



# **STATE ENERGY CONSERVATION OFFICE (SECO)**

**TEXAS COMPTROLLER OF PUBLIC ACCOUNTS**

***“A NEW LOOK AT SECO”***

***RESOURCES FOR ENERGY EFFICIENCY IN TEXAS PUBLIC FACILITIES***

# SECO's Basic Tasks

- ▶ The Texas [State Energy Conservation Office](#) (SECO) works with Texas public schools and universities, local and county governments and state agencies to reduce energy costs and maximize efficiency.
- ▶ SECO provides information on various types of renewable and non-renewable resources used in Texas and tips on conservation programs.



# Programs of Interest

- SECO is involved with a number of Texas energy programs, including:
  - **LoanSTAR Revolving Loan Program**, designed to help taxpayers save money by providing loans for energy-efficient projects to state agencies, higher education, local governments and hospitals.
  - **Schools Program** provides technical services such as preliminary energy audits and technical assistance as needed to determine energy usage, operating efficiencies, renovations needed, estimated project costs and payback periods.
  - **Watt Watchers**, an interactive program allowing students and teaching staff to participate in energy saving activities designed to ignite a lifelong interest in energy efficiency and sustainable energy saving measures.
  - **Texas Building Energy Codes Program** provides resources and training to building professionals and the general public on the latest energy codes and standards.

# Typical Funding Opportunities



## SECO FUNDING OPPORTUNITIES

Throughout the year, SECO announces various funding opportunities to support efficiency programs. Funding opportunities include Notice of Loan Fund Availability for the LoanSTAR program, Request for Applications for energy efficiency grants and Requests for Proposals for qualified firms to contract with SECO on projects.

### Notice of Loan Fund Availability — Cools Schools & More

*Posted April. 16, 2021* — The Texas LoanSTAR Cool Schools & More Notice of Loan Fund Availability will provide low interest rate loans to assist Texas public Independent School Districts (ISDs) by financing energy-related cost-reduction HVAC and Air Treatment retrofits.

**Applications Due: June 16, 2021**

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### Notice of Loan Fund Availability — LoanSTAR Program

*Posted Oct. 16, 2020* — The Texas LoanSTAR (Saving Taxes and Resources) revolving loan program provides low interest rate loans to assist Texas public institutions by financing their energy-related cost-reduction retrofit projects.

