

# El Camino Real Charter High School Program Benefits



- **Capture Prop 39 and other Funding Sources**
- **Improve the Learning Environment**
- **Provide a Platform for STEM Based Sustainable Education Components**

*Revised March 15, 2015*

**Tony Lumino, PE**  
**OpTerra Energy Services**



# Energy Conservation Measures Proposed

*Revised*



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



# Possible Education Program for El Camino HS

A program to support students and teachers



## Living Laboratory

- Live data from main meter  
**Electricity consumption**
- Curricular supports to utilize the data in coursework
- 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

# Energy Efficiency Measure Details

## Revised



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
<i>Example: Lighting- Interior Fixture Retrofit</i>	<i>Replaced T12s with T8s</i>		101,029	\$ 14,511.00	\$ 141,604.00			1.69
Lighting- Interior Fixture Retrofit	LED Lighting Upgrades for all interior spaces	109.0	268,797	\$ 41,207	\$ 1,111,876	\$ 26,880	\$ 26,880	0.92
Lighting- Exterior Fixture Retrofit	LED lighting fixtures for exterior fixtures	33.9	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
<b>Totals</b>		<b>142.9</b>	<b>478,504</b>	<b>\$ 68,845</b>	<b>\$ 1,414,754</b>	<b>\$ 47,850</b>	<b>\$ 47,850</b>	<b>1.09</b>
<b>LEA Level SIR Calculation</b>								
Savings-to-Investment Ratio:		1.09						

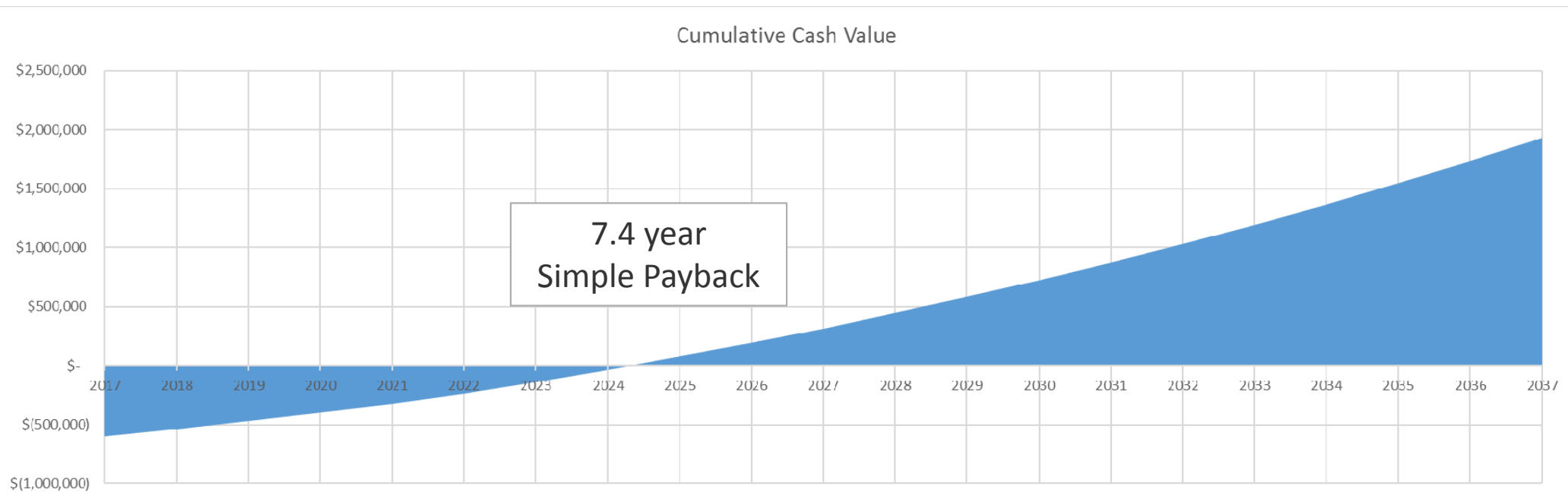
# Project Financial Summary

## In-Depth Look



- Initial Program Cost = \$1,414,754
- Rebates & Incentives:
  - Prop 39 = \$766,790 est.
  - LADWP Rebates = \$47,850 est.
- Net Cost = \$600,115

NPV: (20 yrs @ 0% DISC.)	\$2,534,115
NPV: (20 yrs @ 3% DISC.)	\$1,781,898
ROI: (20 years)	79.1%
IRR: (20 years)	15.2%



# Summary



- Capture Prop 39 Funds (\$768,000 est.)
- Capture LADWP Rebates (\$47,850 est.)
- Identify projects that
  - Reduce operating costs, provide an attractive ROI
  - Increase indoor quality,
  - Provide a platform for STEM focused curriculum
- Provide a fiscally beneficial outcome with guaranteed performance