



Energy Solutions

City of Lemoore Energy Infrastructure Improvements

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Presentation Topics

- Introduction to Chevron Energy Solutions
- Project Process
- Project Recommendations
- Financial Analysis
- Project Benefits



Chevron Energy Solutions

- California based company – HQ in San Francisco
- Over 30 years of experience with energy projects
- Financially strong
- Major presence in Central California
- 350 professionals
- In-house finance department
- Expertise in finding incentives & grants



Project Activity Since Last Meeting

■ County of Kings (Phase 2 In Development)	\$7.0 million
■ County of Madera (In Development)	13.8 million
■ Dinuba Unified School District (Phase 2)	\$7.5 million
■ Fresno State University	\$11.9 million
■ USPS Fresno	\$1.7 million
■ City of Lompoc	\$5.5 million
■ City of Rialto	\$15.0 million
■ City of La Puente	12.0 million
■ County of Sacramento	\$6.5 million
■ Orange Unified School District (Phase 3)	\$13.7 million
■ San Jose Unified School District	\$18.0 million
■ CSU East Bay	\$8.0 million
■ Victor Valley College (Phase 2)	\$1.9 million

Project Process

- Perform Feasibility Analysis (Complete)
- Execute Agreement for Comprehensive Energy Analysis (CEA) (Complete)
- Perform CEA to Finalize Scope, Price & Savings (Complete)
- Present Project Implementation Contract (Complete)
- City Approves Project Implementation Contract
- Chevron Files for Incentives on Behalf of City
- Implement Project

Project Recommendations – Lemoore Municipal Complex

- New roof consisting of reinforced single ply 80 mil membrane with rigid insulation board. New sheet metal gutters and downspouts will be installed. The roof will be structurally braced. We will install walking pads on the roof where solar panels will be located. Benefits include:
 - Existing metal roof in late stage of failure
 - New roof has a life of 30 years
 - 20 year no dollar limit warranty on roof
 - Inspection included in years 2, 5, 10, and 15
 - Reduced maintenance
 - Increased safety

Project Recommendations – Lemoore Municipal Complex

- Install roof-mounted 106 kW DC (approx. 90 kW AC) solar photovoltaic power system using thin film solar panels. Install Kiosk Monitor Display at City Hall and develop internet home page. Benefits include:
 - Reliable and clean source of energy
 - 30-year life
 - Qualifies for incentive of approx. \$242,000





Project Recommendations – Lemoore Municipal Complex

- Install forty four (44) new 54" x 54" skylights on the east half of the warehouse. Benefits include:
 - Increased energy savings
 - Increased productivity of staff

Project Recommendations – Lemoore Municipal Complex

- Install three (3) new rooftop packaged heating and air conditioning units: 2-ton, 3.5-ton, and 4-ton capacity. 13 SEER units with outside air economizers and CO₂ sensors. Install economizers on three (3) existing units. Benefits include:
 - Increased energy savings
 - Reduced maintenance
 - Improved indoor air quality
- Modify the air distribution system and air balance the space. Benefits include:
 - Better comfort
 - Increased productivity of staff