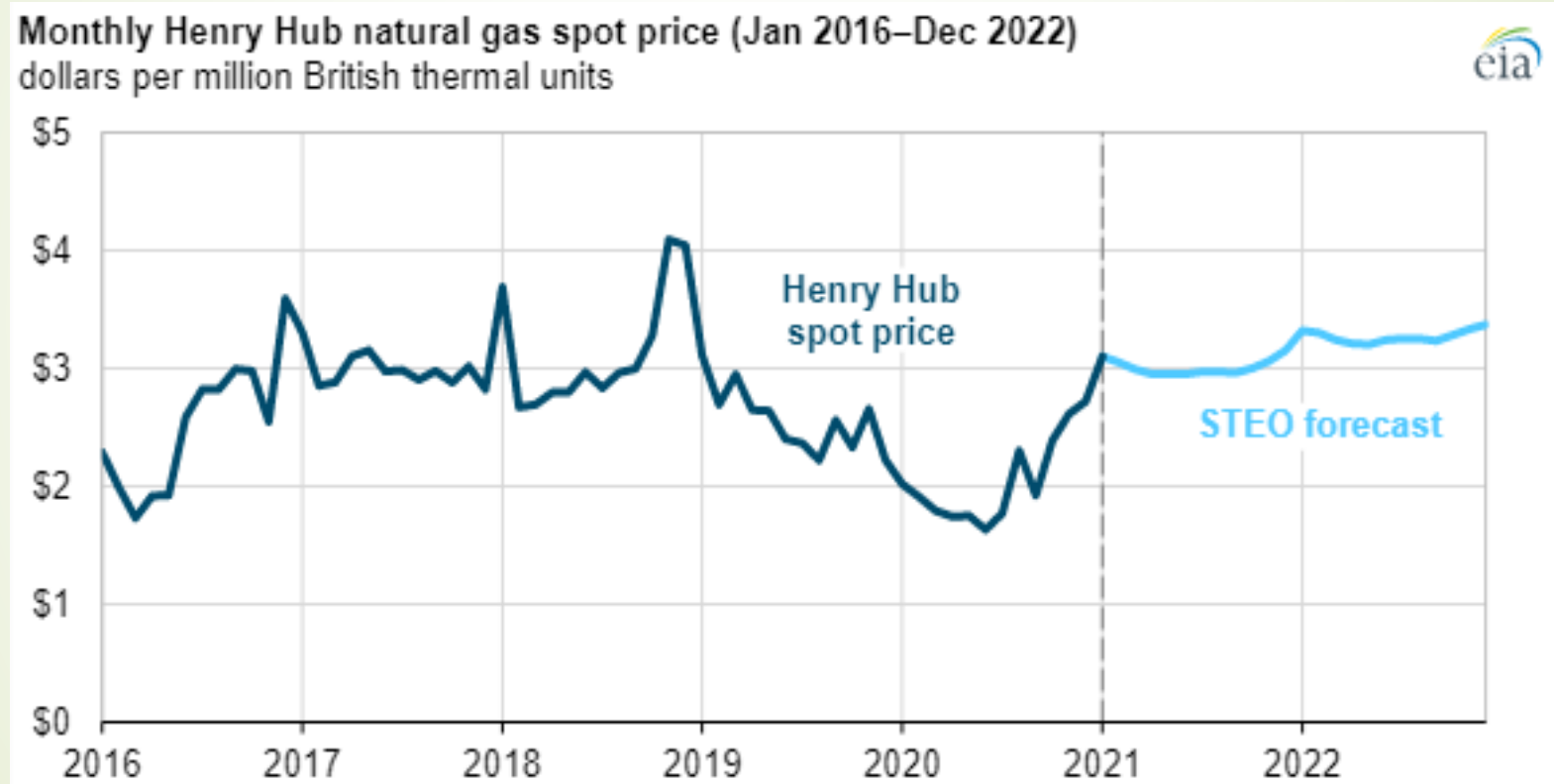
**Open enrollment through August 31, 2021**

# Funding Needs Have Increased!

## ► WHY IS FUNDING NEEDED?

- Utilities have become the 2<sup>nd</sup> highest budget item for most public facilities
- Natural Gas prices are increasing
- Water prices have risen (and continue to rise) to the point that water is now the 2<sup>nd</sup> highest portion of the Utility Budget
- Deferred Maintenance has been a reality for over 30 years in Texas
- Bond Budgets are *never* large enough to include all infrastructure needs
- ESSER funds were primarily earmarked for needs outside infrastructure
- COVID -19 has changed our ventilation requirements forever...
  - increased ventilation rates = increased energy costs...

# Natural Gas Prices Are On the Rise





# Once In A Century Winter Disaster Compounded the Problem






# Deferred vs Preventive Maintenance


- ▶ Studies show that Texas public facilities have suffered through 30+ years of minimal maintenance expenditures...and even less Preventive Maintenance
- ▶ Texas Comptroller of Public Accounts, Glenn Hegar, testified that State offices “are so deteriorated that it is indeed an embarrassment”
- ▶ The Texas Facilities Commission recently requested \$1B to repair the damage made by Deferred Maintenance decisions
- ▶ Jones-Lang-LaSalle Report:
  - ▶ Effective Preventive Maintenance Programs costing an average of \$0.33/SF-Yr would typically produce an **ROI** of **545%**, with the majority of that return coming through longer equipment life.





# LoanSTAR (Saving Taxes and Resources) Revolving Loan Program

- ▶ Finances energy-related, cost-reducing retrofits of facilities supported by the state, including public school districts and public colleges and universities, as well as units of local government such as counties, cities, towns, public hospital taxing districts or political subdivisions ([10 Tex. Gov. Code §2305.032](#)).
- ▶ Borrowers receive low-interest loans to help pay for these efforts. Applicants repay the loans from the energy cost savings realized by the projects.
- ▶ As of May 14, 2021, LoanSTAR has funded more than 325 loans totaling more than \$546 million. As a result of this financing, the LoanSTAR Program has achieved total cumulative program energy savings exceeding \$711 million, a direct savings to Texas taxpayers.



