STRATEGIC ENERGY PLAN

Prepared for:
Chico Unified School District

Prepared by:
ARC Alternatives
December 5, 2014
San Francisco, CA

We would like to thank the following staff at Chico Unified School District, without whose contributions this work would not have been possible:

Julie Kistle
Lalanya Rothenberger
Kevin Bultema
Mary Wrysinski
Randy Salado
Dan Hunt
John Sclare

And a special thanks to Michael Weissenborn, whose efforts set the stage for so much of the great work currently being done at the District.

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Strategic Energy Plan

This Strategic Energy Plan (SEP) identifies strategies and projects for energy conservation and clean generation. It begins with a summary of Proposition 39, the key funding source for energy efficiency projects. CUSD is estimated to receive $2,301,560 over the course of the five year program. The District's energy benchmarks reflect prior investments in solar and are generally lower than those for similar schools and facilities in California.

ARC Alternatives identified approximately $12 million in energy projects, including the $5.8 million Phase 2 solar project previously identified by the District. Energy efficiency projects fall into the broad categories of:

- Interior lighting
- Exterior lighting
- Controls
- Mechanical systems
- Plug load reductions
- Envelope

We propose an implementation plan for the District's Prop 39 program that is cash flow neutral, accounts for summer construction, and is strategically divided into "bid packages" based on project type and complexity.

CUSD is well positioned to implement its Prop 39 program, and other energy projects as well. Work on developing specifications and procurement documents should begin in late 2014/early 2015 to ensure projects are ready for installation next summer.

Purpose of this plan

This Strategic Energy Plan (SEP) provides the District with an overarching view of their energy project potential and a roadmap for developing and delivering a comprehensive energy program. It has long been the intent of Chico Unified School District to reduce energy consumption whenever possible and the SEP builds on the District's history of implementing projects that save energy and generate clean power. This Plan has been developed as part of the District's Proposition 39 planning efforts and incorporates the work and deliverables that make up the District's Energy Expenditure Plan.

The SEP starts from identifying the overarching needs and goals of the District and frames the proposed energy program in the context of District-defined outcomes. In addition to identifying potential energy projects, timing, sequencing, implementation and procurement considerations are addressed to make the plan comprehensive and actionable.

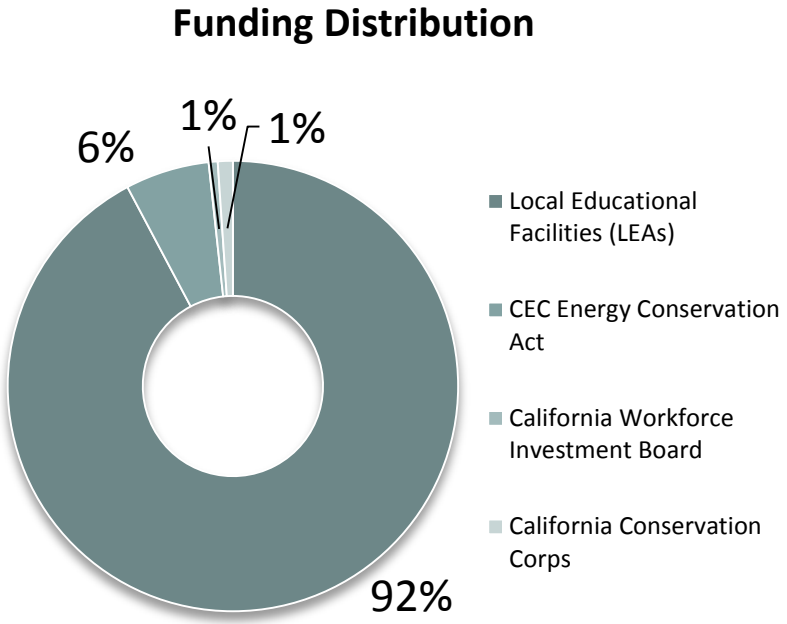
3. BACKGROUND

Prop 39 is critical funding source

Proposition 39 History

The California Clean Energy Jobs Act was established with the passage of Proposition 39 in November of 2012, allocating approximately $550 million annually to improve energy efficiency and expand clean energy generation. The largest share each year is awarded to local educational agencies (LEAs) for eligible projects evaluated on a formula-based method. $381M was made available to local education agencies in FY 2013-14.

The State Superintendent of Public Instruction (SSPI) is responsible for administering the awards for the LEAs. All school facilities; including county offices of education, school districts, charter schools, and state special schools, within an LEA are eligible for funding. Proposition 39 funding can be applied towards the six areas listed under the LEA Funding Awards diagram to the right.



Prop 39 allocations based on ADA

Allocation Rules

Award calculations are conducted annually by the California Department of Education (CDE). Funding is awarded on a formula-based method: 85 percent based on average daily attendance (ADA) reported as of the second principal apportionment for the prior fiscal year (p-2) and 15 percent based on the number of students eligible for free and reduced-priced meals (FRPM) in the prior year. Funding is broken out into four tiers.

Tier 1
ADA: 100 or fewer
$15,000 plus FRPM

Tier 2
ADA: 101 – 1,000
Based on prior year ADA or $50,000
(whichever amount is larger) plus FRPM

Tier 3
ADA: 1,001 to 1,999
Based on prior year ADA or $100,000
(whichever amount is larger) plus FRPM

Tier 4
ADA: 2,000 or more
Based on prior year ADA
Plus FRPM

CEC process is complex

8 Step Process to Receive Award Funding

Step 1: Electric and Gas Usage/Billing Data

An organization must provide access to all historical (the past 12 months) and future account information for each of its schools and facilities to the Energy Commission.

Step 2: Benchmarking or Energy Rating System

Through a benchmarking process each school site where Proposition 39 funds will be used must determine its energy usage intensity (EUI) as part of the project evaluation.

Step 3: Eligible Energy Project Prioritization Considerations

A total of 11 factors shall be considered when prioritizing projects, including the overall benefit, age of the facility, has it been modernized, the energy impact the facility has, etc.

Step 4: Sequencing of Facility Improvements

When considering facility improvements you first, maximize energy efficiency; second, look at clean energy generation; and last, consider nonrenewable projects.

Step 5: Eligible Energy Measure Identification

There are three methods to identifying eligible energy projects, an energy survey, ASHRAE Level 2 energy audit, and data analytics.

Step 6: Cost Effectiveness Determination

A project must have a minimum savings-to-investment ratio of 1.05 or better; meaning the project benefit will be greater than the project cost over time.

Step 7: Complete and Submit Energy Expenditure Plan(s)

An energy expenditure plan must be submitted according to the guidelines outlined in Proposition 39 and includes the information found during the 8 step award process.

Step 8: Energy Project Tracking and Reporting

Project expenditure reports must be submitted within 12 to 15 months of completed projects. Organizations must also submit annual reports until all funded projects are complete and a final report must also be submitted.

Prop 39 Expenditure Plan submitted to the CEC

Current Status

- ARC Alternatives assisted the District in completing Steps 1-7 on the previous slide
- The District's Energy Expenditure Plan approved by the CEC in October 2014
- The District submitted a multi-year plan covering all five years of the program and including projects at all facilities

Chico Unified Prop 39 Allocation

- $544,374 Total Award Allocation for FY13-14
  - $163,312 Requested for Planning (available first year only)
  - $381,062 Remaining for Projects
- Future Allocations
  - To be announced each year by November 30
  - Subject to realization of tax revenues, shortfall anticipated
  - Allocation expected to be 80% of first year total (~$435,500)
- Results in approximately $2,301,560 available for projects over for 5 year program

Important Guideline Requirements

- Follow Loading Order: Efficiency First, then Generation
- Separate Energy Expenditure Plan (EEP) Required for each School Site
- Saving to Investment Ratio (SIR) > 1.05 for Each School Site
- Changes >15% from Approved Plan Require Revision w/ CEC
- Annual Progress Report required until all measures on EEP complete
- Final Report required 12-15 Months after all measures on EEP complete

arc ALTERNATIVES

SEP accounts for other District programs

SEP Coordination Efforts

In addition to Proposition 39, which serves as the impetus to much of the current energy planning work, there are several important District initiatives that effect energy planning efforts. These efforts include:

Facilities Master Plan

The result of over 14 months of effort, the Facilities Master Plan (FMP) provides a comprehensive roadmap for school facility and infrastructure improvements. It identifies priorities and seven phases of project implementation. The FMP establishes an implementation schedule through 2023, leveraging current funding as well as new funding sources. The SEP recognizes these priorities and the Prop 39 Expenditure Plan reflects the project sequencing identified in the Master Plan.

Solar program

The District began a program of installing solar at its facilities in 2006 with a rooftop system at Little Chico Creek. The program continued with carport and rooftop systems at Chico High and mix of carport and ground mounted systems at four other sites, generating approximately 2.5 million kWh per year. The District plans to install additional solar in the summer of 2015, which will generate approximately 2 million kWh per year. The solar program reduces the total energy (electric) that can be saved through conservation and presents an opportunity for the use of Prop 39 funds.

Lucid Building OS

The Lucid program provides the District with the capability to track energy use at their facilities in real time and compare this use to a number of benchmarks as a way to manage consumption and encourage conservation. This data will help the District provide reporting to the CEC as required under Prop 39 and provide the monitoring basis for gauging the effectiveness of some of the controls projects being recommended as part of the SEP.

Energy Management System (EMS)

Facilities and maintenance staff continue to refine the EMS deployed across the District. The system continues to be used more effectively, as programs and set points are adjusted over time, having a positive impact on energy use. Our energy planning efforts need to account for the EMS, its use, and how potential projects can leverage the system for additional savings benefits.

4. BENCHMARKING

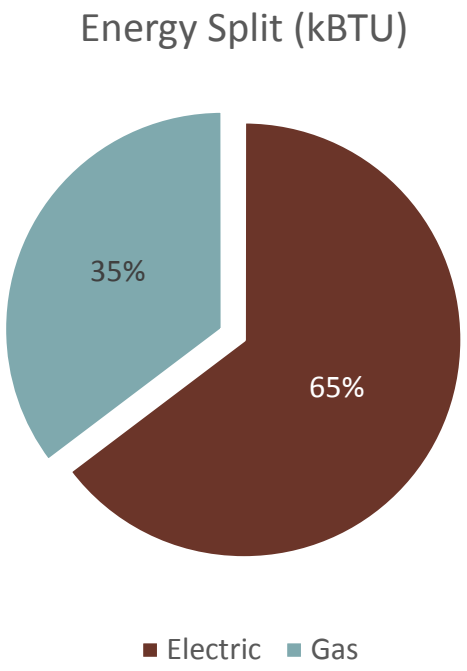
Purpose of benchmarking

ARC Alternatives provided a benchmarking report to the District in June, 2014 and has since used the analysis to develop the Prop 39 Expenditure Plan. Benchmarking data help provide context for the energy analysis and allow us to focus on facilities and end-uses that may be driving energy use at the District.

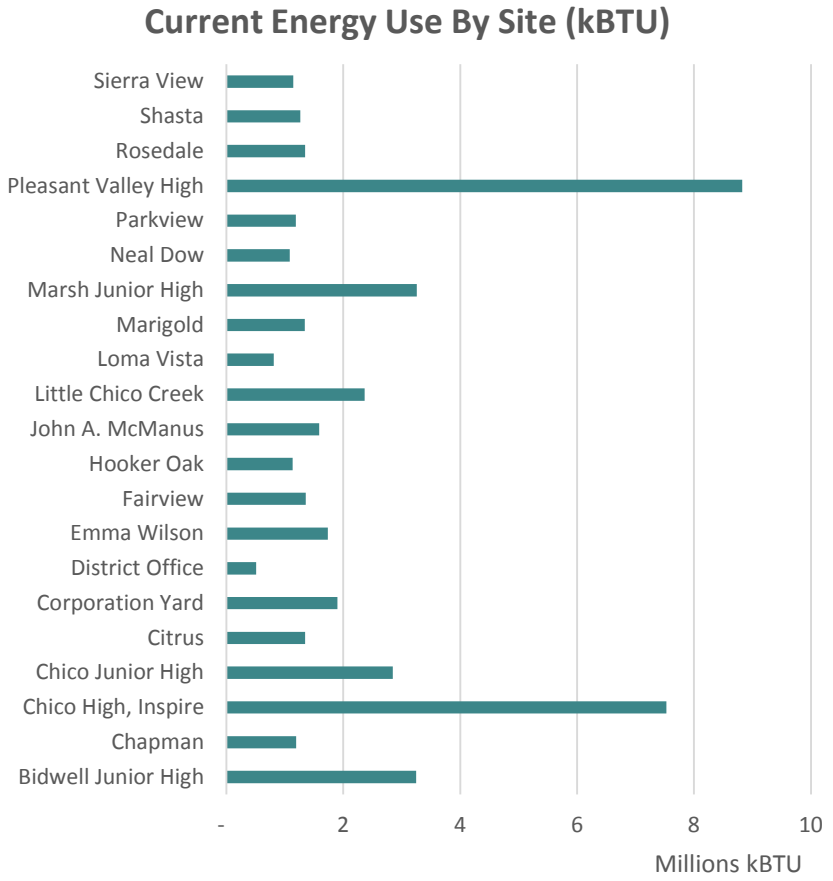
Specifically, this report presents the following:

- Characterization of current energy use
- The effects of prior and planned investments in solar PV generating capacity
- Projected future utility expenditures
- Energy use benchmarks and how they compare to other schools in California

How energy is used at CUSD



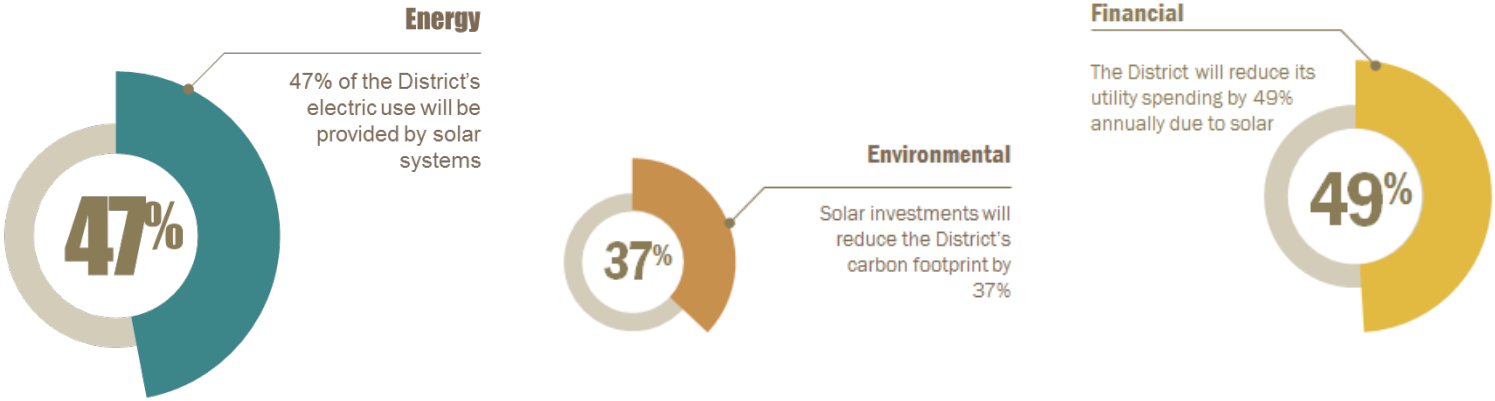
Electric (kWh) and gas (Therms) use is converted to kBTU to determine total energy consumption.



