac Economics and reports to the PUC) performs the most similar services, but it provides compliance monitoring activities for the electric market-based ERCOT procedures and not for the electric reliability-based ERCOT procedures that are monitored by TRE.

**NERC Activities:** There are seven (7) other regional entities that perform similar NERC Activities in other areas of the country (as listed previously). None of these are in the ERCOT region. Southwest Power Pool, SERC Reliability Corporation, and Western Electric Coordinating Council each perform NERC Activities in small areas of Texas that are not in the ERCOT region.

**I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.**

There is no possible duplication of TRE services or activities. There is no other entity in the ERCOT region that performs the PURA Activities. TRE coordinates its activities with the PUC to ensure that its activities do not overlap the functions of ERCOT or conflict with any activities by the PUC or any market entity.

TRE coordinates its NERC Activities with NERC and the other regional entities to ensure performance is consistent for entities that do business and are also registered with NERC in other regions.

**J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.**

**PURA Activities**:

TRE routinely communicates and works with PUC staff regarding its PURA Activities and provides subject matter expertise to the PUCT for its enforcement actions under PURA. The PUC oversees the PURA activities of TRE. In 2009, TRE worked regularly with the PUC staff on (1) the review and analysis of new reliability metrics for the nodal market redesign and (2) the effect of requested Protocol changes on bulk-power system reliability.

**NERC Activities**:

TRE routinely communicates with FERC staff regarding NERC Activities and makes routine filings with FERC regarding NERC Activities. FERC oversees the NERC Activities of TRE.

The PUC acts as the hearing body for contested cases involving reliability standards compliance. There have not been any contested cases filed, but TRE will work with PUC staff as it prosecutes any such contested cases (before the PUC) that are filed by registered entities.

**K. If contracted expenditures are made through this program please provide:**

- **the amount of those expenditures in fiscal year 2008;**
- **the number of contracts accounting for those expenditures;**
- **a short summary of the general purpose of those contracts overall;**
- **the methods used to ensure accountability for funding and performance; and**
- **a short description of any current contracting problems.**

In 2008, TRE paid $1,041,039.89 to 14 vendors (including ERCOT ISO) through contracts. The contracts with these vendors were as follows:

- ERCOT ISO (Memorandum of Understanding) – provided human resources, treasury, accounting, risk management, facilities, information technology, and Board-related services
- K&L Gates – external legal counsel
- Guidance Solutions, Inc. – provided compliance portal software and hosting services
- ICF Resources, LLC – provided a review of technical policies and procedures
- Midwest Reliability Organization (MRO) – provided software (RSVP system software) that supports Texas RE's standards development process
- PricewaterhouseCoopers, LLP – financial statement auditors
- Insite (Dennis Caufield) – consultant used to cover for senior engineer who was out on medical leave
- Tim JohnPress – management consultant used for training
- Softech International dba 360 Training – training software and materials for NERC continuing education certifications
- G & M Catering – used to provide food and service for training seminars, and meetings for NERC work groups
- Media Mastery, Inc – used to facilitate management development
- Jani Whitesides dba Whitesides Design – used to assist IT manager develop website parameters and templates
- EthicsPoint, Inc. – vendor for website by which market participants, employees, and third parties can confidentially report compliance violations, ethics violations and/or other grievances
- TexasAdmin.com – vendor used to provide web access to PUCT and ERCOT meetings

| Texas Regional Entity | | |
|---|---|---|
| **Contracts and Amounts Paid in 2008** | | |
| **Prepared: 8/12/2009** | | |
| | | |
| **Vendor Name** | **Amount** | |
| ERCOT (MOU) | $ 680,086.12 | |
| K&L Gates | 135,804.81 | |
| Guidance Solutions, Inc. | 79,240.00 | |
| ICF Resources, LLC | 42,500.00 | |
| Midwest Reliability Organization (MRO) | 28,000.00 | |
| PricewaterhouseCoopers, LLP | 23,000.00 | |
| Insite (Dennis Caufield) | 21,093.00 | |
| Tim JohnPress | 10,300.00 | |
| Softech International dba 360 Training | 5,949.35 | |
| G & M Catering | 4,420.99 | |
| Media Mastery, Inc. | 3,525.00 | |
| Jani Whitesides dba Whitesides Design | 3,345.62 | |
| EthicsPoint, Inc. | 2,900.00 | |
| TexasAdmin.com | 875.00 | |
| **Total** | **$ 1,041,039.89** | |
| | | |
| | | |

The methods used to ensure accountability for funding and performance were compliance with the same corporate policies, standards, and procedures that are applicable to ERCOT ISO staff. TRE managers are required to ensure that all contracts have been reviewed and approved as to form by legal with proper authorization by management, and/or officers (according to the Delegation of Authority). Invoices submitted by contract vendors are reviewed and approved by the responsible managers, to ensure work has been performed, and then compared to contractual requirements before expenses are processed for payment by TRE finance and ERCOT accounts payable staff. Unless all of the requirements, terms and conditions of a contract have been fulfilled, the invoice cannot be approved or processed for payment.

TRE is not aware of any contracting issues, concerns or problems.

**L. What statutory changes could be made to assist this program in performing its functions? Explain.**

No statutory changes are necessary at this time.

**M. Provide any additional information needed to gain a preliminary understanding of the program or function.**

N/A

**N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:**

- **why the regulation is needed;**
- **the scope of, and procedures for, inspections or audits of regulated entities;**
- **follow-up activities conducted when non-compliance is identified;**
- **sanctions available to the agency to ensure compliance; and**
- **procedures for handling consumer/public complaints against regulated entities.**

TRE does not regulate but performs duties for the PUC.

