Johnson Controls Performance Contract

January 13, 2020 Study Session

The power behind **your mission**

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Objective

Update on Performance Contracting project

- ☑ Project benefits summary
- ☑ Where we have been and where we are going
- ☑ Review: Facilities, Water metering, Waste Water, Solar PV, Street Lighting,
- ☑ Cash-flow and financing

Project Benefits

- Savings: $14.6 million project will deliver $11.3 million in savings
- Local labor
- One point of responsibility with reliable, timely installation
- Price guarantee: no change orders or price increases
- Proactive vs Reactive infrastructure management saving millions in capital and emergency expense dollars.

Project Focus

- Municipal facilities
- Water metering and Advanced Metering Infrastructure (AMI)
- Wastewater treatment plants improvements
- Solar PV energy – maximize on available incentives
- Street lighting

Change through Performance Contracting

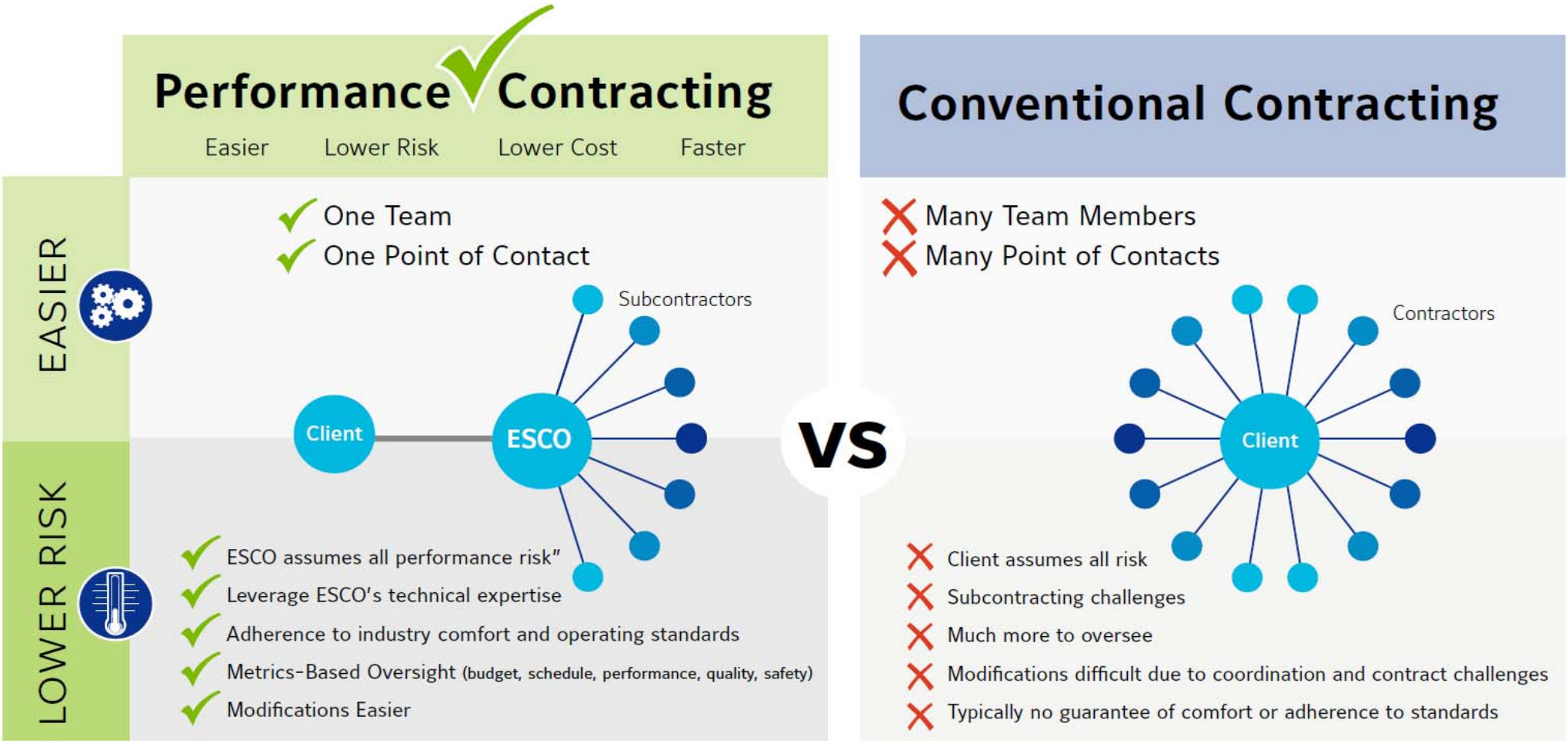
ILCS 50 ILCS 515/ Local Government Energy Conservation Act.

