Cambrian School District:

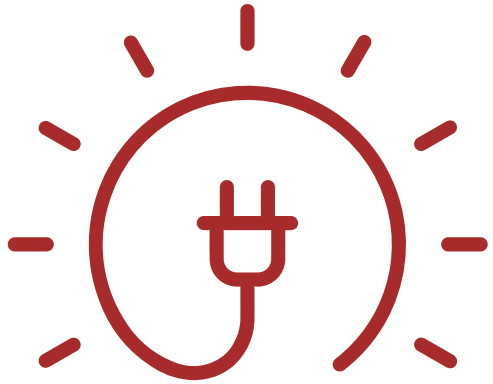
Energy and Water Optimization Project:
Investment Grade Audit 45%

June 15, 2023

centrica
Business Solutions

Agenda

- Centrica Business Solutions
- Why Centrica
- CA Government Code 4217
- Goals and Objectives
- Executive Summary
- Utility Analysis
- Energy Conservation Measures (ECM)



Centrica Business Solutions

$29 bn
Group revenue

Global 500
Energy Services Company

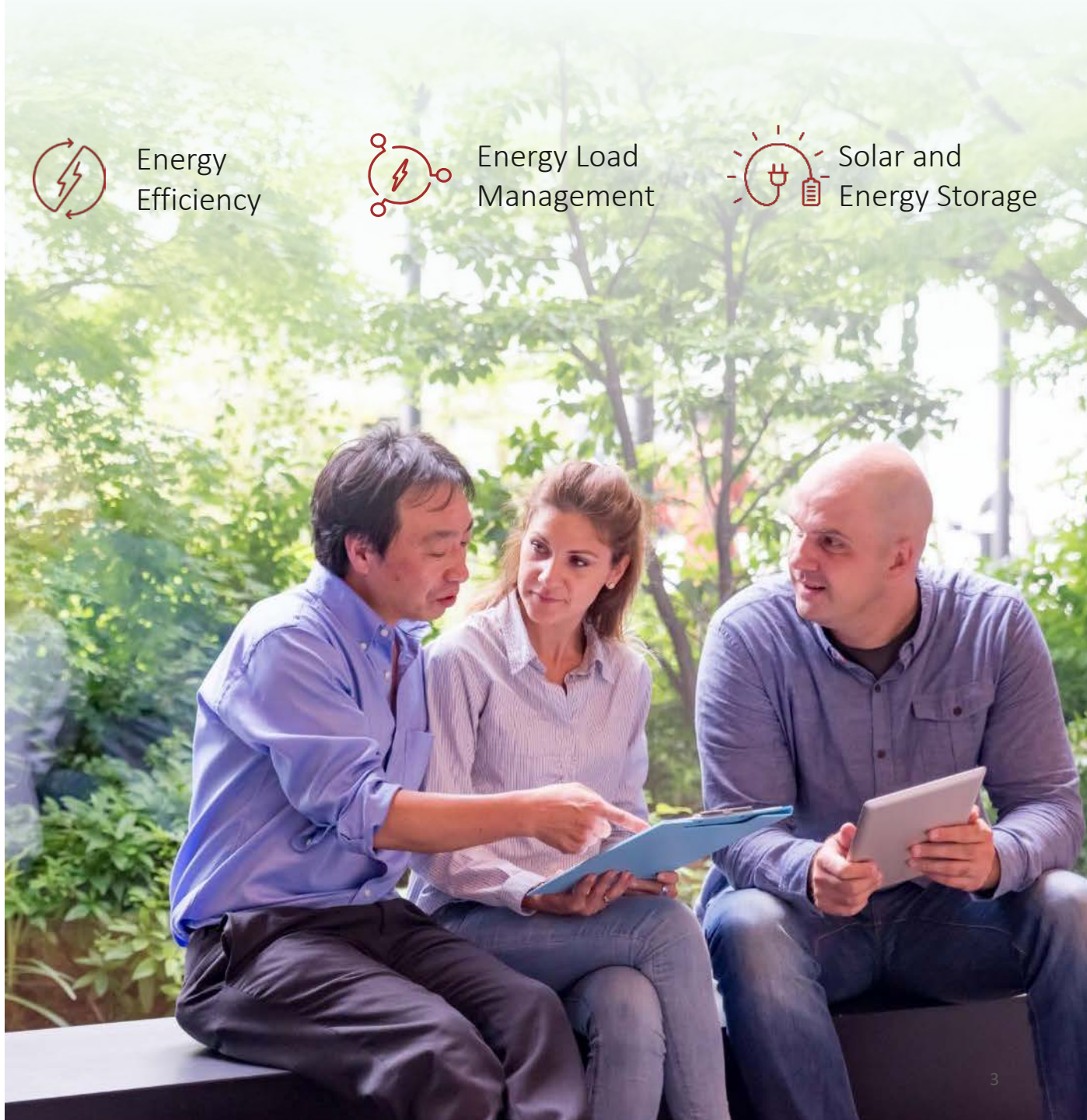
11 GW
Renewable Generation Under Management

25k+
Efficiency upgrades in the U.S.