TRE has delegated authority from NERC; NERC has authority certified by FERC.

**O. For each regulatory program, if applicable, provide the following complaint information. The chart headings may be changed if needed to better reflect your agency's practices.**

**TRE**
**Exhibit 12: Information on Complaints Against Regulated Persons or Entities**
**Fiscal Years 2007 and 2008**

| | **FY 2007** | **FY 2008** |
|---|---|---|
| Total number of regulated persons | NA | NA |
| Total number of regulated entities | PURA: See ERCOT information<br>NERC: 176 | NERC: See ERCOT information<br>NERC: 214 |
| Total number of entities inspected (audited or spot checked) | 48 | 26 |
| Total number of complaints received from the public (these are complaints about market entities – not Texas RE) | 19 | 14 |
| Total number of complaints initiated by agency | NA | NA |
| Number of complaints pending from prior years (as of 8/2009) | 0 | 6 |
| Number of complaints found to be non-jurisdictional | NA | NA |
| Number of jurisdictional complaints found to be without merit | | |
| Number of complaints resolved (completed) | 19 | 8 |
| Average number of days for complaint resolution (PURA only) | 57.7 | 103.6 |

| | | |
|---|---|---|
| Complaints resulting in disciplinary action: (PURA – sent to PUCT; NERC – confirmed notice of penalty filed with FERC) | PURA: 10<br>NERC: 0 | PURA: 8<br>NERC: 0 |
| administrative penalty | NA (PUCT manages for PURA)<br>NERC: 0 | NA (PUCT manages for PURA)<br>NERC: 0 non-confidential |
| reprimand | NA | NA |
| probation | NA | NA |
| suspension | NA | NA |
| revocation | NA | NA |
| other | NA | NA |

**A. Provide the following information at the beginning of each program description.**

| | |
|---|---|
| **Name of Program or Function** | **Credit Risk Management** |
| **Location/Division** | Austin/Taylor, Texas/Finance |
| **Contact Name** | Cheryl Yager |
| **Actual Expenditures, FY 2008** | Credit Risk Management activities were decentralized across ERCOT in 2008. Therefore, actual figures for 2008 are not available. |
| **Number of FTEs as of August 31, 2008** | See above. |

**B. What is the objective of this program or function? Describe the major activities performed under this program.**

1. The Credit Risk Management function within ERCOT provides for the management and administration of ERCOT Market Rules (Protocols) concerning financial or credit requirements that exist to maintain the financial stability of the market in the ERCOT Region and apply to all market participants.

This function specifically performs the services required under the Protocols, such as:

- Review and approve Credit Application for Entities applying to become a QSE or TCR Account Holder
- Obtain and review financial statements and establish unsecured credit limits for Qualified Scheduling Entities (QSEs), Transmission Congestion Rights (TCR) Account Holders or their guarantors
- Determine credit limits for TCR Account Holders for TCR auctions
- Monitor credit exposure and determine the amount of collateral needed from QSEs on an ongoing basis
- Issue collateral requests and manage collateral held for QSEs or TCR Account Holders
- Take enforcement actions as provided in the Protocols for payment defaults and late payments

2. In addition, the Credit Risk Management function provides information to and works with the Public Utility Commission of Texas, the ERCOT Board of Directors, the Technical Advisory Committee and other stakeholders to address credit risk in the ERCOT market as they seek to maintain the long-term financial integrity of that market.

**C. What evidence can you provide that shows the effectiveness and efficiency of this program or function? Provide a summary of key statistics and performance measures that best convey the effectiveness and efficiency of this function or program.**

The Credit Risk Management function within ERCOT has successfully provided for the management and administration of ERCOT Market Rules (Protocols) concerning financial and credit requirements that exist to maintain the financial stability of the market in the ERCOT Region and apply to all market participants. This function has been able to reduce or eliminate losses in the ERCOT market through the selective extension of credit and by maintaining adequate levels of collateral in the event of a default of a market participant.

**D. Describe any important history regarding this program not included in the general agency history section, including how the services or functions have changed from the original intent.**

The functions described in B. above have been in place since the market opened in 2001.

Beyond the day-to-day credit management processes, the Credit Risk Management function has played key roles to address credit risk when market participants default in the market, both when entities leave the market through Mass Transition and when they restructure through the bankruptcy process.

In addition, the Credit Risk Management function has and continues to highlight credit risk factors and work with stakeholders to understand and reduce credit risk in the market (e.g. propose changes to Protocols to strengthen default provisions, reduce number of days in Mass Transition process, etc).

The Credit Risk Management function will be needed as long as there are financial transactions in the ERCOT market. In fact, the function will have increased responsibilities with the addition of new markets (Day Ahead) and the more complex structure of the Nodal market.

**E. Describe who or what this program or function affects. List any qualifications or eligibility requirements for persons or entities affected. Provide a statistical breakdown of persons or entities affected.**

This function directly impacts all Qualified Scheduling Entities (QSEs) and Transmission Congestion Rights (TCR) Account Holders in the ERCOT market, both at entry into the market and on an ongoing basis as long as they are in the market.

**F. Describe how your program or function is administered. Include flowcharts, timelines, or other illustrations as necessary to describe agency policies and procedures. List any field or regional services.**

This program is administered by a supervisor and 6 FTEs.

The activities of the function are reviewed regularly by the Board of Directors and interact directly with market participants via a standing work group (the Credit Work Group) organized under the Finance and Audit committee of the Board.

