

Hidalgo County LED Project Business Case Analysis



E3 Entegral Solutions:

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WE FOCUS OUR ENERGY

ON SAVING YOURS.



E3 Entegral Solutions

~ Lighting Division

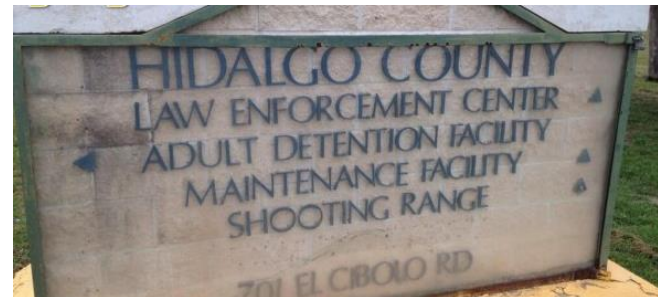
- Self-Performing, Turn-key Lighting Company
- Lighting Design Philosophy
 - Best Value for Tax Dollars
 - Long-term Sustainability/Quality
 - O&M is major design factor
 - NO BALLASTS
- The Promise of LED Technology
 - Better Quality/More Light + Energy Savings + Longer Life



Lighting Observations

- E3 audited the following Hidalgo County sites:

- Adult Detention Facility
- Academy
- CSI Lab
- Edinburg Annex
- Law Enforcement Center
- Motor Pool
- Shooting Range
- Sub Station



Lighting Observations

- Total Number of Fixtures;

Lamps	Installed Qty
HID	311
Incandescent	118
Linear Fluorescent	10,034
Plug-In Fluorescent	839

- Types of technologies;
 - T8 fluorescent lamps throughout the County
 - 3 Lamp Troffer fixture & 2 Lamp Wraps
 - HIDs: 250W Metal Halides
 - Wall Packs, Poles and Day lights



Recommended Upgrades

- 18W TLED Lamps
 - 10-Year / 50k hour warranty
 - Best in the Industry
 - US Navy TLED of Choice
- 60W Wall Packs
- 75W Pole Lights
- Limited “DNRs” – Do not retrofit
 - T5s in the Training Academy and Sub Station
 - Night Lights = 5W

focus ENLIGHTEN AND INSPIRE

300D Series LED Tube
Linear Fluorescent Retrofit Lamp
For T8 and T12 lamp replacement



Product Specifications

Length	4' variants available
Body	oval extruded aluminum / polycarbonate lens
Lens	clear (standard) or frosted available
Connection	medium bi-pin (G13) end cap
Input voltage	100-277vac, 50/60Hz
Driver	single end power, integrated LED driver
Available colors	warm white 3500K neutral white 4000K cool white 5000K
CRI	>80
Dimming	non-dimmable
Lifetime	rated life of 50,000 hours (L70)
Environmental Requirements	Operating temp. -20 to +50°C Storage temp. -30 to +60°C Working humidity: 30% to 85% Storage humidity: 10% to 90% Non-corrosive environments
Regulatory	UL, cUL, DLC, RoHS



Must use non-shunted lamp holders

300D Series LED Tubes are single ended electrically connected, labeled (top up). The label color and code for identifying and mechanically connecting, non-electrical. Non-shunted lamp holder required. Replacement of existing ballast is recommended when retrofitting.

Meets ANSI standard



Summary of Savings

- If you make these changes,,,
 - Total kW savings of 197.3, ~55% reduction
 - Total kWh savings of 915,863, ~60% reduction
 - O&M Savings of ~\$17,500/yr.

Hidalgo County			
Summary of Energy Savings			
Facility	Sum of Annual Savings from kW	Sum of Annual Savings from kWh	Sum of Total Annual Savings
Academy	\$ 726.57	\$ 1,375.16	\$ 2,101.73
Adult Dention Facility	\$ 12,495.33	\$ 43,267.32	\$ 55,762.65
CSI Lab	\$ 51.12	\$ 153.64	\$ 204.76
Edinburg Annex	\$ 817.65	\$ 970.93	\$ 1,788.58
Law Enforcement Center	\$ 1,842.84	\$ 4,197.19	\$ 6,040.03
Motor Pool	\$ 902.61	\$ 1,907.31	\$ 2,809.92
Shooting Range	\$ 113.04	\$ 622.50	\$ 735.54
Sub Station	\$ 807.75	\$ 2,457.77	\$ 3,265.52
Grand Total	\$17,756.91	\$54,951.81	\$72,708.72

