



SoCalIREC

SOUTHERN CALIFORNIA REGIONAL ENERGY CENTER

Program Financing Workshop

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Overview of Financing

FUNDING VARIABLES

- Installed Cost
- Project Ownership
- Cost of Funds
- Term
- Tax Benefits
- Rebates
- Other Incentives
- Timing
- Buy-out Option
- Energy cost assumptions

FUNDING OPTIONS

- OnBill Financing
- CEC Loan
- Lease / Direct Loan
- Revolving Fund Loan
- Municipal Bond
- Energy Services Agreement (ESA)

FUNDING EVALUATION

- Installed Cost
- Project Savings (direct & indirect)
- Cash Flow (Coverage)
- Buyout option
- Transaction cost
- Cost of Funds
- Net Present Value
- Operations and Maintenance
- Insurance
- Replacement Sinking Fund

Financing Options (1 of 2)

✓ Several options exist

- On Bill Financing (OBF) - *0% - best option when available.*
- California Energy Commission Loans (CEC) – *1% - great option if project suitable to CEC parameters and short term capital available.*
- **Master Lease** – *SoCal REC arranged funding for low cost , streamlined access to lease financing.*
- Bond Financing – *low cost, but takes a long time and usually requires energy projects included with other capital improvements*

Financing Options (2 of 2)

- ESCO Financing – *Highest cost of financing, though usually including performance guarantees and ongoing M&V.*
- Revolving Loan Funds – *Some local agencies have create revolving funds though not widely used.*
- Power Purchase Agreements (PPA) – solar, co-gen, wind – *Higher cost of financing, obligation to purchase output not improvement.*
- Energy Services Agreements (ESA) – energy efficiency - *Higher cost of financing, purchasing savings from EE not improvements.*
- PACE (Private Sector owned only) – *Private owners borrow funding for EE and RE improvements that are paid back on property tax bill.*

Comparison of Common Local Government Financing

	OBF / CEC	Master Lease	Muni Bonds	ESA/PPA
Owner	Agency	Agency	Agency	Third Party
Minimum / Maximum Amount	OBF Max \$250,000 CEC Max \$3,000,000	Minimum \$250,000	Minimum \$5,000,000	Defined by Private Entity
Incentives	Agency Rebates and Incentives	Agency Rebates and Incentives	Agency Rebates and Incentives	Commercial
Time Required to Fund	45 – 180 days	30 – 60 days	60 – 180 days (or more)	60 – 180 days
Project Types	Defined by Utility / CEC	All	All	EE / RE
Buyout/Prepay Option	N/A	In some cases	In some cases	Yes

Sample Project Assumptions

✓ Streetlight Retrofit Project

- Total Cost \$1,000,000
- Annual Savings \$200,000
- Rebates \$40,000
- Term 10 year
- Annual Utility Escalation Rate 3.5%

Payback 4.51 years NPV of Net Benefit @ 2% \$1,113,494
 IRR 19.3% Average Annual Savings \$234,628

Year	Annual Savings	Rebates & Incentives	Total Benefits	Initial City Funding	Net Benefits
0		\$40,000	\$40,000	(\$1,000,000)	(\$960,000)
1	\$200,000		\$200,000		\$200,000
2	\$207,000		\$207,000		\$207,000
3	\$214,245		\$214,245		\$214,245
4	\$221,744		\$221,744		\$221,744
5	\$229,505		\$229,505		\$229,505
6	\$237,537		\$237,537		\$237,537
7	\$245,851		\$245,851		\$245,851
8	\$254,456		\$254,456		\$254,456
9	\$263,362		\$263,362		\$263,362
10	\$272,579		\$272,579		\$272,579
Totals	\$2,346,279	\$40,000	\$2,386,279	(\$1,000,000)	\$1,386,279

On Bill Financing

- Loans up to \$1,000,000
- Paid on reimbursement basis
- Interest Rate 0%

Upgrade Installed Cost	\$1,000,000	NPV of Net Benefit @ 2%	\$1,209,251
Financing Cost	\$0	Average Coverage Ratio	2.44
Total Borrowing	\$960,000	Average Annual Savings	\$138,628
Interest Cost	0.00%		
Financing Term	10		
Assumed Utility Escalation	3.5%		