# Utility Assessment Report (UAR)

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Energy Efficient Lighting

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High Efficiency HVAC

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Energy & Water Efficiency Management Systems

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Energy Recovery Systems

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Building Shell Improvements

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Load Management Measures

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Energy Management Information Systems and Metering

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Whole Building & Systems Commissioning

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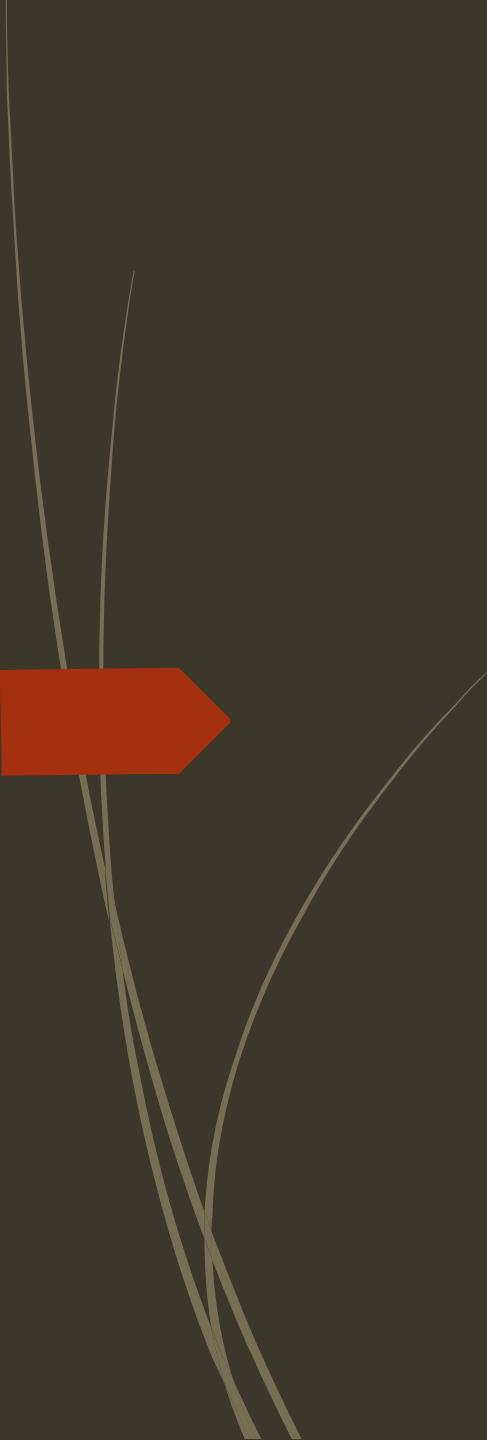
Electric Demand Reduction

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Power Factor Correction

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Load Shifting (eg, TES)



## General Guide

- Eligible Borrowers
  - Public taxpayer supported entities
    - [10 Texas Gov't Code](#)  
[§2305.032](#)
    - [34 Tex. Admin. Code](#)  
[§19.41-45](#)
  - Loan Qualification Criterion
    - Permanently affixed
    - Own Facility
  - Third Party Review

# PRIMARY LoanSTAR REPORT FEATURES

- **Facility Description:** *Age, Usage, Problems, Inventory, Needed Revisions*
- **Utility Bill Analysis:** *What are you paying for and why*
- **Utility Benchmarking:** *1 to 3 year history of cost & consumption for each primary fuel used in your facilities*
- **Systems Analysis:** *Where the energy is being used and how it can be reduced*
- **Project Prioritization:** *Revisions that can be made to improve comfort and save energy expense presented along with capital expense, annual cost savings, simple payback periods and Return-on-Investment calculations*
- **Savings Assurance:** *Utility Assessment Report (UAR) prepared by a Professional Engineer and reviewed by a 3<sup>rd</sup> Party Professional Engineer.*
  - NOTE: When ESPC procurement chosen, guaranteed cost avoidance is provided

Maximum loan size per application  
\$8 million (\$3 million min for repaid ARRA)

Loan Payback Requirements  
<15 yrs / <EUL

Maximum number of loans  
three per applicant

Interest Rates  
General fund - annual rate of 2 percent  
Repaid ARRA fund - annual rate of 1 percent.

