

PPLD Option B

ECM	Facility	Description	Price	Total Utility Savings (\$)	O&M Savings (\$)	Rebates (\$)	Total Cost Savings (\$)
21C Chiller Replacement	21C	Replace existing chiller "CH-1" at 21C Library with new air-cooled chiller. Integrate new chiller into the Building Automation System.	\$ 717,537				
21C Install Hot Water Pump VFDs	21C	Install Variable Frequency Drives (VFDs) on hot water pumps to provide variable flow pumping to reduce energy use during part load conditions.	\$ 17,068				
21C Controls Upgrade	21C	Upgrade existing controls system and convert from pneumatic controls to DDC. Also, replace pneumatic control valves, integrate controls into a new BAS system, install VFDs on AHU fans, install VAV conversion kits on VAV boxes with pneumatic valves, and perform RCx controls optimization measures.	\$ 774,676				
21C VAV Box Conversion Kits	21C	Upgrade/replace VAV boxes that have obsolete pneumatic control valves.	\$ 498,200				
21C Install Fan VFDs	21C	Install VFDs on AHU fans that currently have inlet guide vanes.	\$ 17,068				
21C Test and Balance	21C	Test and balance airside & waterside equipment to ensure proper flow rates as per design intent.	\$ 249,389				
21C RCx	21C	Optimization of control systems to reduce energy use and ensure building systems operate as intended.	\$ 68,635				
21C Smart Irrigation Controls	21C	Upgrade existing irrigation controllers to have remote access and smart capabilities with evapotranspiration control.	\$ 2,581				
LED Lighting Upgrades	21C	Replace existing non-LED lamps/fixtures with new LED Lamps/Fixtures.	\$ 503,839				
	21C Total		\$ 2,848,993				
LED Lighting Upgrades	CA	Replace existing non-LED lamps/fixtures with new LED Lamps/Fixtures.	\$ 881				
	CA Total		\$ 881				
EA Chiller Replacement	EA	Replace existing air-cooled chiller at East Library with new air-cooled chiller. Integrate new chiller into the Building Automation System.	\$ 688,870				
EA CO2 Controllers	EA	Replace CO2 sensors to ensure proper regulation of ventilation air.	\$ 18,988				
EA Controls Integration	EA	Utilize the current BACnet system and integrate to new BAS front end that contains 21C, Penrose and the smaller libraries slated to be retrofitted with network thermostats. Implement controls optimization items identified in RCx study.	\$ 101,174				
EA RCx	EA	Optimization of control systems to reduce energy use and ensure building systems operate as intended.	\$ 85,743				
EA Smart Irrigation Controls	EA	Replace existing irrigation controller with a model that has remote access and smart capabilities with evapotranspiration control.	\$ 5,909				
LED Lighting Upgrades	EA	Replace existing non-LED lamps/fixtures with new LED Lamps/Fixtures.	\$ 679,036				
	EA Total		\$ 1,579,720				
LED Lighting Upgrades	FO	Replace existing non-LED lamps/fixtures with new LED Lamps/Fixtures.	\$ 44,576				
	FO Total		\$ 44,576				
LED Lighting Upgrades	HALL	Replace existing non-LED lamps/fixtures with new LED Lamps/Fixtures.	\$ 32,018				
	HALL Total		\$ 32,018				
LED Lighting Upgrades	HI	Replace existing non-LED lamps/fixtures with new LED Lamps/Fixtures.	\$ 37,677				
	HI Total		\$ 37,677				
LED Lighting Upgrades	OL	Replace existing non-LED lamps/fixtures with new LED Lamps/Fixtures.	\$ 18,683				
	OL Total		\$ 18,683				
PE Chiller Replacement	PE	Replace the existing water-cooled chiller with a new modular water-cooled model. Integrate new chiller into the Building Automation System. Also, replace 3 existing chilled water pumps and 1 existing condenser water pump.	\$ 1,576,484				
PE Controls Upgrade	PE	Upgrade existing controls system and convert from pneumatic controls to DDC. Also, integrate controls into a new BAS system, replace pneumatic control valves, and perform RCx controls optimization measures.	\$ 1,045,863				
PE Test and Balance	PE	Test and balance airside & waterside equipment to ensure proper flow rates as per design intent. Investigate chilled water flow issues at Penrose complex.	\$ 190,735				
PE RCx	PE	Optimization of control systems to reduce energy use and ensure building systems operate as intended.	\$ 78,433				
PE Smart Irrigation Controls	PE	Replace/upgrade 3 existing irrigation controllers to have remote access and smart capabilities with evapotranspiration control.	\$ 8,390				
LED Lighting Upgrades	PE	Replace existing non-LED lamps/fixtures with new LED Lamps/Fixtures.	\$ 342,896				
	PE Total		\$ 3,242,802				
PPLD Building Envelope Improvements	21C	Air sealing, weather stripping, and weatherization measures to reduce infiltration through the building envelope and improve occupant comfort.	\$ 239,978				
PPLD Domestic Water Infrastructure Upgrades	21C	Replace and recommission flush valve kits on toilets and urinals. Install flow restriction devices on sinks.	\$ 135,465				
	21C Total		\$ 375,442				
PPLD Network Smart Thermostats	21C	Install network thermostats in smaller facilities to allow for remote control, scheduling and monitoring of HVAC systems. Includes relocation of thermostats at Ute Pass.	\$ 145,387				
	21C Total		\$ 145,387				
LED Lighting Upgrades	RH	Replace existing non-LED lamps/fixtures with new LED Lamps/Fixtures.	\$ 78,073				
	RH Total		\$ 78,073				
LED Lighting Upgrades	RU	Replace existing non-LED lamps/fixtures with new LED Lamps/Fixtures.	\$ 58,515				
	RU Total		\$ 58,515				
LED Lighting Upgrades	SC	Replace existing non-LED lamps/fixtures with new LED Lamps/Fixtures.	\$ 57,633				
	SC Total		\$ 57,633				
LED Lighting Upgrades	UT	Replace existing non-LED lamps/fixtures with new LED Lamps/Fixtures.	\$ 15,332				
	UT Total		\$ 15,332				
	Grand Total		\$ 8,535,732				
Project Totals				\$ 172,151	\$ 42,633		\$ 214,785



