



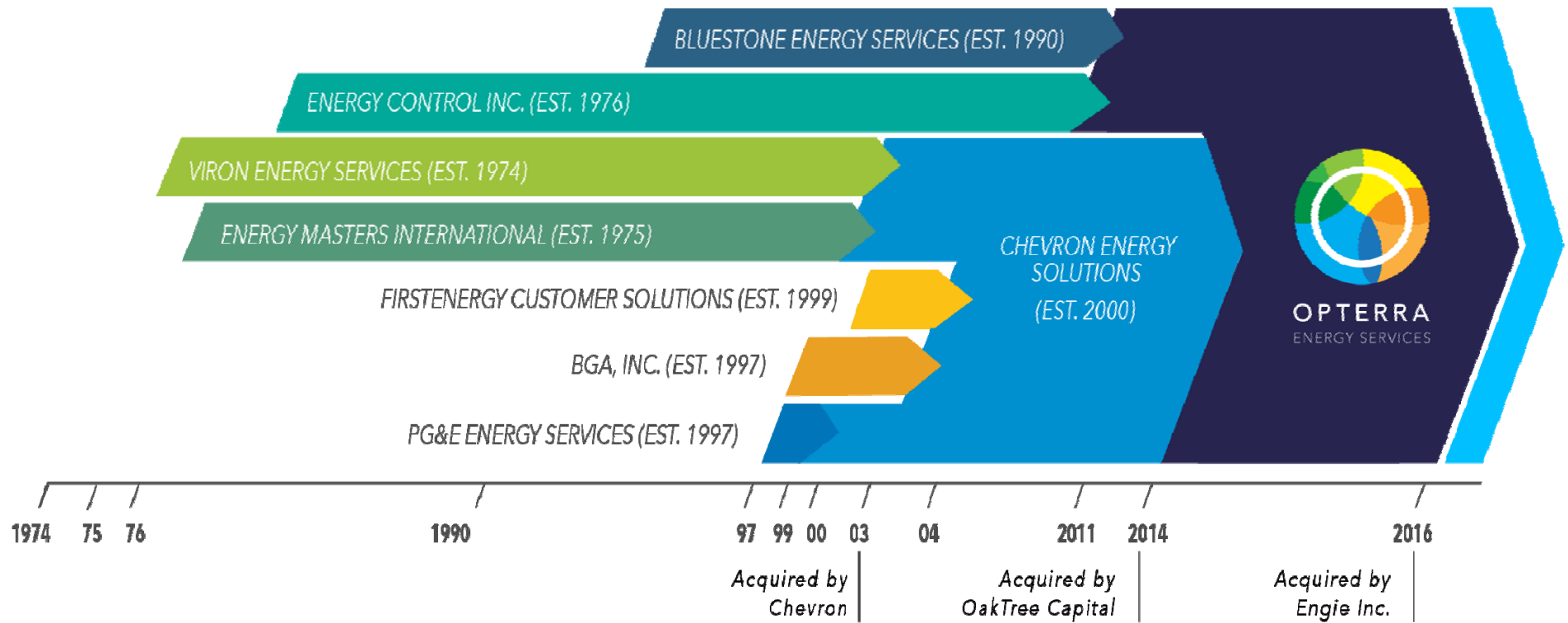
Ideas + Action = Innovation

A Plan of Action to Support Sustainable Initiatives and Education for El Camino Real Charter High School

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El Camino Real Alliance

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40+ Year History



Our Southern California Partners



Municipalities

Population

• City of Alhambra	84,577
• City of Brea	40,963
• City of Delano	54,403
• City of Dinuba	23,347
• City of Garden Grove	175,140
• City of La Puente	40,435
• City of Lemoore	24,973
• City of Lompoc	43,509
• City of Los Angeles	3.8 M
• City of Norco	27,336
• City of Palm Springs	46,281
• City of Solana Beach	13,236
• City of South Gate	95,677