Applications  
Reviewed on a first-come, first-served basis.

Application Submission  
Any time prior to next NOLFA

# NOTICE OF LOAN FUND AVAILABILITY

# History of LoanSTAR (Saving Taxes and Resources)

- ▶ Lowest Amount Loaned = \$ 43,276
- ▶ Largest Amount Loaned = \$9,999,918
- ▶ Average Loan Amount = \$1,734,976
  
- ▶ *Note: Current rules allow a maximum loan amount = \$8M, with potential of 3 simultaneous loans, thus allowing a total loaned amount per public entity = \$24M*



# Financial History of Loans per End User Category

Row Labels	Count of Loan Number	Sum of Loan Amount	Calculated Average Annual Savings	Average of Loan Term
County	14	\$ 25,389,591.00	\$ 188,462.01	7.9
Higher Ed	52	\$ 132,453,492.82	\$ 438,742.66	6.4
Hospital	13	\$ 7,413,692.00	\$ 76,159.16	8.2
K-12	138	\$ 117,089,970.82	\$ 116,106.76	7.7
Local	61	\$ 159,321,382.59	\$ 313,723.85	7.9
State Agency	24	\$ 53,906,155.30	\$ 369,139.61	6.9
<b>Grand Total</b>	<b>302</b>	<b>\$ 495,574,284.53</b>	<b>\$ 233,319.18</b>	<b>7.5</b>

# AVERAGE ANNUAL & TOTAL \$ SAVINGS From Inception in 1990 to March 2021:

- ▶ Mean Average Annual Savings for public entities:

**\$70,462,393 PER YEAR**

- ▶ Those savings have been steadily increasing each year and most savings have occurred since 2002, reaching a Total Cumulative Program Savings:

**\$708,430,513**



# Emissions Savings Summary

(January 1990 through March 2021)

	<b>NOx Tons</b>	<b>CO2 Tons</b>	<b>SO2</b>	<b>Hg</b>
Heating	3,997	1,250,570	6.24	0.0027
Chilled Water	2,298	710,372	2,027	0.0113
Electricity	11,963	4,630,900	11,797	0.0784
<b>TOTAL</b>	<b>18,258</b>	<b>6,591,842</b>	<b>13,830</b>	<b>0.0924</b>

## SUMMARY of PEA RECOMMENDED UCRM's 2018 through 2021

UCRM TITLE	# PROJECTS	Cost \$	Savings \$	Payback Period (Yr)	ROI
<b>LIGHTING</b>					
Lighting Controls	1	\$8,085	\$422	19.2	-47.80%
Lighting & Controls	54	\$41,389,852	\$6,523,921	6.3	57.62%
<b>HVAC</b>					
HVAC Replace/Renovate	30	\$24,155,732	\$1,185,314	20.4	-1.86%
HVAC Controls	25	\$6,430,930	\$662,948	9.7	106.17%
HVAC & Controls	16	\$20,813,542	\$994,353	20.9	-4.45%
HVAC Thermal Storage	2	\$8,000,000	\$392,800	20.4	-1.80%
HVAC Boiler/Chiller	11	\$19,365,300	\$911,350	21.2	-5.88%
HVAC Airside Dist.	8	\$1,387,074	\$143,580	9.7	107.03%
HVAC Water Dist.	11	\$1,397,050	\$187,800	7.4	168.85%
<b>COMMISSIONING</b>	11	\$7,806,600	\$1,284,659	6.1	64.56%
<b>ELECTRICAL</b>					
Energy/Power Mgmt	3	\$695,625	\$112,100	6.2	61.15%
<b>WATER CONSERVATION</b>					
Water Use/Dist.	6	\$1,067,450	\$144,710	7.4	35.57%
DHW	2	\$152,781	\$25,761	5.9	68.61%
Irrigation	1	\$273,500	\$96,300	2.8	252.10%
<b>WATER/WW TREATMENT</b>					
Treatment & Processing	4	\$4,342,000	\$763,980	5.7	75.95%
<b>RENEWABLE</b>	3	\$2,681,100	\$131,770	20.3	-1.70%
<b>TOTAL:</b>	188	\$139,966,621	\$13,561,768	10.3	45.34%