- Review and approve Credit Application for Entities applying to become a QSE or TCR Account Holder – as applications are received
- Obtain and review financial statements and establish unsecured credit limits for Qualified Scheduling Entities (QSEs), Transmission Congestion Rights (TCR) Account Holders or their guarantors – detailed reviews occur quarterly and monitoring occurs daily based on press releases and other information available in the market
- Determine credit limits for TCR Account Holders for TCR auctions – generally occurs quarterly with ad hoc adjustments made as needed
- Monitor credit exposure and determine the amount of collateral needed from QSEs on an ongoing basis – monitoring for changes in activity occur daily with calculations done at least weekly
- Issue collateral requests and manage collateral held for QSEs or TCR Account Holders – as activity warrants, usually weekly
- Take enforcement actions as provided in the Protocols for payment defaults and late payments – as needed
- Reporting on market-wide credit risk – occurs at least quarterly and as needed
- Work with stakeholders (PUC, BOD and market) on credit risk issues – as needed, generally monthly

**G. Identify all funding sources and amounts for the program or function, including federal grants and pass-through monies. Describe any funding formulas or funding conventions. For state funding sources, please specify (e.g., general revenue, appropriations rider, budget strategy, fees/dues).**

ERCOT System Administration Fee

**H. Identify any programs, internal or external to your agency, that provide identical or similar services or functions. Describe the similarities and differences.**

There are no other programs that provide identical or similar services or functions in the ERCOT market.

**I. Discuss how the program or function is coordinating its activities to avoid duplication or conflict with the other programs listed in Question H and with the agency's customers. If applicable, briefly discuss any memorandums of understanding (MOUs), interagency agreements, or interagency contracts.**

N/A

**J. If the program or function works with local, regional, or federal units of government include a brief description of these entities and their relationship to the agency.**

N/A

**K. If contracted expenditures are made through this program please provide:**

- **the amount of those expenditures in fiscal year 2008;**
- **the number of contracts accounting for those expenditures;**
- **a short summary of the general purpose of those contracts overall;**
- **the methods used to ensure accountability for funding and performance; and**
- **a short description of any current contracting problems.**

- ERCOT Credit Administration spent $769,250 on outside services in 2008.
- The expenditure was for one contract – Oliver Wyman & Co.
- The purpose of the contract was to provide ERCOT with a credit-scoring model and credit loss model
- ERCOT's Legal Division reviews terms and conditions of each contract. Ongoing contract relies on the expertise of specific program managers and supervisors and ERCOT contract management staff to determine value received.
- No contracting problems currently exist

**L. What statutory changes could be made to assist this program in performing its functions? Explain.**

No statutory changes are necessary at this time.

**M. Provide any additional information needed to gain a preliminary understanding of the program or function.**

N/A

**N. Regulatory programs relate to the licensing, registration, certification, or permitting of a person, business, or other entity. For each regulatory program, if applicable, describe:**

- **why the regulation is needed;**
- **the scope of, and procedures for, inspections or audits of regulated entities;**
- **follow-up activities conducted when non-compliance is identified;**
- **sanctions available to the agency to ensure compliance; and**
- **procedures for handling consumer/public complaints against regulated entities.**

N/A

**Question O. does not apply to this program.**

## VIII. Statutory Authority and Recent Legislation

**A.Fill in the following chart, listing citations for all state and federal statutes that grant authority to or otherwise significantly impact your agency. Do not include general state statutes that apply to all agencies, such as the Public Information Act, the Open Meetings Act, or the Administrative Procedure Act. Provide information on Attorney General opinions from FY 2005 – 2009, or earlier significant Attorney General opinions, that affect your agency's operations.**

| **ERCOT**<br>**Exhibit 13: Statutes/Attorney General Opinions** | |
|---|---|
| **Statutes** | |
| **Citation/Title** | **Authority/Impact on Agency**<br>(e.g., Aprovides authority to license and regulate nursing home administrators@) |
| Federal Power Act (FPA), Title 16, Chapter 12, Subchapter II, § 824k | Providing that a FERC order requiring the provision of transmission services in whole or in part in ERCOT must provide that any ERCOT utility, that is not a public utility, can recover its costs consistent with the Commission's ratemaking methodology.<br><br>Defining "ERCOT" and "ERCOT utility." |
| FPA § 824p | Providing that FERC's siting requirements for interstate electric transmission facilities do not apply in ERCOT. |
| FPA § 824q | Providing that FERC's native load service obligations do not apply in ERCOT. |
| FPA §824t | Providing that FERC's electric market transparency rules do not apply to transactions for the purchase or sale of wholesale electricity or transmission services in ERCOT. |
| Energy Policy Act of 2005 (EPact), § 1221 | Providing that FERC's siting requirements for interstate electric transmission facilities do not apply in ERCOT. |
| EPAct § 215 | Created the Electric Reliability Organization (ERO), under FERC oversight, to establish and enforce reliability standards for the bulk power system, including the imposition of penalties. |