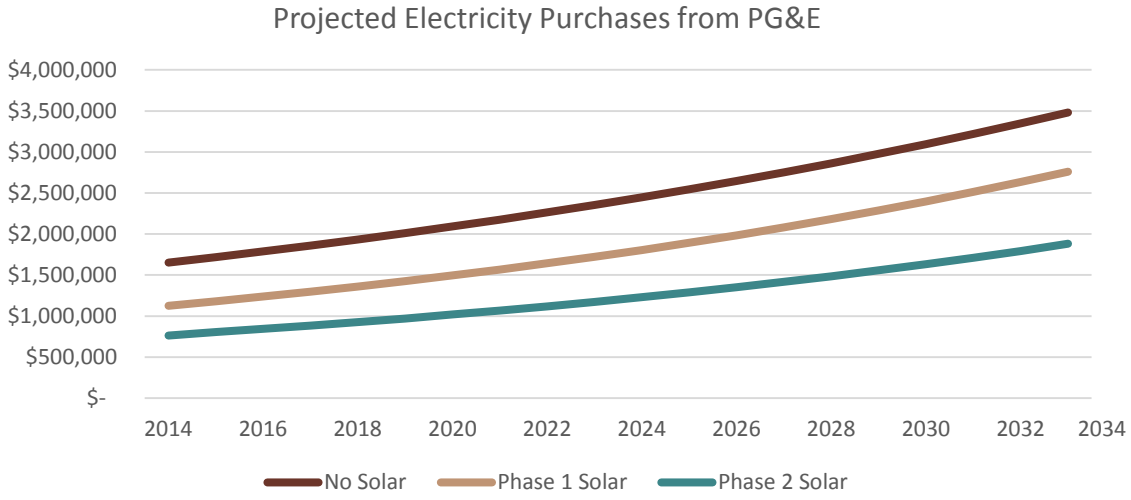
Impacts of solar generation

Solar Generation

- The District began implementing solar projects in six of its facilities beginning in 2006, generating 2.5 million kWh
- A second phase of this solar project planned for the summer of 2015 will generate an addition 2 million KWh per year
- The installation of both phases, will result in the following savings:



- The implementation of both phases is estimated to result in the district spending $25 million in electricity purchases from PG&E over the next 20 years as compared to $49 million without solar or $37 million including only phase one



Energy Use Intensities (EUIs)

Benchmarks

EUIs compared to the CA average:

- Electric
  - Above average sites: Marsh Junior, Little Chico Creek, and the District Office
  - High relative EUIs: Corp Yard, Emma Wilson, Marigold, McManus, Chico High, and Rosedale
- Gas
  - Above average sites: Hooker Oak and the Corp Yard
  - Aside from these exceptions, all other sites remain below the average gas consumption
- kBTU
  - Above average sites: Corp Yard, District Office, and Little Chico Creek

Energy use intensity (EUI)

#	Site	PG&E kWh per sqft	Solar kWh per sqft	Total kWh per sqft	Therms per sqft	kBTU per sqft	kWh $ per sqft	Therm $ per sqft
1	Bidwell Junior High	4.77	-	4.77	0.15	31.57	$ 0.87	$ 0.14
2	Chapman	2.01	3.75	5.76	0.06	25.30	$ 0.33	$ 0.06
3	Chico High, Inspire	3.55	3.09	6.63	0.08	30.29	$ 0.55	$ 0.07
4	Chico Junior High	4.08	-	4.08	0.12	25.97	$ 0.74	$ 0.12
5	Citrus	5.94	-	5.94	0.14	34.03	$ 1.15	$ 0.14
6	Corporation Yard	3.34	3.94	7.28	0.30	54.60	$ 0.61	$ 0.28
7	District Office	8.36	-	8.36	0.14	42.89	$ 1.62	$ 0.15
8	Emma Wilson	7.21	-	7.21	0.05	29.80	$ 1.29	$ 0.05
9	Fairview	6.53	-	6.53	0.10	32.42	$ 1.22	$ 0.10
11	Hooker Oak	2.38	-	2.38	0.19	26.83	$ 0.45	$ 0.18
12	John A. McManus	6.76	-	6.76	0.11	33.73	$ 1.24	$ 0.10
13	Little Chico Creek	5.77	3.35	9.12	0.12	42.80	$ 1.12	$ 0.12
14	Loma Vista	5.31	-	5.31	0.12	30.47	$ 1.00	$ 0.12
15	Marigold	6.98	-	6.98	0.11	34.71	$ 1.31	$ 0.11
16	Marsh Junior High	3.21	4.99	8.20	0.12	40.47	$ 0.47	$ 0.12
17	Neal Dow	6.02	-	6.02	0.10	30.54	$ 1.13	$ 0.10
18	Parkview	5.88	-	5.88	0.09	28.64	$ 1.10	$ 0.09
19	Pleasant Valley High	2.37	3.25	5.62	0.13	32.45	$ 0.34	$ 0.11
20	Rosedale	6.52	-	6.52	0.07	29.20	$ 1.19	$ 0.07
21	Shasta	6.04	-	6.04	0.08	28.14	$ 1.15	$ 0.08
22	Sierra View	4.99	-	4.99	0.09	26.24	$ 0.92	$ 0.09
	District Average	4.33	1.74	6.07	0.11	32.04	$ 0.76	$ 0.11

5. IDENTIFICATION OF POTENTIAL PROJECTS

Robust process used to identify projects

- Data Gathering & Analysis
  - Obtained PG&E Data from account rep
  - Downloaded Solar Production Data from web
  - Pilot RCx Reports provided by District
- Benchmarking
  - Included PG&E and Solar Production
  - Report provided June 13, 2014
  - Provided inputs into EEP forms
- Site Visits & Engineering
  - Conducted by ARC, TRC & District Staff May 27-29
  - Walkthrough level audit for each school site

Variety of project types identified

Results – Projects Identified

- Exterior Lighting:
  - LED parking lot lights
  - LED wallpacks
  - Existing CFL wallpacks identified
- Interior Lighting:
  - LED highbay in Gym type spaces
  - T12 to T8 Retrofits
  - Occupancy & Daylighting Controls
- Mechanical & Controls:
  - Package Unit Replacement
  - Heat Pump Replacements (portables)
  - Demand Control Ventilation
  - EMS tie in
- Plug Load: Virtual Desktop Virtualization
- Envelope: Window Replacement
- Solar Photovoltaics

School Sites and Quantities

	School Sites Included	Scope
Exterior Lighting	20	603 Fixtures
Interior Lighting	20	1072 Fixtures
Mechanical & Controls	20	417 HVAC Units
Plug Load	2	196 Computers
Envelope	1	168 Windows
Solar	9	1409 kW Capacity

Identified over $12 million in potential projects

Analysis

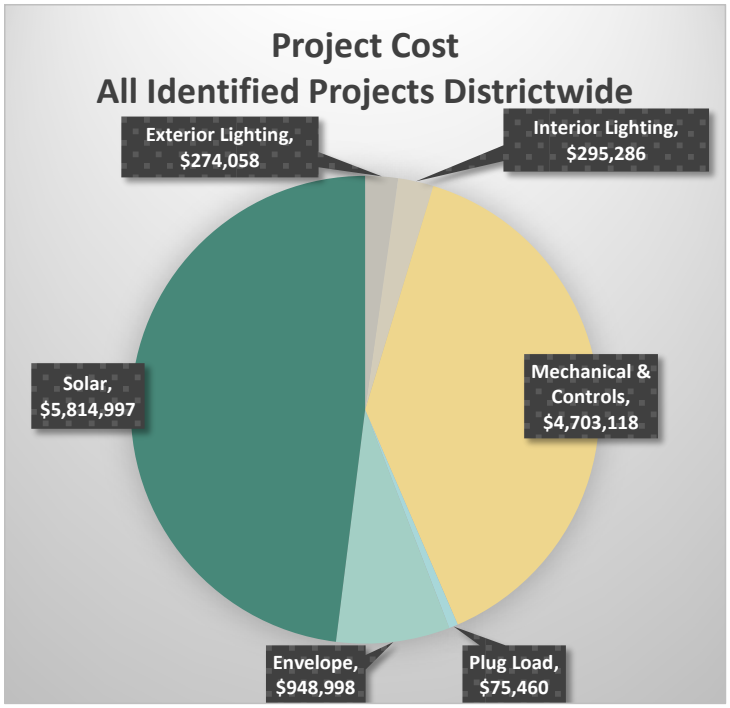
Energy Savings Calculations

- CEC Calculator used for all available measures, to facilitate approval
- Custom calculations for remainder, used conservative & documentable assumptions

Cost estimates

- RS Means primary source of cost estimates
- Budgetary quotes for some material (heat pumps, LED lights) used to refine costs
- Added 10-20% allowance for soft costs (dependent upon measure complexity)

	Savings to Investment Ratio
Exterior Lighting	0.39 - 1.65
Interior Lighting	0.39 - 3.97
Mechanical & Controls	0.36 - 1.99
Plug Load	0.84
Envelope	0.35
Solar	1.04 - 1.35



Savings to Investment Ratio (SIR) Calculation

- Prop 39 SIR Methodology incorporated into calculations
- Approximate SIR calculated for each measure using average utility rates
- Actual SIR calculated for projects, accounting for site utility rates

Total districtwide project potential identified >$12M with a 1.02 SIR

Energy savings measures

Exterior Lighting: HID to LED – Summary

SCOPE

Retrofit metal halide and high pressure sodium fixtures with LED fixtures. Pole lights, typically found in in parking areas, can be retrofit with similar 'cobrahead' or 'shoebox' style fixtures, using the existing poles with new 150W LED fixture heads and mounting hardware. Wallpack fixtures will be replaced under with new 25 to 40W LED wallpack fixtures.

ASSUMPTIONS AND CONSIDERATIONS

- DesignLights Consortium (DLC) approved fixtures recommended; required for incentives
- Current PG&E Express Rebates $40-125/fixture for anticipated LED fixtures wattages
- Fixture life >50,000 hrs, great added maintenance benefit
- Anticipated to be conducted in conjunction with overall safety & security upgrades
- Additional lighting design may be required
- Measure covered by CEC Calculator

Total Quantity	341	fixtures
Peak Demand	-	kW
Electricity Savings	58,546	kWh/yr
Gas Savings	-	therms/yr
Utility Cost Savings	**$10,571**	**/yr**
Project Cost	**$178,952**	
Incentive	$21,545	
Net Simple Payback*	14.9	years
Approximate SIR	1.28	

* based on energy savings alone

Exterior Lighting: HID to LED – Details by Campus

	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Chico High	28	0	3,599	-	$559	$19,756	$2,480	30.9
Fairview	8	0	1,054	-	$197	$3,758	$480	16.7
Pleasant Valley	18	0	1,544	-	$223	$6,534	$720	26.1
Bidwell	8	0	1,435	-	$263	$4,103	$490	13.8
Chico Jr	4	0	1,091	-	$198	$2,651	$330	11.7
Chapman	21	0	8,536	-	$1,422	$18,414	$2,370	11.3
Citrus	7	0	739	-	$143	$2,861	$340	17.7
Emma Wilson	10	0	4,599	-	$826	$9,625	$1,250	10.1
Hooker Oak	6	0	515	-	$98	$2,178	$240	19.9
Little Chico Creek	46	0	6,191	-	$1,201	$20,295	$2,350	14.9
Loma Vista	10	0	858	-	$161	$3,630	$400	20.0
Marigold	41	0	5,388	-	$1,015	$17,881	$2,065	15.6
McManus	13	0	4,856	-	$889	$10,714	$1,370	10.5
Parkview	40	0	3,432	-	$641	$14,520	$1,600	20.1
Rosedale	38	0	7,750	-	$1,413	$20,988	$2,540	13.1
Shasta	22	0	4,880	-	$934	$12,782	$1,560	12.0
Sierra View	15	0	1,287	-	$237	$5,445	$600	20.4
District Office	6	0	791	-	$153	$2,818	$360	16.1
Total	**341**	**0**	**58,546**	**-**	**$10,571**	**$178,952**	**$21,545**	**14.9**

Exterior Lighting: CFL to LED – Summary

SCOPE

Replace existing compact fluorescent exterior fixtures with LED fixtures, providing consistency and uniformity in exterior lighting across site. Wallpack fixtures will be replaced under with new 25W LED wallpack fixtures.

