



Local Government Energy Efficiency Resources

Guidebook 5: Project Management

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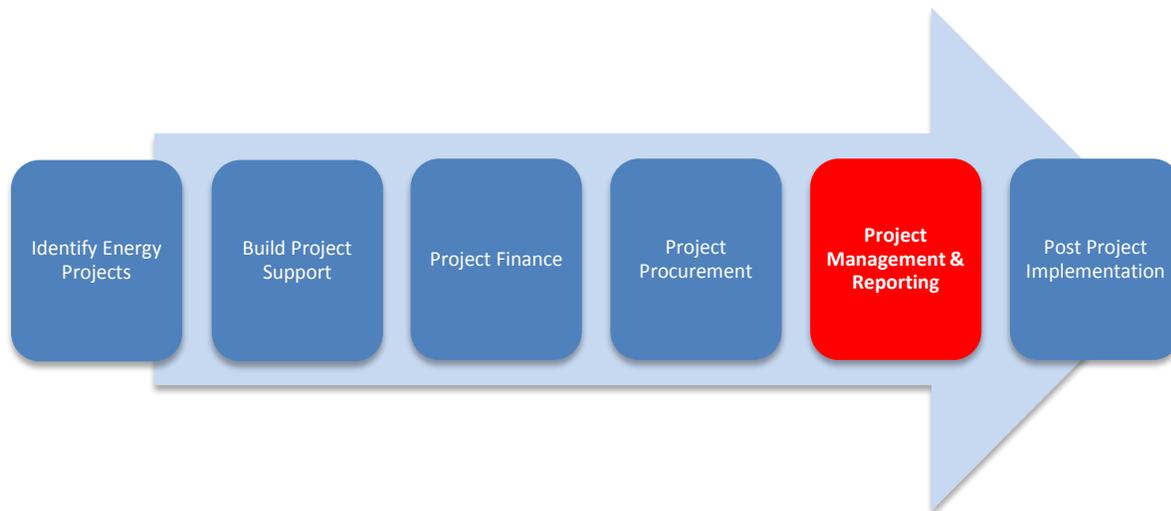
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Guidebook 5: Energy Efficiency Project Management and Reporting



ABOUT THE ENERGY NETWORK

The Energy Network was created by the California Public Utilities Commission (CPUC) in 2012 to harness the collective power of residents, businesses, and the public sector to achieve an unprecedented level of energy savings across Southern California. The pilot phase is funded through the end of 2014.

The Energy Network provides free technical resources and expertise to qualifying public agencies. At no cost to your agency, The Energy Network Public Agency Program identifies energy-saving measures and works side-by-side with your staff from design all the way through construction to help you accomplish your energy efficiency projects. Your agency pays for construction. We also help you arrange financing and process utility rebate and incentives. We are your objective, third-party experts. For public agencies it's also about using public funds wisely and being role models for their communities.

GUIDEBOOK 5: PROJECT MANAGEMENT

Description: This guidebook provides a framework for effective energy project management from project start through completion. In this guidebook, the typical role of a City Staff Project Manager is defined, and helpful checklists and meeting templates are included for coordination with your contractor throughout the retrofit project.

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Introduction

The Energy Network was established to develop a regional, collaborative approach to providing energy efficiency services for local governments. This is the fifth in a series of six guidebooks developed to assist local government staff in developing and managing energy management programs, including the identification of energy projects, building project support, financing, procurement, project management, and project closeout. This guidebook is intended to provide local governments with information on how to effectively manage the implementation of energy projects.

Successful project implementation is a function of good project management skills. For most energy projects, the majority of the day-to-day project management responsibilities will lie with the contractor selected to do the work. Accordingly, choosing a contractor that has good project management experience and processes is an important criterion to use during the contractor selection process. The procurement phase should also set clear expectations for project management and reporting practices to be followed by your contractor. Finally, establishing a clear and comprehensive scope of work during the procurement process will contribute to successful project implementation.