# LoanSTAR Case Studies

## ▶ TEXAS DEPARTMENT OF CRIMINAL JUSTICE (TDCJ):

### ▶ INTERIOR & EXTERIOR LIGHTING RETROFIT TO LED AT TWO UNITS –

▶ 2017 BASE FISCAL YEAR: 10,181,212 KWH

▶ 2020 FISCAL YEAR: 8,250,823 KWH → **19% ENERGY CONSUMPTION REDUCTION**

▶ CUMULATIVE 29 MONTH COST SAVINGS: \$284,209

▶ INSTALLED COST OF LOANSTAR LOAN PROGRAM: \$291,019

▶ SAVINGS ESTIMATION PAYBACK PERIOD: 54 Months

▶ ACTUAL PAYBACK PERIOD: **30 Months**

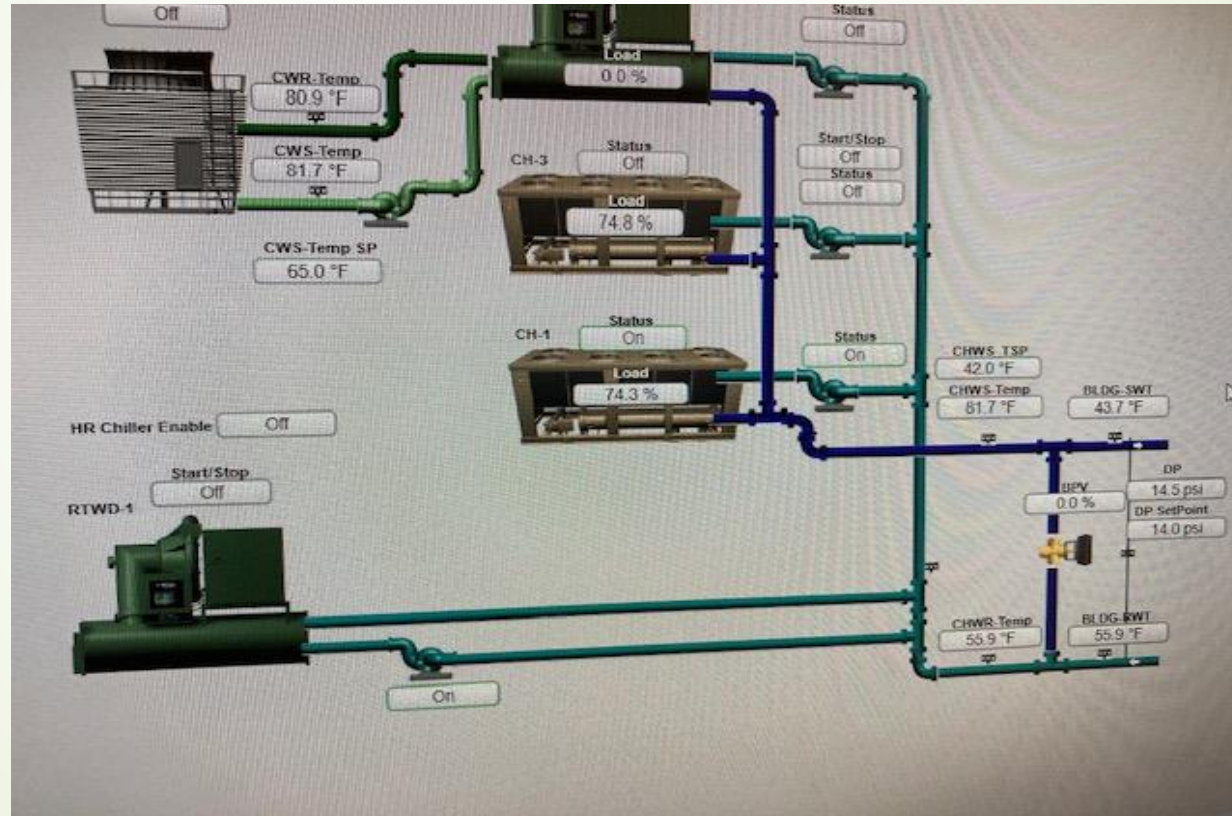
# LoanSTAR Case Studies

## ▶ CITY OF PORT LAVACA:

- ▶ REPLACE 6 RTU'S, 2 SPLIT SYSTEMS
- ▶ REPLACE INDOOR AND EXTERIOR LIGHTING WITH LED
- ▶ INSTALL DDC AUTOMATIC CONTROLS FOR HVAC SYSTEMS
  - ▶ 2018 BASE FISCAL YEAR: 2,711,304 KWH / ANNUAL 2,979 KW DEMAND
  - ▶ 2020 FISCAL YEAR: 2,141,930 KWH → **21% ENERGY CONSUMPTION REDUCTION**
  - ▶ **NOTED THAT LOAD FACTOR EXTREMELY HIGH @ 91%---**IE, very high Consumption compared to Peak Demand
    - ▶ Focused renovation effort on reducing operating hours
- ▶ CUMULATIVE 24 MONTH COST SAVINGS: \$118,900
- ▶ INSTALLED COST OF LOANSTAR LOAN PROGRAM: \$530,500
- ▶ SAVINGS ESTIMATION PAYBACK PERIOD: 9½ YEARS
- ▶ ACTUAL PROJECTED PAYBACK PERIOD: **9 YEARS**



# IN ADDITION TO EQUIPMENT CHANGEOUTS: Retro-Commissioning



# IN ADDITION TO EQUIPMENT CHANGEOUTS: Retro-Commissioning

- ▶ Screenshots may be showing temporary adjustments and don't provide all the information needed to draw conclusions, but a RCx Agent would ask:
  - ▶ Condenser Water Setpoint is typically 85F, not 65F...CW can't be cooled below dewpoint, so setting the desired temperature at 65F simply causes the CT fan to run unnecessarily
  - ▶ Why run an Air Cooled Chiller as the lead unit when a Water Cooled Chiller would operate far more efficiently?
  - ▶ If CH-3 is OFF, why does it show operation at 74.8%...Possibly a bad input?