ASSUMPTIONS AND CONSIDERATIONS

- Energy savings are minimal, project identified primarily to supplement the safety and security program budget.
- DesignLights Consortium (DLC) approved fixtures recommended, although no incentives anticipated
- Fixture life >50,000 hrs, great added maintenance benefit
- Anticipated to be conducted in conjunction with overall safety & security upgrades
- Additional lighting design may be required
- Measure required custom calculation

Total Quantity	262	fixtures
Peak Demand	-	kW
Electricity Savings	5,371	kWh/yr
Gas Savings	-	therms/yr
Utility Cost Savings	**$938**	**/yr**
Project Cost	**$95,106**	
Incentive	$0	
Net Simple Payback*	101.4	years
Approximate SIR	0.39	

* based on energy savings alone

Exterior Lighting: CFL to LED – Details by Campus

	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Chico High	36	0	738	-	$115	$13,068	$0	114.1
Pleasant Valley	20	0	410	-	$59	$7,260	$0	122.6
Bidwell	6	0	123	-	$23	$2,178	$0	96.7
Chico Jr	50	0	1,025	-	$186	$18,150	$0	97.7
Marsh	16	0	328	-	$48	$5,808	$0	121.6
Chapman	20	0	410	-	$68	$7,260	$0	106.3
Citrus	1	0	21	-	$4	$363	$0	91.7
Hooker Oak	18	0	369	-	$70	$6,534	$0	93.4
Loma Vista	30	0	615	-	$116	$10,890	$0	94.2
Marigold	4	0	82	-	$15	$1,452	$0	94.0
McManus	4	0	82	-	$15	$1,452	$0	96.7
Neal Dow	36	0	738	-	$139	$13,068	$0	94.0
Sierra View	15	0	308	-	$57	$5,445	$0	96.2
District Office	6	0	123	-	$24	$2,178	$0	91.6
Total	**262**	**0**	**5,371**	**-**	**$938**	**$95,106**	**$0**	**101.4**

Interior Lighting: HID to LED – Summary

SCOPE

Replace existing 250-400W high intensity discharge (HID) fixtures, typically located in gym and multipurpose rooms, with 100-150W LED fixtures.

ASSUMPTIONS AND CONSIDERATIONS

- DesignLights Consortium (DLC) approved fixtures recommended; required for incentives
- Current PG&E Express Rebates $100-110/fixture for anticipated LED fixtures wattages
- Lighting vendor rep provided sample suitable fixture quotes, basis of fixture wattage and cost
- Additional lighting design may be required
- Fixture life >50,000 hrs, great added maintenance benefit
- Measure required custom calculation

Total Quantity	148	fixtures
Peak Demand	38	kW
Electricity Savings	73,970	kWh/yr
Gas Savings	-	therms/yr
Utility Cost Savings	**$11,968**	**/yr**
Project Cost	**$96,785**	
Incentive	$15,540	
Net Simple Payback*	6.8	years
Approximate SIR	2.39	

* based on energy savings alone

Interior Lighting: HID to LED – Details by Campus

	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Chico High	40	7.8	15,288	-	$2,373	$23,804	$4,000	8.3
Pleasant Valley	24	7.56	14,818	-	$2,140	$17,107	$2,640	6.8
Chico Jr	20	6.3	12,348	-	$2,238	$14,256	$2,200	5.4
Marsh	30	9.45	18,522	-	$2,698	$21,384	$3,300	6.7
Little Chico Creek	34	6.63	12,995	-	$2,520	$20,233	$3,400	6.7
Total	**148**	**37.74**	**73,970**	**-**	**$11,968**	**$96,785**	**$15,540**	**6.8**

Interior Lighting: T12 and Fluorescent Retrofits – Summary

ASSUMPTIONS AND CONSIDERATIONS

- T8 fixtures are baseline for incentives, so Express Rebate of $1/lamp for 28W T8s is best available incentive for the scope.
- Project cost assumes new fixtures for all measures except the 8' T8s at Marigold, which assumes a retrofit with a conversion kit.
- Generates substantial maintenance benefits as T12 lamps are becoming more limited in availability
- Provides improved quality of light
- Measure covered by CEC Calculator

SCOPE

Standardize to low watt 4' T8 lamps districtwide by retrofitting or replacing last remaining T12 fixtures and 8' T8s. One lamp F96T12 fixtures can be replaced with two 28W T8 lamps fixtures, and one lamp F96T12 High Output fixtures can be replaced with four 28W T8 lamp fixtures for equivalent light. One lamp 8' T8 fixtures can be retrofit with a lamp and ballast to two 28W lamps. Finally, 6' T12 fixtures would be replaced with new T8 fixtures, equivalent to three lamps per fixture.

Total Quantity	354	fixtures
Peak Demand	7	kW
Electricity Savings	34,617	kWh/yr
Gas Savings	(161)	therms/yr
Utility Cost Savings	**$6,197**	**/yr**
Project Cost	**$75,552**	
Incentive	$880	
Net Simple Payback*	12.1	years
Approximate SIR	1.42	

* based on energy savings alone

Interior Lighting: T12 and Fluorescent Retrofits – Details by Campus

	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Pleasant Valley	20	0.42	3,774	(22)	$526	$5,962	$80	11.2
Bidwell	20	0.22	1,887	(11)	$335	$6,710	$40	19.9
Citrus	24	0.504	4,529	(27)	$847	$7,154	$96	8.3
Loma Vista	60	1.26	11,322	(67)	$2,062	$17,886	$240	8.6
Marigold	128	2.048	4,014	-	$756	$11,264	$256	14.6
Neal Dow	42	1.75	3,430	-	$646	$6,446	$48	9.9
Parkview	60	0.66	5,661	(34)	$1,024	$20,130	$120	19.5
Total	**354**	**6.862**	**34,617**	**(161)**	**$6,197**	**$75,552**	**$880**	**12.1**

Interior Lighting: Occupancy Sensor – Summary

SCOPE

Install occupancy sensors in rooms that are currently controlled only by manual switch. For adequate coverage, ceiling occupancy sensors will be installed in rooms larger than ~400 sf (typically classrooms, conference rooms and open offices) and wall occupancy sensors would be installed in smaller spaces such as private offices.

ASSUMPTIONS AND CONSIDERATIONS

- Current available sensors include dual technologies (passive infrared/ultrasonic) for improved performance, EMS interface and wireless
- High SIR & applicable to almost all schools; good measure to include to enable deep measures at school site
- Measure cost assumes dual technology, hardwired
- Measure covered by CEC Calculator

Total Quantity	497	sensors
Peak Demand	30	kW
Electricity Savings	155,859	kWh/yr
Gas Savings	(1,024)	therms/yr
Utility Cost Savings	**$26,587**	**/yr**
Project Cost	**$117,526**	
Incentive	$0	
Net Simple Payback*	4.4	years
Approximate SIR	1.9	

* based on energy savings alone

Interior Lighting: Occupancy Sensor – Details by Campus

	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Chico High	82	5.002	25,715	(169)	$3,837	$18,878	$0	4.9
Fairview	24	1.464	7,526	(49)	$1,355	$5,748	$0	4.2
Pleasant Valley	41	2.501	12,858	(84)	$1,786	$8,324	$0	4.7
Bidwell	30	1.83	9,408	(62)	$1,664	$8,067	$0	4.8
Marsh	11	0.671	3,450	(23)	$480	$3,231	$0	6.7
Chapman	16	0.976	5,018	(33)	$802	$3,956	$0	4.9
Citrus	9	0.549	2,822	(19)	$526	$2,643	$0	5.0
Emma Wilson	8	0.488	2,509	(16)	$434	$1,606	$0	3.7
Hooker Oak	14	0.854	4,390	(29)	$804	$3,368	$0	4.2
Little Chico Creek	34	2.074	10,662	(70)	$1,997	$7,569	$0	3.8
Loma Vista	29	1.769	9,094	(60)	$1,651	$4,985	$0	3.0
Marigold	28	1.708	8,781	(58)	$1,598	$7,294	$0	4.6
McManus	25	1.525	7,840	(52)	$1,387	$6,413	$0	4.6
Neal Dow	24	1.464	7,526	(49)	$1,370	$6,119	$0	4.5
Parkview	24	1.464	7,526	(49)	$1,357	$5,748	$0	4.2
Rosedale	29	1.769	9,094	(60)	$1,597	$7,216	$0	4.5
Shasta	26	1.586	8,154	(54)	$1,507	$6,893	$0	4.6
Sierra View	29	1.769	9,094	(60)	$1,616	$7,216	$0	4.5
District Office	14	0.854	4,390	(29)	$819	$2,253	$0	2.8
Total	**497**	**30.317**	**155,859**	**(1,024)**	**$26,587**	**$117,526**	**$0**	**4.4**

Interior Lighting: Daylighting – Summary

SCOPE

In areas with adequate natural light from windows and fenestration, install a daylight sensor and turn off lights in space when light levels are sufficient by daylight alone. Alternatively, more complex control strategies are available including use of dimmable ballasts in conjunction with a daylight sensor to continuously tune the fluorescent light output.

ASSUMPTIONS AND CONSIDERATIONS

- Areas included are all common spaces (MPR, kitchens, corridors, staff copy room, library)
- Measure required custom calculation
- Savings assume 2 step control, range from 0.5 to 5 hr/day reduction, season dependent
- Relatively small scope, to be included with other lighting measures

Total Quantity	5	areas
Peak Demand	0	kW
Electricity Savings	2,088	kWh/yr
Gas Savings	(19)	therms/yr
Utility Cost Savings	**$341**	**/yr**
Project Cost	**$5,423**	
Incentive	$53	
Net Simple Payback*	15.8	years
Approximate SIR	0.64	

* based on energy savings alone

Interior Lighting: Daylighting – Details by Campus

	Areas	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Bidwell	1	0.01	405	(4)	$71	$856	$10	12.0
Chico Jr	2	0.03	1,060	(10)	$183	$1,415	$27	7.6
Marsh	1	0.02	561	(5)	$77	$2,817	$15	36.5
McManus	1	0	62	(1)	$11	$335	$1	30.9
Total	**5**	**0.06**	**2,088**	**(19)**	**$341**	**$5,423**	**$53**	**15.8**

HVAC Unit Replacement – Summary

Total Quantity	334	units
Peak Demand	236	kW
Electricity Savings	904,510	kWh/yr
Gas Savings	-	therms/yr
Utility Cost Savings	**$159,525**	**/yr**
Project Cost	**$3,599,211**	
Incentive	$0	
Net Simple Payback*	22.6	years
Approximate SIR	0.86	

* based on energy savings alone

ASSUMPTIONS AND CONSIDERATIONS

- Large quantity of potential replacements, but requires bundling with high SIR projects
- Measure covered by CEC Calculator (for units up to 5.4 tons)
- Negative gas savings is an artifact of CEC calculator, will achieve some gas savings with proper specifications for furnaces/gas packs

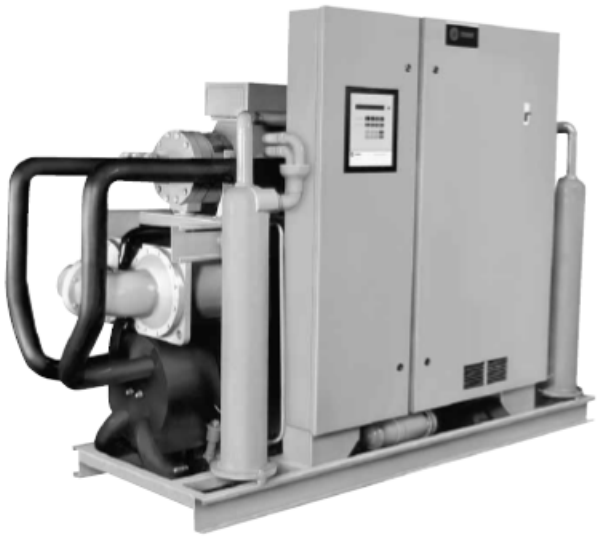
SCOPE

Replace existing aging package units and split systems with new 14 SEER units, and heat pumps (e.g. Bard units) with new 15 SEER heat pumps.

HVAC Unit Replacement – Details by Campus

	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Chico High	36	25.92	91,500	-	$14,201	$371,080	$0	26.1
Fairview	5	3.2	18,325	-	$3,417	$53,199	$0	15.6
Pleasant Valley	36	25.92	90,570	-	$13,078	$447,534	$0	34.2
Bidwell	2	1.44	5,030	-	$921	$25,000	$0	27.1
Chico Jr	29	20.88	73,625	-	$13,343	$305,776	$0	22.9
Chapman	23	15.92	67,435	-	$11,232	$240,557	$0	21.4
Citrus	22	15.84	55,540	-	$10,721	$257,736	$0	24.0
Emma Wilson	37	26	103,125	-	$18,515	$376,097	$0	20.3
Hooker Oak	18	12.88	46,870	-	$8,887	$186,146	$0	20.9
Little Chico Creek	8	5.76	20,120	-	$3,901	$100,000	$0	25.6
Marigold	10	7.2	25,150	-	$4,739	$125,000	$0	26.4
McManus	20	13.84	58,710	-	$10,752	$207,384	$0	19.3
Neal Dow	1	0.64	3,665	-	$690	$10,640	$0	15.4
Parkview	20	14.16	54,260	-	$10,141	$202,493	$0	20.0
Rosedale	41	28.8	114,365	-	$20,849	$421,771	$0	20.2
Shasta	3	1.92	10,995	-	$2,104	$31,919	$0	15.2
Sierra View	22	15.36	62,680	-	$11,543	$226,845	$0	19.7
District Office	1	0.72	2,545	-	$492	$10,034	$0	20.4
Total	**334**	**236.4**	**904,510**	**-**	**$159,525**	**$3,599,211**	**$0**	**22.6**

Chiller Upgrade – Summary



SCOPE

Replace existing Trane water cooled screw chiller with high efficiency water cooled chiller

ASSUMPTIONS AND CONSIDERATIONS

- Measure required custom calculation
- Incentive available through PG&E customized program; 2013 Title 24 impacts incentive
- Detailed engineering required to optimize chiller system
- Due to major equipment failure since audit, anticipate prioritizing this project
- Strongly recommend strong commissioning requirement to ensure optimal system performance

Total Quantity	1	chiller
Peak Demand	15	kW
Electricity Savings	41,339	kWh/yr
Gas Savings	-	therms/yr
Utility Cost Savings	**$8,016**	**/yr**
Project Cost	**$143,750**	
Incentive	$7,401	
Net Simple Payback*	17.0	years
Approximate SIR	1.41	

* based on energy savings alone

Chiller Upgrade – Details by Campus

	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Little Chico Creek	1	14.68	41,339	-	$8,016	$143,750	$7,401	17.0
Total	**1**	**14.68**	**41,339**	**-**	**$8,016**	**$143,750**	**$7,401**	**17.0**

Controls Upgrade – Summary

SCOPE

Various controls upgrades for mechanical systems including:

- **EMS Tie In (11 systems):** Connect standalone classrooms, mostly portable, to existing District EMS.
- **Programmable Thermostat (1 system):** Replace manual thermostat with programmable thermostat (or include with EMS Tie In).
- **Demand Control Ventilation (19 systems):** Install carbon dioxide sensors and controls to reduce ventilation during low occupancy periods for MPRs and Gyms.
- **Kitchen Exhaust Controls (1 system):** Add ventilation controls and VFD to reduce kitchen hood exhaust when heat/particulates are not sensed, automatically maintaining adequate ventilation.
- **Interlock HVAC with door sensor (1 system):** Tie door sensor into EMS and disable room HVAC when doors are left propped open.