We shape and deliver integrated energy solutions that deliver cost efficiency, resilience and accelerate your journey to a low-carbon future

U.S. DEPARTMENT OF ENERGY

NAESCO ACCREDITATION PROGRAM



Schools and Local Government Experience

Our local team can provide the right solutions for our clients.

- We have extensive experience professionally developing, designing, and delivering energy projects for state agencies, municipalities, schools, and universities.
- Our optimized solutions maximize value along every dimension through:
  - Guaranteed Performance
  - Financial Return
  - Environmental Responsibility
  - Human Impact.

We have local resources in northern CA: engineering, project management/ operations, admin/support

We have regional operations across the continental United States to provide local service and expertise to our customers

Rocklin
2208 Plaza Drive
Suite 100
Rocklin, CA 95765

Chicago
5507 N. Cumberland Avenue
Cumberland Metro Office Park
403
Chicago, IL 60656

Fairport
400 Mason Road
Township of Perinton
Fairport, NY 14450

Syracuse
200 Gateway Park Drive
Syracuse, NY 13212

Ballston Lake
3 Rosell Drive
Ballston, NY 12019

Orange
333 S. Anita Drive
Suite 825
Orange, CA 92868

Irving
1333 Corporate Drive
Suite 315
Irving, TX 75038

Nashville
2525 Perimeter Place Drive
Greenbriar Business Park
Suite 129
Nashville, TN 37214

How You Receive Best Value

CA Government Code 4217 permits public entities to select and contract with a qualified Energy Services Company such as Centrica Business Solutions to develop and implement energy efficiency, renewable energy, and water-use efficiency projects.

The cost of the contract, including engineering, construction and maintenance, are completely recovered by the energy savings dollars generated from those contracts.

California Energy Efficiency Laws

CA Agency Code 4217

- **Implemented in the 1980's:** Designed to encourage the state, cities, counties, K-14 and special districts to implement energy efficiency projects. Allows public agencies to select a single qualified energy efficiency company to design and deliver a multi-measure project on a design-build basis if the following requirements are met:
  - **Energy savings generated by a project must exceed the cost of the project over the life of the system** (Not by individual measure but collectively as a project)
  - **The Board/Council must determine that the project is in the best interest of the entity** (why else would you do it) and the entity has broad flexibility to implement
  - **Public notice must be given and a public hearing held** (typically done at a board/council meeting as you do others)
- **Used by hundreds of public agencies in the state of California**. The law is well vetted as a useful means to procure professional services from qualified energy efficiency companies.

Goals and Objectives

- Identify facility improvement measures that can be self-funded, or financed and paid through achieved savings
- Replace old lighting and controls with new more efficient LED technology and CA Energy Code Title 24 compliant controls
- Improve lighting quality for aesthetics and safety, both interior and exterior
- Increase solar production; maximize capacity to existing system where possible and cost effective
- DELIVER PROJECT WITH NO CHANGE-ORDERS
- Leverage lighting and solar for other aging infrastructure needs
  - EV Charging, irrigation controls, touchless (“hands-free”) water fixtures (toilets, urinals, and faucets)