1. Identify energy and operational inefficiencies and quantify them.

2. Redirect existing energy and operational spending (based on identified inefficiencies) into renovations.

3. Have Johnson Controls financially guarantee results of our estimated savings and improvements.

What Does Performance Contracting Bring



Year 1: Cash-flow

	ID	Project Cost	Year 1 Annual Savings						Rebates
			Measured Year 1 Utility Savings	Non-measured				Total Year 1 Savings	
				Utility and Meter	Capital Avoidance	Operational Savings	Total Year 1 Non-measured		
Water Meter Replacement - Large (Water Benefit)	2	$ 567,639	$ -	$ 67,663	$ -	$ -	$ 67,663	$ 67,663	
Water Meter Replacement - Large (Waste Water Benefit)	3	$ -	$ -	$ 82,700	$ -	$ -	$ 82,700	$ 82,700	
Street Lights	5	$ 642,068	$ 33,209	$ -	$ -	$ 2,603	$ 2,603	$ 35,812	$ 62,000
Wastewater Aeration Improvements Mill St - Blower	6	$ 3,413,106	$ 15,992		$ -	$ -	$ -	$ 15,992	$ 27,000
Wastewater Aeration Improvements Mill St - Controls	7	$ -	$ -	$ 14,508	$ -	$ 3,020	$ 17,528	$ 17,528	
Wastewater Aeration Improvements SW - Blower	9	$ 4,196,095	$ 24,943		$ -	$ 5,663	$ 5,663	$ 30,605	$ 18,000
Wastewater Aeration Improvements SW - Controls	10	$ -	$ -	$ 3,519	$ -	$ -	$ 3,519	$ 3,519	
Facility Interior / Exterior Lighting	11	$ 533,734	$ 35,985	$ -	$ -	$ 4,649	$ 4,649	$ 40,635	$ 31,980
City Hall Building HVAC	12	$ 1,203,835	$ -	$ 3,268	$ -	$ 24,796	$ 28,064	$ 28,064	$ 18,900
Public Works Facility - HVAC Rooftop Unit Replacement	13	$ 45,527	$ -	$ 206	$ -	$ 2,747	$ 2,952	$ 2,952	$ 250
Downtown Library - Air-Cooled Chiller & Boiler Replacement	14	$ 354,714	$ -	$ 3,784	$ -	$ 23,892	$ 27,677	$ 27,677	$ 10,000
Downtown Library - Temperature Controls Upgrades	15	$ 66,494	$ -	$ 783	$ -	$ -	$ 783	$ 783	$ 300
Downtown Library - Replace Fan Coils and Piping	16	$ 859,882	$ -	$ -	$ -	$ -	$ -	$ -	
RIFAC - Temperature Controls Upgrade and BAS	17	$ 87,392	$ -	$ 2,539	$ -	$ -	$ 2,539	$ 2,539	$ 140
RIFAC - Steam to Hot Water Conversion	18	$ 845,944	$ -	$ 9,487	$ -	$ 25,000	$ 34,487	$ 34,487	$ 20,000
RIFAC - Convert Multizone AHU to VAV	19	$ 168,906	$ -	$ 676	$ -	$ 257	$ 933	$ 933	$ 600
RIFAC -Replace ACCUs	20	$ 163,692	$ -	$ 1,839	$ -	$ 1,233	$ 3,072	$ 3,072	$ 3,000
Central Fire Station - Temperature Controls Upgrade/MZ Upgrade	21	$ 105,562	$ -	$ 1,291	$ -	$ 257	$ 1,548	$ 1,548	$ 450
Central Fire Station - Chiller Replacement	22	$ 502,390	$ -	$ 827	$ -	$ 1,233	$ 2,060	$ 2,060	$ 2,000
MLK Center - RTU Replacement	23	$ 166,012	$ -	$ 86	$ -	$ 514	$ 600	$ 600	$ 500
Solar PV	24	$ 752,090	$ -	$ 16,929	$ -	$ -	$ 16,929	$ 16,929	$ 374,833
Natural Gas Contract	25	$ -	$ -	$ -	$ -	$ 13,999	$ 13,999	$ 13,999	
Total		$ 14,675,081	$ 110,129	$ 210,106	$ 338,266	$ 109,861	$ 319,967	$ 430,096	$ 569,953