K-12

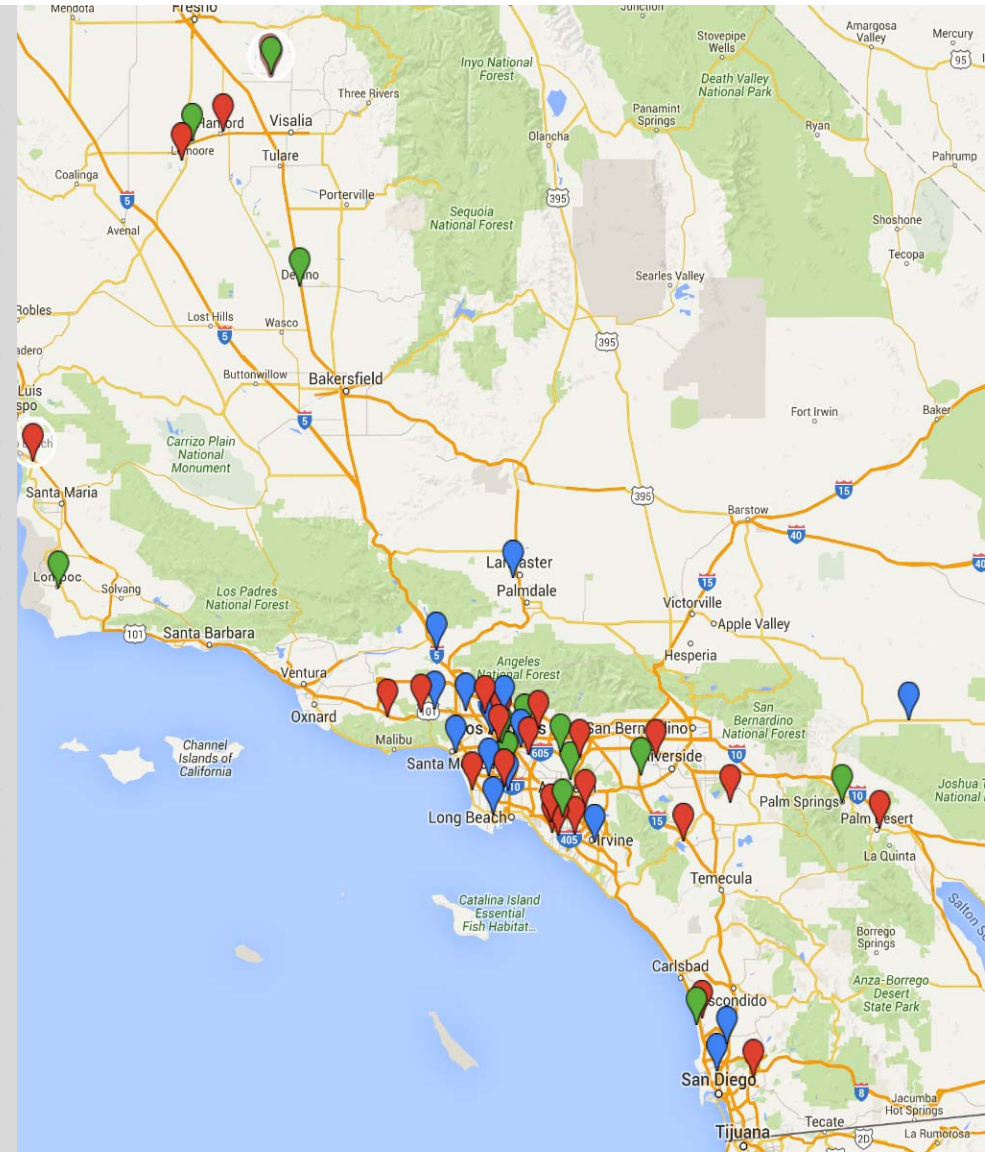
Enrollment

• Burbank USD	15,433
• Compton USD	24,710
• Dinuba High School	1,911
• Dinuba Unified	6,450
• El Camino Real Charter HS	3,513
• Fountain Valley High School	3,487
• Grossmont Union HSD	22,555
• Hanford Elementary SD	5,800
• Huntington Beach City SD	7,173
• Jurupa Unified School District	19,471
• Lake Elsinore USD	22,316
• Lemoore Union High	2,347
• Los Angeles USD	653,826
• Lucia Mar Unified School District	10,634
• Manhattan Beach USD	6,894
• Montebello USD	29,951
• Nuvview Elementary School	617
• Oaks Christian School	1,400
• Orange Unified School District	29,750
• Palm Desert High School	2,003
• Roosevelt Elementary School	638
• Saddleback High School	1,810
• San Dieguito Union High	12,497
• Temple City Unified	5,920
• Westminster School District	9,720
• Walnut Valley USD	14,575

