

Power to the People: Public Access and Reporting in the Texas Air Emissions Repository (TexAER)

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May 17, 2006

- What is TexAER?
- How can I access TexAER?
- TexAER Reports
- TexAER Data Warehouse
- Questions

What is TexAER?

- Web-accessible emissions data repository for:
 - Emissions inventory data for the State of Texas
 - Control data
 - Growth factor data (coming soon)
 - Activity data (possible addition)
- Centralized data management system
- Archive, access, and secure inventory data
- Source types: area, non-road mobile, on-road mobile, and biogenic
- Point source extracts may be added in the future

What is TexAER?

- TexAER Platform
 - Oracle 9i database (migration to 10g planned)
 - ColdFusion MX interface with Flash components
 - PL/SQL components

How Can I Access TexAER?

- TexAER is currently available to the Public at:

<http://www4.tceq.state.tx.us/texaer>

The only requirement to receive a TexAER login is a valid email address!



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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[Texas Air Quality Field Study \(TexAQS II\)](#)

[Texas Air Quality Research](#)

[SIP Development Site](#)

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Password:

TexAER is the data clearinghouse for the four categories of nonpoint source emissions inventory data for the State of Texas. This includes:

[NonPoint Area Sources](#) [Non-road Mobile Sources](#)
[On-road Mobile Sources](#) [Biogenic Sources](#)

You can use TexAER to:

- Create detailed emissions reports.
- Create summarized emissions reports.

TexAER Login Page





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- [System Requirements](#)
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Please enter the requested information. A username and password will be forwarded to the e-mail address provided below.

First Name:

Last Name:

Affiliation/ Organization:

State:

Phone:
(US: xxx-xxx-xxxx)
(International: country code + local number)

E-mail (required):

RELATED LINKS:

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TexAER Login Page





Non-Point Source Emissions Data at Your Fingertips.

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Welcome to TexAER



You can navigate within TexAER using the menu items above, or the icons on the right.

→ [Reports](#)

- Create detailed or summarized emissions inventory reports.
- Create controlled emissions reports
- View current control strategy data
- Create future-case emissions inventories
- Access your saved reports

→ [Document Catalog](#)

- Access the library of supporting documents associated with an emissions inventory
- View the entire document catalog
- Search for documents using keywords or other search criteria

→ [Help](#)

- Opens in a new window for accessing the TexAER help system.

For questions or comments, please contact TexAER support at: texaer@tceq.state.tx.us.



[Getting Started Guide](#)



[Build a Customized Report](#)



[Search the Document Catalog](#)



[My Exported Reports](#)

TexAER Welcome Page



Non-Point Source Emissions Data at Your Fingertips.

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➔ SCC

➔ Saved

Reports

- **Emissions Reports**

- [Emissions Data Report](#)

- View and export detailed emissions estimates.

- [Emissions with Controls Report](#)

- View and export emissions data with or without applicable control data.

- [Projected Emissions Report](#)

- Create future year or backcast inventories and analyze the effects of control strategies on emissions.

- [Control Strategy Report](#)

- View and export existing control strategies and related data.

- [SCC Report](#)

- Step through the Source Classification Code (SCC) hierarchy and find particular SCCs.

- [Saved Reports](#)

- Recreate a saved report.



Reminder: Requested exports appear in the [My Exports](#) area.

TexAER Reports Home Page

TexAER Reports

- Emissions Data Reports

Emissions data for individual or summarized emissions estimates.

- Emissions with Controls Report

Emissions and related NIF control information exactly as reported and stored in the database. Also provides information about potentially applicable controls.

TexAER Reports - Continued

- Projected Emissions Reports

Calculate estimated future emissions based on a target year, set of growth factors and emissions controls. There are seven Projected Emissions Report types: Base Detail, Base Summary, Projected Detail, Projected Summary, Delta Detail, Delta Summary, and Base Emissions with Controls.

TexAER Reports - Continued

- Control Strategy Reports

Present information about proposed, hypothetical, and adopted control programs, control strategies, and control techniques stored in the database. These controls are not necessarily linked to an inventory, subinventory, or emissions estimate.