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20 year cash-flow

	Measured Savings		Non-Measured (Agreed Upon) Savings								
	Utility Savings	Total Measured Savings	Utility Savings	Meter Benefit	Operational Savings	Rock Island Capital Avoidance	Total Non-Measured Savings and Contrinutions	Rebates	Total Savings and Contributions	Loan Payment	Performance Management	Balance
Construction	$ 46,272	$ 46,272	$ 28,475	$ -	$ -	$ -	$ 28,475		$ 74,747	$ -	$ -	
Year 1	$ 110,129	$ 110,129	$ 59,743	$ 150,363	$ 109,861	$ 338,266	$ 658,233	$ 569,953	$ 768,362	$ 1,286,705	$ 51,609	$ (569,952)
Year 2	$ 113,158	$ 113,158	$ 61,386	$ 154,498	$ 112,882	$ 347,568	$ 676,334		$ 789,492	$ 736,334	$ 53,158	$ 1
Year 3	$ 116,270	$ 116,270	$ 63,074	$ 158,746	$ 115,987	$ 357,127	$ 694,934		$ 811,203	$ 756,450	$ 54,752	$ 1
Year 4	$ 119,467	$ 119,467	$ 64,808	$ 163,112	$ 119,176	$ 366,948	$ 714,044		$ 833,512	$ 833,511	$ -	$ 1
Year 5	$ 122,753	$ 122,753	$ 66,591	$ 167,598	$ 122,454	$ 377,039	$ 733,681		$ 856,433	$ 856,432	$ -	$ 1
Year 6	$ 126,128	$ 126,128	$ 68,422	$ 172,207	$ 125,821	$ 387,407	$ 753,857		$ 879,985	$ 879,984	$ -	$ 1
Year 7	$ 129,597	$ 129,597	$ 70,303	$ 176,942	$ 129,281	$ 398,061	$ 774,588		$ 904,185	$ 904,184	$ -	$ 1
Year 8	$ 133,161	$ 133,161	$ 72,237	$ 181,808	$ 132,836	$ 409,008	$ 795,889		$ 929,050	$ 929,049	$ -	$ 1
Year 9	$ 136,823	$ 136,823	$ 74,223	$ 186,808	$ 136,489	$ 420,255	$ 817,776		$ 954,599	$ 954,598	$ -	$ 1
Year 10	$ 140,585	$ 140,585	$ 76,265	$ 191,945	$ 140,243	$ 431,812	$ 840,265		$ 980,850	$ 980,849	$ -	$ 1
Year 11	$ 144,451	$ 144,451	$ 78,362	$ 197,224	$ 144,100	$ 443,687	$ 863,372		$ 1,007,823	$ 1,007,822	$ -	$ 1
Year 12	$ 148,424	$ 148,424	$ 80,517	$ 202,647	$ 148,062	$ 455,889	$ 887,115		$ 1,035,539	$ 1,035,538	$ -	$ 1
Year 13	$ 152,505	$ 152,505	$ 82,731	$ 208,220	$ 152,134	$ 468,426	$ 911,510		$ 1,064,016	$ 1,064,015	$ -	$ 1
Year 14	$ 156,699	$ 156,699	$ 85,006	$ 213,946	$ 156,318	$ 481,307	$ 936,577		$ 1,093,276	$ 1,093,275	$ -	$ 1
Year 15	$ 161,008	$ 161,008	$ 87,344	$ 219,830	$ 160,616	$ 494,543	$ 962,333		$ 1,123,341	$ 1,123,340	$ -	$ 1
Year 16	$ 165,436	$ 165,436	$ 89,746	$ 225,875	$ 165,033	$ 508,143	$ 988,797		$ 1,154,233	$ 1,154,232	$ -	$ 1
Year 17	$ 169,986	$ 169,986	$ 92,214	$ 232,086	$ 169,572	$ 522,117	$ 1,015,989		$ 1,185,975	$ 1,185,974	$ -	$ 1
Year 18	$ 174,660	$ 174,660	$ 94,750	$ 238,469	$ 174,235	$ 536,475	$ 1,043,929		$ 1,218,589	$ 1,218,588	$ -	$ 1
Year 19	$ 179,463	$ 179,463	$ 97,355	$ 245,027	$ 179,027	$ 551,228	$ 1,072,637		$ 1,252,100	$ 1,252,099	$ -	$ 1
Year 20	$ 184,399	$ 184,399	$ 100,032	$ 251,765	$ 183,950	$ 566,387	$ 1,102,134		$ 1,286,533	$ 1,286,527	$ -	$ 6
Total	$ 2,931,375	$ 2,931,375	$ 1,593,582	$ 3,939,115	$ 2,878,078	$ 8,861,693	$ 17,272,468	$ 569,953	$ 20,203,843	$ 20,539,505	$ 159,519	$ 25