ASSUMPTIONS AND CONSIDERATIONS

- Measures required custom calculation
- SIRs range from 0.4 to 2
- Requires coordination with broader need to upgrade EMS districtwide.
- Districtwide EMS upgrade not evaluated for P39 – current capability will limit justifiable energy savings & high cost would yield extremely low SIR while exhausting the P39 allocation

Total Quantity	33	systems
Peak Demand	-	kW
Electricity Savings	187,805	kWh/yr
Gas Savings	9,021	therms/yr
Utility Cost Savings	**$39,982**	**/yr**
Project Cost	**$960,157**	
Incentive	$19,034	
Net Simple Payback*	23.5	years
Approximate SIR	0.82	

* based on energy savings alone

Controls Upgrade – Details by Campus

	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Chico High	1	0	25,893	1,874	$5,731	$55,694	$3,945	9.0
Fairview	2	0	4,468	193	$1,020	$38,514	$407	37.4
Pleasant Valley	1	0	14,824	1,073	$3,044	$31,886	$2,259	9.7
Bidwell	1	0	12,255	887	$3,081	$26,359	$1,867	7.9
Chico Jr	1	0	12,749	923	$3,196	$27,422	$1,942	8.0
Marsh	3	0	49,835	1,440	$8,660	$110,861	$3,223	12.4
Chapman	1	0	2,273	164	$546	$4,889	$346	8.3
Citrus	2	0	2,273	236	$676	$6,076	$346	8.5
Emma Wilson	2	0	3,572	172	$815	$26,952	$361	32.6
Hooker Oak	2	0	6,261	236	$1,418	$61,640	$497	43.1
Little Chico Creek	2	0	6,438	379	$1,631	$33,116	$798	19.8
Loma Vista	2	0	3,473	164	$818	$26,739	$346	32.3
Marigold	2	0	10,772	172	$2,197	$158,052	$361	71.8
McManus	2	0	7,271	179	$1,502	$92,714	$376	61.5
Neal Dow	1	0	2,471	179	$638	$5,314	$376	7.7
Parkview	2	0	2,675	150	$650	$17,574	$316	26.5
Rosedale	2	0	8,273	164	$1,675	$114,139	$346	67.9
Shasta	2	0	4,955	272	$1,220	$29,928	$572	24.1
Sierra View	2	0	7,073	164	$1,463	$92,289	$346	62.8
Total	**33**	**0**	**187,805**	**9,021**	**$39,982**	**$960,157**	**$19,034**	**23.5**

Desktop Virtualization – Summary

SCOPE

Replace desktop computers in high school libraries with thin or zero client computing solutions to take advantage of the reduced computing power, and energy consumption, required to operate in a virtual environment.

ASSUMPTIONS AND CONSIDERATIONS

- Existing computers appear to be operating in virtual environment
- District has enough seat licenses and server capacity to accommodate virtualization
- Additional peripherals (mouse, keyboards) may be required, excluded from initial cost
- Measure required custom calculation

Total Quantity	196	computers
Peak Demand	18	kW
Electricity Savings	82,104	kWh/yr
Gas Savings	(1,599)	therms/yr
Utility Cost Savings	**$10,880**	**/yr**
Project Cost	**$75,460**	
Incentive	$7,615	
Net Simple Payback*	6.2	years
Approximate SIR	0.84	

* based on energy savings alone

Desktop Virtualization – Details by Campus

	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Chico High	94	8.46	39,377	(767)	$5,411	$36,190	$3,652	6.0
Pleasant Valley	102	9.18	42,728	(832)	$5,469	$39,270	$3,963	6.5
Total	**196**	**17.64**	**82,104**	**(1,599)**	**$10,880**	**$75,460**	**$7,615**	**6.2**

Window Replacement – Summary

SCOPE

Replace existing single pane windows at Chico Junior High School with high performance double pane windows.

ASSUMPTIONS AND CONSIDERATIONS

- New Title 24 impact incentives available
- Retrofit of fenestration typically expensive, but as part of new construction or major renovation, the incremental cost of upgrading window from 'standard' to 'high' efficiency is typically attractive
- Measure required custom calculation

Total Quantity	168	windows
Peak Demand	6	kW
Electricity Savings	11,659	kWh/yr
Gas Savings	323	therms/yr
Utility Cost Savings	**$2,423**	**/yr**
Project Cost	**$948,998**	
Incentive	$2,130	
Net Simple Payback*	390.7	years
Approximate SIR	0.35	

* based on energy savings alone

Window Replacement – Details by Campus

	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Chico Jr	168	5.8296	11,659	323	$2,423	$948,998	$2,130	390.7
Total	**168**	**5.8296**	**11,659**	**323**	**$2,423**	**$948,998**	**$2,130**	**390.7**

Solar – Summary

SCOPE

Implement solar photovoltaic installations identified in Phase 2-Solar Power Program, which includes shade structures at nine district sites.

ASSUMPTIONS AND CONSIDERATIONS

- Project cost includes Solar City construction cost and budget for soft costs.
- Reserved CSI Incentive incorporated into economics
- Measure covered by CEC Calculator
  - ➢ As a result, District savings may be different

Total Quantity	9	sites
Peak Demand	342	kW
Electricity Savings	2,049,979	kWh/yr
Gas Savings	-	therms/yr
Utility Cost Savings	**$421,819**	**/yr**
Project Cost	**$5,814,997**	
Incentive	$889,451	
Net Simple Payback*	11.7	years
Approximate SIR	1.23	

* based on energy savings alone

Solar – Details by Campus

	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Bidwell	1	74.7	448,111	-	$91,895	$1,168,828	$194,428	10.6
Chico Jr	1	31.8	190,576	-	$38,602	$533,089	$82,688	11.7
Emma Wilson	1	46.4	278,138	-	$55,842	$754,891	$120,679	11.4
Hooker Oak	1	26.6	159,672	-	$33,563	$535,506	$69,279	13.9
Marigold	1	29.2	175,124	-	$36,837	$516,344	$75,983	12.0
Neal Dow	1	30.9	185,425	-	$39,012	$522,886	$80,453	11.3
Parkview	1	33.5	200,877	-	$41,839	$619,613	$87,157	12.7
Rosedale	1	41.2	247,234	-	$50,392	$672,883	$107,270	11.2
Sierra View	1	27.5	164,822	-	$33,837	$490,956	$71,514	12.4
Total	**9**	**341.8**	**2,049,979**	**-**	**$421,819**	**$5,814,997**	**$889,451**	**11.7**

6. PROJECT LIST (PROP 39 EXPENDITURE PLAN)

Project prioritization

ARC Alternatives developed five feasible expenditure scenarios to utilize funding allocated by Prop 39, summarized below.

Scenario 1: Highest SIRs

Prop 39 funds can be allocated to cover the top 10 projects with the highest Savings to Investment Ratios (SIR) including two solar projects; however the allocation only covers half of the Neal Dow solar project.

	School Sites Included	Project Cost (x1000)	Scope
Exterior Lighting	0	$0	0 Fixtures
Interior Lighting	20	$252	791 Fixtures
Mechanical & Controls	19	$291	20 HVAC Units
Plug Load	0	$0	0 Computers
Envelope	0	$0	0 Windows
Solar	2	$1,692	435 kW Capacity

Scenario 1A: Highest SIRs (without solar)

An alternative option would be to exclude solar projects and instead allocate funding to cover the top 16 projects with the highest SIRs, yielding a deeper efficiency effort

	School Sites Included	Project Cost (x1000)	Scope
Exterior Lighting	18	$164	325 Fixtures
Interior Lighting	20	$291	1039 Fixtures
Mechanical & Controls	20	$2,977	268 HVAC Units
Plug Load	0	$0	0 Computers
Envelope	0	$0	0 Windows
Solar	0	$0	0 kW Capacity

Scenario 2: Master Plan Priorities

Aligns with the safety and security element of the District's Master Plan by focusing on exterior lighting by replacing existing CFLs

Additional funding will be allocated to:

- Projects which increase the SIRs of schools lying below the threshold which includes Interior Lighting, Heat Pumps, and Solar at Neal Dow
- Replacing the oldest HVAC units in the district

	School Sites Included	Project Cost (x1000)	Scope
Exterior Lighting	20	$273	600 Fixtures
Interior Lighting	20	$293	1072 Fixtures
Mechanical & Controls	13	$963	76 HVAC Units
Plug Load	0	$0	0 Computers
Envelope	0	$0	0 Windows
Solar	1	$523	127 kW Capacity

Project prioritization

Scenario 3: Benchmark Focus

- Addresses the top 10 sites with the highest kBTU/sf, excluding the Corp Yard
- Includes projects involving exterior and interior lighting, and mechanical and control systems, in addition to two partially funded solar projects
- Removes HVAC projects from sites with low overall SIRs, as well as EMS-related measures assuming they will be addressed in a future districtwide EMS project

	School Sites Included	Project Cost (x1000)	Scope
Exterior Lighting	10	$114	241 Fixtures
Interior Lighting	9	$144	529 Fixtures
Mechanical & Controls	8	$823	56 HVAC Units
Plug Load	0	$0	0 Computers
Envelope	0	$0	0 Windows
Solar	2	$1,685	428 kW Capacity

Scenario 4: Mechanical Systems Focus

- Involves projects renovating the districts aging mechanical systems including, but not limited to: heat pumps, split systems, package units, and the chiller project
- In addition to these renovations, additional funds will be allocated to the following projects:
  - Interior lighting- low cost, high SIR
  - Split systems, and then package units if still needed, scaled back at sites still not meeting threshold
  - Exterior lighting where it can be accommodated while still meeting the SR requirement

	School Sites Included	Project Cost (x1000)	Scope
Exterior Lighting	10	$120	220 Fixtures
Interior Lighting	14	$178	483 Fixtures
Mechanical & Controls	15	$1,856	160 HVAC Units
Plug Load	0	$0	0 Computers
Envelope	0	$0	0 Windows
Solar	0	$0	0 kW Capacity

Scenario 5: Solar Focus

- Prop 39 funds can be allocated to implement a solar program for four sites which will be selected on the basis of their SIRs and their costs matching available funding
- This plan will require additional approval from the CEC, but we it believe holds a strong argument and, if selected, will reduce the financing required to implement the program

	School Sites Included	Project Cost (x1000)	Scope
Exterior Lighting	0	$0	0 Fixtures
Interior Lighting	0	$0	0 Fixtures
Mechanical & Controls	0	$0	0 HVAC Units
Plug Load	0	$0	0 Computers
Envelope	0	$0	0 Windows
Solar	4	$2,063	492 kW Capacity

With District collaboration, selected Scenario 2 for development of the Energy Expenditure Plan, which was submitted to the CEC July 23, 2014 for approval

Prop 39 Expenditure Plan

Recommended Option: Scenario 2 – Master Plan Priorities

- Desktop virtualization was considered as a minor modification, but ultimately the maintenance savings associated with the rooftop unit measures that would have been removed proved more valuable in a life cycle cost analysis.
- In collaboration with the District, the scenario was divided up into a phased implementation with the solar and exterior lighting measures driving the first two years' schedule followed by mechanical measures.
- One exception was to prioritize Chico Junior High mechanical for the 2015 summer construction window. A few other campuses were added for economy of scale in developing a competitive bid package.
- The resulting phased plan is shown on the next page
- By campus summaries are on the slides following the phased plan, showing details by campus by measure categories, and implementation years with the associated economics.

Expenditure Plan Considerations

- Current available incentives considered
  - New Title 24 in effect, will limit incentives and/or make approval difficult for controls and lighting in Customized program
  - Customized incentive requirements have tightened recently due to CPUC Energy Division guidance, additional engineering may be required for incentive submittal under customized programs.
  - As result, "best value" criteria used – simplicity of Express Rebates considered if incentive level similar to Customized incentive
  - Incentives subject to change over 5 year period of performance, therefor total project cost (excluding incentives), used from Prop 39 Funds Requested (Anticipate needing to change based on CEC clarification on August 1, 2014)
  - Would allows District flexibility in use of incentives/rebates received
- Project costs have been developed to be conservative based on a combination of RS Means costs, past project experience and quotes for select material (LED lights, heat pump). Project costs all assume 10, 15 or 20% (depending on complexity) additional costs for soft costs and contingency.
- Slight differences in project costs may be observed from past reports as additional refinements were made in the filing of the expenditure plan.

