

Propane School Bus Incentives

Chairman Michael L. Williams
Railroad Commission of Texas



RAILROAD COMMISSION OF TEXAS
PROPANE SCHOOL BUSES

Railroad Commission Role

- State's chief energy agency
- Statutory responsibility to promote economically and environmentally beneficial uses of propane
- Worked with Blue Bird and Propane Education and Research Council to bring an ultra-low emissions school bus to market
- Currently administers \$4.2 million in state and federal grants for propane equipment



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School Bus Facts

- Texas has 36,800 school buses
- One-third are pre-1990 models
- Pre-1990 buses emit 60 times as much pollution as 2007 standards
- 1,533 propane buses in 35 Texas school districts
- 1,183 propane buses (77 percent) are located in TERP-eligible counties



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Why Use Propane?

- Cleaner air
- Cost savings
- Energy independence



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Why Use Propane?

- Cuts emissions by 83-99 percent
- First-year cost savings up to \$25,000 per bus in TERP-eligible counties
- Propane is 90 percent domestic
- Most of the rest comes from Canada



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Oil Savings

- A typical propane school bus backs out 60 barrels of diesel per year
- Replacing the pre-1990 buses with propane would save more than 700,000 barrels a year
- Replacing all diesel buses with propane would save 2.1 million barrels a year



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Sample Cost Savings

Propane, 15K mi/yr

Purchase:	\$84,200
RRC grant:	<\$30,030>
Fuel (4.4 mpg)	\$5,608
Fuel tax credit	<\$1,689>
Maintenance	\$225
Theft losses	N/A
ANNUAL	\$4,144
FIRST YEAR	<u>\$58,314</u>

Diesel, 15K mi/yr

Purchase:	\$72,000
RRC grant:	N/A
Fuel (6 mpg):	\$8,700
Tax credit:	N/A
Maintenance	\$450
Theft losses	\$500
ANNUAL	\$9,650
FIRST YEAR	<u>\$81,650</u>

SAVINGS \$23,336



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Air-Quality Benefits

Nitrogen oxides (NO_x)
Precursors to smog



**96 percent reduction over 1989
diesel buses**

Source: EPA, Mobile 6



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Air-Quality Benefits

Volatile organic compounds (VOCs)

Precursors to smog



93 percent reduction over 1989 diesel buses



Source: EPA, Mobile 6



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Air-Quality Benefits

Carbon monoxide (CO)
Causes respiratory distress



**83 percent reduction over
1989 diesel buses**

Source: EPA, Mobile 6



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Air-Quality Benefits

Particulate matter (PM)
Particularly harmful to children



**99.99 percent reduction
over 1989 diesel buses**

Source: EPA, Mobile 6



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Grants and Credits

Current state and federal incentives reduce capital and operating costs.

- Railroad Commission Propane Vehicle Initiative
- Federal \$0.50/gal. Alternative Motor Fuel Tax Credit
- Federal Alternative Motor Vehicle Tax Credit
- Federal Refueling Property Tax Credit



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RRC Propane Grants

- Administered by RRC's Alternative Fuels Division under a \$12M grant from the Texas Commission on Environmental Quality
- State funds—source is Texas Emissions Reduction Plan (TERP)
- Applications accepted year-round



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RRC Propane Grants

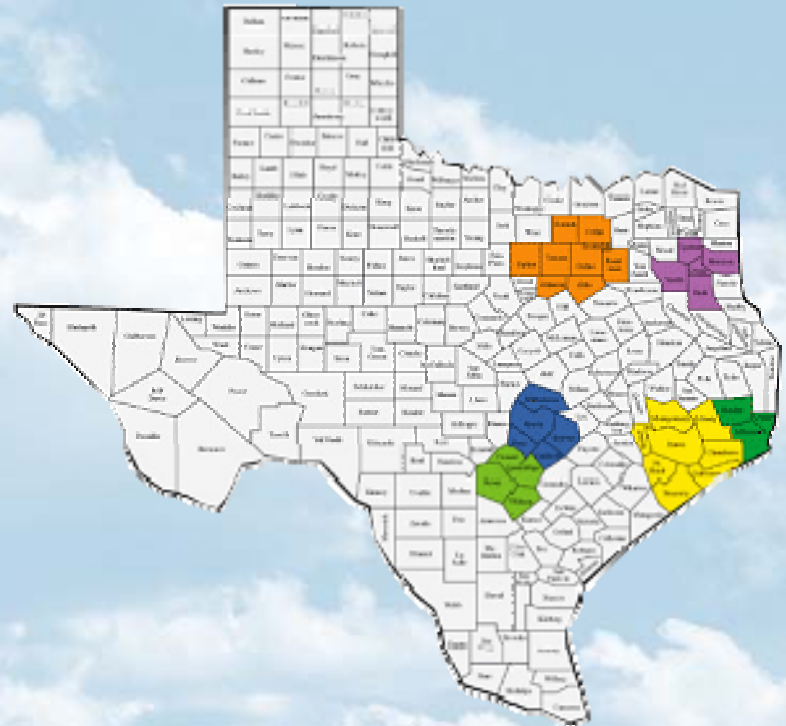
- School districts in 34 counties are TERP-eligible
- Only 8 of these counties have propane school buses: Bexar, Brazoria, Dallas, Denton, Harris, Tarrant, Travis, Williamson



