



Environmental Improvement Revolving Fund Administrative Manual

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1. El Cerrito Revolving Fund Administrative Manual

1.1. Purpose and overview of this document

The City of El Cerrito is launching a Revolving Fund (ECRF) fund to support ongoing environmental improvements that are outside of the specific project and departmental structures. The ECRF is designed to pay for itself overtime, and it is anticipated that the ECRF will become a permanent source of environmental improvements for the City of El Cerrito and a source of resource savings. The program will become self-sustaining as energy and water savings from projects implemented under the ECRF reduce costs to the city, and the ECRF tracks these savings. This document lays out the general guidelines for the ECRF; it's structure, administration and tracking. To the degree possible, this document defines the organizational structure of the ECRF and the responsibilities for implementation, provides an overview of the accounting system, and defines preliminary requirements for eligible projects.

This guideline was developed from various related resources and compiled by Strategic Energy Innovations through a grant funded by the Bay Area Air Quality Management District.

This document is supplemented with an excel spreadsheet that can be used to estimate project costs and benefits in terms of energy, water and fiscal impacts over time and on an annual basis.

1.2. Benefits¹

In addition to the measured energy, water, CO₂e, Financial savings achieved through the revolving fund mechanism there are many other valuable intangible benefits:

- Elevated awareness energy management will increase staff skills and improve the chances additional opportunities for resource savings will be identified.
- Review and identification of projects by Environmental Services, can contribute significant value to other city projects.
- By providing a continual stream of funding for energy efficiency measures, this fund provides an incentive for El Cerrito to internally embrace environmental performance.
- By having a pot of funds specifically focused on resource conservation, some internal competition is removed for other essential municipal priorities such as, community center upgrades, sidewalk repair, or tree planting.
- Having a dedicated revolving fund stimulate growth in the local economy for the kinds of “green jobs” that are so essential to the future.
- The creation of a Revolving Energy Fund provides an opportunity for El Cerrito to demonstrate its leadership and commitment to energy conservation.

1.3. Implementation steps²

In order to establish a revolving fund in El Cerrito a number of steps should occur. Some of these have already happened, others are in progress and still others are on the horizon.

¹ See ICLEI Resource Guide: Revolving Energy Fund” page 28-32 for a detailed discussion of benefits and barriers.

² Adapted from “Establishing a Revolving Fund for Energy Efficiency in Local Governments”

At present, Environmental Services Capital Improvement Projects and Financing have all been involved in the development of these guidelines. Strategic Energy Innovations and the Environmental Services manager have reviewed the mechanisms and methods for fund management. The City Manager and Finance Manager have given tentative approval for funding for the first year of the ECRF's operations.

To launch the ECRF, departmental managers should be introduced to the program so they know what it is and how it benefits the city. For implementation, Environmental Services will take the lead to identify feasible projects and to manage them through completion.

Overtime, environmental services will continue to identify and implement projects, report on outcomes demonstrating the performance of the ECRF and it's benefits in terms of energy and water savings as well as fiscal benefits.

1.4. Establishing the ECRF

In terms of initial project selection, it is recommend that in the first year(s) of the ECRF, El Cerrito seek out the "low-hanging fruit." For example, relatively simple retrofits such as T-12 to T-8 fluorescent lamp retrofits with high efficiency electronic ballasts can be easily installed, generally improves lighting levels, and reaps significant savings with virtually no maintenance. As such, it provides an excellent starting point for establishing the ECRF's credibility, developing staff expertise, while concurrently developing a savings stream that can be used later for more complex retrofits³. At present two projects have been identified as "complete" (the community center and public safety Energy Watch lighting retrofit projects) that are contributing to the base of the ECRF, and additional projects (SmartLights projects) have been identified as the first set of ECRF sponsored projects.

Over time, shifting from low-hanging fruit to more complex projects may require external support. Performance outcomes may suffer during this period. Having established a steady savings stream in the early years will ensure that the ECRF still demonstrates positive benefits in later years. Once El Cerrito has captured many of the lowest cost and easiest efficiency gains, it may be necessary to increase the cap so there are the funds available to take on more technologically challenging and expensive opportunities.