Higher Education

Enrollment

• Antelope Valley College	14,408
• College of the Canyons	3,845
• Copper Mountain College	2,091
• East Los Angeles College	7,421
• El Camino College	24,895
• Glendale Community College	16,871
• Irvine Valley College	13,362
• Los Angeles City College	20,430
• Los Angeles Harbor College	11,149
• Los Angeles Southwest College	7,591
• Los Angeles Valley College	20,667
• Pierce College	21,368
• San Diego Mesa College	25,972
• San Diego Miramar College	12,360
• Santa Monica College	31,118



Three Dimensions of Impact

Environmental Impact

Decarbonize energy sources

Improve energy and resource efficiency

Human Impact

Connect building modernization with health, wellness and productivity of occupants

Financial Impact

Reduce operating expenses, generate revenue streams

Support client missions



Agenda



- Background
- Scope of Work
- Energy Education
- Financial Aspects
- Public Awareness and Outreach
- Next Steps



- Proposition 39 – Clean Energy Jobs Act
June 2013, Senate Bill 73
- OpTerra chosen through a selection process
 - Extensive experience in K-12, turnkey design-build
 - Prop 39 Experience
 - LAUSD Experience
 - Four (8) Prop 39 HS sites under Design-Build implementation
 - Four (4) Prop 39 HS sites under Investment Grade Audit program development
 - Sixteen (16) PV installations in LAUSD
 - Energy Education program