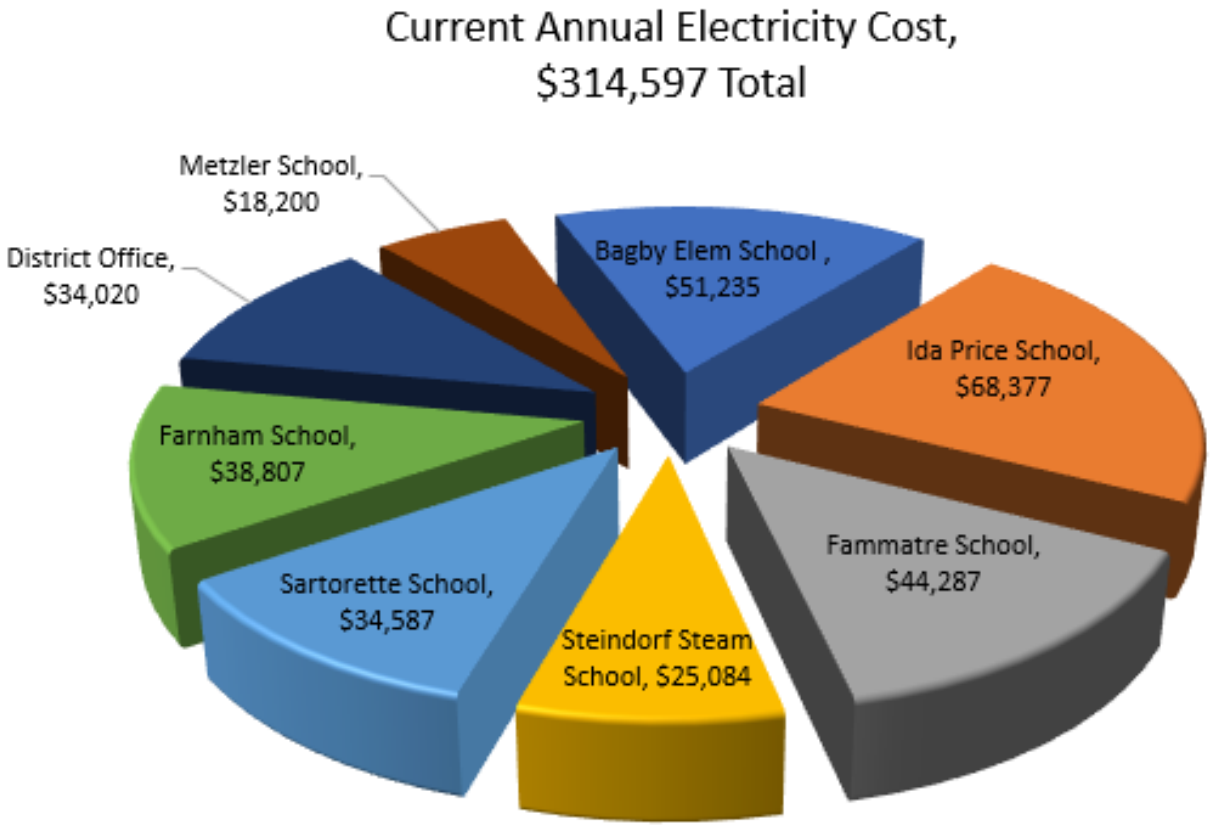
Executive Summary

- Upgrade all lighting at the District, both interior and exterior, incorporating Title24 Energy Code compliant controls, LED technology, and new look fixtures
    - More energy efficient, less cost to operate
    - Visible upgrade will improve aesthetics to students and employees
    - Higher quality lighting system that will improve student and faculty experience in the facilities
- Increase solar production at 6 sites and take advantage of Inflation Reduction Act incentives
- Install District-wide irrigation controls for better management of exterior water use
- Install touch-free plumbing fixtures to comply with current and future water conservation mandates, and reduce the spread of germs
- One dual port EV charger per site; investigating cost for installing infrastructure for three additional chargers
- **This energy project is estimated to cost $6,785,981**
    - **Paid for through utility savings**
    - **Net savings of nearly $5 million over 20 years**
    - **Reducing Greenhouse Gas Emissions by 943 tons**
    - **Saving over 740,000 gallons of water annually**.

Utility Analysis

Electricity Data

School	Annual Usage (kWh)	Cost	Cost per kWh
BAGBY ELEM SCHOOL #1	134,022	$30,205	$0.2254
BAGBY ELEM SCHOOL #2	79,795	$21,029	$0.2635
IDA PRICE SCHOOL	260,912	$68,377	$0.2621
FAMMATRE SCHOOL	164,116	$44,287	$0.2698
STEINDORF STEAM SCHOOL	99,985	$25,084	$0.2509
SARTORETTE SCHOOL	149,316	$34,587	$0.2316
FARNHAM SCHOOL	131,337	$38,807	$0.2955
DISTRICT OFFICE	115,487	$34,020	$0.2946
METZLER SCHOOL	63,481	$18,200	$0.2867
Totals	**1,198,451**	**$314,597**	**$0.2625**



The Electricity usage data showed large solar true-up costs once a year at five sites. The total cost for this true-up was **$102,834** out of the total cost of **$314,597** which is almost **33%** of the annual cost for electricity.