Total Savings: $11,342,150

Rebates and Incentives expected: $569,953

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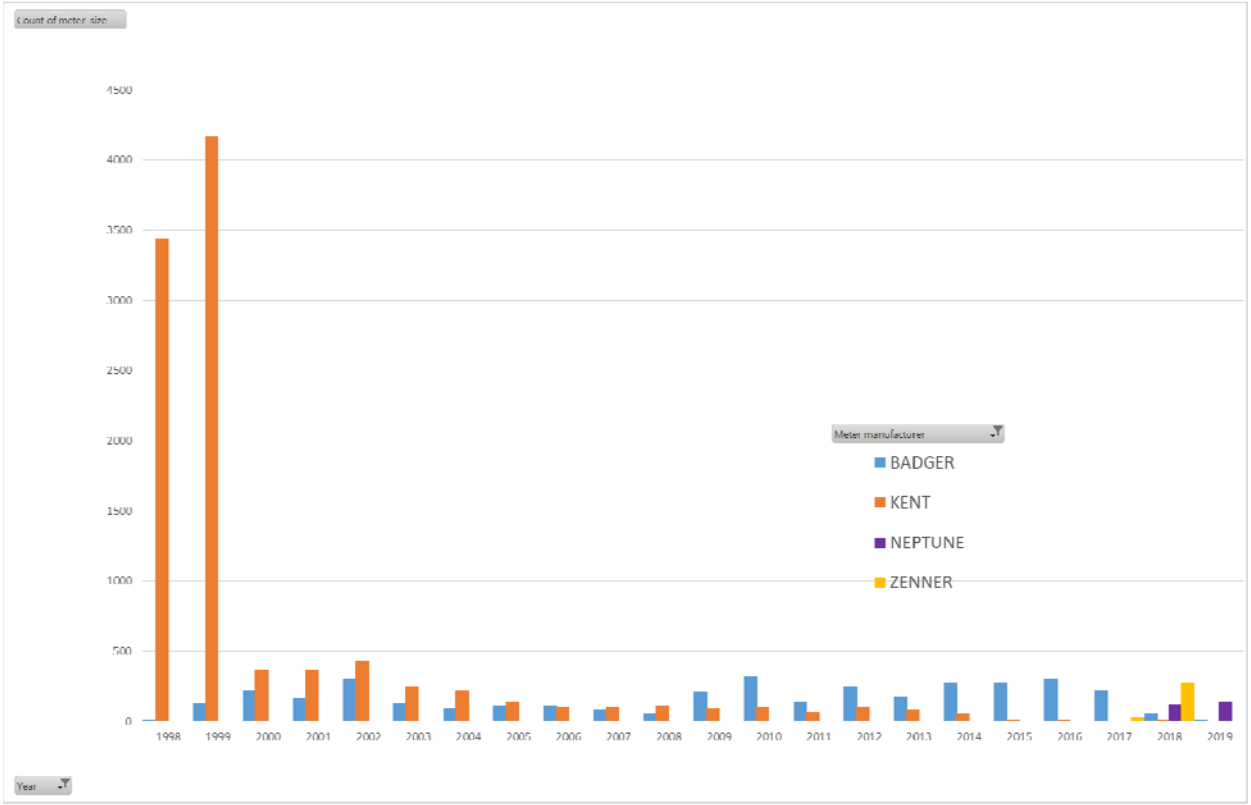
Water metering, AMI