- SCC Reports

Present a view of selected SCCs, where additional SCCs can be viewed by drilling-down through the SCC tree or searching for an SCC.



Non-Point Source Emissions Data at Your Fingertips.

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Reminder: Requested exports appear in the [My Exports](#) area.

TexAER Reports Home Page

Emissions Reports Filter Options



Non-Point Source Emissions Data at Your Fingertips.

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Select Filter Options

[Use Non-JavaScript Version](#)

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Report Type: Emissions Data Report

Inventory: A 2002 STATEWIDE V2: AREA ONLY - 2002

[Select Inventory](#) [View Detail](#)

Subinventory: AREA

[View Detail](#)

Location Group: DFW-9 | EAST TEXAS COUNCIL OF GOVERNMENTS

[Select Groups](#)
[Show Locations](#) [Clear Filter](#)

Location: HARRIS COUNTY

[Select Locations](#) [Clear Filter](#)

Pollutant Type: CRITERIA - CERR
NOX/VOC/CO

[Show Pollutants](#) [Clear Filter](#)

(To select multiple options, hold CTRL + MOUSE CLICK on each item.)

Pollutant: Not currently filtering by Pollutants

[Select Pollutants](#) [Clear Filter](#)

Time Period: Annual
CO SEASON
Ozone Season

[Clear Filter](#)

(To select multiple options, hold CTRL + MOUSE CLICK on each item.)

TexAER Emissions Report – Select Filter Options



Non-Point Source Emissions Data at Your Fingertips.

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[Emissions](#) | [Control Strategy](#) | [SCC](#) | [Saved](#)

Select Filter Options

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SCC Class:	CONSTRUCTION - AREA SOURCE INDUSTRIAL EQUIPMENT Petroleum Products Transport Small Stationary Sources	Degreasing Petroleum Products REFUELING: ALL FUELS Stationary Source Fuel Combustion
------------	--	---

[Select Classes](#) [Show SCCs](#)

[Clear Filter](#)

SCC:	2401001000	2401001001	2401001006	2401001010	2401001011
	2401001015	2401001020	2401001025	2401001050	2401001060

[Select SCCs](#) [Browse SCCs](#)

[Clear Filter](#)

Filter by Control Data Options:

Control Strategy: *Not currently filtering by Control Strategies*

[Select Control Strategies](#)

[Clear Filter](#)

Control Status:

- Controlled - Controls Reported
- Controlled - Controls Not Reported
- Uncontrolled

(To select multiple options, hold CTRL + MOUSE CLICK on each item.)

Include emissions not subject to any control strategy?

[Next](#) [Clear All Filters](#)

TexAER Emissions Report – Select Filter Options - Continued



Search SCCs

Use any or all of the criteria to search for an SCC.

SCC:

Type:

System type.

Tier Description:

Current tier description.

Short Description:

TCEQ short description.

Class:

TCEQ class.

Search Results

Your search returned 28 SCCs.

Select	SCC ▲	Type	Tier	Tier Description	Short Description	Class(es)
<input type="checkbox"/>	2401001000	EPA	4	TOTAL: ALL SOLVENT TYPES	ARCHITECTURAL COATINGS; TOTAL: ALL SOLVENT TYPES	Surface Coating
<input type="checkbox"/>	2401001001	EPA	4	FLAT PAINTS	ARCHITECTURAL COATINGS: FLAT PAINTS	Surface Coating
<input type="checkbox"/>	2401001005	EPA	4	NONFLAT PAINTS - LOW AND MEDIUM GLOSS	ARCHITECTURAL COATINGS: NONFLAT PAINTS, LOW & MEDIUM GLOSS	Surface Coating

TexAER Emissions Report – SCC Search

Emissions Reports Formatting Options



Non-Point Source Emissions Data at Your Fingertips.