Project Recommendations – Police Department

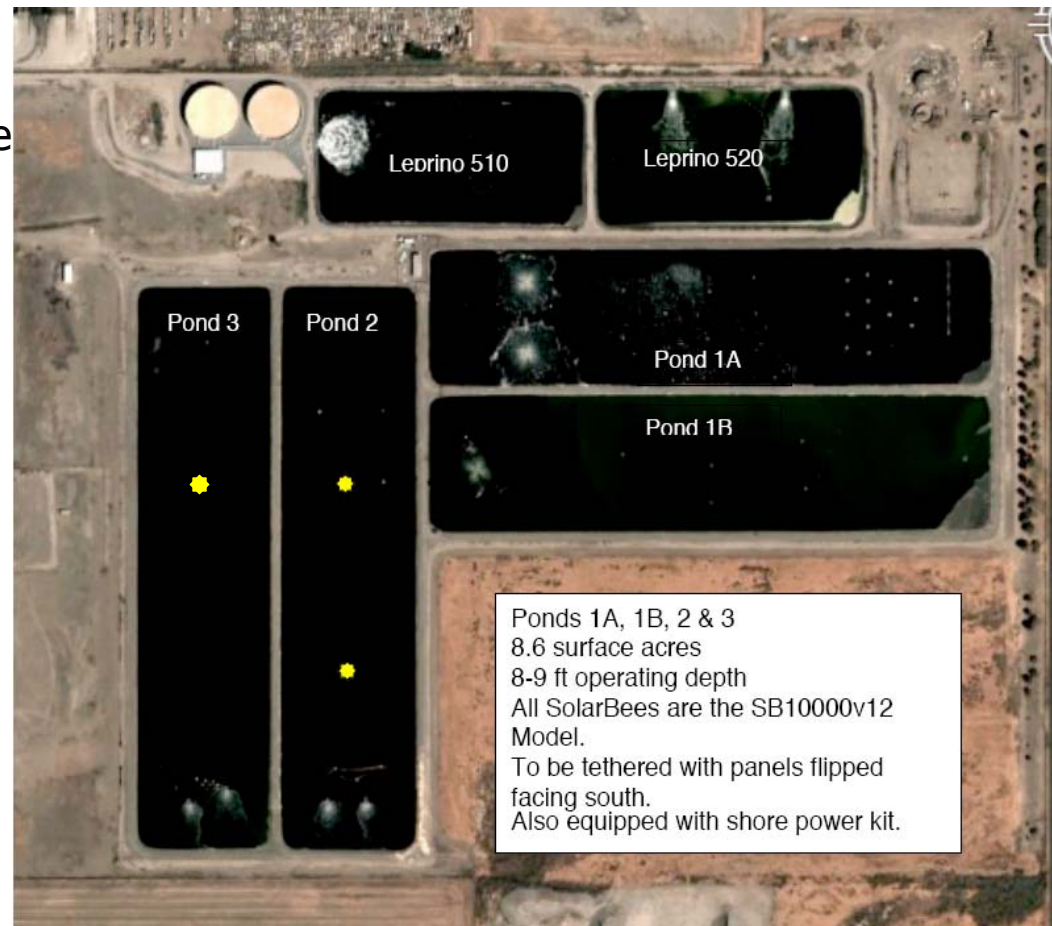
- Install 48 kW DC (approx. 38 kW AC) solar shade structure. Benefits include:
 - Reliable and clean source of energy
 - Provides shade to police cars
 - 30-year life
 - Qualifies for incentives of approx. \$99,000



Pierce College, Woodland Hills – 191 kW dc solar power system

Project Recommendations – Wastewater Treatment Plant

- Install two (2) SolarBee solar powered reservoir circulators in Pond 2 and one (1) in Pond 3, 10,000 GPM capacity each. Benefits include:
 - Sludge reduction
 - Reduced maintenance
 - Energy savings
 - Reduced odor



Project Recommendations – City Hall

- Install two (2) new rooftop heating and air conditioning units: (1) 4-ton and (1) 6-ton capacity. Install two (2) split system units with furnaces: (1) 3.5-ton and (1) 4-ton. 13 SEER units with outside air economizers and CO₂ sensors. Benefits include:
 - Increased energy savings
 - Reduced maintenance
 - Improved indoor air quality
- Modify the air distribution system and air balance the space. Benefits include:
 - Better comfort
 - Increased productivity of staff

Project Recommendations – Retrofit Building Lighting



- Retrofit building lighting at the following facilities. Replace existing lamps with 3rd generation 28 W T-8 lamps and low power electronic ballasts.
 - City Hall (4 extra fixtures on 2nd floor)
 - Council Chambers
 - Civic Auditorium
 - LMC (Front Office & East Half of Warehouse)
 - Veterans Memorial Building & Teen Center
 - Lemoore Heritage Park – Bike Path
 - Police Station
 - Main Fire Station

- Benefits include:
 - Increased energy savings
 - Better lighting
 - Lamps rated for 30,000 hours
 - Lowest mercury content in lamps – 1.7 mg/lamp
 - Increased employee productivity
 - Reduced maintenance cost

Project Recommendations – Irrigation Control System



- Install weather-based irrigation system at the following facilities:
 - Heritage Park – Also control Tennis Court, Basketball Court, and Pavilion lighting
 - 19th Avenue Park – Also control Ball Field lighting
 - City Park, includes new irrigation system with new piping and sprinkler heads
 - Lions Park
- Benefits include:
 - Water savings of 1 million gallons/year
 - Improving plant quality
 - Reduction of water damage to sidewalks and building foundations
 - Reduced maintenance