Although the project contractor is responsible for most day-to-day project management activities, it is also important to have a staff member assigned as an internal “Project Manager.” For the most part, the responsibilities of the staff Project Manager are oversight of the contractor and the contractual relationship, as well as interfacing with all internal staff to coordinate access to spaces to accomplish the work, reporting project progress to management, coordinating commissioning of equipment, training with appropriate personnel and interfacing with accounting to review and approve all invoices. Effective contractor management will increase the likelihood that the project achieves the full intent of the scope of work, the project stays on schedule, and is completed within budget. Even in an oversight role, internal staff must understand and apply the best practices of project management. In some cases for very large projects, a “Construction Manager” may be engaged to manage the project.

For individuals that do not have specific project management experience, managing energy projects can appear to be a daunting task. It does not have to be. Approaching project management in an organized manner and applying the best practices outlined in this guidebook can help produce positive results. This guidebook will provide a framework for effective project management from project start through completion.

Elements of a Successful Project

Project management requires simultaneously balancing the four primary elements of a project: resources, time, money and scope. Each of these components is closely interrelated (Figure 1) and all must be managed together if a project is to be a success.

Project Resources

Managing project resources involves ensuring the right people, equipment, tools and materials are at the right place at the right time. It also means ensuring that all contractors and subcontractors know what needs to be done, when it needs to be done, and how it needs to be done.

Selecting and obtaining the best and most appropriate resources for the project are a function of a good procurement process. The resources a contractor brings to the project should be clearly identified in the project proposal. For example, the experience and capabilities of the contractor's staff are an important component of a project's resources. Also, ensuring the contractor has sufficient time to commit to the project is also important. Lastly, it is essential to ensure that the contractor has a good understanding of the equipment and materials needed to accomplish the project on time and within scope (including equipment staging requirements).

Once the project starts, to a large degree, the staff Project Manager will be depending on the contractor's Project Manager, Construction Manager or Site Supervisor to ensure project resources are adequately managed on a day-to-day basis. Being involved in the project and visible through periodic meetings with the contractor's Project Manager, asking questions and maintaining constant communication will help ensure that resources are being managed in the most effective manner.

Project Scope

The project scope is a detailed description of what the project is intended to accomplish. The project scope is integral to the Statement of Work (SOW) that is developed during the procurement stage. The SOW is a primary component of the Request for Proposals and is included by reference in the contract that is executed with the contractor selected to do the work. The SOW becomes the roadmap for the implementation stage and should be carefully monitored throughout the entire project to ensure that there are no deviations. If a requirement of the SOW is not going to be fulfilled, it is best to recognize and correct that early, rather than try to address it after the work is complete and the contractor has left the project site.

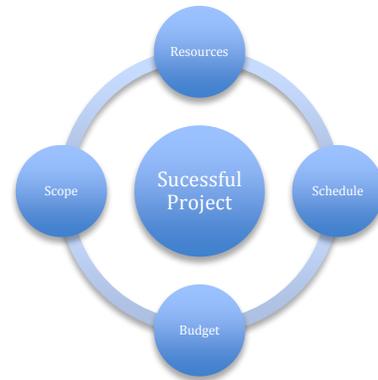


Figure 1: Elements of a Successful Project

Effective management of the project scope is essential to ensure that the project will be completed successfully. It is not uncommon for “scope creep” to occur during project execution in the form of adding additional tasks, changing specifications, or making other changes in the nature of the project. Some scope creep is expected and may be acceptable (e.g., adding a nominal amount of lighting fixtures to a retrofit that were overlooked during the development of the initial project scope). More significant changes in scope should be avoided and if suggested, carefully evaluated for necessity. In either case, there will be an impact on the project’s schedule and cost. The project contract needs to be written to allow for unexpected changes in scope in the form of a provision for invoicing for additional work that is approved, but that was not specifically identified in the original scope (e.g., additional price per fixture retrofitted).

The best approach to preventing scope creep is to make sure that all project participants have a very clear understanding of the project’s scope and to communicate and review the scope regularly during project status meetings.

The format and content of a well-written project Scope of Work can be found as Appendix D in Guidebook 4 (Procurement).

Schedule

Once you have the project scope identified, the next step is to determine the project schedule and timing. The project schedule is normally developed and proposed by the contractor as part of their proposal and negotiated and agreed to as part of the contract negotiation. To a large degree, the actual timing of the work (when the project starts) will be driven by the availability of the contractor and considerations such as impact on operations and staff. For example, it may be best to implement large lighting retrofits in the evenings and on weekends when staff are not present, so that it minimizes the impact on their workspaces.