2. Overview of the ECRF

A revolving fund is at its core a pool of money that is "loaned" out internally and repaid through savings (either energy or water). The most basic elements of the fund are it's initial seed amount and the repayment mechanism. The repayment mechanism defines how savings are credited to the fund and what, if any, cap is put on the fund.

³ Adapted from "Establishing a Revolving Fund for Energy Efficiency in Local Governments"

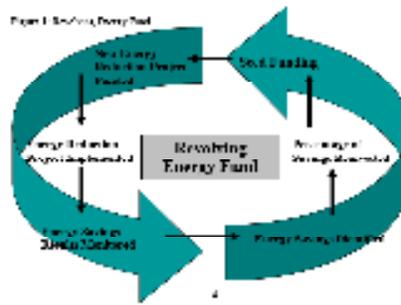


Figure 1: Revolving Fund Diagram, source: ICLEI-USA Revolving Energy Fund Guide, 2008

The ECRF is setup as a capped fund for two reasons. First, so that the "fund" is a modest allocation that limits the likelihood it is a target for future reductions. Second, additional dollar savings from energy efficiency improvements can flow back to the city more quickly, further emphasizing the positive impact on the overall municipal budget. As funds for the ECRF come from the general fund, and the ECRF will provide energy services citywide, project savings are returned to the general fund. As savings are documented by the Environmental Services Division, the ECRF demonstrates it's value and hopefully continues to be funded and funds are reinvested in environmental improvements. With such a mechanism, the ECRF becomes not only self-sustaining, but contributes to reduced costs for the City.⁴

2.1. Goals of the ECRF

There are many possible goals for the ECRF, below are the principle ones identified by Environmental Services Staff.

- Achieve a predetermined level of costs savings
- Achieve a predetermined level of energy savings
- Achieve a predetermined reduction of eCO2 emissions
- Build to predetermined financial level (i.e. cap at \$500,000)
- Use REF to finance innovative projects that would traditionally be unfunded
- Obtain a predetermined level of Department Head buy-in
- Fund a predetermined level of projects from all municipally run Departments
- Use the REF to educate the public about energy and climate
- Use the REF to educate municipal employees about energy and climate
- Use the REF to help institutionalize climate and energy work into existing Departments

2.2. Amount of ECRF

For the city of El Cerrito, the initial seed amount is \$25,000. \$15,000 will be provided from the 2008-9 CIP overage, and \$10,000 will be allocated from the General Fund based on the estimated savings provided by the Energy Watch Lighting retrofit projects. The repayment mechanism authorizes 100% of documented annual energy savings be credited to the ECRF, up to a cap of \$25,000. Project related savings will be calculated annually based on current energy costs paid by the City of El Cerrito. The cap will be adjusted for inflation annually at a rate of **[percent of inflation adjustment]**.

⁴ Adapted from "Establishing a Revolving Fund for Energy Efficiency in Local Governments"

2.3. Eligible Projects

The ECRF is envisioned as a broad focus municipal fund⁵, which will support a range of projects that deliver environmental benefits to city operations. The principle metric of fund performance will be measurable energy and/or water savings, however other demonstrable environmental benefits are also of value to the ECRF. Environmental Services will have wide discretion to pursue individual projects that have varied environmental benefits as long as the sum of project activities in a given year meet the “portfolio” criteria outlined below.

At present, eligible projects for a given year will have a combined weighted average simple payback of 5 years.

2.4. Allocation of Funds and Management Roles

Based on annual project costs and savings estimates the ECRF will be funded as a Capital Improvements Project. Environmental Services will manage the various projects that utilize the ECRF and will track outcomes and report on impacts.

3. Staffing / Engagement

3.1. Management of the ECRF⁶

At the time of this fund’s creation, Environmental Services will act as the project implementer. Specific projects may be implemented by internal staff or outside contractor, as the project needs dictates. Environmental Services will designate one of their analysts as the “Fund Manager” who has primary responsibility for the fund administration.