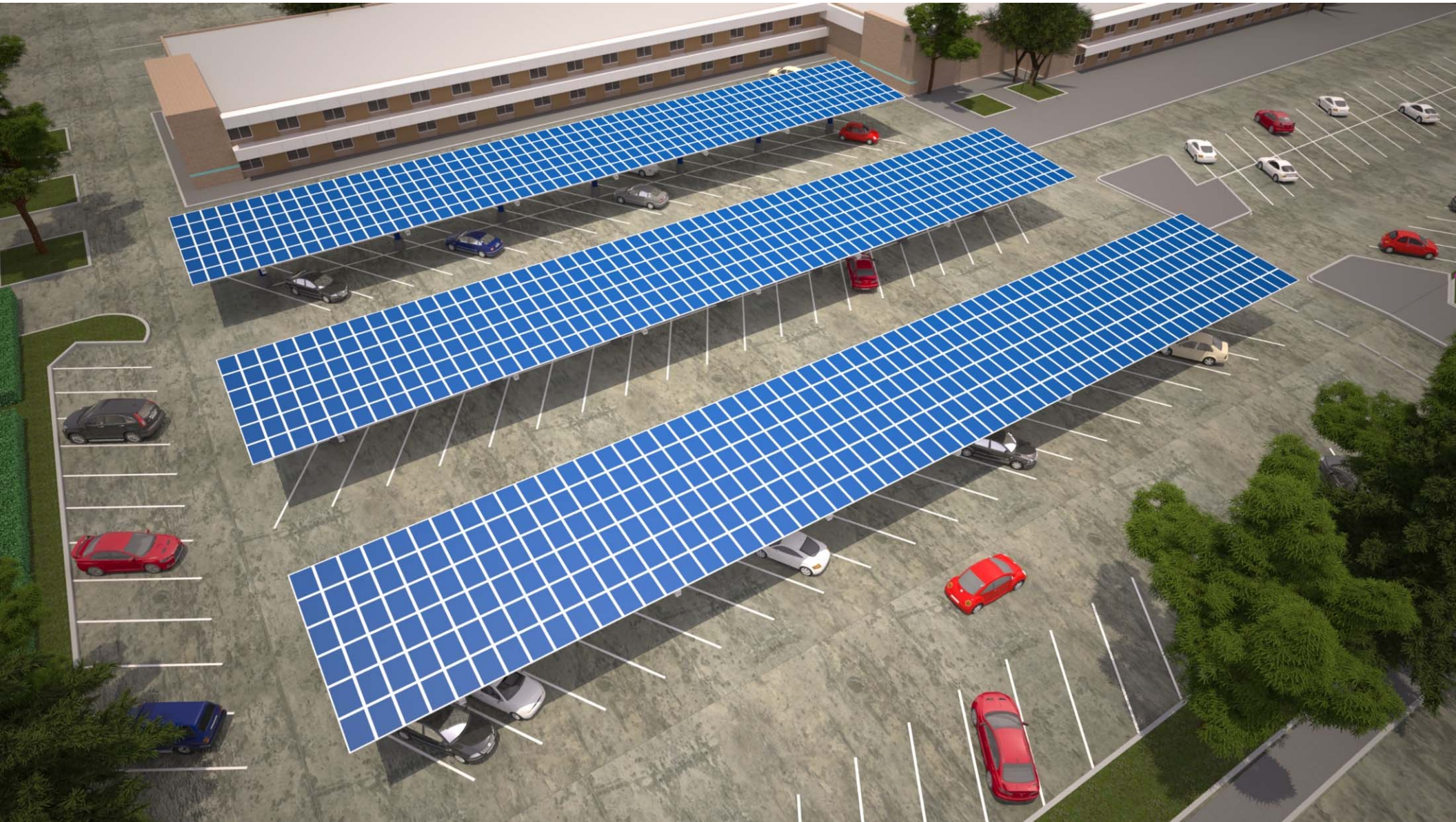
Energy Conservation Measures Proposed



Measure	Benefits beyond Energy Efficiency
LED Lighting and Controls Upgrades	<ul style="list-style-type: none"> ▪ Immediate improvement of light quality and coverage ▪ Maintenance savings through extended fixture life
Variable Speed Drives on Chiller Plant Pumps	<ul style="list-style-type: none"> ▪ Improved reliability of central plant cooling system ▪ Improved comfort
High Efficiency Transformer Upgrade	<ul style="list-style-type: none"> ▪ Improved power reliability by replacing old equipment ▪ Lower cooling costs
Solar PV	<ul style="list-style-type: none"> • Allows for budget predictability and a hedge against rate escalation • Provides additional shade for parking • Shows environmental responsibility and demonstrates leadership • Secures new sources of revenue • Engages the community through public informational displays

El Camino Real Charter High School

Aerial View



El Camino Real Charter High School

View from Valley Circle Blvd.



El Camino Real Charter High School

View from Mariano Street



Educational Enrichment

Our Team of Educators will Collaborate with You to Develop a Unique STEM Program



Bringing Data to Students

*Living Laboratories promote **critical thinking** and deeper student engagement through access to the **live data and technology** from your campus energy project.*



Professional Development

Our long-term partnership provides teachers ongoing development to master new resources as well as energy and sustainability topics.



STEM Resources

Providing supplemental resources to motivate and engage students in the STEM learning process.

Focusing on teamwork, project-based learning, communication skills, and relevant hands-on experiences.

Bridging the Gap between the Classroom and Careers

Career connections built into activities, demonstrated relevancy in lesson plans, and students led career exploration make a broad array of STEM careers relatable and achievable for students.

Possible Education Program for El Camino HS

A three year partnership to support students and teachers



Living Laboratory

- Live data from **Solar** and **Electricity consumption**
- Online dashboard for teachers, students and the community
- Curricular supports to utilize the data in coursework
- Hands-on solar investigations
- Professional development available for all staff to support integration in the classroom

Interdisciplinary Project-Based Learning

- Defined STEM™
- Developed with Understanding by Design
- Utilizes the GRASP model
- Performance Tasks, Literacy Tasks, and Applied Math Tasks
- Career Connections
- Aligned to CCSS, NGSS, Social Studies Standards
- Professional development available for all staff