Option 2 – construction phasing and finance plan

Proposition 39 Expenditure Plan Summary

Site	Project Scope and Construction Timing																				Planned Prop 39 Allocations by Fiscal Year					
	2014	2015					2016					2017					2018					13-14	14-15	15-16	16-17	17-18	Total
		EL	IL	M	S	D	EL	IL	M	S	D	EL	IL	M	S	D	EL	IL	M	S	D						
High Schools	No Construction Planned for 2014																										
Chico High							X	X											X					$ 75,505		$ 60,203	$ 135,708
Fairview							X	X											X					$ 9,508		$ 53,199	$ 62,707
Pleasant Valley							X	X											X					$ 45,190		$ 47,534	$ 92,724
Junior High Schools																											
Bidwell		X	X	X																			$ 34,415				$ 34,415
Chico Jr		X	X	X																			$ 142,360				$ 142,360
Marsh							X	X																$ 33,244			$ 33,244
Elementary Schools																											
Chapman							X	X											X					$ 22,379		$ 135,287	$ 157,666
Citrus		X	X	X																			$ 73,225				$ 73,225
Emma Wilson		X	X											X									$ 11,236		$ 155,354		$ 166,590
Hooker Oak		X	X											X									$ 10,992		$ 10,640		$ 21,632
Little Chico Creek							X	X						X										$ 48,091	$ 243,750		$ 291,841
Loma Vista							X	X																$ 37,392			$ 37,392
Marigold							X	X											X					$ 37,894		$ 25,000	$ 62,894
McManus							X	X											X					$ 18,919		$ 12,500	$ 31,419
Neal Dow					X		X	X						X								$ 381,062	$ 141,824	$ 25,644	$ 10,640		$ 559,170
Parkview							X	X						X										$ 40,398	$ 20,068		$ 60,466
Rosedale							X	X											X					$ 28,210		$ 101,550	$ 129,760
Shasta							X	X																$ 19,679			$ 19,679
Sierra View		X	X																				$ 18,107				$ 18,107
Other																											
D.O.							X	X																$ 7,251			$ 7,251
																						$ 381,062	**$ 432,159**	**$ 449,304**	**$ 440,452**	**$ 435,273**	**$ 2,138,250**

Expenditure Plan Summary – Savings Estimates

Expenditure Plan Summary - Districtwide

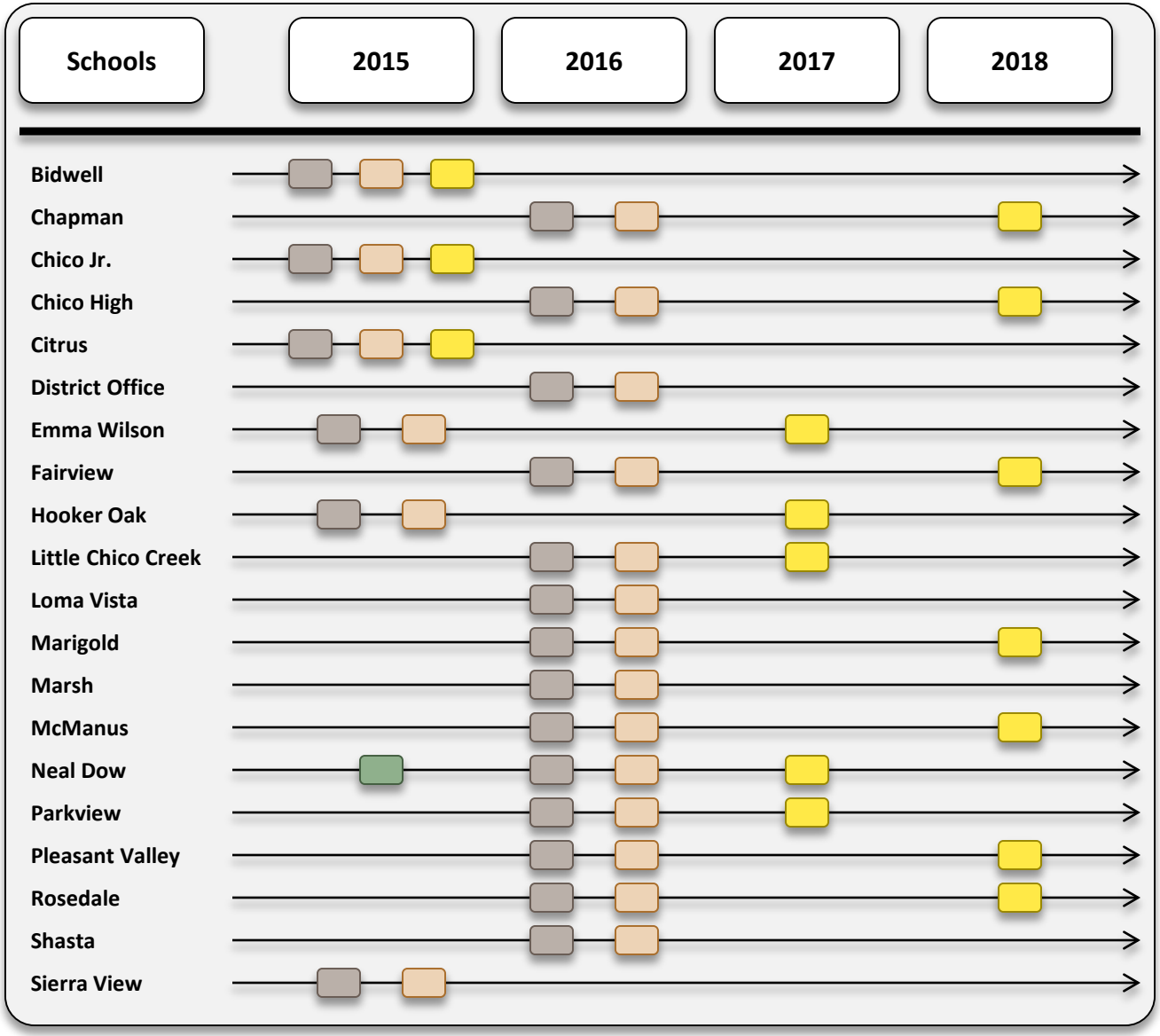
Measure Category	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Solar	1	30.9	185,425	-	$39,012	$522,886	$80,453	11.3
Exterior Lighting	540	-	62,625	-	$11,280	$251,248	$21,545	20.4
Interior Lighting	1,004	75.0	266,534	(1,204)	$45,092	$295,281	$16,473	6.2
Mechanical	88	75.3	290,304	-	$52,362	$1,068,833	$7,401	20.3
Total		**181.2**	**804,889**	**(1,204)**	**$147,746**	**$2,138,248**	**$125,872**	**13.6**

7. IMPLEMENTATION PLAN

Phasing and timing considerations

- Sequencing of projects considers several factors
  - Limiting construction activities to the summer when school is not in session
  - Timing of campus construction projects, as identified in the Facilities Master Plan
  - Packaging similar energy efficiency measures into projects that can be successfully put out to bid
  - Availability of financing
- Implementation plan also considers District plans to install solar in the summer of 2015

Construction schedule overview



Exterior Lighting

Interior Lighting

Mechanical

Solar

Construction schedule by measure

Schools	Exterior Lighting	Interior Lighting	Mechanical	Solar
Bidwell	2015	2015	2015	
Chapman	2016	2016	2018	
Chico Jr.	2015	2015	2015	
Chico High	2016	2016	2018	
Citrus	2015	2015	2015	
District Office	2016	2016		
Emma Wilson	2015	2015	2017	
Fairview	2016	2016	2018	
Hooker Oak	2015	2015	2017	
Little Chico Creek	2016	2016	2017	
Loma Vista	2016	2016		
Marigold	2016	2016	2018	
Marsh	2016	2016		
McManus	2016	2016	2018	
Neal Dow	2016	2016	2017	2015
Parkview	2016	2016	2017	
Pleasant Valley	2016	2016	2018	
Rosedale	2016	2016	2018	
Shasta	2016	2016		
Sierra View	2015	2015		

Procurement options

Considerations

- Type of work
- Size of potential contract or contracts
- Industry competitiveness
- Defensibility
- Consistency with codes and regulations, and in particular Prop 39 requirements
- Trade-offs between desired outcomes and difficulty (administrative burden) of process
- Competitive GC 4217 and design-build approaches used successfully by District for solar projects

Contracting Options

- Informal Bid Process (under Uniform Building Construction Act)
- Lease-Leaseback (under California's Ed Code section 17406)
- Performance and energy services contract (ESCO)
- Design-build
- Design-Bid-Build

Sole Source Solicitation

- Can be done under Government Code 4217 or lease-leaseback
- GC 4217 allows school districts and other public agencies to enter into energy-related contracts without a competitive solicitation if the savings from the project are greater than the costs
- Lease-leaseback must provide for the construction of a building or an improvement on District property
- Prop 39 requires competitive solicitations, so this option is only available to projects not using this funding source
- Sole source contracts also can present legal and political challenges

Best Value Competitive Solicitation

- A school district may conduct a competitive solicitation utilizing the flexibility provided by GC 4217 or under a lease-leaseback
- This approach permits selection based on "best value," use of RFPs for construction and services contracts, and use of design-build contracting methodology
- Most appropriate for large, complex projects or projects where lowest price is not the only determinant of project success

Low Bid Solicitation

- Process fully compliant with the public contract code and can include the informal bid process
- Familiar to most District staff, as it is used for the majority of construction work performed in the State
- Less flexible than other methods
- Requires more detailed specifications
- Most appropriate for simpler construction projects and equipment purchases

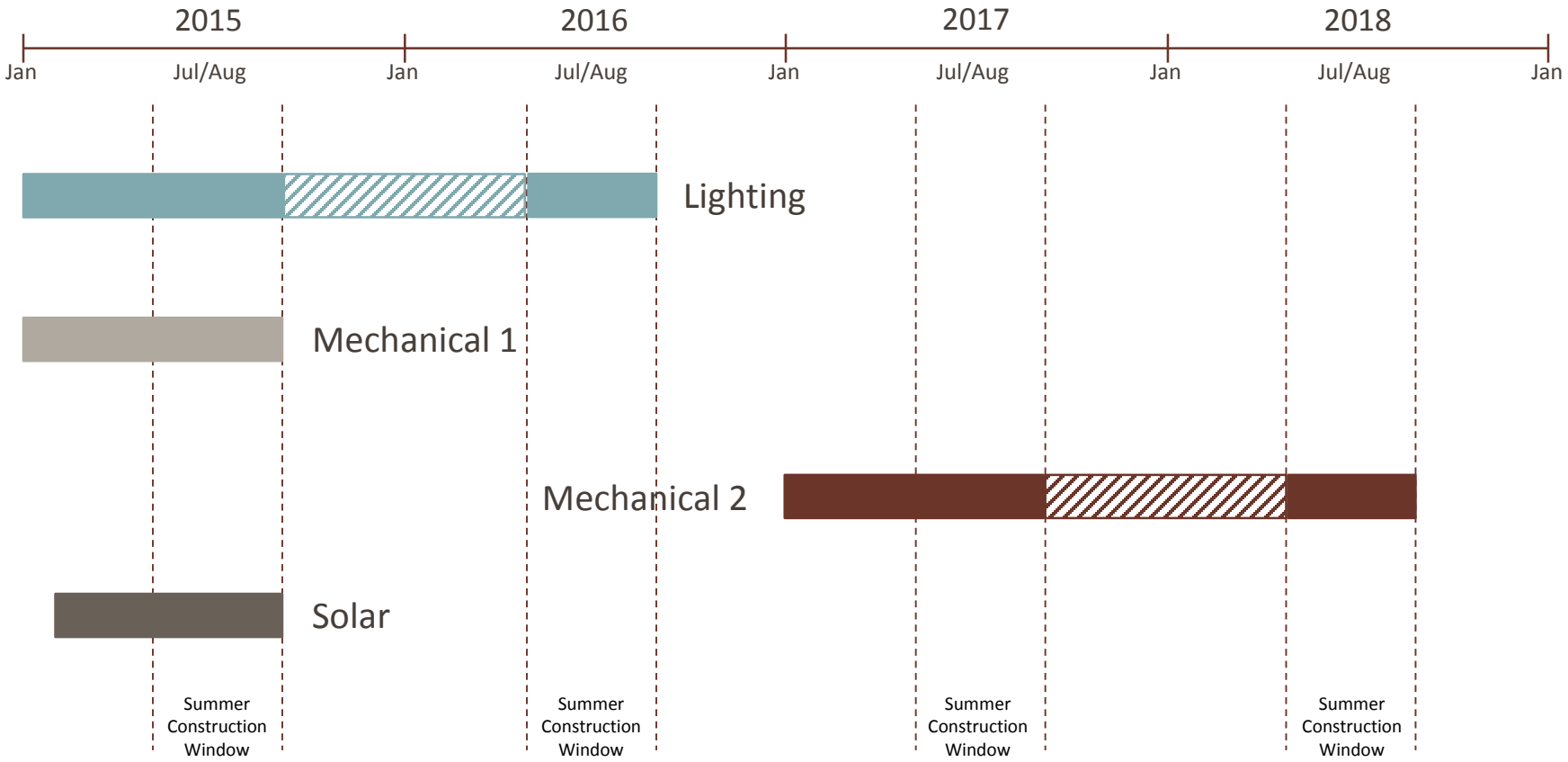
Proposed procurement approach

Use Best Value Selection Where Possible to Balance Quality and Price

- Contracting
  - Award separate contracts for specific bid packages, as defined in the following pages
  - We do not recommend utilizing a large energy services contract (ESCO), which would cost more due to project management overhead
  - CUSD has capable project management and delivery team – can do with work with targeted technical assistance more cost effectively than outsourcing to one implementer
- Best value solicitation using GC 4217
  - Contract vehicle can leverage work done in solar program
  - Technical specifications largely performance based
  - Contract can be either design-build or a more standard construction contract, depending on the type of project
  - Appropriate for following measures identified in the Expenditure Plan: Lighting, Controls and Solar (vendor already selected)
- Mechanical systems
  - Currently considering best value/design-build and two-step process
  - Approach to be finalized after additional discussions with CUSD Facilities staff
- Procurement sequencing
  - Dependent on construction schedule
  - Requires sufficient lead time to position for summer construction window
- Maintain flexibility
  - District may also utilize informal bid process, lease-leaseback, or other approaches depending on project size, complexity, and other considerations