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RRC Grants: Eligible Counties

Bastrop • Bexar • Brazoria
Caldwell • Chambers • Collin
Comal • Dallas • Denton • Ellis
Ft. Bend • Galveston • Gregg
Guadalupe • Harris • Hardin
Harrison • Hays • Jefferson
Johnson • Kaufman • Liberty
Montgomery • Orange • Parker
Rockwall • Rusk • Smith
Tarrant • Travis • Upshur
Waller • Williamson • Wilson



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RRC Grants: Eligibility

- Replacement buses only—not additions to fleet
- Bus being replaced must be registered and certified operational by a Railroad Commission Category L (propane engine fuel) licensee.
- Old bus must have been owned and operated in Texas for the two years immediately preceding the grant application.
- New bus must be EPA- or CARB-certified to 2008 emission standards.



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RRC Grants: Eligibility

- Old bus must be scrapped.
- New bus must operate for seven years, and only in an eligible county.
- Grant amounts vary according to the fuel (diesel or gasoline), annual mileage, and Gross Vehicle Weight Rating of the old and new buses.
- Remember: RRC and TCEQ are buying emissions reductions.



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RRC Online Grant Estimator

- Go to rrc.state.tx.us
- Click on “Propane/LP-Gas Rebates”
- Select “Propane Vehicle Grants”
- Choose “Propane Replacing Diesel School Bus” or “Propane Replacing Propane School Bus”
- Select tab for model year of old bus
- Enter miles driven per year



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The Railroad Commission of Texas - Windows Internet Explorer

http://www.rrc.state.tx.us/

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What's New @ the RRC?

- ▶ RRC Online Services - Electronic Filing Forms/Applications and Online Query Systems
- ▶ H-15 Program - Testing of Older Inactive Wells
- ▶ List of State Licensed Plumbers and Heating/Air Conditioning Repairmen Authorized to Perform LP-gas Installations and Repairs (PDF)
- ▶ Texas Landowner's Bill of Rights
- ▶ Contact List for All Active Pipeline Operators - Updated: 2/01/08 (PDF)
- ▶ Barnett Shale Information
- ▶ Drilling Permit Processing Time as of January 25, 2008
Expedited Permits: approximately 7 Business days
Standard Permits: approximately 31 Business days

AGENCY SERVICES

Crude Oil & Natural Gas

- Drilling & Production Statistics
- Oil & Gas Directory
- Forms & Filing Procedures
- Environmental Protection
- Proration Schedules
- Notice to Industry
- General Information

Financial Information

- Oil Field Cleanup
- Dedicated Account
- Agency Expenditures

Natural Gas Transportation

- Annual Reports Filed by Gas Utilities
- Informal Complaints
- Gas Bill Complaints
- Gas Utilities

Safety Division

- Third Party Damage Reporting
- General Pipeline Information & Forms
- LP-Gas (Propane)

Pipeline Permitting & Mapping

- Permit Forms
- Data Submission Standards
- New Pipeline Construction Reports
- Active Pipeline Operators
- Contact Information

Propane/LP-Gas

- Rebates
- Training & Certification
- Licensing
- Safety

COMMISSIONERS
Michael L. Williams, Victor G. Carrillo, Elizabeth A. Jones

ABOUT THE RRC - Mission Statement, History, Agency Organization, Sunset Review, Service Evaluation Survey

RRC ONLINE SERVICES - Electronic Filing Forms/Applications and Online Query Systems

CLEAN COAL TECHNOLOGY - Executive Order, FutureGen, Council Members

TEXAS ENERGY PLANNING COUNCIL - Executive Order, Press Releases, Council Members, Meetings


KIDS WORLD - Home Sweet Home, School House, Camp RRC, RRC Park, What's The Risk?