  - ▶ CHWS is 42F from CH-1, but CHWS is shown to be 81.7F...Bad sensor? Copied CWS program and forgot to update the reference?
  - ▶ RTWD is OFF, but it's pump is ON.

# IN ADDITION TO EQUIPMENT CHANGEOUTS: Billing Analysis

**SUEZ**  
Energy Resources NA

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Your Bill Account Number
37011-28004
Use when calling or writing

Total from Last Bill **\$7,080.88**

Service Address:  
[REDACTED] ISD  
[REDACTED]  
[REDACTED]

### Billing Details

Amount You Still Owe as of Jul 27, 2009 **\$7,080.88**

Questions about  
this bill? Please  
contact us  
at 1-888-232-6206

### Current Charges

Billing Period for Jun 24, 2009 - Jul 23, 2009

Energy Charges	
Energy 57850 kWh at \$0.08299 per kWh	4,800.97
Band Adjustment for April 2009	641.13
Band Settlement for May 2009 - IN BAND	0.00
<b>Subtotal Energy Charges</b>	<b>5,442.10</b>

or write to:  
SUEZ Energy Res  
P.O. Box 25225  
Lehigh Valley, PA  
18002-5225

Pass through charges from local utility	
Customer Charge	24.90
Metering Charge	16.65
Distribution System Charge 274 rpfa @ \$3.55/rpfa	972.70
System Benefit Fund 57850 kWh @ \$0.000655/kWh	37.89
Nuclear Decommission Chrg 274 rpfa @ \$0.044/rpfa	12.06
Transition Charge 1 274 rpfa @ \$0.234/rpfa	64.12
Energy Eff Cost Recov/Serv Rel Cr	2.48
Transition Charge 2 274 rpfa @ \$0.289/rpfa	79.19
Adv Meter Interval Load Data Equip Maint (Monthly)	7.00
Transmission Service Charge 186 pfa @ \$1.47/pfa	273.42
Transmission Cost Recov Factor 186 pfa @ \$0.781008/pfa	145.27
<b>Subtotal Utility Charges</b>	<b>1,635.68</b>

Internet:  
[www.suezenergyresources.com](http://www.suezenergyresources.com)

E-mail:  
[custserv@suezenergyna.com](mailto:custserv@suezenergyna.com)

Taxes	
Gross Receipt Reimbursement	137.48
PUC Assessment Reimbursement	11.48
<b>Subtotal Taxes</b>	<b>148.96</b>