Pikes Peak Library District
Energy Performance Contract Cash Flow



General Inputs	
EPC Project Total (Includes IGA Fee)	\$ 8,535,732
PPLD Capital	\$ 3,434,000
PPLD Financed Amount	\$ 5,101,732
Inflation Reduction Act (IRA) Benefit	\$ -
Grants (DOLA etc.)	\$ -
CO GETCO Tax Credit	\$ -
Net Project Cost (after incentives & buydowns)	\$ 8,535,732
Rebates	\$ 127,800
Other Capital Funding (full term)	\$ -
Current Unfunded Amount	\$ -
Years of Analysis	19
Finance Term (Yrs)	19
Payment Type	Stepped
Interest Rate	5.00%
Annual Savings (2026 basis)	
Baseline Utility Spend	\$ 650,000
Total Project Utility Savings	\$ 172,151
	\$ -
	\$ -
Years of Energy Savings	19
	\$ -
	\$ -
Tons of Carbon Saved	-
O&M (Avoided material replacement costs etc.)	\$ 42,633
Yrs of Annual Capital Cont./Capital Cost Avoidance	19
	\$ -
Service Costs	
O&M Cost (Annual Allowance)	\$ -
	\$ -
	\$ -
Misc. Service Costs (non-PV)	\$0
Misc. Service Costs Term (yrs)	0
Year 1 M&V Cost	\$ 17,215
Year 2 M&V Cost	\$ 17,732
Year 3 M&V Cost	\$ 18,264
M&V Escalation Rate	3.0%
M&V End Year	3
Confidential and Proprietary	