INFORMATION RESOURCES - Search Oil and Gas Well Records, Oil & Gas Records, Information Pertaining to Leases & Royalties, Request Well Records, Central Records, Annual Reports Filed by Gas Utilities, Pipeline Permits

RULES & REGULATIONS - Oil & Gas, Gas Utilities & Pipelines, LP-Gas, Mining, Dockets

IN PRINT - Publications, Forms, Electronic Public Information, Well Log List for GIS Map Viewer

MAPS - Oil & Gas, Coal, Digital Map Data, LP-Gas Regions, Pipeline Safety Regions, Historical Coal Mining in Texas, Public GIS Map Viewer for Oil, Gas, and Pipeline Data



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Propane Rebate Programs in Texas - Windows Internet Explorer

http://www.propane.tx.gov/rebate_program/index.html

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Alternative Fuels Research & Education Division

REBATES AND INCENTIVES

AFRED and the IRS offer a variety of rebates and incentives for both the consumer and propane marketer. Check out the programs below to find out how you can save on propane.

- [Consumer Rebate Program](#)
- Propane Forklift Grants
- Propane Vehicle Grants
- Federal Tax Credits:
\$0.50/gal. Motor Fuel, Motor Vehicle,
Refueling Property
- Calculate Your Total Savings
- Excise Tax Comparison

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http://www.propane.tx.gov/rebate_program/consumer.html

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http://www.propane.tx.gov/rebate_program/propaneequipment.html

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Alternative Fuels Research & Education Division

The Railroad Commission offers incentives to buyers of propane vehicles that meet or exceed EPA emission standards. Click on the links below for more information about eligibility, terms, or to download a grant estimator worksheet form.



- Application Checklist
- Frequently Asked Questions
- Distributor Participation Form
- Distributor Participation Form (Word)
- GRANT ESTIMATORS (Excel):**
 - Propane Replacing Propane Bobtail
 - Propane Replacing Diesel Bobtail
 - Propane Replacing Propane School Bus
 - Propane Replacing Diesel School Bus
- Participating Dealers

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Estimate Your Grant Online

Source: http://www.bts.gov/publications/national_transportation_statistics/html/table_04_32b.html
CARB Executive Order 2008 MY Certificate of Conformity
<http://www.epa.gov/otaq/models/mobile6/m6fnde04.pdf>

	Diesel Old School Bus	Propane Replacement
Enter Miles Driven Per Year	0	0
TxLED Correction Factor	0.943	1
Baseline NOx (g/bhp-hr)	10.7	0.4
TX LED Adjusted NOx (g/bhp-hr)	10.0901	0.4
Conversion Factor (bhp-hr/mi)	2.661	1.677
Grams/Ton	907200	907200
TX LED Adjusted NOx (tons/mi)	0.0000295963	0.000007394
Percentage of time operated in eligible counties	100%	100%
Total miles of operation per year	0	0
Annual NOx emissions (tons)	0.0000000000	0.0000000000
Net annual NOx emissions reductions (tons)	0.0000000000	
Percentage reduction	#DIV/0!	
% annual NOx reduction must be 25% or greater to proceed		
Net annual NOx emissions reductions (tons)	0.0000000000	
Total Years	7	
Grant Life NOx emissions reductions (tons)	0	
Cost effectiveness of \$10,000/ton NOx	\$10,000	
Grant amount requested	\$0.00	

Select
model year
of old bus



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Diesel to Propane School Bus Replacement

Model Year 1989

		Diesel Old School Bus	Propane Replacement
Enter Miles Driven Per Year		15,000	15,000
TxLED Correction Factor		0.943	1
Baseline NOx (g/bhp-hr)	x	10.7	0.4
TXLED Adjusted NOx (g/bhp-hr)	=	10.0901	0.4
Conversion Factor (bhp-hr/mi)		2.69	2.99
Grams/Ton	div	907200	907200
TXLED Adjusted NOx (tons/mi)		0.0000299188	0.0000013183
Percentage of time operated in eligible counties	x	100%	100%
Annual miles per year	x	15,000	15,000
Annual NOx emissions (tons)	=	0.4487825562	0.0197751323
Net annual NOx emissions reductions (tons)		0.4290074239	
Percentage reduction		96%	
% annual NOx reduction must be 25% or greater to proceed			
Net annual NOx emissions reductions (tons)		0.4290074239	
Total Years (Choose 5, 6, or 7 years)	x	7	
Grant Life NOx emissions reductions (tons)	=	3.003051968	
Cost effectiveness of \$10,000/ton NOx	x	\$10,000	
Grant amount requested	=	\$30,030.52	

**Enter
annual
miles**

**Grant
(est.)**



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Sample Grant Estimates

2008 propane replacing . . .