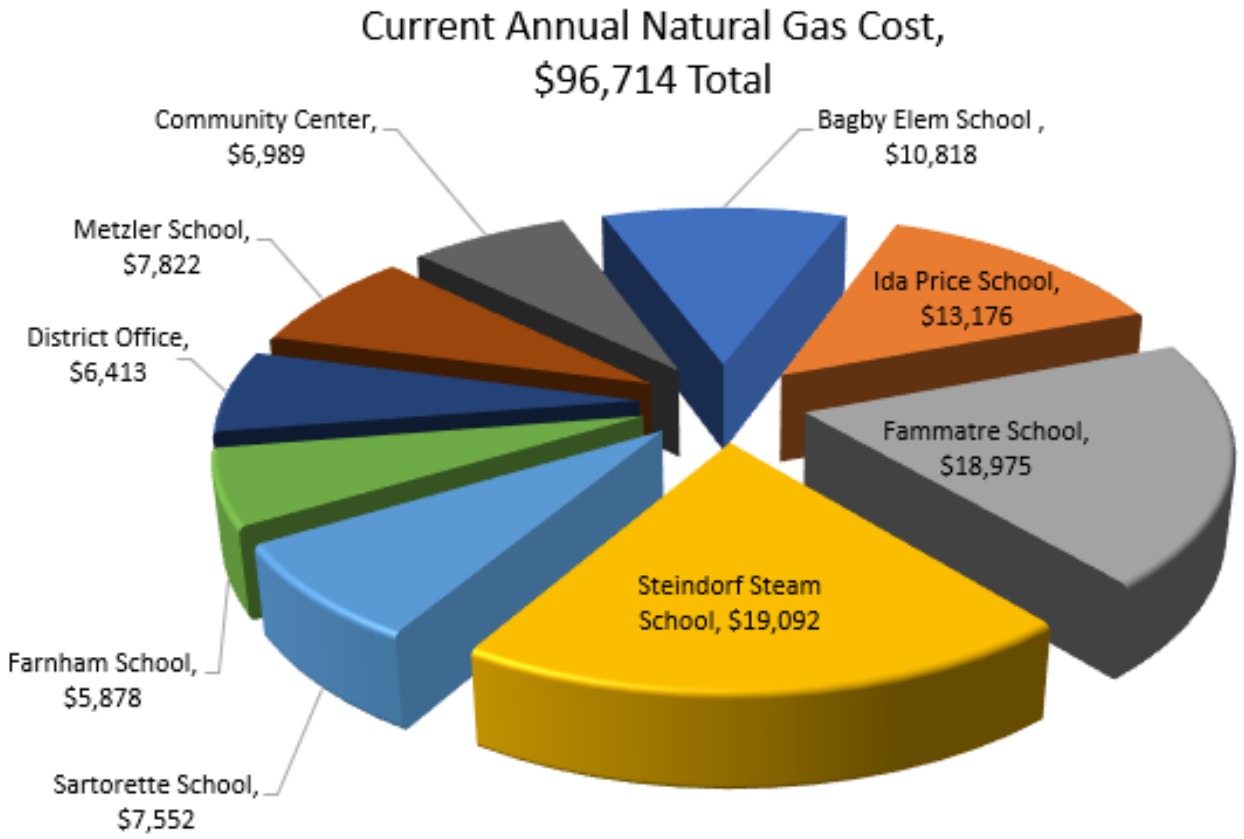
These true-up costs occur when additional load has been added, solar is undersized or solar is not producing at its expected capacity.

Utility Analysis (cont.)

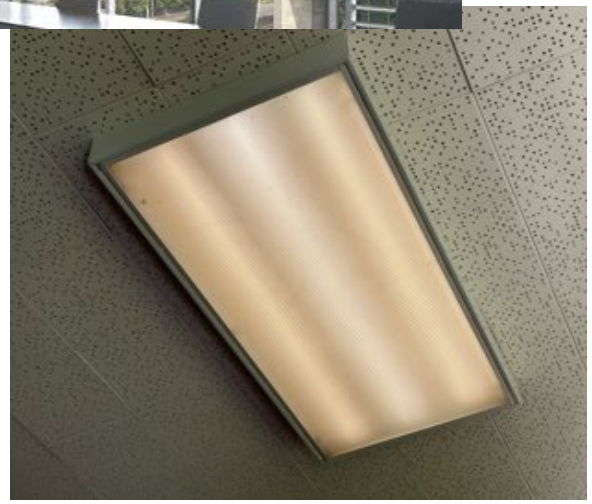
Natural Gas Data

School	Natural Gas Usage (Therms)	Cost	Cost per Therm
BAGBY ELEM SCHOOL #1	5,811	$8,661	$1.49
BAGBY ELEM SCHOOL #2	1,318	$2,156	$1.64
IDA PRICE SCHOOL	9,699	$13,176	$1.36
FAMMATRE SCHOOL	14,235	$18,975	$1.33
STEINDORF STEAM SCHOOL	14,225	$19,092	$1.34
SARTORETTE SCHOOL	4,008	$7,552	$1.88
FARNHAM SCHOOL	3,850	$5,878	$1.53
DISTRICT OFFICE	4,724	$6,413	$1.36
METZLER SCHOOL	5,732	$7,822	$1.36
COMMUNITY CENTER	5,421	$6,989	$1.29
Totals	**69,023**	**$96,714**	**$1.40**

Fammatre and Steindorf Steam Schools had the largest natural gas loads which is likely higher heating setpoints and some older less efficient heating systems.