AP Environmental Science Supports

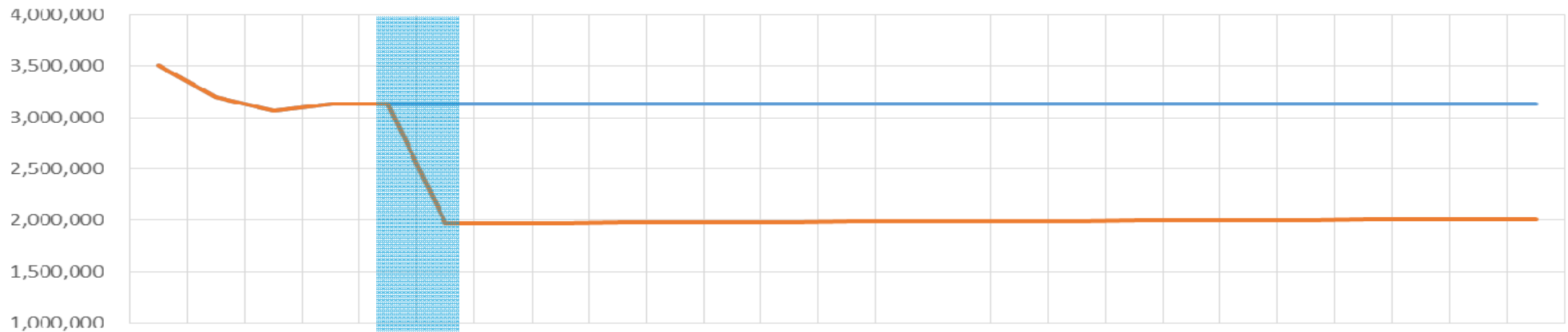
- Curation and development of curricular support in the fields of energy and sustainability
- Includes:
 - hands-on activities
 - kinesthetic models
 - interdisciplinary activities
- Aligned to CCSS and NGSS
- Professional development for APES teachers

Trends of El Camino Real CHS Energy

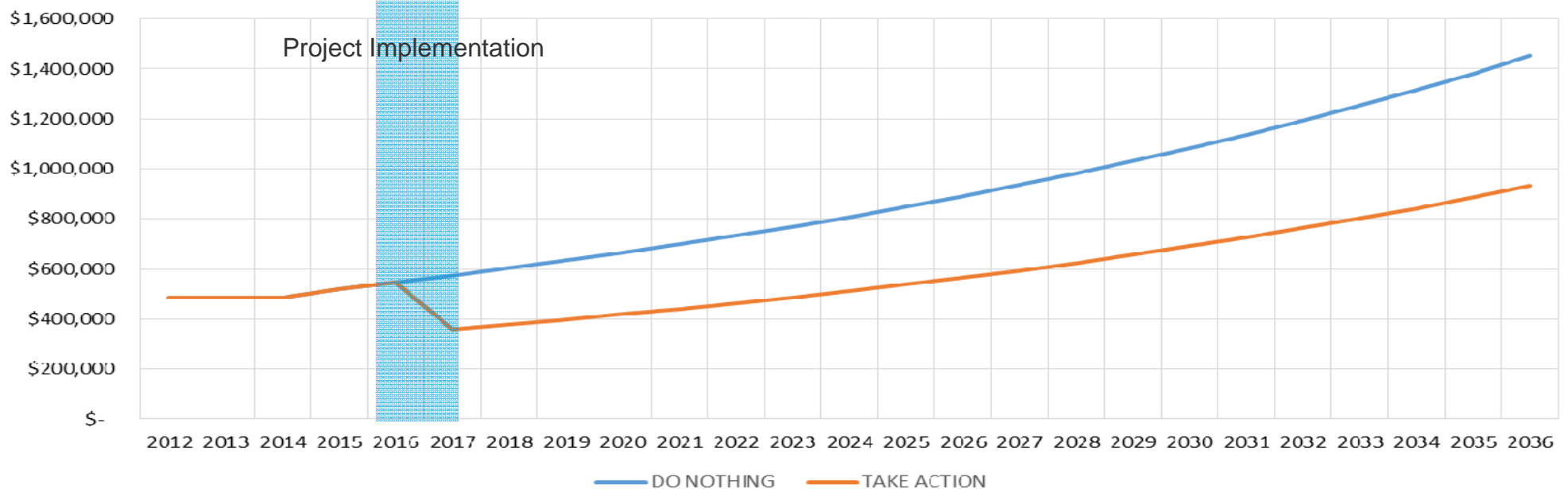
Do Nothing vs. Take Action



Forecasted Energy Purchase (kWh/year)



Forecasted Electric Costs (\$/year)