| | |
|---|---|
| EPAct § 217 | Providing that FERC's native load service obligations do not apply in ERCOT. |
| EPAct § 722 | Providing that a FERC order requiring provision of transmission services in whole or in part in ERCOT must provide that any ERCOT utility, that is not a public utility, can recover its costs consistent with the Commission's ratemaking methodolody.<br><br>Defining "ERCOT" and "ERCOT utility". |
| American Recovery and Reinvestment Act of 2009, Title IV, H.R. 1-24 and 1-25 | Allows "Texas Interconnection" to apply for economic stimulus funding. |
| Public Utility Regulatory Act (PURA) § 39.151 | Enabling statute |
| PURA § 39.1511 | Public meetings requirements |
| PURA § 39.1512 | Conflict of interest disclosure requirements |
| PURA § 39.1515 | Contracting and funding of the market monitor for the wholesale electricity market. |
| PURA § 39.152 | Qualifying power region certification requirements |
| PURA § 39.155 | Annual reporting requirement related to transmission and distribution constraints and system needs. |
| PURA § 39.904 | Providing that the Commission will consult with ERCOT before designating Competitive Renewable Energy Zones (CREZs), developing a transmission plan to deliver wind generation from the CREZs to consumers in the most beneficial and cost-effective manner, and submitting biennial reports on CREZ implementation.<br><br>Biennial reporting requirements related to the need for more transmission and generation capacity within the state. |
| PURA § 35.004 | Providing that ERCOT can acquire ancillary services on behalf entities selling electricity on a nondiscriminatory basis and help the Commission meet its ancillary service requirements. |

| | |
|---|---|
| | Requiring the Commission to allow a utility that provides wholesale transmission services on behalf of a third party to recover its costs.<br><br>Requiring the Commission to set the wholesale transmission rate in ERCOT using a postage stamp rate. |
| PURA § 37.051 | Requiring Certificate of Convenience and Necessity (CCN) applicants to comply with ERCOT's requirements.<br><br>Allowing the Commission to issue a CCN for a facility that is part of ERCOT's transmission system or consider an CCN application by an entity that is not currently certificated as an "electric utility" in ERCOT. |
| PURA § 38.005 | Requiring an electric utility, transmission and distribution utility (TDU), electric cooperative, municipally owned utility, and generation provider to comply with ERCOT's operational criteria. |
| PURA § 39.107 | Providing that metering services for commercial and industrial customers that are required by ERCOT to have an interval data recorder meter can be provided on a competitive basis. |
| PURA § 39.152 | Providing the Commission's capacity auction requirements, subject to ERCOT oversight and consultation. |
| PURA § 39.157 | Providing that an electric utility cannot release proprietary customer information to a competitive affiliate or any other entity, other than ERCOT or provider of corporate support services, without obtaining prior verifiable authorization, as determined by the Commission, from the customer. |
| PURA § 39.351 | Requiring a power generating company (PGC) to comply with ERCOT's reliability standards. |
| PURA § 39.356 | Providing the Commission with the authority to suspend, revoke, or amend a retail electric provider's (REP) or PGC's certificate for significant violations of ERCOT's reliability standards or Protocols. |
| PURA § 39.914 | Requiring ERCOT to develop settlement procedures to |

| | |
|---|---|
| | account for the amount of distributed solar generation purchased from a school district and requiring school districts to have metering devices that are consistent with ERCOT's settlement requirements. |
| PURA § 39.916 | Requiring ERCOT to develop settlement procedures to account for the amount of distributed generation purchased from a distributed generation owner and requiring distributed generation owners to have metering devices that are consistent with ERCOT's settlement requirements. |
| PURA § 31.002 | Defining "ERCOT" and "independent system operator" |
| PURA § 39112 | Providing that a "fixed rate product" rate can change based on factors, such as changes to ERCOT administrative fee. |
| PURA § 39.203 | Providing that the Commission can require an electric utility or TDU to build or expand facilities to ensure safe and reliable service and reduce transmission constraints in ERCOT in a cost-effective manner. |
| PURA § 39.905 | Setting energy efficiency goals in ERCOT.<br><br>Requiring the Commission, in consultation with the State Office of Energy Conservation, to submit an annual report to ERCOT on projected energy savings and demand impact for each entity in ERCOT that provides energy efficiency programs.<br><br>Requiring the Commission and ERCOT to develop a method to account for projected energy efficiency impacts on ERCOT's annual forecasts of future capacity, demand, and reserves. |

**B. Provide a summary of recent legislation regarding your agency by filling in the chart below or attaching information already available in an agency-developed format. Briefly summarize the key provisions. For bills that did not pass, briefly explain the key provisions and issues that resulted in failure of the bill to pass (e.g., opposition to a new fee, or high cost of implementation). See Exhibit 14 Example or click here to link directly to the example.**

See Attachment 6.

# IX. Policy Issues

**What role does ERCOT play in managing the wholesale electricity market, particularly with respect to wholesale prices, and how does this role mesh with ERCOT's duties to ensure that reliability is maintained?**

## B. Discussion

One of the hallmarks of restructured, ISO-led wholesale electricity regions is the reliance on market-based price signals to incent market participants to make long-term investments that will provide the resources needed to maintain electric-grid reliability. At the same time, it is critical that these markets be well-functioning and efficient. On a day-to-day basis, particularly on days when demand for electricity is high, there is an inherent tension between non-market instructions that ERCOT can issue in order to increase confidence that reliability will be maintained regardless of contingencies, and the extent to which such instructions are viewed as obtrusive interventions that disrupt markets and disincent new resources.

ERCOT was originally contemplated as an ISO that has the responsibility to maintain reliability but not to take a leadership role in designing wholesale market structures. The market-design function was instead delegated to the stakeholder process, in which a variety of entities representing a full range of viewpoints in the wholesale market (including generators, investor-owned utilities, power marketers, retailers, consumers, municipal electric systems, cooperatives) set the framework. To be sure, ERCOT professional staff are listened to and respected in the stakeholder process, but the system is designed for the interests described above to reach consensus and set the market rules, while ERCOT staff's role is directed at maintaining reliability.