ECM #1a – Interior/Exterior LED Lighting & Controls



Lighting costs include fixture update without hazardous material displacement.

Affected Sites

- Bagby Elementary
- Ida Price School
- Fammatre School
- Farnham School
- Sartorette School
- District Office

ECM Description

Replace / retrofit incandescent, fluorescent, and HID lighting with LED. Install occupancy controls where required to meet CA Title 24 energy standards.

Special scope items include RGB (multi-color spectrum) lighting in elementary school special need classrooms and RGB theatrical lighting in the multipurpose rooms.

ECM Description	Electricity Savings (kWh)	Electricity Cost Savings	Annual Maint Savings	Total Utility Savings	ECM Cost	Simple Payback	Greenhouse Gases Reduced (tons/yr)
Bagby Elem School	108,784	$26,066	$800	$26,066	$335,279	12.9	85
Ida Price School	137,798	$36,113	$1,568	$36,113	$440,745	12.2	108
Fammatre School	68,072	$18,369	$599	$18,369	$291,114	15.8	53
Sartorette School	69,574	$16,116	$414	$16,116	$253,754	15.7	54
Farnham School	64,097	$18,939	$574	$18,939	$265,536	14.0	50
District Office	88,829	$26,167	$1,296	$26,167	$248,350	9.5	69
Totals	**537,154**	**$141,771**	**$5,251**	**$141,771**	**$1,834,777**	**12.5**	**420**

Savings Over Rated Life of Lighting Equipment

Rated life: 120,000 hours

Annual hours of use (conservative estimate): 1,825 hours

Annual savings: $147,022

Usable life of equipment: 65 years

Savings Over Rated Life:

$9,666,697

Savings over rated life (5% energy inflation rate):

$23, 976,375

ECM #1b – Interior/Exterior LED Lighting & Controls

- Vastly improved exterior illumination
- improved safety and security
- Dark Sky compliant

ECM #2a – Solar Photovoltaics

Affected Sites

- Bagby Elem School
- Ida Price School
- Steindorf Steam School
- Fammatre School
- Sartorette School
- District Office

ECM Description

Install solar photovoltaic carport structures to offset electric consumption. With the passing of the Inflation Reduction Act (IRA), schools can now take advantage of the DirectPay plan in which the school district will receive a payment of 25%-50% of the cost of the solar upon installation.

ECM Description	Electricity Savings (kWh)	Electricity Cost Savings	Total Utility Savings	ECM Cost	Simple Payback	Greenhouse Gases Reduced (tons/yr)
District Office	62,000	$14,856	$14,856	$257,736	17.3	48
Bagby Elem School	155,000	$37,140	$37,140	$636,707	17.1	121
Ida Price School	120,900	$31,684	$31,684	$586,049	18.5	94
Fammatre School	108,500	$29,279	$29,279	$469,804	16.0	85
Steindorf Steam School	110,050	$27,609	$27,609	$472,921	17.1	86
Sartorette School	105,400	$24,414	$24,414	$472,426	19.4	82
Totals	**661,850**	**$164,983**	**$164,983**	**$2,895,643**	**17.6**	**517**

25.5% Solar ITC DirectPay[1]	**$738,389**

Note 1: The DirectPay for the Solar PV from the Inflation Reduction Act is 25.5% of the solar cost for a tax free loan.