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Select Formatting Options

Inventory: A 2002 STATEWIDE V2: AREA ONLY - 2002

Select Inventory

Subinventory: AREA

Select Subinventory

Report Type: Emissions Data Report

Filtering Options:

Modify Filters

Clear All Filters

Display Unit of Measure: Tons

Summarize By: No Summarization

SCC Tier: SCC Tier 1

** Note: SCC Tier only applies when summarizing by SCC*

Sort Order (1): Location

(2): Class

(3): SCC

** Note: The Sort Order fields only apply to Detail Reports (where Summarize By is 'No Summarization')*

Report Title

line1: Sample Detailed Report

line2: Multi-County

line3: Area Sources

Run Report

Export

Save Report

Save As

TexAER Emissions Report – Formatting Options



Sample Emissions Detail and Summary Reports

Emissions Detail Report

 If you print your report, set the page orientation to "Landscape" for optimal display.

Sample Detailed Report

Multi-County

Area Sources

Inventory: A 2002 STATEWIDE V2: AREA ONLY—2002 / AREA

Display Unit of Measure: Tons

Report Type: 

 [Show Row Details](#)

TARRANT COUNTY

	Class(es) ▲	SCC	SCC Short Description	CO	NOX	VOC
				ANNUAL (YEARLY)	ANNUAL (YEARLY)	ANNUAL (YEARLY)
	Stationary Source Fuel Combustion	2102002000	INDUSTRIAL FUEL COMBUSTION: BITUMINOUS/SUBBITUMINOUS COAL	963.70	2,120.00	9.64
	Stationary Source Fuel Combustion	2102004000	INDUSTRIAL FUEL COMBUSTION: DISTILLATE OIL: BOILERS/IC ENG.	124.90	499.80	5.00
	Stationary Source Fuel Combustion	2102005000	INDUSTRIAL FUEL COMBUSTION: RESIDUAL OIL	10.73	118.10	0.59
	Stationary Source Fuel Combustion	2102006000	INDUSTRIAL FUEL COMBUSTION: NATURAL GAS: BOILERS/IC ENG.	73.69	294.70	5.90
	Stationary Source Fuel Combustion	2102007000	INDUSTRIAL FUEL COMBUSTION: LIQUIFIED PETROLEUM GAS (LPG)	15.45	61.84	1.21

TexAER Sample Detail Emissions Report

Emissions Summary Report

 If you print your report, set the page orientation to "Landscape" for optimal display.

Sample Detailed Report

Multi-County

Area Sources

Inventory: A 2002 STATEWIDE V2: AREA ONLY—2002 / AREA
Display Unit of Measure: Tons
Report Type:

Location ▲	CO	NOX	VOC
	ANNUAL (YEARLY)	ANNUAL (YEARLY)	ANNUAL (YEARLY)
COLLIN COUNTY	1,539.68	1,262.90	2,243.71
DALLAS COUNTY	8,839.86	9,577.22	10,764.57
DENTON COUNTY	5,448.78	4,415.99	3,106.13
ELLIS COUNTY	387.36	346.54	1,157.32
GREGG COUNTY	1,173.90	4,924.32	5,875.71
HARRIS COUNTY	12,549.91	10,675.16	23,887.18
HARRISON COUNTY	793.67	2,930.85	2,493.25
JOHNSON COUNTY	370.97	249.89	905.60
KAUFMAN COUNTY	680.83	205.51	680.02
PARKER COUNTY	1,349.35	542.61	2,051.57
ROCKWALL COUNTY	134.10	97.08	298.71
RUSK COUNTY	1,191.90	4,649.64	3,855.87
SMITH COUNTY	970.68	2,127.89	2,416.70
TARRANT COUNTY	6,037.71	5,338.94	6,156.15
UPSUR COUNTY	664.41	3,062.62	1,939.68
Total	42,133.12	50,407.16	67,832.17

TexAER Sample Emissions Summary Report

Sample Emissions with Controls Report

Emissions With Controls Report

Sample Detailed Report

Multi-County

Area Sources

Inventory: A 2002 STATEWIDE V2: AREA ONLY—2002 / AREA

Display Unit of Measure: Tons

Report Type: Emissions With Controls

 [Show Row Details](#)