3.2. Responsibilities of the fund manager

- Project identification and implementation – inventory of possible projects in city, scoping of project parameters, selection of equipment or contractors, supervision of implementation.
- Energy/water analysis – review of project estimates, outcomes and performance to determine savings
- Bill analysis – review of energy/water bills to track impacts and identify opportunities
- Reporting – sharing outcomes internally and externally
- Budgeting – developing annual budgets

3.3. Stakeholder Engagement

To support the ECRF’s successful implementation, the fund manager will make efforts to engage relevant stakeholders. Key stakeholders include the budget office, the finance director, the controller’s office, the legal department, and the facility-operating departments. Each of these departments should be aware of the ECRF, and mechanisms for their input on projects and evaluation should be developed as needed. ⁷

⁵ On the dual axes of broad/narrow and community / municipal as outlined in ICLEI Resource Guide: Revolving Energy Fund”

⁶ For comments on staffing options see “ICLEI Resource Guide: Revolving Energy Fund” page 15-17. In particular a decision should be made about oversight - Often a revolving fund will have a managerial committee who has control over project approval and fund allocations as well as determining the appropriate payback periods.

⁷ From “ICLEI Resource Guide: Revolving Energy Fund”: Regardless of whether your REF is municipally – or

As savings accrue, the fund manager will ensure that departments in which these savings are occurring are made aware of the impact these projects are having, and will highlight the fact that long-term energy savings are a benefit to the department, whose operating budgets are now lower, and the city as a whole.

3.4. Community Awareness

We feel that equally important to the engagement of City stakeholders is the support of the community at large. The fund manager will make all reasonable efforts to publicize the ECRF's performance and outcomes, as a way of letting the citizens know their resources are being used well and the city is working hard to both reduce costs and improve the environment.

This is not the approach taken in some places (phoenix??) where the ECRF is not strongly publicized so it cannot come under attack as discretionary spending.

4. Accounting

4.1. Appropriation

While the annual appropriation appears small, by identifying appropriate projects, accounting for savings, and through consistent funding, El Cerrito can demonstrate that efficiency savings can be bootstrapped and then sustained over time for major civic benefit.

The ECRF will function through a "reappropriation" of funds that will need to be approved by city council each year.

Although this fund touches on departmental budgets, the revolving fund is separated from annual departmental appropriations, especially those that might relate to energy or water performance. Day-to-day city functions inevitably require attention to problems as leaky roofs, inoperable elevators, and pressing needs for replacement boilers. These projects, while important to address, and related to energy or water efficiencies, can divert attention to more comprehensive energy and water conservation efforts. Therefore, this fund is not to be commingled with other operational funds.⁸

4.2. Tracking savings

At present, each department does not track energy and water consumption, as a result, there is a "split incentive" in which those who use the energy have no incentive to conserve it.

In order to both identify project opportunities and to track outcomes, Environmental Services will begin to access and review energy and water bills for all departments across the city. This function called "bill monitoring" can be one of the most cost-effective activities the fund manager can take on. By carefully assessing bills, errors are detected. In addition, in cases where the city pays its bills with different rates, attention to those rates and what they are actually paying for can generate savings opportunities. Another important function that bill monitoring provides is early

community – focused, experience has shown that successful REFs operate at a distance from politics. This important point highlights the necessity of creating a REF managerial committee.”

⁸ A key ingredient in Phoenix's success, given the inherent conflicts between short-term pressing financial demands and longer-term investments characterized by energy efficiency, has been the clear separation of these funds.

warning, or detection, of unusual energy use patterns⁹. An additional benefit of bill monitoring is that bill monitoring ensures that a single point of contact is reviewing all the city's energy rates, and therefore, this person has the opportunity to identify variations, and pursue the most advantageous utility rates citywide.

Another activity related to tracking savings involves periodic evaluation of project outcomes to ensure that equipment is performing as projected and that projected savings are lining up with actual conditions. As appropriate, the fund manager will conduct spot checking of currently active projects on an annual basis, and a more thorough "true-up" of projected and actual outcomes every 2-4 years.