Savings Over Rated Life of Solar Equipment

Rated life: 25 years

Annual savings: $164,983

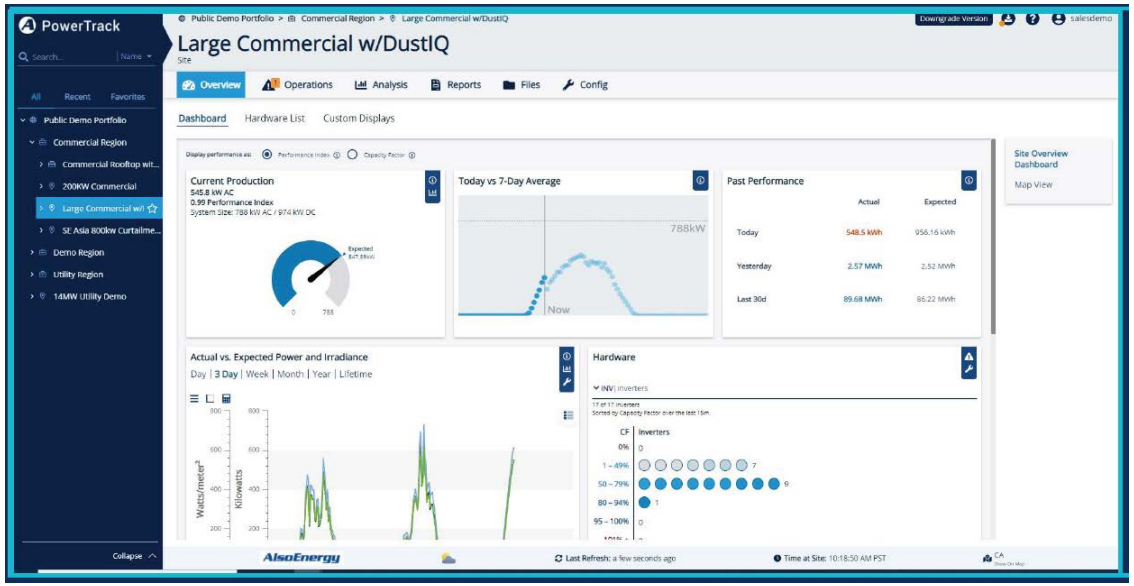
Savings Over Rated Life:

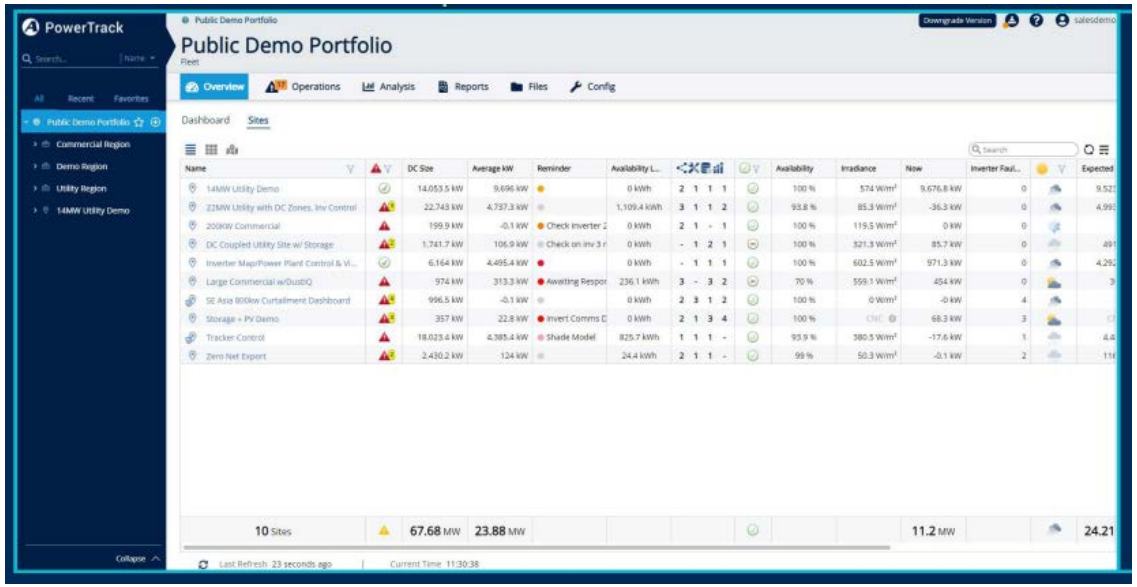
$4,124,575

Savings over rated life (5% energy inflation rate):

$5,817,567

ECM #2b – Solar Photovoltaics Operations and Maintenance Package





Affected Sites

- Bagby Elem School
- Ida Price School
- Steindorf Steam School
- Fammatre School
- Sartorette School
- Farnham School
- District Office

ECM Description

- Retro-commission existing system
- Monitor and maintain existing system as well as expanded PV system on the same platform

Costs being assessed to be included in 90% IGA presentation

ECM #3 – WeatherTrak Smart Irrigation System

Affected Sites

- Bagby Elem School
- Sartorette School
- Farnham School
- Ida Price School
- Fammatre School
- Steindorf Steam School

ECM Description

WeatherTrak irrigation controllers reduce water waste outdoors while keeping landscapes healthy. Weather-based irrigation controllers (WBICS) are one option to achieve water-efficient irrigation scheduling.

By using local weather data and landscape conditions to tailor water schedules, weather-based irrigation controllers determine when and how much to water.

ECM Description	Annual Maint Savings[1]	ECM Cost	Simple Payback
WeatherTrak System	$96,668	$1,192,634	12.3

Note 1: Annual Maintenance Savings for the WeatherTrak Irrigation system based on an estimated 22 hours per week for Groundskeepers and Irrigation Specialists to maintain system and review timers/valves/etc.