Year	Annual Savings	Rebates & Incentives	Total Benefits	Initial City Funding	Reimbursement from Utility	Debt Service	Net Benefits	Coverage Ratio
0		\$40,000	\$40,000	(\$1,000,000)	\$960,000		\$0	
1	\$200,000		\$200,000			(\$96,000)	\$104,000	2.08
2	\$207,000		\$207,000			(\$96,000)	\$111,000	2.16
3	\$214,245		\$214,245			(\$96,000)	\$118,245	2.23
4	\$221,744		\$221,744			(\$96,000)	\$125,744	2.31
5	\$229,505		\$229,505			(\$96,000)	\$133,505	2.39
6	\$237,537		\$237,537			(\$96,000)	\$141,537	2.47
7	\$245,851		\$245,851			(\$96,000)	\$149,851	2.56
8	\$254,456		\$254,456			(\$96,000)	\$158,456	2.65
9	\$263,362		\$263,362			(\$96,000)	\$167,362	2.74
10	\$272,579		\$272,579			(\$96,000)	\$176,579	2.84
Totals	\$2,346,279	\$40,000	\$2,386,279	(\$1,000,000)	\$960,000	(\$960,000)	\$1,386,279	

CEC Loan

- Loans up to \$3,000,000
- Paid on reimbursement basis
- Interest Rate 1%

Upgrade Installed Cost	\$1,000,000	NPV of Net Benefit @ 2%	\$1,162,059
Financing Cost	\$0	Average Coverage Ratio	2.31
Total Borrowing	\$960,000	Average Annual Savings	\$133,269
Interest Cost	1.00%		
Financing Term	10		
Assumed Utility Escalation	3.5%		

Year	Annual Savings	Rebates & Incentives	Total Benefits	Initial City Funding	Reimbursement from CEC	Debt Service	Net Benefits	Coverage Ratio
0		\$40,000	\$40,000	(\$1,000,000)	\$960,000		\$0	
1	\$200,000		\$200,000			(\$101,359)	\$98,641	1.97
2	\$207,000		\$207,000			(\$101,359)	\$105,641	2.04
3	\$214,245		\$214,245			(\$101,359)	\$112,886	2.11
4	\$221,744		\$221,744			(\$101,359)	\$120,385	2.19
5	\$229,505		\$229,505			(\$101,359)	\$128,146	2.26
6	\$237,537		\$237,537			(\$101,359)	\$136,178	2.34
7	\$245,851		\$245,851			(\$101,359)	\$144,492	2.43
8	\$254,456		\$254,456			(\$101,359)	\$153,097	2.51
9	\$263,362		\$263,362			(\$101,359)	\$162,003	2.60
10	\$272,579		\$272,579			(\$101,359)	\$171,221	2.69
Totals	\$2,346,279	\$40,000	\$2,386,279	(\$1,000,000)	\$960,000	(\$1,013,588)	\$1,332,691	

Master Lease Financing

- Minimum amount \$250,000
- Low tax-exempt rates based on borrower credit
- No upfront payments

Upgrade Installed Cost	\$1,000,000	NPV of Net Benefit @ 2%	\$1,044,377
Financing Cost	\$20,000	Average Coverage Ratio	1.97
Total Borrowing	\$1,020,000	Average Annual Savings	\$117,215
Interest Cost	3.30%		
Financing Term	10		
Assumed Utility Escalation	3.5%		

Year	Annual Savings	Rebates & Incentives	Total Benefits	Debt Service	Net Benefits	Coverage Ratio
1	\$200,000	\$40,000	\$240,000	(\$121,413)	\$118,587	1.98
2	\$207,000		\$207,000	(\$121,413)	\$85,587	1.70
3	\$214,245		\$214,245	(\$121,413)	\$92,832	1.76
4	\$221,744		\$221,744	(\$121,413)	\$100,331	1.83
5	\$229,505		\$229,505	(\$121,413)	\$108,092	1.89
6	\$237,537		\$237,537	(\$121,413)	\$116,124	1.96
7	\$245,851		\$245,851	(\$121,413)	\$124,438	2.02
8	\$254,456		\$254,456	(\$121,413)	\$133,043	2.10
9	\$263,362		\$263,362	(\$121,413)	\$141,949	2.17
10	\$272,579		\$272,579	(\$121,413)	\$151,166	2.25
Totals	\$2,346,279	\$40,000	\$2,386,279	(\$1,214,130)	\$1,172,149	