5. Project Guidelines

5.1. Project Eligibility

As described above the ECRF is intended to be a broad fund, supporting a wide range of environmentally beneficial projects for the City of El Cerrito. As such, at this time, there is not a fixed set of eligible project types. At a minimum the ECRF will always permit funding to projects that can demonstrate energy or water savings (or offsets in the case of new generation projects) equal or better than the threshold criteria (currently set at an annual cross project weighted average simple payback of 5 years or less)

Environmental Services will also consider at least on an annual basis, priority project types to address particular goals for the year. For example, based on the emissions profile of the city in a given year, or the availability of state or federal match funds to pursue specific projects. Environmental Services will also consider the purpose of the project (energy savings vs. education). Such parameters will be defined on an annual basis or as appropriate (e.g. no more than 10% of funds go towards education, etc.).

5.2. Project Size

[do we want to limit the size or scope of eligible projects??? E.g. no more than 50% of total fund per year, at least 5 projects funded per year?]

5.3. Project Identification Window

[do we want there to be an annual project definition period, or should it run on an ongoing basis? I feel that in El Cerrito's case an ongoing basis is more appropriate.]

5.4. Evaluating fiscal benefits¹⁰

The major function of investment analysis is to determine which projects have greater benefits than costs. The cost-benefit method for evaluating project alternatives can range from simple to sophisticated. Three primary cost-benefit methods are: simple payback analysis, internal rate of return (IRR), and net present value (NPV). Simple payback analysis is a method by which a project's total cost is divided by the energy-cost savings accruing to it in the first year after it has begun. A simple payback calculation provides a rough initial estimate of the time needed to recover the initial investment. IRR is a method that evaluates the profitability of capital

⁹ Adapted "Establishing a Revolving Fund for Energy Efficiency in Local Governments"

¹⁰ Adapted from "Establishing a Revolving Fund for Energy Efficiency in Local Governments"

expenditures over their useful lives. It essentially gives an annualized rate of return for an investment based on life-cycle payments. NPV is the key profitability indicator that takes into account both life-cycle cash flows and the time value of money. This method should be used as the primary one for evaluating project financing decisions. The higher the NPV, the greater the profitability of an investment.

The calculator developed to accompany this guide provides all three methods of analysis and allows for project lifespan up to 20 years.

5.5. Payback Period

Since energy efficiency projects must often compete with the immediate services the public expects from municipalities, projects that have longer-term paybacks (such as eight or ten years) often lose out. Hence, important opportunities for energy reductions are missed. It is important that projects provide savings that can be credited to the ECRF, however it is also important to be able to pursue environmental improvements that may have limited direct savings. Too often the emphasis is on short paybacks on energy efficiency projects - those yielding rates of return from 20%-50% a year. This may provide a "high" return on investment, but this approach will not capture the majority of potential savings available through energy retrofits. Additionally, it will preclude, important projects with limited savings.

To manage this balance, ECRF performance will be evaluated in terms of overall savings performance, and individual projects be looked at as part of a portfolio. If the City were to evaluate each project, rather than the portfolio, then projects with quick paybacks get funded, limiting the opportunities to finance projects with longer paybacks. Environmental Services will define an annual portfolio of projects that will achieve a reasonable overall return on investment as defined above). In a given year, the sum of savings for the portfolio of projects should meet the threshold for payback.

The calculator that accompanies this guideline allows any range of payback to be utilized.

5.6. Types of Costs

The ECRF is intended to fund projects that will have a direct and measurable environmental benefit for municipal operations. As such project funds should only be used for costs related to these benefits;

Where the project represents an additional benefit to municipal operations the ECRF may pay for

- **All project costs:** includes the cost of equipment, personnel, administration, and additional, unforeseen charges.

Where a project is already planned but there are additional benefits that can be implemented with additional funds the fun will pay for

- **Non-personnel costs:** covers "hard" costs such as the equipment and materials necessary to implement projects. This strategy does not cover overhead expenses.
- **Incremental costs:** covers the cost difference between the purchase of an energy-efficient item over a similar purchase that lacks the energy efficiency benefits (e.g., EnergyStar equipment, hybrid vehicles, etc.)

Additional types of costs to consider

- **Training costs:** ECRF will cover fees associated with training personnel on how to use and operate any new systems that require additional knowledge. If a proposed project only includes training costs, extra care must be taken to demonstrate how this training will result in the anticipated environmental benefit.
- **Research costs:** The ECRF will cover expenses associated with research and development of new technologies, as long as this research is no more than 10% of the costs of implementing the new technology, and that there is a reasonable chance that technology will be implemented in El Cerrito.
- **Innovation / Opportunity costs:** the ECRF will cover costs for innovative and opportunistic investments as long as the overall annual portfolio maintains the threshold for performance described in other sections.