ECM #4 – Hands-Free WC Operation

Affected Sites

- Bagby Elementary
- Ida Price School
- Fammatre School
- Steindorf Steam School
- Sartorette School
- Farnham School
- District Office

ECM Description

Replace faucets and flushometers for all restrooms in each facility with high efficiency touchless systems to minimize transmission of germs.

Evaluate options for replacing in-classroom sinks at all schools.

ECM Description	Water Gallons Saved	Annual Water Savings	Natural Gas Savings	O&M Savings	ECM Cost	Simple Payback
Touchless Systems	742,448	$12,566	$665	$1,092	$403,851	28.2

ECM #5 – EV Charging

Affected Sites

- Bagby Elementary
- Ida Price School
- Fammatre School
- Steindorf Steam School
- Sartorette School
- Farnham School
- District Office

ECM Description

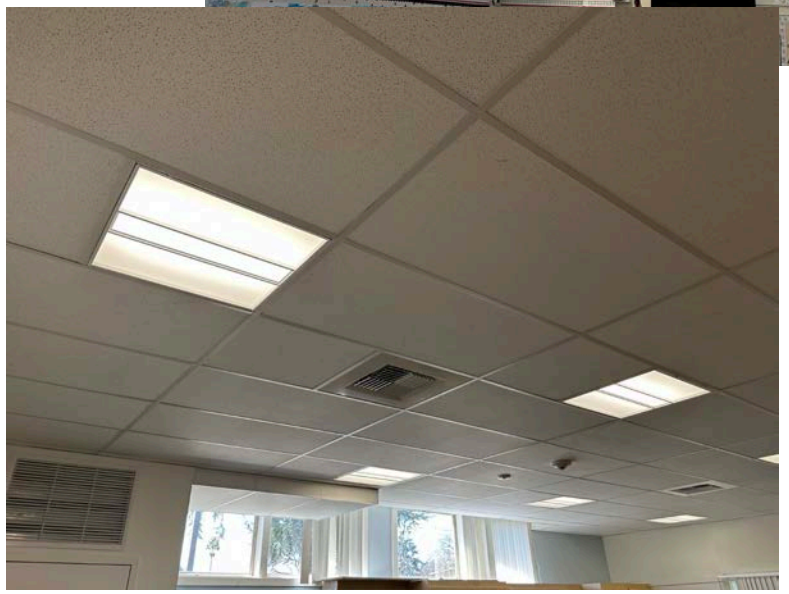
Install one dual port Level 2 EV at each location as noted above. At 7.2 kW maximum load per port, these EV chargers can be installed with minimal modifications to the existing electrical systems. Level 2 charging adds about 14-35 miles of range per hour of charging time. **We will investigate costing for the infrastructure for the installation of three additional EV charging stations at each location above.**

ECM Description	Electricity Savings (kWh)	Electricity Cost Savings	Annual Maint Savings[1]	Total Utility Savings	ECM Cost	Greenhouse Gases Reduced (tons/yr)[2]
Bagby Elem School	(10,512)	($2,519)	$179	($2,519)	$65,582	0.92
Ida Price School	(10,512)	($2,755)	$179	($2,755)	$65,582	0.92
Fammatre School	(10,512)	($2,837)	$179	($2,837)	$65,582	0.92
Steindorf Steam School	(10,512)	($2,637)	$179	($2,637)	$65,582	0.92
Sartorette School	(10,512)	($2,435)	$179	($2,435)	$65,582	0.92
Farnham School	(10,512)	($3,106)	$179	($3,106)	$65,582	0.92
District Office	(10,512)	($3,097)	$179	($3,097)	$65,582	0.92
Totals	**(73,584)**	**($19,385)**	**$1,254**	**($19,385)**	**$459,075**	**6.5**

Note 1: Annual Maint Savings assumes that the price per kWh is set at $0.35 which is then used to offset the cost of a 5 year renewable maintenance plan at $3,500 annually (per site).

Note 2: GHG Reduced per year is based on the replacement of electricity for gasoline.

ECM #6 – Drop Ceiling Retrofit



Affected Sites

- Bagby Elementary
- Fammatre School
- Sartorette School
- Farnham School

ECM Description

Add drop ceilings in classrooms decreasing the space required for heating and cooling. This will include removal of all hazardous materials, installing lighting in the new ceiling as well as re-connecting ductwork for proper operation of the heating and cooling systems, and insulation at the ceiling.