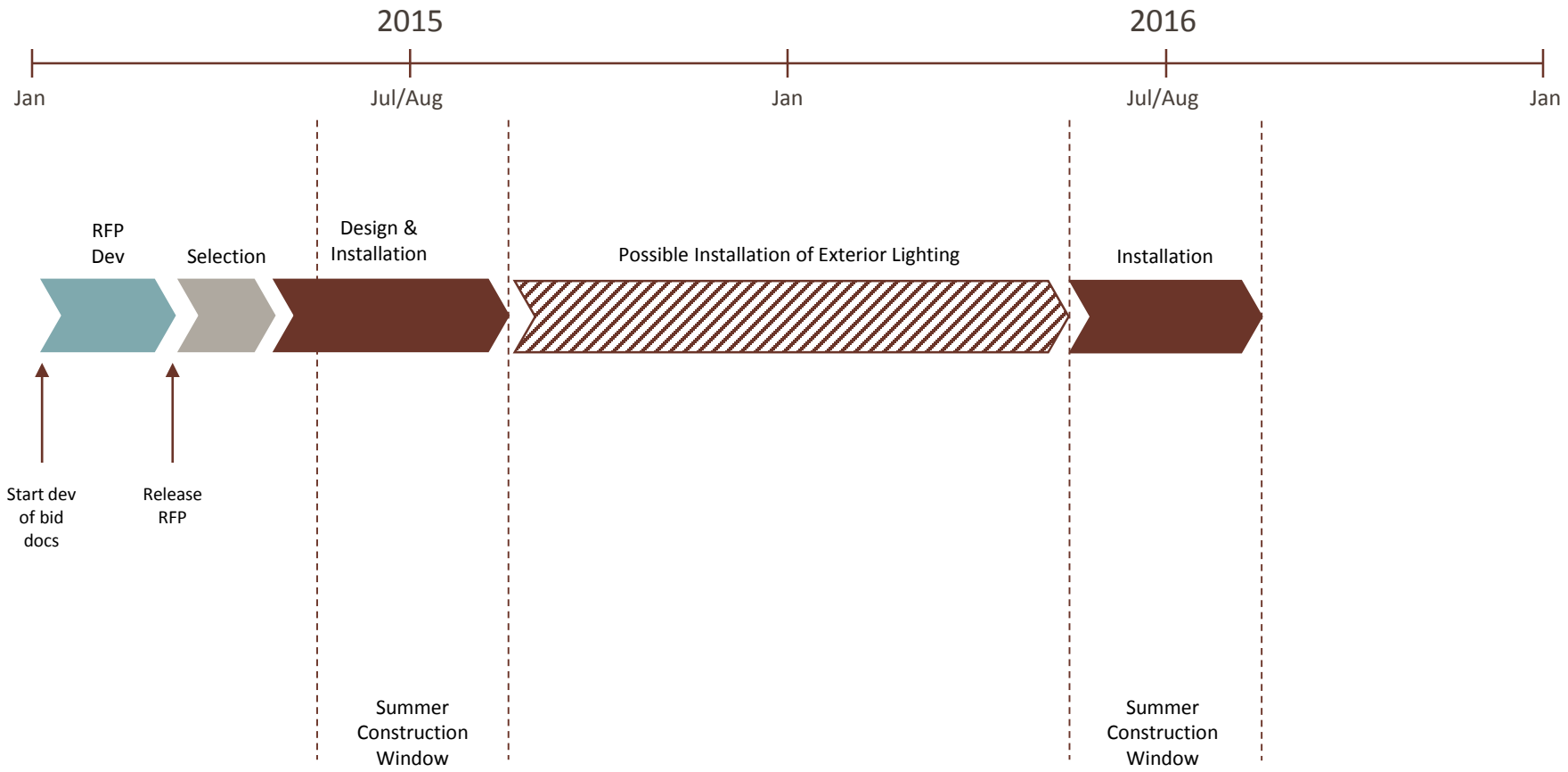
Overall schedule by bid package

ARC Alternatives recommends CUSD create a set of discrete “bid packages” grouping together similar measures with consideration for procurement methodology and construction timing.



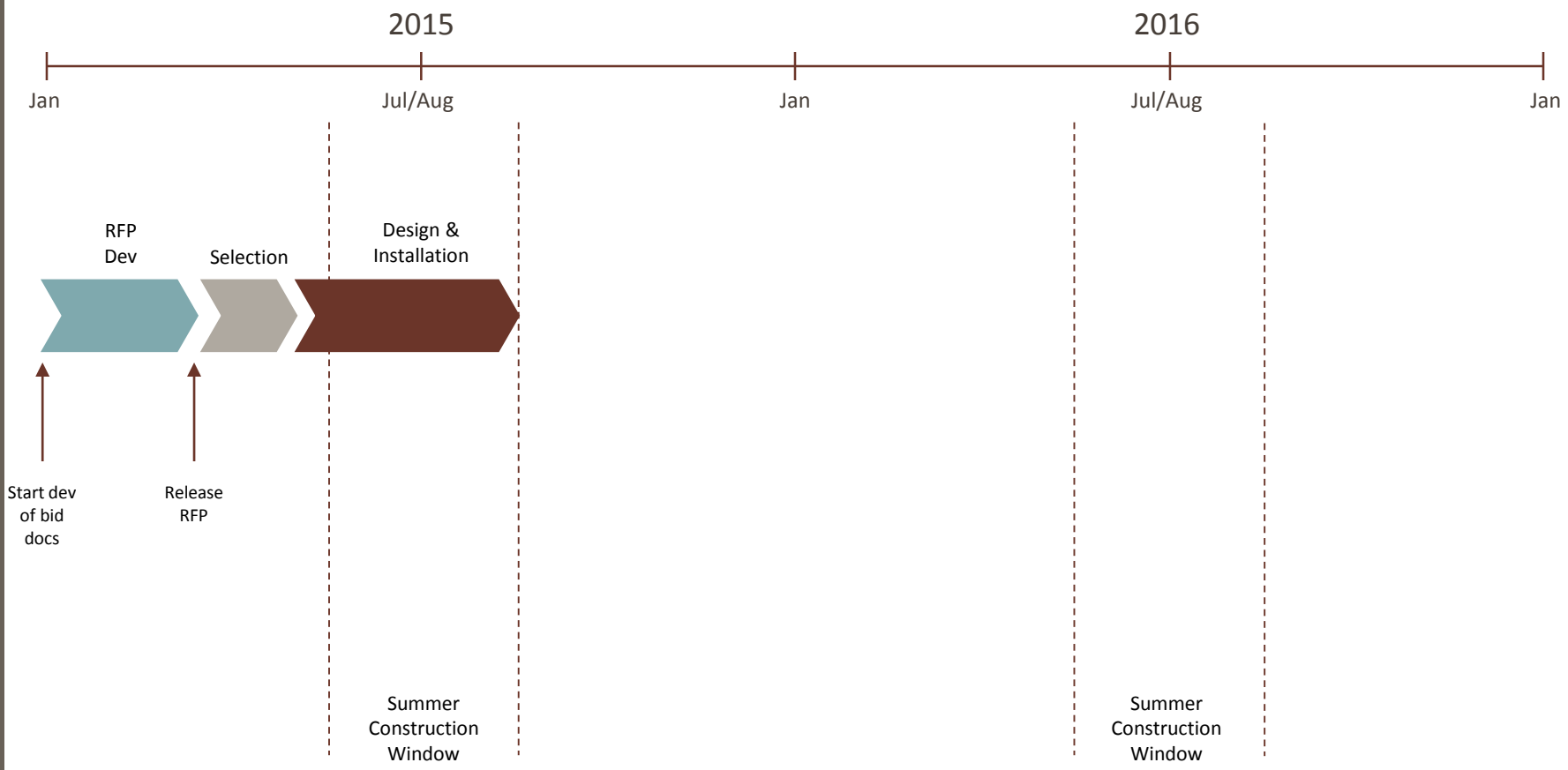
In order to begin installation on June 5, 2015, the District needs to develop bid documents for lighting projects and mechanical systems in the first quarter. Work on the mechanical scope and specifications may have to begin earlier than the lighting scope and specifications depending on the procurement methodology.

Lighting package schedule



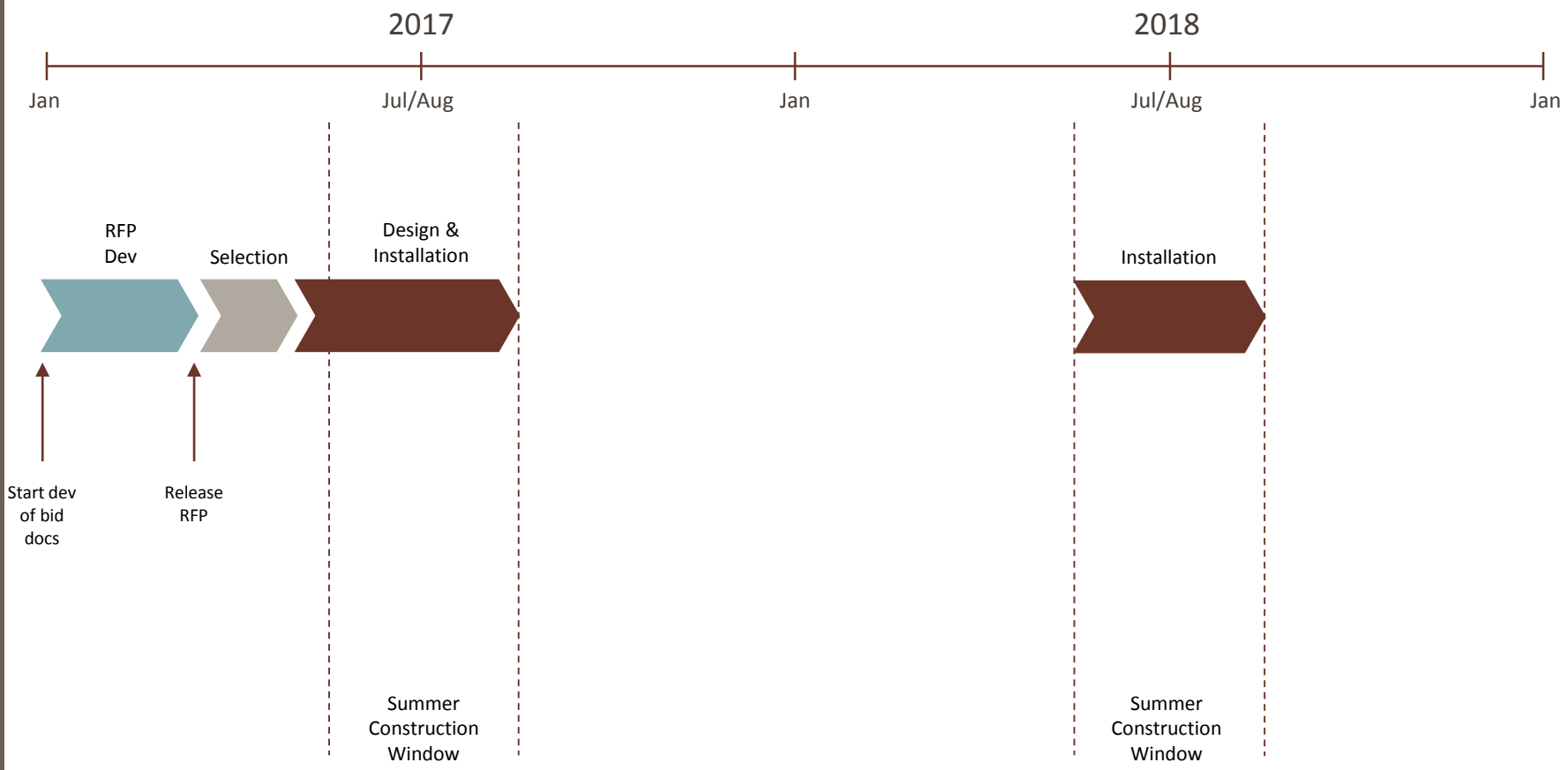
RFP development needs to allow sufficient time to allow the selected vendor to confirm existing conditions (including fixture counts) prior to beginning installation. The proposed plan calls for installations to occur during the summers of 2015 and 2016, with possible installation of exterior lighting measures during the school year, if the District and selected vendor agree it would be advantageous to do so.

Mechanical 1 package schedule



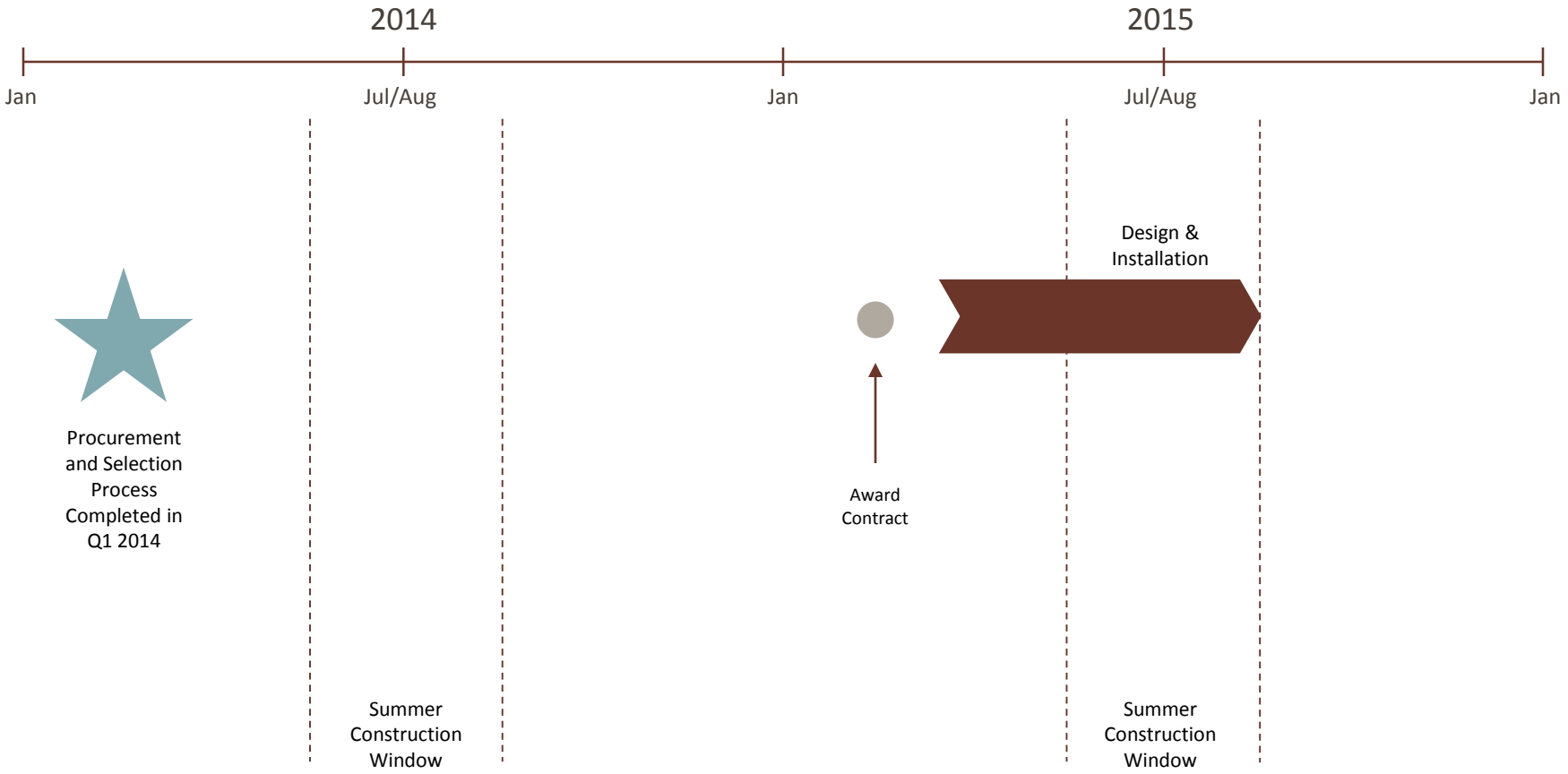
Like with the lighting project, RFP development begins in late 2014 or early 2015. Given the nature of the work and the potential use of a design-build contract, the selected vendor needs time prior to the summer construction window to finalize the design and order equipment. This activity could be an appropriate use of Bright Schools resources. The Mechanical 1 bid package includes construction only during the summer of 2015.