TARRANT COUNTY

<u>Class(es)</u>	<u>SCC</u>	<u>SCC Short Description</u>	<u>Pollutant</u>	<u>Time Period</u>	<u>Emissions Quantity</u>	<u>Control Data Used to Calculate Emissions</u>					<u>Potentially Applicable Control Strategies</u>						
						<u>Control Status</u>	<u>Control System Description</u>	<u>RP±</u>	<u>RE±</u>	<u>TCCE±</u>	<u>Name</u>	<u>RP±</u>	<u>RE±</u>	<u>TCCE±</u>			
Degreasing	2415100000	DEGREASING; OPEN TOP; ALL INDUSTRIES; TOTAL: ALL SOLVENT TYPES	VOC	Annual (Yearly)	0	Uncontrolled											
Degreasing	2415300000	DEGREASING; COLD CLEANING; ALL INDUSTRIES; TOTAL: ALL SOLVENT TYPES	VOC	Annual (Yearly)	49.09	Uncontrolled											
Petroleum Products	2310001000	OIL AND GAS PRODUCTION; ALL PROCESSES : ON-SHORE	VOC	Annual (Yearly)	117.40	Uncontrolled											
Petroleum Products	2310001000	OIL AND GAS PRODUCTION; ALL PROCESSES : ON-SHORE	NOX	Annual (Yearly)	604.00	Uncontrolled						NOx RACT	1	1	1		
Petroleum Products	2310001000	OIL AND GAS PRODUCTION; ALL PROCESSES : ON-SHORE	CO	Annual (Yearly)	720.00	Uncontrolled											
Petroleum Products	2501060053	PETROLEUM PRODUCTS; GASOLINE SERVICE STATIONS; STAGE 1; BALANCED SUBMERGED FILLING	VOC	Annual (Yearly)	440.70	Uncontrolled						Refueling - Stage I - NonAtt	1	1	0.10		

TexAER Sample Emissions with Controls Report

Saved Reports and My Exports

Saved Reports





Non-Point Source Emissions Data at Your Fingertips.

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Select a Saved Report

-  Your report has been saved.
-  Please note that all saved reports will run using the most current version of the data.

Display Unsaved Reports:

My Reports									
Report Name ▲	Exports?	Access	Data Modified?*	Created Date	Last Accessed Date	Scheduled Deletion Date			
Sample Detail Report	Yes			05/12/2006	05/13/2006	08/11/2006	<input type="button" value="Delete"/>	<input type="button" value="Export"/>	<input type="button" value="Run Report"/>
Sample Detail report				05/14/2006	05/14/2006	08/12/2006	<input type="button" value="Delete"/>	<input type="button" value="Export"/>	<input type="button" value="Run Report"/>

* A 'Yes' in this column denotes that the underlying emission data has changed since the report was saved. Clicking this link will display a list of locations and SCCs that have changed data. You can access the history of the data within the report. You can generate a report using original or current data by editing the report formatting options.

Shared Reports

There are currently no Shared Reports that you have access to.

Exports



My Exports

i Shown below are the exports that you have requested. All export files are automatically deleted 14 days after the file creation.

Show exports scheduled in the last days.

3 Records Found.

Export Type	Export Name	Status	Start Time	File Name	File Size	File Format	Error Message	
NIF Export	Sample Detail Report	Failed	05/14/2006			NIF 3.0	ORA-01400: cannot insert NULL into ("SIP_ADM"."SP_NIF_EXP_CTRL_EQ_UIP"."PRI_DEVICE_TYP_CD")	
Base Detail Emissions Report	Sample Detail Report	Completed Successfully	05/12/2006	TEXAERUSER70_Sample Detail Report_3.csv	< 1 MB	CSV		<input type="button" value="Download"/>
Base Detail SCC-Class Associations Report	Sample Detail Report	Completed Successfully	05/12/2006	TEXAERUSER70_Sample Detail Report_6.csv	< 1 MB	CSV		<input type="button" value="Download"/>

Control Strategy Reports

Search for Control Strategies

[Search](#) [Clear All Filters](#) [Use Non-JavaScript Version](#)

Name:

Description:

Authority: ENVIRONMENTAL PROTECTION AGENCY REGULATION [Select Authorities](#) [Clear Filter](#)

Status:

- Adopted
- Officially Proposed
- Hypothetical/For Analysis Only

[Select Statuses](#) [Clear Filter](#) (To select multiple options, hold CTRL + MOUSE CLICK on each item.)