Pay This Amount No Later Than Aug 26, 2009	\$14,307.62
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**Total Amount Due \$14,307.62**

# IN ADDITION TO EQUIPMENT CHANGEOUTS: Benchmarking

YEAR	ELECTRIC				GAS		
	CONSUMPTION KWH	DEMAND			TOTAL ELECTRIC COSTS \$	CONSUMPTION CCF	COSTS \$
		LOAD FACTOR	CHARGED KW/KVA	COST OF DEMAND			
2019	810,815	34.12%	3,194	19,473	58,261	2,315	1,774
2019	876,908	36.44%	3,581	21,866	65,040	1,426	1,107
2019	851,854	31.27%	3,662	22,402	65,713	1,591	1,184
2019	701,889	30.07%	3,242	19,852	55,522	2,318	1,659
2019	669,191	29.99%	2,999	18,372	50,498	3,418	2,291
2019	602,103	27.72%	3,017	18,498	47,374	3,861	2,547
2020	569,297	25.73%	2,974	18,197	47,996	3,325	2,136
2020	560,366	24.53%	3,071	18,796	47,283	3,796	2,161
2020	467,127	21.16%	3,066	18,766	43,718	936	794
2020	374,805	25.38%	1,985	12,146	36,901	553	564
2020	431,518	28.34%	2,115	12,947	40,373	403	480
2020	506,700	28.99%	2,349	14,420	44,991	348	461
	<b>6,611,758</b>	<b>28.15%</b>	<b>32,061</b>	<b>\$196,262</b>	<b>\$545,409</b>	<b>24,290</b>	<b>17,158</b>
				<b>Energy Use Index:</b>			
	\$562,567	Per Year		Total Site BTU's/yr		38,971	BTU/s.f.yr
				Total Area (sq. ft.)			
	22,565.93	x 106					
	2,501.90	x 106		<b>Energy Cost Index:</b>			
		x 106		Total Energy Cost/yr		\$0.87	\$/s.f. yr
	25,067.83	x 106		Total Area (sq. ft.)			
	643,246	s.f.		Cost per KWH (All in)		\$0.082	





# Recent Grants and *even lower* Interest Loans

## COOL SCHOOLS & MORE PROGRAM: *(low interest loan)*

- Announced April 16, 2021, SECO set aside \$20M for small school public districts to replace 10-year old and older HVAC units
- Allowed 20% of the funding for indoor air treatment and ventilation improvements
- Maximum individual loans = \$500,000; Interest Rate = 0.25%; 12-year payback

## LED LIGHTING PROGRAMS: *(reimbursable grant)*

- Small public school and local government LED lighting renovations; \$3.2M set aside
- Interior Lighting: \$75k maximum reimbursable grant
- Exterior Lighting: \$50k maximum for wallpacks, exterior overhead and pole mounted
- Both required a 20% match

# Recent Grants and even lower Interest Loans

## LED LIGHTING GRANT PROGRAM →

*\$3.2M Funding Availability*

Local Gov't Interior Lighting:

48 Applications

Electric Vehicle Charging Station:

11 Applications

ISD Interior Gym/Commons Areas:

32 Applications

ISD Exterior Wall Pack/Parking Lot:

23 Applications

## COOL SCHOOLS → *\$20M Funding Availability / 0.25% Interest / \$500,000 per Loan / 12 Year PB*

7 Applications

\$ < \$3M Funding Requested



# Average Energy Performance Indicators Around the State

Texas Independent School Districts in:

	<u>Energy Use/SF (EUI)</u>	<u>Energy Cost/SF (ECI)</u>
➤ <b>Region 4:</b> Houston Area	40,494	\$1.08
➤ <b>Region 6:</b> Huntsville Area	37,842	\$0.87
➤ <b>Region 12:</b> Waco Area	40,211	\$0.91
➤ <b>Region 17:</b> Lubbock Area	44,156	\$0.81



# With Respect To Energy Budgets:

- ▶  $\frac{\text{Total Savings}}{\text{Total Base Year Utility Cost}} = 15.82\%$  for Current Projects
- ▶  $\frac{\text{Total Savings}}{\text{Total Base Year Utility Cost}} = 18.37\%$  Overall Program

# CONTACT US FOR STATE ASSISTANCE

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