Municipal Bond

- Assumes project part of larger capital financing
- Low tax-exempt rates
- No upfront payments

Upgrade Installed Cost	\$1,000,000	NPV of Net Benefit @ 2%	\$1,071,820
Financing Cost	\$20,000	Average Coverage Ratio	2.02
Total Borrowing	\$1,020,000	Average Annual Savings	\$120,270
Interest Cost	2.80%		
Financing Term	10		
Assumed Utility Escalation	3.5%		

Year	Annual Energy Savings	Rebates & Incentives	Total Benefits	Debt Service	Net Benefits	Coverage Ratio
1	\$200,000	\$40,000	\$240,000	(\$118,358)	\$121,642	2.03
2	\$207,000		\$207,000	(\$118,358)	\$88,642	1.75
3	\$214,245		\$214,245	(\$118,358)	\$95,887	1.81
4	\$221,744		\$221,744	(\$118,358)	\$103,386	1.87
5	\$229,505		\$229,505	(\$118,358)	\$111,147	1.94
6	\$237,537		\$237,537	(\$118,358)	\$119,179	2.01
7	\$245,851		\$245,851	(\$118,358)	\$127,493	2.08
8	\$254,456		\$254,456	(\$118,358)	\$136,098	2.15
9	\$263,362		\$263,362	(\$118,358)	\$145,004	2.23
10	\$272,579		\$272,579	(\$118,358)	\$154,222	2.30
	\$2,346,279	\$40,000	\$2,386,279	(\$1,183,578)	\$1,202,700	

Energy Service Agreement Financing

- Minimum amount \$1,000,000
- Payments based on savings
- No upfront payments

Upgrade Installed Cost \$1,000,000
 Financing Cost \$20,000
 Total Borrowing \$1,020,000

Assumed kWh Annual Savings 1,250,000
 Assumed Utility Start Rate \$ 0.160 ESA Savings Start Rate \$ 0.092
 Assumed Utility Escalation 3.5% ESA Escalation Rate 3.50%

Year	kWh Savings	Avoided Utility Cost	ESA Payments	Net Benefits	Coverage Ratio
1	1,250,000	\$200,000	(\$115,000)	\$85,000	1.74
2	1,250,000	\$207,000	(\$119,025)	\$87,975	1.74
3	1,250,000	\$214,245	(\$123,191)	\$91,054	1.74
4	1,250,000	\$221,744	(\$127,503)	\$94,241	1.74
5	1,250,000	\$229,505	(\$131,965)	\$97,539	1.74
6	1,250,000	\$237,537	(\$136,584)	\$100,953	1.74
7	1,250,000	\$245,851	(\$141,364)	\$104,487	1.74
8	1,250,000	\$254,456	(\$146,312)	\$108,144	1.74
9	1,250,000	\$263,362	(\$151,433)	\$111,929	1.74
10	1,250,000	\$272,579	(\$156,733)	\$115,846	1.74
BUYOUT			(\$50,000)	(\$50,000)	
TOTALS	12,500,000	\$2,346,279	(\$1,399,110)	\$947,168	
Net Present Value of Savings (2% discount rate)				\$850,487	