FINDINGS

Large meters population very inaccurate

Inability to establish % of water lost

Inability to track developing trends

Inability to read meters efficiently and accurately

5/8” meter is 90% of meter population is accurate at 99%

9% of meters (other small sizes are not as accurate)

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Project evolution: Summary

Improvement Categories/Subcategories	Estimated Preliminary Price prior to PDA: April 2019	Final Project: January 2020	Price Difference: Pre-PDA approval April 2019 to January 2020
Water metering	$7,960,814	$567,639	($7,393,175)
Waste water	$5,209,109	$7,609,201	$2,400,092
Waste water automation			
Facilities (Mechanical and lighting)	$2,213,250	$3,696,284	$1,483,034
Facilities New Scope (Library, Fire Station, PW)		$1,407,799	$1,407,799
Street lights	$772,221	$642,068	($130,153)
Solar PV for municipal	$1,260,000	$752,090	($507,910)
Total	$17,380,000	$14,675,081	($2,740,313)

Wastewater Treatment Plant Improvements

Mill Street Aeration

Improvement Item	Energy	Preventative Maintenance	Future-Proofing
Replace all 3 blowers with high-efficiency turbo blowers	X	X	X
Remove leaking air header; Replace with new	X	X	X
Controls: 8 Dissolved Oxygen Probes, Air control valves, Airflow meters	X		X

Wastewater Treatment Plant Improvements

Southwest WWTP Aeration Improvements

Improvement Item	Energy	Preventative Maintenance	Future-Proofing
Replace all 4 blowers with high-efficiency turbo blowers	X	X	X
Remove leaking air header; Replace with new	X	X	X
Remove inadequate diffusers		X	X
Tank repairs		X	
Controls: 2 Dissolved Oxygen Probes, Air control valves, Airflow meters	X		X

Street lighting

Conversion of the City's street lighting infrastructure to LED

- Energy costs reduced by at least 50% with the switch to LEDs
- Improved quality of light due to superior color rendering and uniformity:
  - Effective lighting can help to discourage crime and reduce accidents.
  - Optimal for areas with security cameras (enhances visual acuity)
- Exceptional reliability over older technology systems
- Future ready capabilities on new fixtures

Municipal facilities: Projects Review

1. City Hall
2. Central Fire Station
3. Public Works
4. MLK Center
5. Library
6. RIFAC

Municipal facilities: City Hall

Improvement 1: Install 2 high efficient steam boilers and tertiary equipment.

Improvement 2: Rebuild 11 air handling units, and replace evaporator coils.

Improvement 3: Install 11 high efficient condensing units.

Improvement 4: Replace steam traps and control valves on 12 steam radiators.

Improvement 5: Replace all pneumatic controls to building wide digital controls.

Improvement 6: Provide a DDC server for city wide site management.

