



# Energy Performance Contract Workshop

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# How We Started: Water Meters

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Scope of our problem:

- ❑ Significant water loss (about 18%) = Loss of revenue  
    *[waters meters estimated to account for 9-15% of loss]*
  - ❑ Using handhelds to read meters – susceptible to human error
  - ❑ Multiple meter re-reads and/or misreads
  - ❑ Ongoing maintenance issues
  - ❑ Water meters – going from bad to worse
  - ❑ About 2,400 water meters needed to be replaced
- ❖ We had to educate and communicate



**KANSAS STATE**  
UNIVERSITY

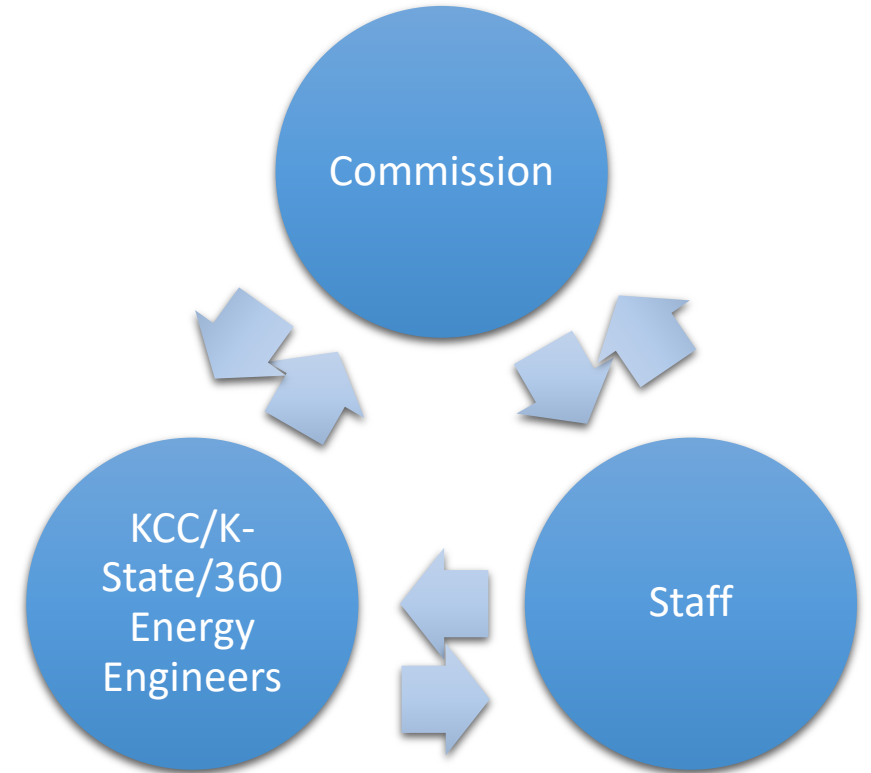
**Kansas**  
Corporation Commission

**360**  
energy engineers

  
**Engineering  
Extension**



# The Process



# Final Project Scope

## Final Project Pricing Details

Direct project costs	Cost	Cost %	Utility Savings	Maint. Savings	Additional Revenue	Total Savings	Payback
City Wide - Water Meter Replacements - Sensus Ipearl	\$854,402	57.4%	\$0	\$7,000	\$116,460	\$123,460	6.9
City Wide - Lighting Upgrades to LED Technology	\$84,261	5.7%	\$14,375	\$800	\$0	\$15,175	5.6
City Wide - Internet-Based HVAC Controls	\$22,995	1.5%	\$15,294	\$250	\$0	\$15,544	1.5
City Wide - Street Lighting Upgrades to LED Lamps	\$181,356	12.2%	\$12,449	\$2,050	\$0	\$14,499	12.5
Payment and performance bond	\$46,880	3.0%	-	-	-	-	-
	<b>\$1,189,894</b>	<b>80.0%</b>	<b>\$42,118</b>	<b>\$10,100</b>	<b>\$116,460</b>	<b>\$168,678</b>	<b>7.1</b>

Professional services	Cost	%
Engineering & Design	\$44,621	3.0%
Construction Management	\$44,621	3.0%
Commissioning & Measurement & Verification	\$29,747	2.0%
Program Management & Administration	\$14,874	1.0%
General Overhead	\$89,242	6.0%
	<b>\$223,105</b>	<b>15.0%</b>

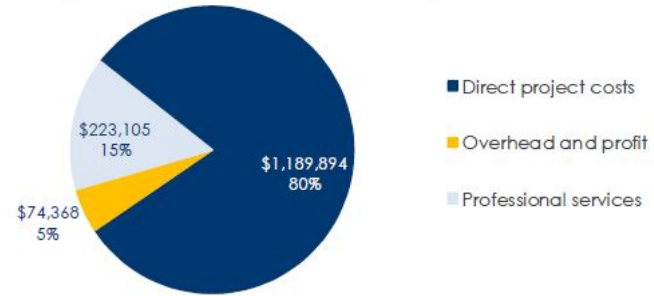
Project Profit	\$74,368	5.0%
		<b>20.0%</b>

**Fixed Turnkey Project Cost: \$1,487,368**

Other required Program Costs	Cost
FCIP Fee	\$31,355
IGA Fee	\$48,134

Other Assumed Costs of Financing	Cost
Placement Agent Fee	\$15,842
Legal Opinion for Finance Documents	\$1,500

Project financial summary



Total Project Amount Financed

<b>\$1,584,199</b>	<b>9.3-yr payback</b>
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# Water Meter Replacement

## Installed smart water meters (Sensus iPERL)

- Replaced inaccurate mechanical meters with electromagnetic meters citywide
- Electromagnetic meters eliminate water losses due to meter “slow down”
- Meters communicate with new electric meters, eliminating manual meter reads



## Impact

- Reduction in water loss. From 18% to 3% (per 2018 water report)
- Accurate water billings to capture all water use [additional revenue]
- Automatic read
- Accurate and instant leakage information to provide to residents
- No mechanical parts = maintenance free operation
- More billing information to share with residents



# Building LED Lighting

## Upgraded Building Lighting to LED

- City Hall & Annex
- Community Building Center
- Public Safety Building
- Storage Building
- Annex 2
- Wastewater Treatment Plant
- WWTP Office & Public Works Office
  - Replaced about 1,400 fluorescent light fixtures

## Impact

- Improved lighting quality
- Reduced energy & maintenance costs
- Annual estimated savings of 169,000 kWh of electricity



# LED Street Lighting

Upgraded Street Lighting from fluorescent or metal-halide fixtures to LED lighting fixtures

- Residential street lights
- Downtown street lights
- Approximately 330 total street lights

## Impact

- Cuts electrical usage by more than 50%
- Longer lamp life reduces maintenance costs
- Improved light quality
- Annual estimated savings of 230,500 kWh of electricity



# Internet Based-HVAC Controls

## Installed internet-based thermostats

- City Hall
- Recreation Center
- Public Safety Building
- Public Works Office
- Wastewater Treatment Office

## Impact

- Reduced energy & maintenance costs
- Automatic alerts of HVAC issues



*Original Building Thermostat*



*Updated Ecobee Thermostat*



# Electric Meter Replacement

## Installed new electric meters

- Replaced about 2,400 meters

## Impact

- Minimal reduction in operation/maintenance costs
- Automatic tamper or manipulation notification
- Meters communicate with water meters; eliminating manual meter reads
- More information to provide to residents

Old Mtr Photo



New Mtr Photo



Take away  
from our  
experience

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Take a holistic approach

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Do your research well

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Select the right team for your  
project

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Communicate and educate