5.7. Questions to resolve

- Should project savings be tracked and reported on a per project basis or on a portfolio basis? E.g. should a project “payback” the ECRF up to a certain point or should the savings be looked at in aggregate?¹¹
- What should the selection criteria be? Is 7 years simple payback enough?
- Does the city want to take up the portfolio approach to project evaluation?
- Types of costs are inclusive enough? Too inclusive?
- Interest rate for project repayment?

6. Reporting / Verification

Environmental Services will report the ECRF’s activities on an annual basis to justify reappropriation of city funds. Benefits will be reported in terms of kW reductions, kWh Saved, acre feet saved, CO₂e reduced and dollars saved. If other metrics become relevant they will be reported as well. Costs will be reported in terms of dollars spent and staff time allocated. Environmental Services may as needs require report on realized project benefits, operation/maintenance details, opportunities for replication, and/or educational outreach, if any.

Energy or demand savings are determined by comparing measured energy use or demand before and after implementation of an energy savings program. In general: Energy Savings = Baseyear Energy Use – Post-Retrofit Energy Use ± Adjustments. Adjustments create equal conditions for both the baseyear energy use and post-retrofit energy use. Conditions include: weather, occupancy, plant throughput, and equipment operations.

Environmental services will maintain a list of all completed energy projects and their associated savings. The projects are analyzed based on life-cycle costing and are evaluated based on simple payback, net present value and internal rate of return. In addition to an ongoing record of projects, annually Environmental Services will prepare a budget that illustrates already active projects and planned projects along with their associated costs. This budget is the basis of funding for the program and should demonstrate within a few years a net positive return to the general fund, and a “zero” cost for the ECRF.

¹¹ McAlister College’s Revolving Fund looks at each project individually and tracks and credits this way.

The calculator provided with these guidelines includes a preliminary template for both ongoing and annual estimation.

As projects exceed their estimated lifespan, reported savings are updated accordingly. Further, if a project is taken off line or in any other way stops delivering the anticipated savings, the savings estimates will be adjusted accordingly.

Where possible verification of outcomes will be documented. Installed equipment will be monitored, meters may be used to measure lighting use, observations of run-times and operational performance may be necessary to enable complete reporting. Where estimates are required because verification is not possible or feasible, assumptions and sources will be included.

PGE offers free loans of monitoring equipment, and may even provide auditing services El Cerrito can take advantage of.

Energy savings will often not be explicitly tracked for the majority of the projects. Savings reported will be based on engineering analysis with periodic verification of performance. ECRF impacts will be generated by taking into account the "before" and "after" conditions of a project (kW, acre feet, efficiency, operating hours, etc.). The City Auditor will periodically review savings reports generated by Environmental Services.

A useful means of determining cost-effectiveness of efficiency measures is to compare the cost of saving energy with the cost of purchasing energy. Using a methodology originally developed by the Lawrence Berkeley National Laboratory, the cost of saved energy for Phoenix's Energy Management program has ranged in value from well under a cent per kilowatt-hour saved (in fact as low as 0.41 ¢/kWh) to as high as 2.22 ¢/kWh.

When projects are financed and installed by a third party, specific protocols must be agreed upon by the contractor and Environmental Services. Principles of measurement and verification for energy-efficient projects include the "before" case, or *baseline*, and the "after" case, or *post-installation*.

The U.S. DOE has been spearheading a collaborative effort with the energy services industry to reach a consensus about measurement and verification periods. The effort put forth by the DOE resulted in the International Performance and Verification Protocol (IPMVP), which provides specific guidance on how to quantify performance and energy savings from investments in energy conservation measures. It provides guidance for negotiating contract terms that will ensure a project achieves or exceeds its goals of saving money and improving the environment.

7. Sample Project Identification / Submittal Forms¹²

7.1. Cash Flow Components of a Typical Energy Efficiency Retrofit:

Planning and Management: Project management costs, consulting fees, design and engineering, monitoring and verifying results.