An interesting complication is the difficulty in setting bright lines between market issues and reliability issues; the ERCOT model is one of the most innovative in the world in terms of using markets to create reliability safeguards, and this fact exacerbates these tensions. This issue is also complicated by the federal regulation of ERCOT's reliability functions under the US Energy Policy Act of 2005.

## C. Possible Solutions and Impact

Any changes to existing state law regarding ERCOT's role in setting market policy will likely be highly controversial because of the broad array of stakeholders with conflicting interests and the fact that this is a multi-billion dollar industry. Factors to be considered in making changes to the existing structure may include possible impact on wholesale electric prices over time and during periods of congestion and high demand, satisfaction with the status quo in terms of wholesale market pricing and activity, and actions taken at the federal level regarding ERCOT's reliability functions.

# X. Other Contacts

**A. Fill in the following chart with updated information on people with an interest in your agency, and be sure to include the most recent e-mail address.**

**ERCOT**
**Exhibit 15: Contacts**

**INTEREST GROUPS**
(groups affected by agency actions or that represent others served by or affected by agency actions)

| Group or Association Name/ Contact Person | Address | Telephone | E-mail Address |
|---|---|---|---|
| AARP/Tim Morstad | 98 San Jacinto, Suite 750, Austin, TX 78701 | 1-866-227-7443 | tmorstad@aarp.org |
| Association of Electric Companies of Texas/Walt Baum | 1005 Congress, Suite 600, Austin, TX 78701 | 512-474-6725 | walt@aect.net |
| Association of Retail Maketers (ARM)/Steve Davis | 701 Brazos, Suite 1040 Austin, TX 78701-3232 | 512-479-9995 | davis@sjdlawoffices.com |
| Center for the Commercialization of Electric Technologies (CCET)/Milton Holloway | 816 Congress, Suite 1260, Austin, TX 78701 | 512-472-3800 | mholloway@electrictechnologycenter.com |
| Cities Aggregation Power Project (CAPP)/Chris Brewster | 111 Congress, Suite 1800, Austin, TX 78701 | 512-322-5831 | cbrewster@lglawfirm.com |
| Environmental Defense Fund/Jim Marston | 44 East Avenue, Suite 304, Austin, TX 78701 | 512-478--5161 | www.edf.org |
| Gulf Coast Power Association (GCPA)/John Stauffacher | 6140 Hwy 6, Suite 67, Missouri City, TX 77459 | 281-835-3120 | gcpaxd@gulfcoastpower.org |
| Public Citizen/Tom "Smitty" Smith | 1303 San Antonio, Austin, TX 78701 | 512-477-1155 | txinfo@citizen.org |
| TEAM/Catherine Webking | 98 San Jacinto, Suite 1400, Austin, TX 78701 | 512-264-9121 | webking@texas.net |
| Texas Competitive Power Advocates/Marianne Carroll | 111 Congress, Suite 1400, Austin, TX 78701 | 512-479-1156 | mcarroll@mailbmc.com |

| | | | |
|---|---|---|---|
| Texas Electric Coooperatives, Inc. (TEC)/Mike Williams | 1122 Colorado, Austin, TX 78701 | 512-486-6203 | mikew@texas-ec.org |
| TEPA (Texas Electricity Professionals Association)/Paul Smolens | 707 West Avenue, Ste 207 Austin, TX 78701 | 512-322-9090 | smolen@foxsmolen.com |
| Texas Industrial Energy Consumers (TIEC)/Phillip Oldham | 111 Congress, Suite 1700 Austin, TX 78701 | 512-320-9200 | phillipoldham@andrewskurth.com |
| Texas Legal Services /Randall Chapman | 815 Brazos, Suite 1100, Austin, TX 78701 | 512-477-6000 | rchapman@tlsc.org |
| Texas Municipal Power Association (TMPA)/Lambeth Townsend | 111 Congress, Suite 1800, Austin, TX 78701 | 512-322-5830 | ltownsend@lglawfirm.com |
| Texas Public Power Association (TPPA)/Mark Zion | 701 Brazos, Suite 1005 Austin, TX 78701 | 512-472-5965 | mzion@tppa.com |
| Texas Renewables Energy Industries Association/Russel Smith | P.O. Box 16469, Austin, TX 78761 | 512-345-5446 | rsmith@treia.org |
| Texas ROSE/Carol Biedrzycki | 815 Brazos, Suite 1100, Austin, TX 78701 | 512-472-5233 | carolb@texasrose.org |
| The Wind Coalition/Paul Sadler | 100 Congress, Suite 800, Austin, TX 78701 | 512-651-0291 | ExecutiveDirector@windcoalition.org |
| **INTERAGENCY, STATE, OR NATIONAL ASSOCIATIONS** (that serve as an information clearinghouse or regularly interact with your agency) | | | |
| EPSA (Electric Power Supply Association)/Dan Dolan, Mgr. State & Regulatory Affairs | 1401 New York Ave NW, 11th Floor Washington, D.C. 20005 | 202-349-0153 | ddolan@epsa.org |
| FERC (Federal Energy Regulatory Commission)/Julia Bovey, Director of External Affairs | 888 First Street, NE Washington, D.C. 20426 | 202-502-8004 | customer@ferc.gov |
| The ISO/RTO Council/Nick Brown, CEO of Southwest Power Pool | 415 North McKinley, 140 Plaza West Little Rock, AR 72205 | 501-614-3337 | www.isorto.org |
| NERC (North American Electric Reliability Corporation)/Rick Sergel, President | 116-390 Village Blvd. Princeton, NJ 08540-5721 | 609-452-8060 | www.nerc.com |