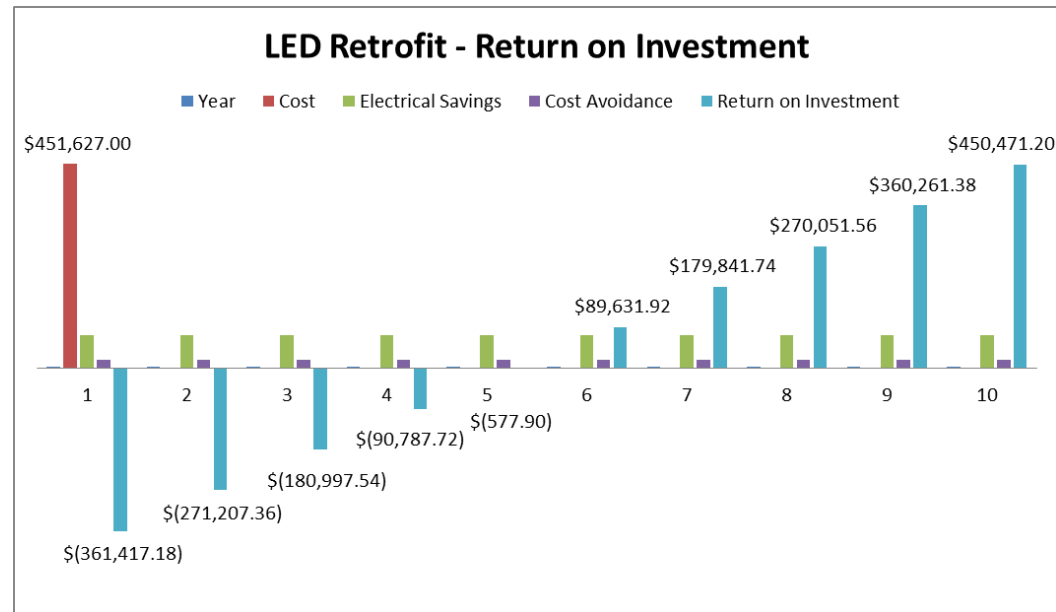
O&M Annual Cost				
	Installed Qty	15% Annually Replaced	Avg Cost of Material	Annual Cost of Material
Lamps				
HID	311	47	\$ 30.00	\$ 1,399.50
Incandescent	118	18	\$ 1.00	\$ 17.70
Linear Fluorescent	10034	1505	\$ 2.75	\$ 4,139.03
Plug-In Fluorescent	839	126	\$ 7.50	\$ 943.88
Total Lamps				\$ 6,500.10
Ballast				
HID	292	44	\$ 35.00	\$ 1,533.00
Linear Fluorescent	3328	499	\$ 15.00	\$ 7,488.00
Plug-In Fluorescent	660	99	\$ 20.00	\$ 1,980.00
Total Ballasts				\$ 11,001.00
Estimated Cost of Material for Lamps and Ballast				\$17,501.10



LED Business Case

- Capital investment by the County = \$451k
- No ballasts + 10 year warranty on TLEDs
- Five year ROI
- \$450k back into County budget in years 5-10

Business Case for LED Project	
Total Installed Cost	\$ 451,627
Savings from Energy	\$ 72,708.72
Savings from O&M	\$ 17,501.10
Total Annual Savings	\$ 90,209.82
Payback (Years)	5.0



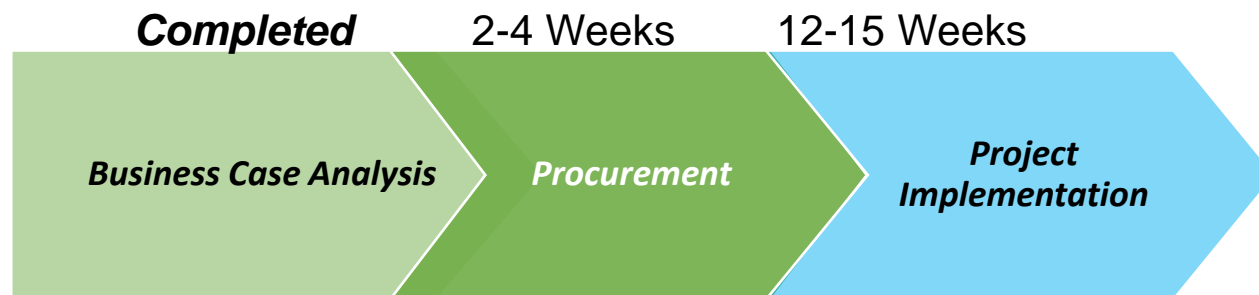
HCSO – Energy Conservation Facility Improvement Project

	5 Annual Pmts	6 Annual Pmts	7 Annual Pmts	10 Annual Pmts
Project Cost / Financed Amount	451,627	451,627	451,627	451,627
Annual Projected Savings	72,708.72	72,708.72	72,708.72	72,708.72
Annual O&M Savings	17,501.10	17,501.10	17,501.10	17,501.10
Total Savings	90,209.82	90,209.82	90,209.82	90,209.82
Interest Rate:	2.99%	3.149%	3.249%	3.495%
Annual Payment	98,586.66	83,781.40	73,170.78	54,290.56
Annual Net (Savings minus Payment)	(8,376.84)	6,428.42	17,039.04	35,919.26



Next Steps

- Identify Funding Source
- Contracting Mechanism – BuyBoard
- Execute



Questions??