¹² "ICLEI Resource Guide: Revolving Energy Fund"

Capital Acquisition and Financing: Material and procurement costs, financing costs, inflation and utility factors, tax effects.

Installation and Commissioning: Installation labor, building tune-ups, revised load projections, commissioning.

Operations and Maintenance: Fuel and power costs, maintenance costs and supplies, waste disposal costs, staff training.

7.2. Possible Criteria for Project Evaluation

Payback Period

Payback period is an important thing to consider as one of your possible decision criteria as the time frame of loan repayment has direct implications for how many projects you are able to finance. Since shorter payback periods allow for more projects to be financed in a short period of time, longer payback may mean less projects being approved, as it will take more time for payback to be completed.

Emissions Reductions

Your REF can also place priority on the overall percentage of emissions reductions that a project will achieve. This will be an important consideration for REFs that strive to promote emissions reductions as part of their overall goals and objectives.

Energy Savings

Similar to emissions reductions, REFs can also place a priority on the overall energy savings achieved. Energy savings allow for comparisons of energy usage before a measure is implemented to after, thus removing consideration of overall project size. This gives equal consideration to small and large projects as long as they both provide similar energy savings.

Alignment with Goals and Objectives of REF

While fairly straightforward, this decision criterion allows Fund Managers to determine which projects most closely align with the overall goals and objectives of the REF. Those that most closely align with the REFs goals are more likely to gain approval.

Environmental Justice

Promoting environmental justice is an important consideration in many communities. Projects that not only provide some means of energy efficiency but enhance environmental justice considerations are given priority in funding decisions with this decision criterion.

Replicability

If you want to ensure that your REF monies are going towards projects that can be repeated in other areas, this is an important criterion for you to consider.

Additionality

Additionality means that you are interested in promoting projects that add benefit to existing infrastructure, thereby negating the need for a complete overhaul of existing systems.

Risk

For many Fund Managers, one important component before granting loans is that approved projects are low risk.

Reduction of Criteria Air Pollutants

In non-attainment areas, reduction of criteria air pollutants can be an important consideration. If this is one of the priority areas for your REF, you can utilize ICLEI's Clean Air and Climate Protection Software (CACPS) to determine criteria air pollutants before and after project implementation.

Educational Component

This criterion highlights the significance of educating about the benefits associated with energy efficiency and/or a specific project.

Improvement of the Facility

This criterion refers to the enhancement of existing facilities by undertaking measures such as upgrades, replacements, and installing energy management systems.

Innovation

Many REFs in existence want to promote a mixture of low-risk projects along with new and innovative projects. If your Fund Managers are interested in promoting innovative projects, this is a decision criteria you should consider.

7.3. Sample Project Application Questions

- Please provide a brief summary for each submitted project request to assist the Committee members in their evaluations. The summary should be 60 words or less, and address:
 - Why the department needs the item
 - Whether the request is new, or has been previously requested
 - Whether the trust funds will be used as a match for funds from other sources
 - Conformance to the goals of the Fund
 - How project meets the requirements for a 5 year payback and can demonstrate quantifiable emission reductions
- Summary (60 words or less):

7.4. Sample Purpose, Project Scope, and Review/Selection Statements

Purpose

The purpose of this fund will be to establish a financial investment source for energy conservation or use reduction projects. The fund will be used as the investment source for projects aimed at improved efficiency in energy use. The fund will be perpetual and not expire at the end of each fiscal year.

Project Scope

This fund may be used to modify existing programs or facilities as well as fund improved infrastructure in new construction projects. The savings realized by the funding will be directed back into the fund to ensure the trust fund will be available for future projects.

Project Review and Selection

The applications will be evaluated on technical merit and the ability to demonstrate future savings on energy use. An energy audit with the use prior to and projections of use after the project will be required. The fund will only be used for projects that can demonstrate a payback on investment within 5 years. However, projects may be bundled into a single project at one site so long as the aggregate payback is less than 5 years. Project selection will be based on the time to realize the savings. Projects with the quickest payback will be considered before projects with longer payback periods.

8. Select References

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