Effective Date: From: 01/01/2004 To: 01/01/2008 (mm/dd/yyyy)

Percent Reduction: From: % To: % (Values 0% to 100%, This will search against the calculated value of RP * RE * TCCE)

Optional Related Data

Control Program: *Not currently filtering by Control Programs* [Select Programs](#) [Clear Filter](#)

Control Technique: *Not currently filtering by Control Techniques* [Select Control Techniques](#) [Clear Filter](#)

Location Group: *Not currently filtering by Location Groups* [Select Groups](#) [Show Locations](#) [Clear Filter](#)

Location: *Not currently filtering by Locations* [Select Locations](#) [Clear Filter](#)

Pollutant Type:

- CRITERIA - CERR
- NOX/VOC/CO

[Show Pollutants](#) [Clear Filter](#) (To select multiple options, hold CTRL + MOUSE CLICK on each item.)

Pollutant: *Not currently filtering by Pollutants* [Select Pollutants](#) [Clear Filter](#)

SCC Class: *Not currently filtering by SCC Classes* [Select Classes](#) [Show SCCs](#) [Clear Filter](#)

SCC: *Not currently filtering by SCCs* [Select SCCs](#) [Browse SCCs](#) [Clear Filter](#)

[Search](#) [Clear All Filters](#)

TexAER Sample Control Strategy Report - Search



Control Strategy Report

Options for Detail Information View

<input checked="" type="checkbox"/> Locations	<input checked="" type="checkbox"/> Techniques
<input checked="" type="checkbox"/> SCCs and Pollutants	<input checked="" type="checkbox"/> Programs

[Select All](#)
[Clear All](#)
[Show Detail](#)

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Search Results

Show Details	Name ▲	Description	Authority	Status	RP	RE	TCCE	Effective Date	Compliance Date	Expiration Date
<input type="checkbox"/>	El Paso Attainment Demonstration SIP	PROGRAMApproval and Promulgation of Implementation Plans for Texas; Approval of Section 179B Demonstration of Attainment, Volatile Organic Compounds and Nitrogen Oxides Motor Vehicle Emissions Budgets for Conformity for the El Paso Ozone Nonattainmen...	ENVIRONMENTAL PROTECTION AGENCY REGULATION	Adopted	0	0	0	06/10/2004	08/09/2004	
<input type="checkbox"/>	Locomotive/Marine Compression-Ignition Eng. <30L	Control of Emissions of Air Pollution From New Locomotive Engines and New Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder (proposed) Application of catalytic aftertreatment. Proposing new emission standards and other relat...	ENVIRONMENTAL PROTECTION AGENCY REGULATION	Adopted	1	1	0.90	06/29/2004	01/01/2011	
<input type="checkbox"/>	Low Emission Diesel (TxLED) - East Texas	Low-Emission Diesel Fuel Compliance Date The EPA is granting final approval to a revision to the Texas Low-Emission Diesel (TxLED) fuel program State Implementation Plan (SIP) that applies in 110 counties in the eastern and central parts of Texas.	ENVIRONMENTAL PROTECTION AGENCY REGULATION	Adopted	1	1	0.21	04/06/2005	10/06/2005	
<input type="checkbox"/>	Motorcycle Emission Standards	Control of Emissions From Highway Motorcycles Revised exhaust and evaporative emission standards Applicability: All highway and off road motorcycles	ENVIRONMENTAL PROTECTION AGENCY REGULATION	Adopted	1	1	1	01/15/2004	03/15/2004	

TexAER Sample Control Strategy Report

Control Strategy Detail Report

[Export](#)
[HTML Only](#)

Name: Low Emission Diesel (TxLED) - East Texas

[Return to Control Strategy Report](#)

Description: Low-Emission Diesel Fuel Compliance Date The EPA is granting final approval to a revision to the Texas Low-Emission Diesel (TXLED) fuel program State Implementation Plan (SIP) that applies in 110 counties in the eastern and central parts of Texas.