Comparative Metrics

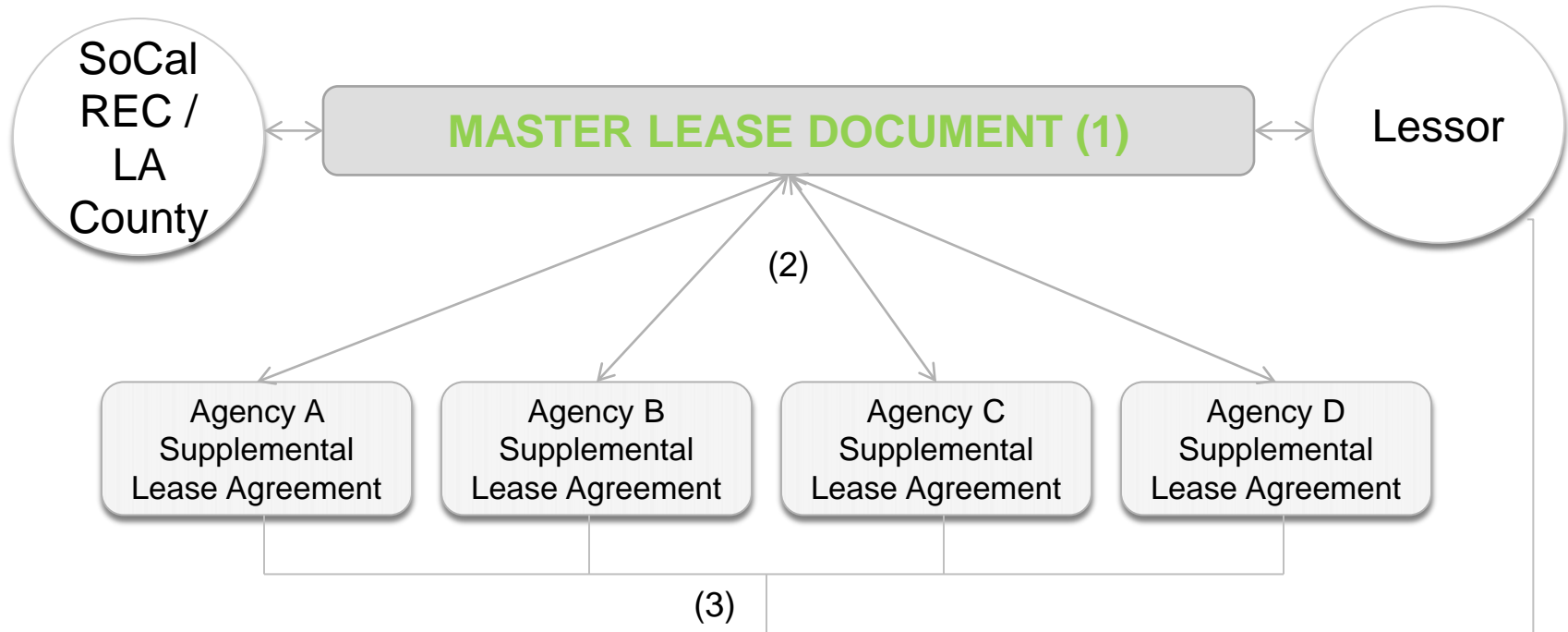
	On-Bill Financing	CEC Loan	Lease Financing	Muni Bond	ESA
Amount Borrowed	\$960,000	\$960,000	\$1,020,000	\$1,020,000	N/A
Energy Savings	\$2,346,279	\$2,346,279	\$2,346,279	\$2,346,279	\$2,346,279
Rebates & Incentives	\$40,000	\$40,000	\$40,000	\$40,000	N/A
Interest Rate	0.00%	1.00%	3.30%	2.80%	N/A
Total Debt Service	(\$960,000)	(\$1,013,588)	(\$1,214,130)	(\$1,183,578)	(\$1,399,110)
Average Annual Savings	\$138,628	\$133,269	\$117,215	\$120,270	\$99,717
Net Benefit	\$1,386,279	\$1,332,691	\$1,172,149	\$1,202,700	\$947,168
NPV of Net Benefit	\$1,209,251	\$1,162,059	\$1,044,377	\$1,071,820	\$850,487

- If the improvement project were cash purchased the pay back period would be about 4.5 years and the rate of return about 19%, resulting in \$1.3 million net savings or \$1.1 million net present value savings, over ten (10) years.

Summary of Outcomes

- On bill financing and the CEC loans provide very attractive funding options if available and if the agency is able to front the cash until reimbursement.
- Master Lease Financing is a low cost alternative for agencies to realize savings and to improve their energy profile
- Municipal bonds may provide lower cost financing, but typically require a longer time to initiate and inclusion with other capital projects
- Energy Service Agreements are more expensive but offer debt capacity restricted agencies the ability to realize savings and to improve their energy profile without capital outlay
- Every agency has different constraints and an analysis of the various options available to the agency will ensure well informed decisions

Master Lease Overview



- (1) Master lease establishes documents and procedures to receive funding.
- (2) Individual agencies agree to terms and payment obligations for their projects according to master lease terms.
- (3) Payments made to Lessor based upon each agencies' supplemental lease agreement terms.

Funding Process

Facilities Audit

- Project identification
- Savings estimates
- Pricing estimates

Project Approval

- **Lease application & approval**
- Project selection
- Governing board approval

Project Implementation

- Engage contractors
- **Finalize lease documents**
- Fund and Install improvements

SoCalREC team is available to assist throughout the process to achieve successful implementation.

Contact Information

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