References

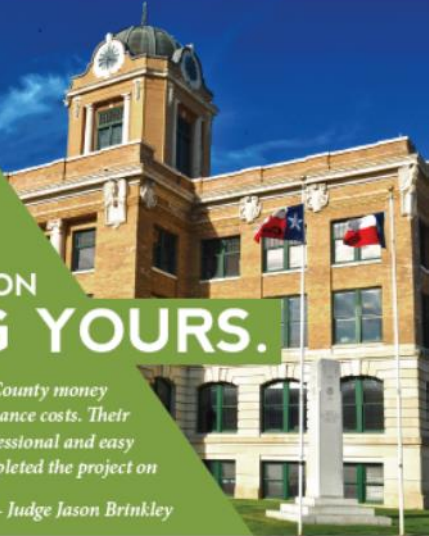
TEXAS REFERENCES

Allen ISD	Center ISD	Edcouch Elsa ISD	Hearne ISD	Lipan ISD	New Diana ISD	Rosebud-Lott ISD	
Aranas Pass ISD	Chico ISD	Edgewood ISD	Hemphill ISD	Lubbock ISD	Normangee ISD	Sabine ISD	
Axtell ISD	Cleveland ISD	Ferris ISD	Hondo ISD	Lyford CISD	Palo Pinto County	San Antonio ISD	
Balmorhea ISD	Community ISD	Gainesville ISD	Houston CC	Manor ISD	Pecos-Barstow-Toyah ISD	Sanger ISD	
Bay City ISD	Cooke County	Georgetown ISD	Hunt County	Marble Falls ISD	Pilot Point ISD	Santa Fe ISD	
Ben Bolt-Palito Blanco ISD	Corsicana ISD	Goliad ISD	Ingram ISD	Marion ISD	Poolville ISD	Silsbee ISD	
Big Sandy ISD	Cross Roads ISD	Gonzales County	Iola ISD	Memphis ISD	Poteet ISD	Snook ISD	
Bishop CISD	Cumby ISD	Goodrich ISD	Italy ISD	Mercedes ISD	Sudan ISD	Splendor ISD	Trenton ISD
Blanco ISD	City of Dallas	Granbury ISD	Jonesboro ISD	Moulton ISD	South ISD	Valley Mills ISD	UTHSC-San Antonio
Brenham ISD	Desoto ISD	Granger ISD	Killeen ISD	Nebraska	Quinlan ISD	Valley View ISD	Waxahachie ISD
Broadbudd ISD	Donna ISD	Greenville ISD	Knippa ISD	Furniture Mart	Ralls ISD	Texas Southmost College	West Hardin CISD
Bryan ISD	East Bernard ISD	Hallettsville ISD	Kountze ISD	Needville ISD	Ricardo ISD	Venus ISD	Westphalia ISD
Celeste ISD	Eastland ISD	Hawkins ISD	Latexo ISD	New Boston ISD	Robstown ISD	Vidor ISD	Woodville ISD



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SAVING YOURS.

"E3 was able to save Cooke County money on our electric and maintenance costs. Their employees were always professional and easy to work with, and they completed the project on time and on budget."
- Judge Jason Brinkley



COOKE COUNTY DETENTION CENTER Project Overview

- Full LED retrofit and redesign
- 1500 LED lights, interior and exterior
- \$21,435.67 in annual energy and operational savings
- -\$19,144 in annual energy savings
- -\$2290.76 in operations and maintenance

REFERENCE CONTACT
Judge Jason Brinkley
940.668.5435

We've completed more than 125 projects.

Managed more than 100 different subcontractors

More than \$20 million in grant & incentive dollars leveraged

21,000,000 square feet upgraded

Performed energy analyses in more than 200 school districts and 1,000 facilities

\$5 million in projected annual energy savings

\$125 million in installation contracts

Replaced 2,550 HVAC units

Installed more than 300,000 interior LED lamps

Carbon sequestration equivalent to 33,263 acres of forest*

CO₂ emission reductions equivalent to removing 84,215,602 miles of passenger car travel or 37,496,441 pounds of coal burned*

Replaced more than 17,000 tons of air conditioning — enough to cool 3,500 average-size homes

"You'll never hear us say, 'It's not our problem.'"
- Dan Meek, E3 VP of Operations

*Based on the EPA's emission conversion calculator

PROJECTS HAVE INCLUDED:

- HVAC upgrades
- LED lighting
- Controls upgrades
- Control plant design
- Meter commissioning
- Meter conservation
- Roofing upgrades
- Power factor correction
- Demand response
- Security upgrades
- Fire alarm upgrades
- Portable building upgrades
- Ruler upgrades
- Carpet and sheetrock replacement
- IT upgrades
- Concrete work
- Fining upgrades
- Window replacement
- Test and balancing