Mechanical 2 package schedule



RFP development is similar to the Mechanical 1 package, occurring a year later. The Mechanical 2 bid package includes a significantly larger scope than Mechanical 1 and will occur over two consecutive summers in 2017 and 2018.

Solar project schedule



The solar project went through contractor selection and contract negotiations in 2013 and 2014. Current plans call for the project to be installed by SolarCity in the summer of 2015, which would require the contract to be executed in Q1 2015 so design and DSA approval could take place in time to begin construction as close to June 5, 2015 as possible.

Program financing

Current Financing

This report focuses on Proposition 39 financing and presents a package of projects, with the exception of solar, that need no additional funding sources.

The Proposition 39 component of the program is planned to be cash flow neutral, with revenue allocated to the District prior to funds being spent. This is shown on the following two pages.

It is worth noting that we identified applicable utility incentives for all eligible projects, but did not include this revenue in the final project cost estimates submitted to the CEC. We excluded incentive revenue from the submitted Expenditure Plan for two reasons: (1) to present conservative cost estimates and (2) incentive eligibility and rates are likely to change, at least for some measures, in the five year time horizon of the Expenditure Plan. This raises the possibility that the District may have funding for additional projects in later plan years.

We will work with the District to determine actual funding availability once the projects are bid and actual costs and incentives are known.

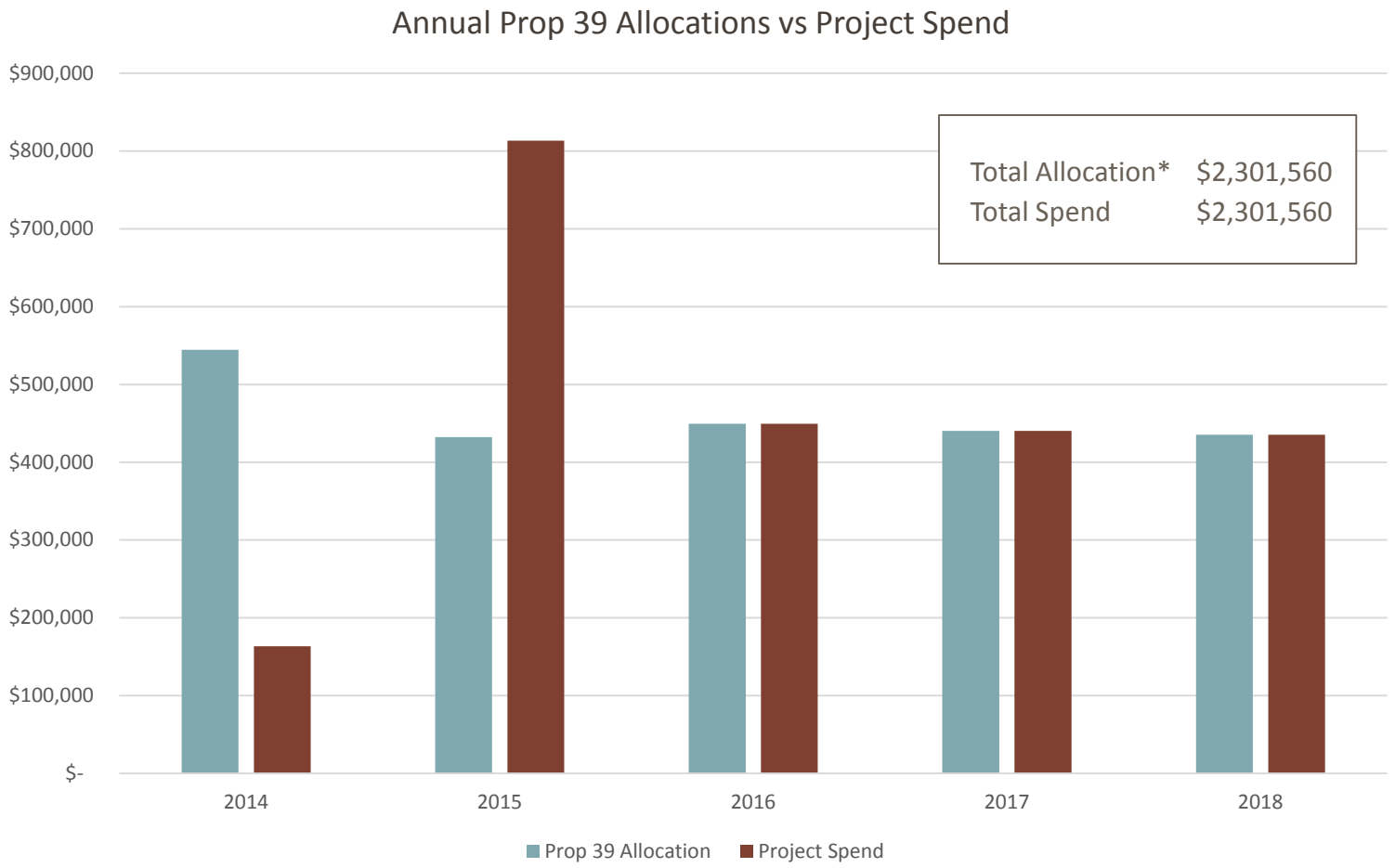
Future Opportunities

We understand the District has been approved for a CEC zero interest loan in the amount of $3 million for the solar project. Combined with the $522,886 set aside for solar at Neal Dow in the Prop 39 Expenditure Plan, this leaves the District with a shortfall of $2.3 million to fully fund the solar project.

Previously, funding sources such as COPs and QZABs were discussed with the District's Financial Advisor, Government Financial Strategies, Inc. Other than QZABs, we are not aware of other publicly subsidized financing programs of which the District can take advantage. However, innovation continues apace in the private equity markets. In addition to traditional PPA financing, some solar providers are offering financing based on collateralized debt, pre-paid PPAs, and leases that might be used to close the funding gap. It would be worth exploring these ideas with SolarCity prior to finalizing the contract, as they are one of the strongest innovators in solar financing.

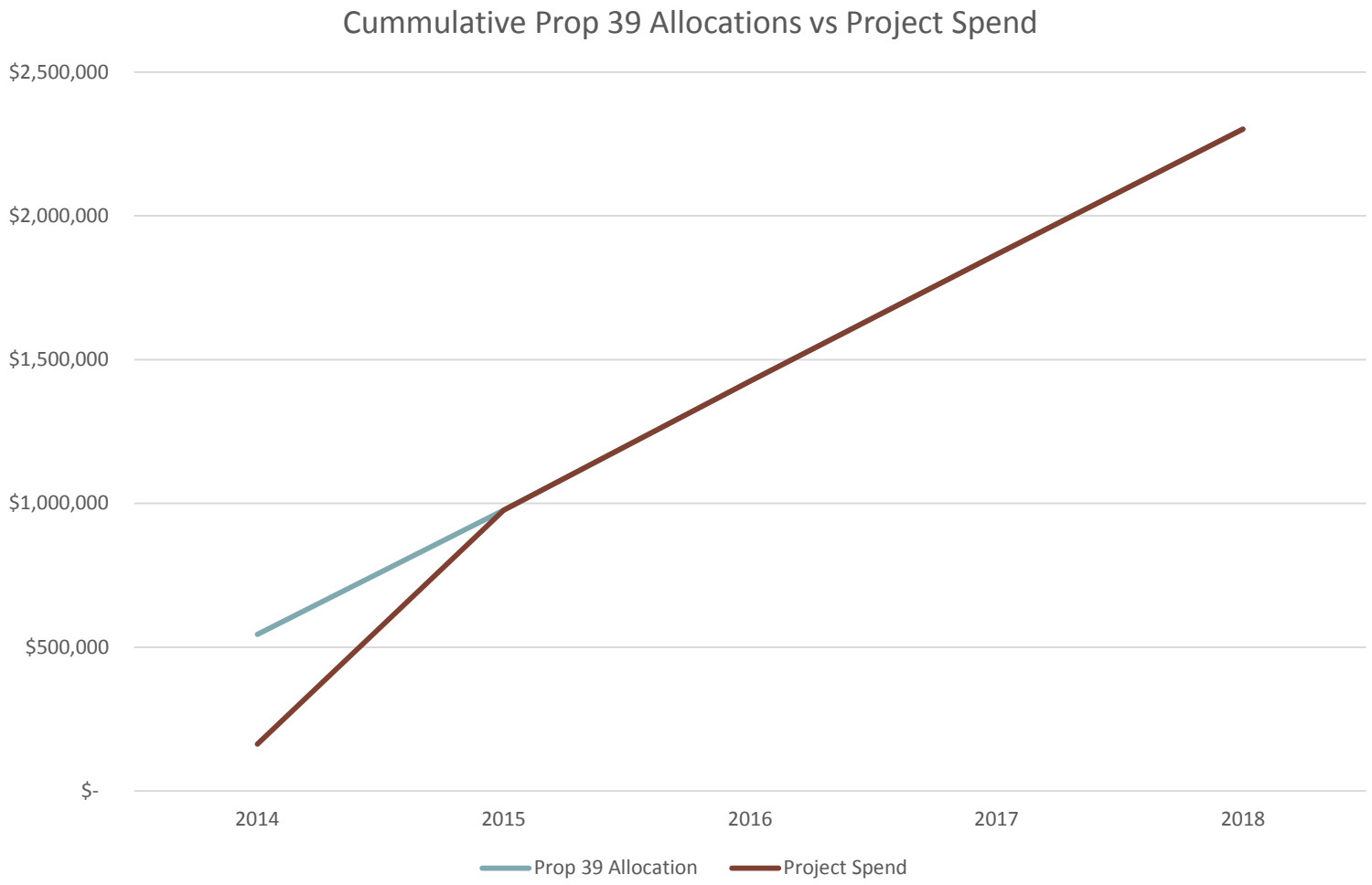
Even assuming a fully-funded solar project, ARC Alternatives identified more energy projects than available funding ($12 million in projects versus $2.1 million in Prop 39 funding). The District might also consider use of developer fees and bond proceeds to implement additional energy projects, depending on priorities for use of the funds and how the energy projects in question relate to future phases of facilities work as defined in the Facilities Master Plan. The District is considering a General Obligation bond for the November 2016 ballot and could consider including energy projects as a potential use of those funds.

Prop 39 allocations and project spending



* Total allocation and spend of $2,301,560 includes $163,312 in planning funds spent in 2014. Prop 39 totals on Slides 50 and 51 exclude these planning funds.

Prop 39 allocations and project spending



8. CONCLUSION

Summary and next steps

In Conclusion

- Prop 39 Expenditure Plan submitted to CEC and approved in October 2014
- ARC Alternatives identified approximately $12 million in energy projects
- There was not sufficient Prop 39 funding to implement all projects identified
- We developed an implementation plan to focus on the summer construction window each year and that is cash flow neutral
- We propose dividing the Prop 39 implementation program into bid packages to maximize competition and reduce District costs

Next Steps

- Provide feedback on the Strategic Energy Plan, particularly the implementation and financing sections
- Consider adopting an energy policy to help guide future facilities investments
- Communicate energy plans to the Board once finalized
- Prepare to begin implementation efforts in late 2014/Q1 2015 in order to meet the summer construction window

APPENDICES

A Prop 39 Expenditure Plan by School
B Prop 39 Project Details by Year

Expenditure Plan summary – high schools

Expenditure Plan Summary - Chico High

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2016	64	-	4,337	-	$673	$32,834	$2,480	45.1
Interior Lighting	2016	122	12.8	41,003	(169)	$6,210	$42,671	$4,000	6.2
Mechanical	2018	6	4.3	15,270	-	$2,370	$60,203	$0	25.4
Total			**17.1**	**60,610**	**(169)**	**$9,253**	**$135,708**	**$6,480**	**14.0**

Expenditure Plan Summary - Pleasant Valley

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2016	38	-	1,954	-	$282	$13,795	$720	46.3
Interior Lighting	2016	85	10.5	31,449	(107)	$4,451	$31,395	$2,720	6.4
Mechanical	2018	4	2.9	10,090	-	$1,457	$47,534	$0	32.6
Total			**13.4**	**43,494**	**(107)**	**$6,190**	**$92,724**	**$3,440**	**14.4**

Expenditure Plan summary – alternative high school & DO

Expenditure Plan Summary - Fairview

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2016	8	-	1,054	-	$197	$3,760	$480	16.7
Interior Lighting	2016	24	1.5	7,526	(49)	$1,355	$5,748	$0	4.2
Mechanical	2018	5	3.2	18,325	-	$3,417	$53,199	$0	15.6
Total			**4.7**	**26,906**	**(49)**	**$4,969**	**$62,707**	**$480**	**12.5**

Chico Unified School District

Expenditure Plan Summary - District Office

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2016	12	-	914	-	$177	$4,998	$360	26.3
Interior Lighting	2016	14	0.9	4,390	(29)	$819	$2,253	$0	2.8
Total			**0.9**	**5,304**	**(29)**	**$996**	**$7,251**	**$360**	**6.9**

arc ALTERNATIVES

Expenditure Plan summary – junior high schools

Expenditure Plan Summary - Bidwell

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2015	14	-	1,558	-	$285	$6,282	$490	20.3
Interior Lighting	2015	51	2.1	11,700	(77)	$2,069	$15,633	$50	7.5
Mechanical	2015	1	0.7	2,515	-	$460	$12,500	$0	27.1
Total			**2.8**	**15,773**	**(77)**	**$2,815**	**$34,415**	**$540**	**12.0**