Year (yr 0 = 2027)	Annual Savings			Annual Costs	Net Total Savings	Financed Project Cash Flow Analysis						
	Total Utilities	O&M	Total Savings	M&V Costs		Interest Payment	Principal Payment	Principal & Interest Payment	PPLD Annual Contribution	Other PPLD Funding	Loan Balance	Annual Cash Flow
0	\$ 112,587	\$ -	\$ 112,587	\$ -	\$ 112,587	\$0	(\$112,587)	\$0	\$ -	\$ 3,434,000	\$ 4,989,145	\$ (3,434,000)
1	\$ 204,533	\$ 47,003	\$ 251,536	\$ (17,215)	\$ 234,321	(\$249,457)	\$15,137	(\$234,320)	\$ -	\$ 127,800	\$ 4,876,482	\$ 127,801
2	\$ 222,941	\$ 49,354	\$ 272,294	\$ (17,732)	\$ 254,563	(\$243,824)	(\$10,738)	(\$254,562)	\$ -	\$ -	\$ 4,865,744	\$ 1
3	\$ 243,006	\$ 51,821	\$ 294,827	\$ (18,264)	\$ 276,563	(\$243,287)	(\$33,275)	(\$276,562)	\$ -		\$ 4,832,469	\$ 1
4	\$ 264,876	\$ 54,412	\$ 319,288	\$ -	\$ 319,288	(\$241,623)	(\$77,664)	(\$319,287)	\$ -		\$ 4,754,805	\$ 1
5	\$ 278,120	\$ 57,133	\$ 335,253	\$ -	\$ 335,253	(\$237,740)	(\$97,512)	(\$335,252)	\$ -		\$ 4,657,294	\$ 1
6	\$ 292,026	\$ 59,990	\$ 352,015	\$ -	\$ 352,015	(\$232,865)	(\$119,150)	(\$352,014)	\$ -		\$ 4,538,144	\$ 1
7	\$ 306,627	\$ 62,989	\$ 369,616	\$ -	\$ 369,616	(\$226,907)	(\$142,708)	(\$369,615)	\$ -		\$ 4,395,436	\$ 1
8	\$ 321,959	\$ 66,138	\$ 388,097	\$ -	\$ 388,097	(\$219,772)	(\$168,324)	(\$388,096)	\$ -		\$ 4,227,111	\$ 1
9	\$ 338,057	\$ 69,445	\$ 407,502	\$ -	\$ 407,502	(\$211,356)	(\$196,145)	(\$407,501)	\$ -		\$ 4,030,966	\$ 1
10	\$ 354,959	\$ 72,918	\$ 427,877	\$ -	\$ 427,877	(\$201,548)	(\$226,328)	(\$427,876)	\$ -		\$ 3,804,638	\$ 1
11	\$ 372,707	\$ 76,563	\$ 449,271	\$ -	\$ 449,271	(\$190,232)	(\$259,038)	(\$449,270)	\$ -		\$ 3,545,600	\$ 1
12	\$ 391,343	\$ 80,392	\$ 471,734	\$ -	\$ 471,734	(\$177,280)	(\$294,453)	(\$471,733)	\$ -		\$ 3,251,147	\$ 1
13	\$ 410,910	\$ 84,411	\$ 495,321	\$ -	\$ 495,321	(\$162,557)	(\$332,763)	(\$495,320)	\$ -		\$ 2,918,384	\$ 1
14	\$ 431,455	\$ 88,632	\$ 520,087	\$ -	\$ 520,087	(\$145,919)	(\$374,167)	(\$520,086)	\$ -		\$ 2,544,217	\$ 1
15	\$ 453,028	\$ 93,063	\$ 546,092	\$ -	\$ 546,092	(\$127,211)	(\$418,880)	(\$546,091)	\$ -		\$ 2,125,338	\$ 1
16	\$ 475,680	\$ 97,717	\$ 573,396	\$ -	\$ 573,396	(\$106,267)	(\$467,128)	(\$573,395)	\$ -		\$ 1,658,209	\$ 1
17	\$ 499,464	\$ 102,602	\$ 602,066	\$ -	\$ 602,066	(\$82,910)	(\$519,154)	(\$602,065)	\$ -		\$ 1,139,055	\$ 1
18	\$ 524,437	\$ 107,733	\$ 632,169	\$ -	\$ 632,169	(\$56,953)	(\$575,215)	(\$632,168)	\$ -		\$ 563,839	\$ 1
19	\$ 550,659	\$ 113,119	\$ 663,778	\$ -	\$ 663,778	(\$28,192)	(\$563,839)	(\$592,031)	\$ -		\$ -	\$ 71,746
20				\$ -	\$ -			\$0	\$ -			
21				\$ -								
22				\$ -								
23				\$ -								
24				\$ -								
25				\$ -								
26				\$ -								
27				\$ -								
28				\$ -								
29				\$ -								
30				\$ -								
Totals	\$6,936,785	\$1,435,435	\$8,372,221	\$ (53,210)	\$8,319,011	(\$3,385,901)	(\$4,861,345)	(\$8,247,246)	\$ -	\$ 3,561,800		\$ (3,234,436)

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Escalation Rates		
Year Switch	-	5
Years	0-5	>5
Electric Utility Cost	9.00%	5.00%
Natural Gas	9.00%	5.00%
Water/Sewer	9.00%	5.00%
Avoided Capital	4.00%	4.00%
Annual PV Degradation	-0.50%	N/A
O&M Costs/Savings	5.00%	5.00%
PV Annual O&M Cost	0.00%	3.00%
PV Inverter Replacement Cost (Equipment)	0.00%	N/A
PV Data Acquisition System Cost	0.00%	N/A
O&M Savings Last Year	25	N/A