Pricing & Savings



City of Lemoore Pricing and Savings						
Scope of Work	Price	Incentive	Net Price	Annual Energy Savings	Annual Operational Savings	Payback (Years)
New Roof at Lemoore Municipal Complex	\$ 1,638,265	\$ -	\$ 1,638,265	\$ -	\$ -	N/A
Solar System at Lemoore Municipal Complex	\$ 866,196	\$ 241,816	\$ 624,380	\$ 20,153	\$ -	23.6
Skylights at Lemoore Municipal Complex	\$ 132,626	\$ -	\$ 132,626	\$ 2,154	\$ -	36.1
Shade Structure at Police Department	\$ 121,488	\$ -	\$ 121,488	\$ -	\$ -	N/A
Solar System at Police Department	\$ 382,922	\$ 99,035	\$ 283,887	\$ 8,951	\$ -	23.9
SolarBee Solar Powered Circulators	\$ 228,587	\$ 59,592	\$ 168,995	\$ 69,421	\$ 105,720	1.0
HVAC Work at City Hall & LMC	\$ 100,598	\$ 800	\$ 99,798	\$ 2,057	\$ -	31.5
Building Lighting Retrofit	\$ 207,871	\$ 5,316	\$ 202,555	\$ 16,147	\$ -	11.3
Weather Based Irrigation System	\$ 215,382	\$ -	\$ 215,382	\$ 1,176	\$ 1,517	41.4
Totals	\$ 3,893,935	\$ 406,559	\$ 3,487,376	\$ 120,059	\$ 107,237	14.2

Preliminary Cash Flow Analysis



Implementation Cost	\$3,893,935
CEA Fee	\$0
Total Project Fee	\$3,893,935

1	2	3	4	5	6
Year	Total Energy Savings	Operational and Maintenance Savings	Utility Grants, Incentive and Rebates	Avoided Sludge Removal Cost	Total Program Savings
0	\$0	\$0	\$0		\$0
1	\$120,059	\$7,237	\$406,559	\$100,000	\$633,855
2	\$122,460	\$7,454	\$0	\$100,000	\$229,914
3	\$124,909	\$7,678	\$0	\$100,000	\$232,587
4	\$127,407	\$7,908	\$0	\$100,000	\$235,315
5	\$129,955	\$8,145	\$0	\$100,000	\$238,100
6	\$132,554	\$8,389	\$0	\$100,000	\$240,943
7	\$135,205	\$8,641	\$0	\$100,000	\$243,846
8	\$137,909	\$8,900	\$0	\$100,000	\$246,809
9	\$140,667	\$9,167	\$0	\$100,000	\$249,834
10	\$143,480	\$9,442	\$0	\$100,000	\$252,922
11	\$146,350	\$9,726	\$0	\$100,000	\$256,076
12	\$149,277	\$10,017	\$0	\$100,000	\$259,294
13	\$152,263	\$10,318	\$0	\$100,000	\$262,581
14	\$155,308	\$10,627	\$0	\$100,000	\$265,935
15	\$158,414	\$10,946	\$0	\$100,000	\$269,360
16	\$164,751	\$11,275	\$0	\$100,000	\$276,025
17	\$171,341	\$11,613	\$0	\$100,000	\$282,954
18	\$178,194	\$11,961	\$0	\$100,000	\$290,156
19	\$185,322	\$12,320	\$0	\$100,000	\$297,642
20	\$192,735	\$12,690	\$0	\$100,000	\$305,425
21	\$200,444	\$13,070	\$0	\$100,000	\$313,515
22	\$208,462	\$13,463	\$0	\$100,000	\$321,925
23	\$216,800	\$13,866	\$0	\$100,000	\$330,667
24	\$225,473	\$14,282	\$0	\$100,000	\$339,755
25	\$234,491	\$14,711	\$0	\$100,000	\$349,202
Totals	\$4,054,230	\$263,848	\$406,559	\$2,500,000	\$7,224,637

Notes By Column:

- (1) Years after implementing retrofit changes
- (2) Energy Savings are calculated at PG&E rates less 5% and escalated by 2% the first 15 years and 4% thereafter
- (3) Operational and Maintenance Savings are escalated by 3%
- (6) Total Program Savings are the sum of Columns (2), (3), (4) and (5)

Preliminary Project Schedule



Task	Month	Engineering, Permits, Plan Review			Equipment Lead Times and Construction						Close-out	
		1	2	3	4	5	6	7	8	9	10	
Design, Engineering, Submittals & Procurement		■										
Mechanical Work							■	■	■	■	■	
Building Lighting				■	■	■	■	■				
Roofing with Skylights				■	■	■	■	■				
Solar System - LMC								■	■	■	■	
Solar System - Police Department								■	■	■	■	
Irrigation - various locations							■	■	■	■		
SolarBee®					■	■	■	■				



Chevron Energy Solutions Offers

- A comprehensive approach to solving long-term infrastructures needs
- Turnkey design-build project with single source responsibility – transfer design, construction, performance and cost risk to Chevron
- Positive cash flow from the first year
- Low cost financing
- Incentive procurement
- Expedited completion
- Unprecedented control to the City
- Project delivery by a Fortune 4 company that has been doing business in California for 125+ years
- Substantial environmental benefits:
 - 593 tons/year of Greenhouse Gas (CO₂) avoided
 - Equivalent to preserving 4.4 acres/year of forest from deforestation
 - Equivalent to removing 116 cars/year off the highways
- To showcase the City as a leader in energy efficiency and renewable energy technology