Municipal facilities: Central Fire Station

Improvement 1: Replace Chiller.

Improvement 2: Multi Zone AHU to Variable Air Volume AHU retrofit.

Improvement 3: Pneumatic controls to DDC retrofit for chiller plant and VAV air handler.

Improvement 4: Replace 2 boilers, two pipe heating and cooling system, 16 fan coil units and associated controls

Municipal facilities: Public Works

Improvement 1: Replace packaged roof top air handler.

Improvement 2: DDC network engine for new RTU.

Municipal facilities: MLK Center

Improvement 1: Replacement of 2 roof top air handlers.

Improvement 2: Provide 6 VAV boxes for interior zones.

Improvement 3: DDC network engine for new RTU and VAV controls.

Municipal facilities: Library

Improvement 1: Replace chiller.

Improvement 2: Installing additional boiler.

Improvement 3: Multi Zone AHU to Variable Air Volume AHU retrofit.

Improvement 4: Pneumatic controls to DDC retrofit for 2 constant volume air handling units.

Improvement 4: Pneumatic controls to DDC retrofit for chiller plant, boiler plant, VAV air handler.

Improvement 5: Replace 58 fan coil units, associated piping, and controls.

Municipal facilities: RIFAC

Improvement 1: Replacement of 2 existing steam boilers to high efficient hot water boilers.

Improvement 2: Retrofit pool, and domestic hot water to natural gas heaters.

Improvement 3: Retrofit multi zone AHU-3 to Variable Air Volume AHU.

Improvement 4: Install 4 high efficient condensing units condensing units.

Improvement 5: Pneumatic controls to DDC retrofit for boiler plant, and 5 air handling units.

Evaluation – Small Solar

Project Site Location Information			PV System Size	
#	Site	Address	(kWAC)	(kWDC)
1	Southwest Library	9006 Ridgewood Rd	10.0	13.09
2	Fire Station #2	9010 Ridgewood Rd	10.0	13.09
3	SW WWTP	7101 38th Street W	10.0	13.09
4	RIFAC	4303 24th Street	10.0	13.09
5	Fire Station #4	3101 9th Street	10.0	13.09
6	Fire Station #3	1601 30th Street	10.0	13.09
7	City Hall	1528 3rd Avenue	10.0	13.09
8	Utilities Maint. Div.	1430 24th Street	10.0	13.09
9	Central Fire Station	1313 5th Avenue	10.0	13.09
10	Public Works	1309 Mill Street	10.0	13.09
11	Mill Street WWTP	1299 Mill Street	10.0	13.09
12	Police Department	1212 5th Avenue	10.0	13.09
13	MLK Center	630 9th Street	10.0	13.09
14	Downtown Library	401 19th Street	10.0	13.09
15	Municipal Services Bldg.	100 6th Avenue	10.0	13.09
16	Sunset Marina	10 31st Avenue	10.0	13.09
17	Raw Water Pump Station	200 24th Street	10.0	13.09
	Project Totals		170.0	222.53

Solution

- FEJA funding is still available for small solar arrays (<10 kW) and provides higher incentives than funding for larger arrays
- City can still consider purchasing, leasing or power purchase agreement options
- $752,090 - $374,800 (in incentives) =

$ 377,290 or $2,219 per kWh

- $552,000 in energy savings over 20.
- Cost of financing over 20 years $170,000
- 20 year payback
- Life expectancy 30 years

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Funding Options for Your Project

Common Financing Options

TELP	Bonds	Alternate

Bank Financed	JCI Financed	I-Bank Financed	JCI CPPC	3PO CUPs
Ark. St. Univ. South Ark. CC Whitehall PS	Georgia Tech Smoothie King HIDOT-Ports	Racine USD Milwaukee PS Schaumburg	Samford Univ. Baltimore CPS Health First	Wash. Advent

Keys with JCI Structured Finance

- Only here to help provide options
- Make no money on financing
- Neutral to direction you choose
- Engage national bank partners
- Facilitate competitive RFP

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Thank you!

The power behind **your mission**

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