ECM Description	Electricity Savings (kWh)	Electricity Cost Savings	Natural Gas Savings (therm)	Gas Cost Savings	Total Utility Savings	ECM Cost	Greenhouse Gases Reduced (tons/yr)[2]
Fammatre School	31,746	$8,567	1,041	$1,388	$9,955	$963,659	25
Farnham School	26,691	$7,886	875	$1,337	$9,223	$810,195	21
Sartorette School	26,667	$6,177	875	$1,648	$7,825	$809,466	21
Bagby Elem School	26,183	$6,274	859	$1,303	$7,577	$794,785	20
Totals	**111,287**	**$28,904**	**3,650**	**$5,675**	**$34,580**	**$3,378,105**	**87**

* This has a simple payback of 97.7 years: we do not recommend this as an Energy Conservation Measure

Considerations for 90% IGA (investment grade audit)

- A load study will need to be conducted once the energy conservation measures have been installed, the existing solar system has been retro-commissioned, as well as new system installed. Additional capacity is expected, but before new switch gear is proposed, the load study will be needed

Project Financials

ECM #	ECM Description	Electricity Savings (kWh)	Natural Gas Savings (Therms)	Electricity Cost Savings	Natural Gas Cost Savings	Annual Maint Savings	Total Utility Savings	ECM Cost	Greenhouse Gases Reduced (tons/yr)
1	Int/Ext Lighting Retrofit & Control	537,154	-	$141,771	-	$5,251	$141,771	$1,834,777	420
2	Solar PV	661,850	-	$164,983	-	-	$164,983	$2,895,643	517
3	WeatherSmart Irrigation System[1]	-	-	-	-	$96,668	-	$1,192,634	-
4	Hand's Free WC Operation	-	-	-	-	-	$12,566	$403,851	-
5	EV Charging[3]	(73,584)	-	($18,131)	-	$1,254	($18,131)	$459,075	6
	Totals	**1,125,420**	**0**	**$288,623**	**$0**	**$103,173**	**$301,189**	**$6,785,981**	**943**

25.5% Solar ITC DirectPay[2]	**$738,389**

Notes:

1) Annual Maintenance Savings for the WeatherSmart system based on estimated 22 hours total time spent per week for groundskeepers and Irrigation Specialists to maintain system and review timers/valves/etc.
2) The DirectPay for the Solar from the Inflation Reduction Act is 25.5% of the solar cost for a tax free loan. This is then calculated as $2,895,643 * 0.255 = $738,389 paid to the District at solar implementation.
3) EV charging results in net Greenhouse Gas Reductions through removing gasoline vehicles.

Project Financials (cont.)

TWENTY YEAR FINANCIAL ANALYSIS

NAME: Cambrian SD Fixed Payment Loan Date: 6/1/2023

Total Project Cost:	*$6,785,981*	Interest Rate:	4.00%	*Energy Value Inflation Rate:*	5.0%
Buydown Amount:	*$0*			*Maint. Cost Inflation Rate:*	5.0%
Finance Amount:	$6,785,981	*Finance Term (Years):*	16		
		Annual Loan Payment:	*$574,905*		

YEAR	LOAN PAYMENT	ITC Credit	ENERGY SAVINGS	OPERATIONAL SAVINGS	TOTAL SAVINGS	ANNUAL CASH FLOW	ACCUM. CASH FLOW
1	$574,905	$738,389	$301,189	$103,173	$1,142,751	$567,846	$567,846
2	$574,905		$316,248	$108,332	$424,580	($150,325)	$417,521
3	$574,905		$332,061	$113,749	$445,809	($129,096)	$288,425
4	$574,905		$348,664	$119,436	$468,100	($106,806)	$181,619
5	$574,905		$366,097	$125,408	$491,505	($83,401)	$98,219
6	$574,905		$384,402	$131,678	$516,080	($58,825)	$39,393
7	$574,905		$403,622	$138,262	$541,884	($33,021)	$6,372
8	$574,905		$423,803	$145,175	$568,978	($5,927)	$445
9	$574,905		$444,993	$152,434	$597,427	$22,522	$22,967
10	$574,905		$467,242	$160,056	$627,298	$52,393	$75,360
11	$574,905		$490,605	$168,059	$658,663	$83,758	$159,118
12	$574,905		$515,135	$176,462	$691,596	$116,691	$275,809
13	$574,905		$540,892	$185,285	$726,176	$151,271	$427,080
14	$574,905		$567,936	$194,549	$762,485	$187,580	$614,660
15	$574,905		$596,333	$204,276	$800,609	$225,704	$840,364
16	$574,905		$626,150	$214,490	$840,640	$265,734	$1,106,098
17	$0		$657,457	$225,215	$882,672	$882,672	$1,988,770
18	$0		$690,330	$236,475	$926,805	$926,805	$2,915,575
19	$0		$724,846	$248,299	$973,146	$973,146	$3,888,721
20	$0		$761,089	$260,714	$1,021,803	$1,021,803	**$4,910,523**

Thank you

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