Energy Efficiency Measure Details



Energy Efficiency Measure Drop down menu	Description	Demand Savings (kW)	Annual Electric Savings (kWh)	Annual Cost Energy Savings (\$)	Measure Cost (\$)	Rebates (\$)	Total Leveraged Funding (\$)	EEM SIR
Example: Lighting- Interior Fixture Retrofit	Replaced T12s with T8s		101,029	\$ 14,511.00	\$ 141,604.00			1.69
Lighting- Interior Fixture Retrofit	LED Lighting Upgrades for all interior spaces	108.99	268,797	\$ 41,207	\$ 954,713	\$ 26,880	\$ 26,880	1.01
Lighting Controls	Upgrade Interior Fixtures with Lighting Controls						\$ -	
Lighting- Exterior Fixture Retrofit	LED lighting fixtures for exterior fixtures	33.90	135,427	\$ 16,251	\$ 243,805	\$ 13,543	\$ 13,543	1.39
Pumps, Motors, Drives- Variable Frequency Drives	Variable Speed Drives on Chilled Water and Condenser Water Pumps		74,280	\$ 11,387	\$ 59,073	\$ 7,428	\$ 7,428	3.55
Electrical- High Efficiency Transformer	Remove and replace existing low efficiency transformers with new high efficiency units.	20.90	182,308	\$ 27,948	\$ 599,570	\$ 18,231	\$ 18,231	1.36
Solar PV	Carport Shade Structures in Staff Lot	200.00	464,960	\$ 77,460	\$ 1,542,300	\$ 329,130	\$ 329,130	1.09
LEA Level SIR Calculation								
Savings-to-Investment Ratio:			1.18					

Project Financial Summary

In-Depth Look



- Investment = \$3,443,861
- Rebates & Incentives = \$1,162,000 est. (Prop 39 / LAUSD Solar / LAUSD Rebates)
- Net Cost = \$2,281,861

NPV: (20 yrs @ 0% DISC.)	\$ 5,520,331
NPV: (25 yrs @ 0% DISC.)	\$ 6,404,098
NPV: (20 yrs @ 3% DISC.)	\$3,897,140
NPV: (25 yrs @ 3% DISC.)	\$4,344,106
ROI: (20 years)	60.3%
ROI: (25 years)	86.0%
IRR: (20 years)	8.4%
IRR: (25 years)	9.0%

Summary



- Capture Prop 39 Funds (\$768,000 est.)
- Capture LADWP Solar Incentive (\$329,130 est.)
- Capture LADWP Rebates (\$68,000 est.)
- Identify projects that
 - Reduce operating costs, provide an attractive ROI
 - Increase indoor quality,
 - Provide long term hedge against rising costs, and
 - Provide a platform for STEM focused curriculum
- Provide a fiscally beneficial outcome with guaranteed performance

Highlight Success



OpTerra Energy Services offers inclusive community engagement strategies as a key part of all of our programs.

Our Community Program team will help communicate successes to the greater region, building pride and excitement in new projects unfolding at the school. The custom outreach plan can include:

- Ribbon Cutting & Groundbreaking Ceremonies
- Press Releases & Press Conferences
- Media Strategies



Program Development Process



Opportunity Assessment

Milestones



OpTerra ES
Completes Opportunity
Assessment

Program Development



DELIVERED October 2015

PDA Agreement
Executed

OpTerra ES
delivers Report

Implementation

ESA Agreement
Executed

Project
Accepted

Opportunity Assessment (No Fee)



Program Development Agreement (Costs can roll into ESA)



Energy Services Agreement (Turnkey Design-Build)

Scope of Work performed by OpTerra ES

- Site surveys
- Feasibility Energy Assessment
- High level analysis to determine opportunity
- Identify potential sustainability measures
- Provide estimated range of program costs and savings
- Identify and calculate preliminary rebates and incentives
- Identify preliminary financial structures

- Program Development Assessment (Investment Grade Energy Audit)
- Detailed engineering study & Preliminary Engineering
- Energy Efficiency, Facility Upgrades, Renewable Systems
- Conduct competitive procurement process
- Provide firm costs and savings on each scope of work
- Finalize financials and develop financial modeling alternatives
- Identify grants, rebates, incentives (i.e., PV)
- Confirm performance guarantee
- Prepare contract ready Scope of Work

- Complete final engineering
- Permits and approvals
- Procure materials and equipment
- Construction
- Project Performance Validation
- Commissioning, staff training
- Transition to ongoing O&M services where applicable

OpTerra Energy Services

We generate savings to direct dollars back into the classroom.

We link real world opportunities to learning experiences.

We bring technology into the classroom.

And we engage students from day one in the world of STEM.



OPTERRA
ENERGY SERVICES