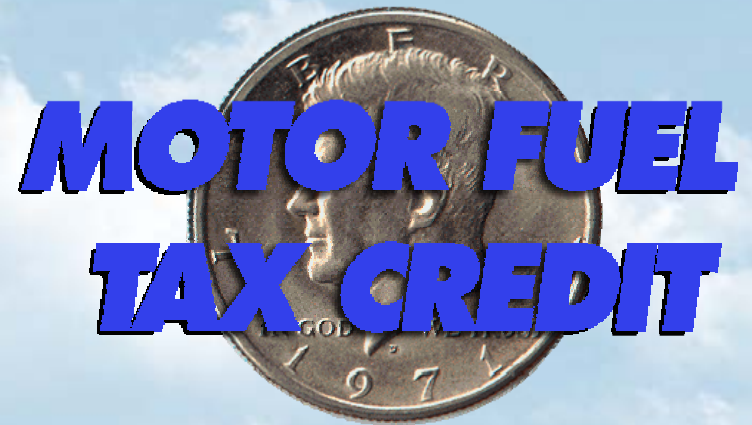
1989 diesel	15,000 mi/year	\$30,030
1989 diesel	12,000 mi/year	\$24,020
1989 diesel	9,000 mi/year	\$18,010
1993 diesel	15,000 mi/year	\$14,000
1998 diesel	15,000 mi/year	\$11,660



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\$0.50/gal. Federal Tax Credit

- School districts are eligible
- IRS refunds \$0.50/gallon of propane used in on-road vehicles
- Duration: Oct. 1, 2006 – Sept. 30, 2009
- May be extended



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Federal Alternative Fuel Vehicle Tax Credit

- 80 percent of new propane vehicle's incremental cost
- For tax-exempt entities, seller may take credit.
- List of vehicles and amounts at [irs.gov](https://www.irs.gov); search on QAFMV and click on CleanFUEL USA.



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Federal Alternative Refueling Property Tax Credit

- 30 percent of new propane station cost, up to \$30,000
- For tax-exempt entities, seller may take credit
- Station must be placed in service by Dec. 31, 2009



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Total Cost Savings Estimator

- Go to propane.tx.gov
- Click on “Motor Vehicles and Forklifts”
- Select “Calculate Your Total Savings”
- Click tab for “Sample School Bus”
- Fill in blue fields to compare total costs



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SAMPLE SCHOOL BUS COST ANALYSIS

Capital Cost	DIESEL/GASOLINE	PROPANE	SAVINGS
Purchase Price	\$72,000.00	\$84,200.00	-\$12,200.00
<i>Click on the link below to determine the amount of your federal motor vehicle tax credit.</i>			
Federal Alternative Motor Vehicle Tax Credit (propane only)		\$0.00	+ \$0.00
<i>Click on the link below to estimate the amount of your Texas propane equipment grant.</i>			
Texas Propane Equipment Incentive Grant amount (propane only)		\$30,030.00	+ \$30,030.00
Capital Cost Savings/Difference			\$17,830.00
Operating Cost			
Annual miles driven	15,000	15,000	
Average miles/gallon	6.00	4.44	
Gallons per year (line 1 divided by line 2)	2,500.00	3,378.38	
Cost per gallon*	\$3.48	\$1.66	
Annual fuel cost (line 3 x line 4)	\$8,700.00	\$5,608.11	= \$3,091.89
Annual federal excise tax rate/gallon	\$0.00	\$0.00	
Annual federal excise tax amount (line 6 x line 3)	\$0.00	\$0.00	\$0.00
Annual federal excise tax credit/gal beginning 10/1/06 (propane only)		\$0.50/gallon	
Annual federal tax credit (line 3 x line 8)		\$1,689.19	+ \$1,689.19
Cost of annual maintenance (includes tune-ups, oil, future engine life)	(\$0.03 per mile)	(\$0.15 per mile)	
Annual maintenance (line 2 x line 10)	\$450.00	\$225.00	+ \$225.00
Loss from pilferage/theft	\$500.00	NONE	+ \$500.00
Annual propane state motor fuel tax or decal	\$0.00	\$0.00	- \$0.00
Total Annual Savings			= \$5,506.08
TOTAL First-Year Savings			\$23,336.08

Bus

RRC grant

Mi/yr

MPG

Fuel price

Result



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Service and Training

- Service on propane system is by Rush GMC Commercial Truck Centers
- Free RRC training to school districts on operation and maintenance of propane systems



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Conclusions

- Propane school buses reduce children's exposure to harmful air pollutants.
- Current incentives for propane school buses produce substantial cost savings.
- Propane school buses help reduce U.S. dependence on foreign oil.



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