Authority: ENVIRONMENTAL PROTECTION AGENCY REGULATION

Status: Adopted

Effective Date: 04/06/2005

Compliance Date: 10/06/2005

Expiration Date:

Reference URL:



<http://www.epa.gov/fedrgstr/EPA-AIR/2005/April/Day-06/a6853.htm>

Rule Penetration (RP): 1

Rule Effectiveness (RE): 1

Rule Effectiveness Method: EPA SINGLE SOURCE CATEGORY

Total Capture Control Efficiency (TCCE): 0.21

Details

Locations Associated with this Strategy

No Results

TexAER Sample Control Strategy Detail Report

Control Strategy Detail Report

[Export](#) [HTML Only](#)

Name: Low Emission Diesel (TxLED) - East Texas

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SCCs/Pollutants Associated with this Strategy

SCC ▲	SCC Short Description	Pollutant	RE	RE Method	TCCE
2201070000	ONROAD MOBILE: HEAVY DUTY GASOLINE VEHICLES 2B THRU 8B & BUSES (HDGV): TOTAL: ALL ROAD TYPES	PRIMARY PM10 (INCLUDES FILTERABLES + CONDENSIBLES)	1	EPA SINGLE SOURCE CATEGORY	0.21

Programs Associated with this Strategy

Name ▲	Adoption Date	Begin Date	End Date	Description
HGB Attainment Demonstration SIP Apr 2000	04/19/2000			http://www.tceq.state.tx.us/implementation/air/sip/apr2000hgb.html
HGB Attainment Demonstration SIP Sept 2001	09/26/2001			http://www.tceq.state.tx.us/implementation/air/sip/sept2001hgb.html
O3 Flex Plan for the Austin/San Marcos MSA	03/28/2002			http://www.cleanairforce.org/O3%20Flex%20Agreement.htm

Techniques Which Could be Used to Comply with this Strategy

No Results

[Export](#) [HTML Only](#)

TexAER Sample Control Strategy Detail Report - continued

TexAER Data Warehouse

TexAER Data Warehouse

- What is a data warehouse?

“a copy of transaction data specifically structured for querying and reporting.”

Ralph Kimball, *The Data Warehouse Lifecycle Toolkit: Tools and Techniques for Designing, Developing, and Deploying Data Warehouses*: John Wiley & Sons, 1998

TexAER Data Warehouse

- Why implement a data warehouse?
 - TexAER has grown to over 29 million records, 130 tables, 26 gigabytes
 - Expected to continue to grow significantly
 - Reports require complex queries that sift through large amounts data
 - Optimize performance to support on-demand reporting

Components of a Data Warehouse

- Fact Tables
- Dimension Tables
- Star Schema
- Bitmap Indexes
- Parallelism and Partitioning
- Extract, Transform, and Load (ETL) Process
- Server Optimization

TexAER Data Warehouse Solution

- Primary Fact Table: Emissions values
- Key Dimensions: Inventory, subinventory, location, SCC, pollutant, time period
- Technology: Oracle Data Warehouse, ETL developed using Oracle PL/SQL

TexAER Data Warehouse Results

- Reduced query time by 20%
- Returns results from complicated queries with multiple filter criteria quickly enough to allow for on-demand reporting.
- Scalability – as database grows, performance stable

Consider a data warehouse for any database with significant analysis and reporting needs, especially if database size approaches 1 million records or more.

- Next Steps
 - GIS Interface
 - Graphing Interface
 - Possible activity data repository

Questions?

TexAER demonstration available at the ERG booth.