Expenditure Plan Summary - Chico Jr

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2015	14	-	1,296	-	$235	$6,282	$330	25.3
Interior Lighting	2015	22	6.3	13,408	(10)	$2,421	$15,673	$2,227	5.6
Mechanical	2015	12	8.6	30,540	-	$5,535	$120,405	$0	21.8
Total			**15.0**	**45,244**	**(10)**	**$8,190**	**$142,360**	**$2,557**	**17.1**

Expenditure Plan summary – junior high schools

Expenditure Plan Summary - Marsh

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2016	16	-	328	-	$48	$5,809	$0	121.6
Interior Lighting	2016	42	10.1	22,533	(28)	$3,255	$27,435	$3,315	7.4
Total			**10.1**	**22,861**	**(28)**	**$3,303**	**$33,244**	**$3,315**	**9.1**

Expenditure Plan summary – elementary schools

CHAPMAN ELEMENTARY SCHOOL

Expenditure Plan Summary - Chapman

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2016	21	-	8,536	-	$1,422	$18,423	$2,370	11.3
Interior Lighting	2016	16	1.0	5,018	(33)	$802	$3,956	$0	4.9
Mechanical	2018	13	8.7	42,045	-	$7,003	$135,287	$0	19.3
Total			**9.7**	**55,598**	**(33)**	**$9,227**	**$157,666**	**$2,370**	**16.8**

CITRUS ELEMENTARY SCHOOL

Expenditure Plan Summary - Citrus

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2015	8	-	759	-	$147	$3,225	$340	19.7
Interior Lighting	2015	33	1.1	7,351	(45)	$1,373	$9,797	$96	7.1
Mechanical	2015	6	4.3	15,270	-	$2,947	$60,203	$0	20.4
Total			**5.4**	**23,380**	**(45)**	**$4,467**	**$73,225**	**$436**	**16.3**

arc ALTERNATIVES

Expenditure Plan summary – elementary schools

EMMA WILSON ELEMENTARY SCHOOL

Expenditure Plan Summary - Emma Wilson

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2015	10	-	4,599	-	$826	$9,630	$1,250	10.1
Interior Lighting	2015	8	0.5	2,509	(16)	$434	$1,606	$0	3.7
Mechanical	2017	15	10.2	47,135	-	$8,463	$155,354	$0	18.4
Total			**10.6**	**54,243**	**(16)**	**$9,722**	**$166,590**	**$1,250**	**17.0**

Hooker Oak
K-8 Open Structured Classroom

Expenditure Plan Summary - Hooker Oak

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2015	21	-	822	-	$156	$7,624	$240	47.4
Interior Lighting	2015	14	0.9	4,390	(29)	$804	$3,368	$0	4.2
Mechanical	2017	1	0.6	3,665	-	$695	$10,640	$0	15.3
Total			**1.5**	**8,878**	**(29)**	**$1,655**	**$21,632**	**$240**	**12.9**

arc ALTERNATIVES

Expenditure Plan summary – elementary schools

LITTLE CHICO CREEK ELEMENTARY SCHOOL

Expenditure Plan Summary - Little Chico Creek

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2016	46	-	6,191	-	$1,201	$20,298	$2,350	15.0
Interior Lighting	2016	68	8.7	23,657	(70)	$4,517	$27,793	$3,400	5.4
Mechanical	2017	9	20.4	61,459	-	$11,917	$243,750	$7,401	19.8
Total			**29.1**	**91,308**	**(70)**	**$17,634**	**$291,841**	**$13,151**	**15.8**

LOMA VISTA ELEMENTARY SCHOOL

Expenditure Plan Summary - Loma Vista

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2016	40	-	1,473	-	$277	$14,521	$400	51.0
Interior Lighting	2016	89	3.0	20,416	(127)	$3,713	$22,871	$240	6.1
Total			**3.0**	**21,889**	**(127)**	**$3,990**	**$37,392**	**$640**	**9.2**

arc ALTERNATIVES

Expenditure Plan summary – elementary schools

MARIGOLD ELEMENTARY SCHOOL

Expenditure Plan Summary - Marigold

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2016	45	-	5,470	-	$1,031	$19,335	$2,065	16.8
Interior Lighting	2016	156	3.8	12,795	(58)	$2,354	$18,559	$256	7.8
Mechanical	2018	2	1.4	5,030	-	$948	$25,000	$0	26.4
Total			**5.2**	**23,295**	**(58)**	**$4,333**	**$62,894**	**$2,321**	**14.0**

McMANUS ELEMENTARY SCHOOL

Expenditure Plan Summary - McManus

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2016	17	-	4,938	-	$904	$12,171	$1,370	11.9
Interior Lighting	2016	26	1.5	7,902	(52)	$1,397	$6,748	$1	4.8
Mechanical	2018	1	0.7	2,515	-	$461	$12,500	$0	27.1
Total			**2.2**	**15,355**	**(52)**	**$2,762**	**$31,419**	**$1,371**	**10.9**

Expenditure Plan summary – elementary schools

NEAL DOW ELEMENTARY SCHOOL

Expenditure Plan Summary - Neal Dow

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Solar	2015	1	30.9	185,425	-	$39,012	$522,886	$80,453	11.3
Exterior Lighting	2016	36	-	738	-	$139	$13,070	$0	94.0
Interior Lighting	2016	66	3.2	10,956	(49)	$2,015	$12,572	$48	6.2
Mechanical	2017	1	0.6	3,665	-	$690	$10,640	$0	15.4
Total			**34.8**	**200,784**	**(49)**	**$41,857**	**$559,168**	**$80,501**	**11.4**

PARKVIEW ELEMENTARY SCHOOL

Expenditure Plan Summary - Parkview

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2016	40	-	3,432	-	$641	$14,520	$1,600	20.1
Interior Lighting	2016	84	2.1	13,187	(83)	$2,381	$25,878	$120	10.8
Mechanical	2017	2	1.4	5,090	-	$951	$20,068	$0	21.1
Total			**3.6**	**21,709**	**(83)**	**$3,974**	**$60,466**	**$1,720**	**14.8**

arc ALTERNATIVES

Expenditure Plan summary – elementary schools

ROSEDALE ELEMENTARY SCHOOL

Expenditure Plan Summary - Rosedale

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2016	38	-	7,750	-	$1,413	$20,994	$2,540	13.1
Interior Lighting	2016	29	1.8	9,094	(60)	$1,597	$7,216	$0	4.5
Mechanical	2018	10	7.0	27,690	-	$5,048	$101,550	$0	20.1
Total			**8.8**	**44,534**	**(60)**	**$8,058**	**$129,760**	**$2,540**	**15.8**

SHASTA ELEMENTARY SCHOOL

Expenditure Plan Summary - Shasta

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2016	22	-	4,880	-	$934	$12,786	$1,560	12.0
Interior Lighting	2016	26	1.6	8,154	(54)	$1,507	$6,893	$0	4.6
Total			**1.6**	**13,034**	**(54)**	**$2,440**	**$19,679**	**$1,560**	**7.4**

Expenditure Plan summary – elementary schools

Expenditure Plan Summary - Sierra View

Measure Category	Year	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
			Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting	2015	30	-	1,595	-	$294	$10,891	$600	35.0
Interior Lighting	2015	29	1.8	9,094	(60)	$1,616	$7,216	$0	4.5
Total			**1.8**	**10,689**	**(60)**	**$1,910**	**$18,107**	**$600**	**9.2**

Detail by year – 2015 construction

Measure/School	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting								
Bidwell	14	-	1,558	-	$285	$6,282	$490	20.3
Chico Jr	14	-	1,296	-	$235	$6,282	$330	25.3
Citrus	8	-	759	-	$147	$3,225	$340	19.7
Emma Wilson	10	-	4,599	-	$826	$9,630	$1,250	10.1
Hooker Oak	21	-	822	-	$156	$7,624	$240	47.4
Sierra View	30	-	1,595	-	$294	$10,891	$600	35.0
Subtotal	97	-	10,629	-	$1,942	$43,934	$3,250	21.0
Interior Lighting								
Bidwell	51	2.1	11,700	(77)	$2,069	$15,633	$50	7.5
Chico Jr	21	6.3	13,408	(10)	$2,421	$15,673	$2,227	5.6
Citrus	33	1.1	7,351	(45)	$1,373	$9,797	$96	7.1
Emma Wilson	8	0.5	2,509	(16)	$434	$1,606	$0	3.7
Hooker Oak	14	0.9	4,390	(29)	$804	$3,368	$0	4.2
Sierra View	29	1.8	9,094	(60)	$1,616	$7,216	$0	4.5
Subtotal	156	12.6	48,453	(237)	$8,718	$53,293	$2,373	5.8
Mechanical								
Bidwell	1	0.7	2,670	(30)	$460	$12,500	$0	27.2
Chico Jr	12	8.6	32,040	(364)	$5,457	$120,405	$0	22.1
Citrus	6	4.3	16,020	(182)	$2,910	$60,203	$0	20.7
Subtotal	19	13.7	50,730	(576)	$8,827	$193,108	$0	21.9
Solar								
Neal Dow	1	30.9	185,425	-	$39,012	$522,886	$80,453	11.3
Subtotal	1	30.9	185,425	-	$39,012	$522,886	$80,453	11.3
Total		**57.1**	**295,237**	**(813)**	**$58,499**	**$813,221**	**$86,076**	**12.4**

Detail by year – 2016 construction (1 of 2)

Measure/School	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting								
Chico High	64	-	4,337	-	$673	$32,834	$2,480	45.1
Fairview	8	-	1,054	-	$197	$3,760	$480	16.7
Pleasant Valley	38	-	1,954	-	$282	$13,795	$720	46.3
Marsh	16	-	328	-	$48	$5,809	$0	121.6
Chapman	21	-	8,536	-	$1,422	$18,423	$2,370	11.3
Little Chico Creek	46	-	6,191	-	$1,201	$20,298	$2,350	15.0
Loma Vista	40	-	1,473	-	$277	$14,521	$400	51.0
Marigold	45	-	5,470	-	$1,031	$19,335	$2,065	16.8
McManus	17	-	4,938	-	$904	$12,171	$1,370	11.9
Neal Dow	36	-	738	-	$139	$13,070	$0	94.0
Parkview	40	-	3,432	-	$641	$14,520	$1,600	20.1
Rosedale	38	-	7,750	-	$1,413	$20,994	$2,540	13.1
Shasta	22	-	4,880	-	$934	$12,786	$1,560	12.0
District Office	12	-	914	-	$177	$4,998	$360	26.3
Subtotal	443	-	51,996	-	$9,338	$207,314	$18,295	20.2
Interior Lighting								
Total		**62.4**	**270,078**	**(967)**	**$45,712**	**$449,302**	**$32,395**	**9.1**

Detail by year – 2016 construction (2 of 2)

Measure/School	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Exterior Lighting								
Interior Lighting								
Chico High	122	12.8	41,003	(169)	$6,210	$42,671	$4,000	6.2
Fairview	24	1.5	7,526	(49)	$1,355	$5,748	$0	4.2
Pleasant Valley	85	10.5	31,449	(107)	$4,451	$31,395	$2,720	6.4
Marsh	42	10.1	22,533	(28)	$3,255	$27,435	$3,315	7.4
Chapman	16	1.0	5,018	(33)	$802	$3,956	$0	4.9
Little Chico Creek	68	8.7	23,657	(70)	$4,517	$27,793	$3,400	5.4
Loma Vista	89	3.0	20,416	(127)	$3,713	$22,871	$240	6.1
Marigold	156	3.8	12,795	(58)	$2,354	$18,559	$256	7.8
McManus	26	1.5	7,902	(52)	$1,397	$6,748	$1	4.8
Neal Dow	66	3.2	10,956	(49)	$2,015	$12,572	$48	6.2
Parkview	84	2.1	13,187	(83)	$2,381	$25,878	$120	10.8
Rosedale	29	1.8	9,094	(60)	$1,597	$7,216	$0	4.5
Shasta	26	1.6	8,154	(54)	$1,507	$6,893	$0	4.6
District Office	14	0.9	4,390	(29)	$819	$2,253	$0	2.8
Subtotal	847	62.4	218,082	(967)	$36,375	$241,988	$14,100	6.3
Total		**62.4**	**270,078**	**(967)**	**$45,712**	**$449,302**	**$32,395**	**9.1**

Detail by year – 2017 construction

Measure/School	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Mechanical								
Emma Wilson	15	10.2	48,010	(212)	$8,406	$155,354	$0	18.5
Hooker Oak	1	0.6	3,665	-	$695	$10,640	$0	15.3
Little Chico Creek	9	20.4	62,699	(242)	$11,913	$243,750	$7,401	19.8
Neal Dow	1	0.6	3,665	-	$690	$10,640	$0	15.4
Parkview	2	1.4	5,340	(61)	$937	$20,068	$0	21.4
Subtotal	28	33.3	123,379	(515)	$22,641	$440,452	$7,401	19.1
Total		**33.3**	**123,379**	**(515)**	**$22,641**	**$440,452**	**$7,401**	**19.1**

Detail by year – 2018 construction

Measure/School	Qty	Savings				Project Cost ($)	Incentive ($)	Simple Payback (Years)
		Peak Demand (kW)	Electricity (kWh/yr)	Gas (th/ yr)	Cost Savings ($/yr)			
Mechanical								
Chico High	6	4.3	16,020	(182)	$2,320	$60,203	$0	25.9
Fairview	5	3.2	18,325	-	$3,417	$53,199	$0	15.6
Pleasant Valley	4	2.9	10,680	(121)	$1,440	$47,534	$0	33.0
Chapman	13	8.7	42,670	(152)	$6,954	$135,287	$0	19.5
Marigold	2	1.4	5,340	(61)	$947	$25,000	$0	26.4
McManus	1	0.7	2,670	(30)	$460	$12,500	$0	27.2
Rosedale	10	7.0	28,690	(242)	$4,984	$101,550	$0	20.4
Subtotal	41	28.3	124,395	(788)	$20,522	$435,273	$0	21.2
Total		**28.3**	**124,395**	**(788)**	**$20,522**	**$435,273**	**$0**	**21.2**