| **LIAISONS AT OTHER STATE AGENCIES**<br>(with which your agency maintains an ongoing relationship, e.g., the agency's assigned analyst at the Legislative Budget Board, or attorney at the Attorney General=s office) | | | |
|---|---|---|---|
| Office of Public Utility Counsel/Don Ballard, Public Counsel | 1701 N. Congress Avenue, Suite 9-180, Austin, TX 78701 | 512-936-7500 | Don.ballard@opc.state.tx.us |
| Public Utility Commission of Texas/Lane Lanford, Executive Director | 1701 N. Congress Avenue, P.O. Box 13326, Austin, TX 78711-3326 | 512-936-7040 | Lane.lanford@puc.state.tx.us |

## XI. Additional Information

**A. Fill in the following chart detailing information on complaints regarding your agency. Do not include complaints received against people or entities you regulate. The chart headings may be changed if needed to better reflect your agency's practices.**

N/A

**B. Fill in the following chart detailing your agency's Historically Underutilized Business (HUB) purchases. See Exhibit 17 Example or click here to link directly to the example.**

See Attachment 20.

**C. Does your agency have a HUB policy? How does your agency address performance shortfalls related to the policy? (Texas Government Code, Sec. 2161.003; TAC Title 34, Part 1, rule 20.15b)**

As of May of 2008, ERCOT has tracked "diversity spend" for contingent labor services. While these vendors may not be certified through the State HUB program, ERCOT believes it is important to identify these entities.

Further, ERCOT has also made an effort to identify official HUB vendors used by ERCOT. (Attachment 20)

**D. For agencies with contracts valued at $100,000 or more: Does your agency follow a HUB subcontracting plan to solicit bids, proposals, offers, or other applicable expressions of interest for subcontracting opportunities available for contracts of $100,000 or more? (Texas Government Code, Sec. 2161.252; TAC Title 34, Part 1, rule 20.14)**

N/A

**E. For agencies with biennial appropriations exceeding $10 million, answer the following HUB questions.**

| | **Response / Agency Contact** |
|---|---|
| 1. Do you have a HUB coordinator? (Texas Government Code, Sec. 2161.062; TAC Title 34, Part 1, rule 20.26) | Jimmy Ramirez, Manager of Contract Administration, will serve as contact point for HUB questions. |
| 2. Has your agency designed a program of HUB forums in which businesses are invited to deliver presentations that demonstrate their capability to do business with your agency? (Texas Government Code, Sec. 2161.066; TAC Title 34, Part 1, rule 20.27) | N/A |
| 3. Has your agency developed a mentor-protege program to foster long-term relationships between prime contractors and HUBs and to increase the ability of HUBs to contract with the state or to receive subcontracts under a state contract? (Texas Government Code, Sec. 2161.065; TAC Title 34, Part 1, rule 20.28) | N/A |

**ERCOT**
**Exhibit 18: Equal Employment Opportunity Statistics**

**FISCAL YEAR 2006**

| Job Category | Total Positions | Minority Workforce Percentages | | | | | |
|---|---|---|---|---|---|---|---|
| | | Black | | Hispanic | | Female | |
| | | ERCOT | Civilian Labor Force % | ERCOT | Civilian Labor Force % | ERCOT | Civilian Labor Force % |
| **Officials/Administration** | 88 | 5.6% | 6.6% | 4.5% | 14.2% | 19.3% | 37.3% |
| **Professional** | 443 | 3.1% | 8.3% | 10.6% | 13.4% | 29.5% | 53.2% |
| **Technical** | 6 | 33.3% | 12.4% | 0% | 20.2% | 0% | 53.8% |
| **Administrative Support** | 18 | 5.5% | 11.2% | 16.6% | 24.1% | 100% | 64.7% |
| **Service Maintenance** | 0 | 0% | 13.8% | 0% | 40.7% | 0% | 39.0% |
| **Skilled Craft** | 0 | 0% | 6.0% | 0% | 37.5% | 0% | 4.8% |

| FISCAL YEAR 2007 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Job Category** | **Total Positions** | **Minority Workforce Percentages** | | | | | |
| | | **Black** | | **Hispanic** | | **Female** | |
| | | **ERCOT** | **Civilian Labor Force %** | **ERCOT** | **Civilian Labor Force %** | **ERCOT** | **Civilian Labor Force %** |
| **Officials/Administration** | 76 | 6.5% | 9.0% | 3.9% | 23.7% | 18% | 38.8% |
| **Professional** | 524 | 3.8% | 11.7% | 9.3% | 19.9% | 32% | 54.5% |
| **Technical** | 13 | 7.6% | 17.0% | 7.6% | 27.0% | 7.6% | 55.6% |
| **Administrative Support** | 20 | 5% | 13.2% | 25% | 31.9% | 100% | 66.2% |
| **Service/Maintenance** | 0 | 0% | 12.8% | 0% | 44.8% | 0% | 39.7% |
| **Skilled Craft** | 0 | 0% | 5.1% | 0% | 46.9% | 0% | 5.1% |
| **FISCAL YEAR 2008** | | | | | | | |
| **Job Category** | **Total Positions** | **Minority Workforce Percentages** | | | | | |
| | | **Black** | | **Hispanic** | | **Female** | |
| | | **ERCOT** | **Civilian Labor Force %** | **ERCOT** | **Civilian Labor Force %** | **ERCOT** | **Civilian Labor Force %** |
| **Officials/Administration** | 93 | 3.2% | 9.0% | 6.4% | 23.7% | 25% | 38.8% |
| **Professional** | 539 | 4% | 11.7% | 9.6% | 19.9% | 30% | 54.5% |
| **Technical** | 8 | 12.5% | 17.0% | 12.5% | 27.0% | 0% | 55.6% |
| **Administrative Support** | 33 | 3% | 13.2% | 18% | 31.9% | 84% | 66.2% |
| **Service/Maintenance** | 0 | 0% | 12.8% | 0% | 44.8% | 0% | 39.7% |
| **Skilled Craft** | 0 | 0% | 5.1% | 0% | 46.9% | 0% | 5.1% |

**G. Does your agency have an equal employment opportunity policy? How does your agency address performance shortfalls related to the policy?**

| | |
|---|---|
| **Document Name:** | **CS5.3 Equal Opportunity Corporate Standard** |
| **Document ID:** | **CS5.3** |
| **Effective Date:** | **May 20, 2009** |
| **Owner:** | **Vice President & Chief Administrative Officer** |
| **Governs:** | **ERCOT Staff** |
| **Approved:** | **Bob Kahn, ERCOT Inc., President & CEO** |

**5.3.1 Purpose**: ERCOT is firmly committed to equal employment for all qualified persons without regard to race, color, sex, medical condition, religion, age, creed, national origin, citizenship status, marital status, sexual orientation, physical or mental disability, ancestry, veteran status, genetic information, or any other protected category under federal, state or local law such as opposing or participating in any complaint process at the Equal Employment Opportunity Commission or other Human rights agency. This Employee Corporate Standards Manual governs all terms and conditions of employment including recruitment, job assignment, promotions, transfers and compensation, access to benefits, training and terminations.

The Company shall attempt to maintain an equitable balance of qualified personnel throughout the workforce at all levels and in all job classifications. Such balance shall be job-related and shall not be administered to result in:

- Reduction in quality or efficiency of the Company's operations;
- Employment, promotion or transfer into a job of any person who is not able to perform the essential functions of such job at the time of employment or promotion. Reasonable accommodations will be made, if required;
- Discharge, layoff, demotion or transfer of anyone for the accomplishment of a balanced workforce;
- Selection of anyone other than a qualified and available person.

**5.3.2 Americans with Disabilities Act**: The Company adheres to all aspects of the regulations and requirements of the Americans with Disabilities Act (ADA) in its hiring, screening, selection of new employees and its consideration of existing employees. The Company attempts to provide reasonable accommodation(s) to all qualified employees with known disabilities, where their disability affects the performance of their essential job functions, except where doing so would result in undue hardship to the Company.

**5.3.3 Immigration and Naturalization Report**: In order to continue working for the Company, each new employee, under penalty of perjury, must complete and sign the Employment Eligibility Verification Form I-9 and provide original documentation establishing his identity and legal authority to work in the United States. The Human Resources department requires the new employee present this information on their first day of work. If the information is not available it must be provided no later than three (3) business days after the employee's date of hire. The employee must update this information in accordance with the law. Each time an employee has a work authorization status change and/or legal name change, the employee must complete and sign a new Employment Eligibility Verification Form I-9. If the Company assists in the payment of fees associated with the employee's legal right to work in the United States, the employee may be required to repay all or some of the fees paid by ERCOT.

**5.3.4 Name Verification**: The Human Resources department requires that all employees provide a valid copy of their Social Security Card. Any change in legal name requires an updated Social Security Card.

# XII. Agency Comments

ERCOT appreciates the opportunity to provide additional comments and would like to highlight a major ERCOT division that, while not a "program" in the traditional sense, is very important to the market and to reliability.

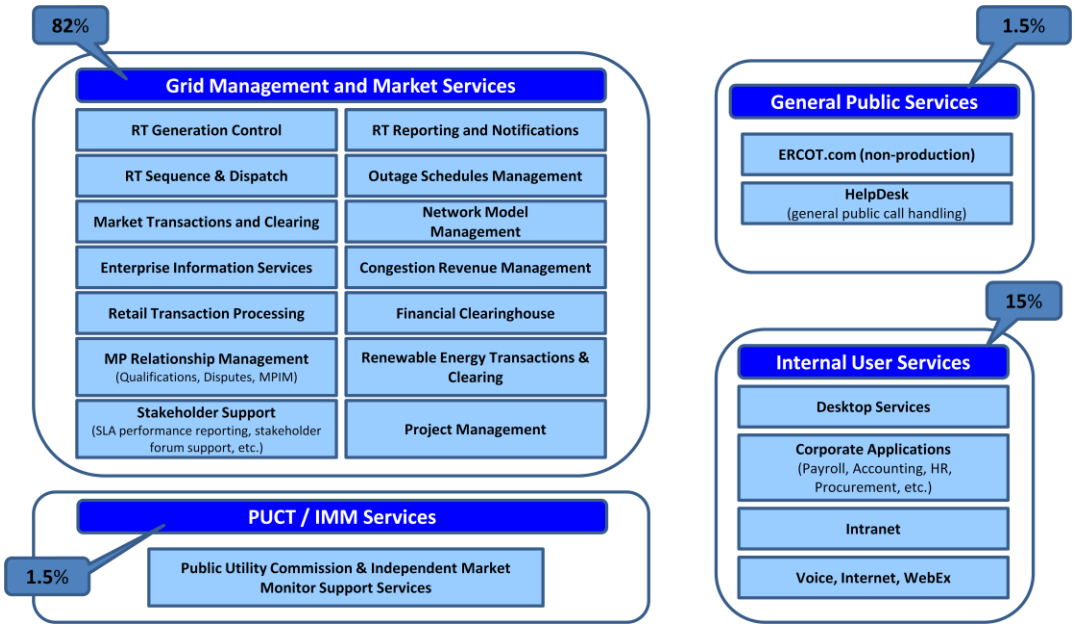
Information technology is critical to the basic mission of ERCOT. The Information Technology Division (IT) is not a program but rather an organization structured to manage, plan, operate and support the critical cyber and system infrastructure assets necessary to:

- Manage the reliability of the Texas electrical grid,
- Provide open access the energy market,
- Support settlement and billings for the market,
- Enable retail customer choice, and
- Provide open market information for all participants.

Additionally, IT supports the technologies common to most businesses such as payroll, accounting and procurement systems, PC support, voice and meeting systems, email and intranet systems as well as internet access.

Therefore, while it is not appropriate to call ERCOT IT an ERCOT "Program" precisely, it is a unique function, and the support activities of ERCOT IT directly affect every ERCOT Market Participant, the Independent Market Monitor, the Texas Regional Entity and the Public Utility Commission.

The following chart shows the focus of ERCOT IT operating expenditures. Approximately, 85% of IT operating expenses goes to operation of the grid management and market systems, support of the Independent Market Monitor, the Texas Regional Entity, the Public Utility Commission and access to open market information. The remaining operating expenses go to support internal user services for ERCOT operations units. The cost and functions are further indicated in the chart below:




Reliability of the Texas electric grid requires the operations complex real-time grid and market management systems. These systems are non-stop. They gather real-time data from thousands of points across the Texas electric grid and provide data and instructions for dispatching market optimum power units every 15 minutes. Settlement and billing is provided daily based upon market dispatched units. Retail systems operate 24 x 7 to manage retail customer choice.

To enable grid and market system operations, ERCOT IT operates and supports two geographically dispersed, high availability and redundant data centers. Support is provided 24 x 7 to assure continuous system operations. Additionally, IT operates a technical help desk for internal users, general public support and computer system monitoring.

ERCOT IT is also deeply involved in developing, supporting, and maintaining the applications and infrastructure that will enable the Nodal market.

# ATTACHMENTS

These supplemental documents are provided, as requested, for the Sunset Advisory Commission's Self-Evaluation Report. Each requested document is labeled with its corresponding Attachment number as noted in the Self-Evaluation Report instructions.

1. ERCOT's Enabling Statute
   - Texas Utilities Code Title 2, Subtitle B, Chapter 39.151
2. Annual Reports published by ERCOT for Fiscal Years 2004 – 2008
3. Internal Newsletters (E-Wires) published by ERCOT for 2007 – 2008
4. Publications and Brochures *list* describing ERCOT
5. A *list* of studies that ERCOT is required to do by legislation or riders
6. A *list* of legislative or interagency studies relating to ERCOT that are currently being performed.
   - Legislation from the 81st Regular Session relating to ERCOT
7. A *list* of studies from other states, the federal government, or national groups and/or associations that relate to or affect ERCOT or agencies with similar duties or functions
8. Biographical Information of ERCOT policy-making body members.
   - Board of Directors
   - Executive Officers
   - Organization Chart
9. ERCOT's most recent rules
   - ERCOT Bylaws
   - Code of Conduct and Ethics Corporate Standard
   - Employee Corporate Standards
   - ERCOT Protocols
10. A copy of the agency's Legislative Appropriations Requests for Fiscal Years 2010 - 2011. This is not an item that is applicable to ERCOT.
11. ERCOT's Annual Financial Reports from Fiscal Years 2006 - 2008
12. ERCOT's Operating Budget from Fiscal Years 2007 - 2009
    - Response to "Funding: Section V, Question D"
13. Maps that illustrate the regional boundaries and headquarters locations of ERCOT
14. Quarterly Performance Reports for Fiscal Years 2006 – 2008

15. Any recent studies on ERCOT or any of its functions conducted by outside management consultants or academic institutions.
    - ERCOT Nodal Program - Utilicast Report 8 – 2008
    - ERCOT Nodal Program - Utilicast Report 9 – 2009
    - ERCOT 2007 State of the Market Report – 2008
    - ERCOT 2008 State of the Market Report – 2009
    - 2008 Texas State Energy Plan – 2008
    - Council's Report to the Governor – 2008
    - Texas Comptroller of Public Accounts: The Energy Report – 2008
    - The Impact of Investments in Electric Power Generation and Transmission Infrastructure in the Electric Reliability Council of Texas (ERCOT) Region on State Business Activity – 2009
    - Lessons Learned: The Texas Experience – 2005
    - Analysis Group: "ERCOT Texas's Competitive Power Experience: A View from the Outside Looking In – 2008

16. ERCOT's Current Internal Audit Plan

17. ERCOT's Current Strategic Plan
    - 2008 Strategic Plan – Final
    - 2010 Strategic Plan - Draft

18. Internal Audit Reports from Fiscal Years 2005 – 2009

19. A list of State Auditor Reports from Fiscal Years 2005 – 2009 that relate to the agency or any of its functions. This is not an item that is applicable to ERCOT.

20. HUB Data

21. Customer Service Surveys conducted by or for ERCOT in Fiscal Year 2008