One of the most effective tools for managing the schedule for larger, more complex projects is a “Gantt” chart. A Gantt chart is a project planning tool that can be used to illustrate sequencing and timing of tasks required to complete a project. Gantt charts are simple to build and understand so they are generally the preferred means to report and manage energy projects, particularly projects that span a longer period of time. For a project that involves work that spans several weeks or more, a Gantt chart should be developed by the contractor and approved by the staff Project Manager. Shorter jobs that span only a few days most likely don’t need this level of detailed scheduling. Gantt charts can be developed with basic software tools such as Microsoft Excel or Microsoft Project. There are also several very good cloud-based project scheduling tools available on the internet.

Project planning meetings involving all project stakeholders should be scheduled and conducted on a regular basis (at least weekly). It is not uncommon for projects to suffer from “schedule slippage,” which is can be caused by a number of reasons, including unavailability of contractor staff or a delay in delivery of materials required for the project. Closely monitoring the schedule and trying to identify potential schedule slippage is an

important aspect of project management. Minor schedule slippage may not be significant however, larger schedule slips can have serious impacts on the project and staff that are impacted by the project (e.g., interruption of operations due to the project).

Guidelines for developing a Gantt Chart and a sample Gantt Chart can be found in Appendix A and Appendix B respectively.

Budget

There is one more important element to any project – the budget. Completing a project within budget is more likely if project resources, scope and schedule have been well-managed. The project budget should be clearly spelled out in the contracting document, including a detailed breakdown of the budget versus project deliverables (e.g., cost per unit number of lamps installed).

Managing the budget requires careful attention and tracking. For many smaller projects that span a short period of time that will be billed in one or two invoices, tracking and keeping the project within budget is not difficult since there is little time for the project to deviate from its original scope. For longer projects that involve a complex scope, expenditures must be carefully tracked against actual project deliverables. In order to do this with minimal confusion and effort, it should be required that invoices provide sufficient detail to allow cross-checking them against work that has been completed.

As invoices are received, they should be closely cross-checked with work that has been accomplished and the contracted budget. It is good practice to hold back final payment until all final project closeout tasks are completed (e.g., a 10 percent hold-back).

Whether change orders are allowed and how they are handled (lead time and approval process) should be spelled out in the project contract. If change orders are necessary, they may or may not involve a change in the budget. If they do, they need to be brought to the attention of management as soon as possible. The best way to avoid change orders is to have a well-designed statement of work. More information on Project Procurement is discussed in Guidebook 4. Additional tools and resources for construction management can be acquired through membership services of the Association of General Contractors (AGC) and the Construction Management Association of America (CMAA). It is encouraged to check to see if your city is a member of either of these organizations or related industry associations.

Successful Project Management

Successful project management is a deliberate process. The critical components to successful project management include:

- Project Planning
- Project Kick-Off
- Project Monitoring
- Project Reporting
- Project Closeout

Project Planning

Good practice for effective project planning includes developing a good Project Management Plan (PMP). The PMP guides project planning from conception through closeout and is a tool to help gain support and approval for the project from management. The PMP should include the following components:

- **Project Background** – this section provides background on how the project was developed, how it fits the organization’s overall energy program and the key stakeholders involved in the project.
- **Project Scope** – the project scope is one of the most important elements of the project plan. It describes in detail what is to be accomplished in the project, including detail technical specifications for equipment and materials to be used.
- **Financing** – the financing section describes how the project will be funded.
- **Procurement** – the procurement section provides an overview of the procurement process to be followed to retain the necessary contractors to accomplish the scope of work.
- **Project Management** – the project management section describes the project team, specifically identifying the Project Manager, as well as the project schedule.
- **Project Closeout/ M&V** – the project closeout section describes those post-construction activities that are necessary to complete the project, including system commissioning, training of staff, administrative closeout of the project contract, etc. (this section is the subject of Guidebook 6).

The PMP is a living document that is intended to help manage the project through its various phases. An example of a Project Management Plan can be found in Appendix C.

The PMP should clearly identify the critical project team members. At a minimum, the Project Team members should include:

- City Staff
 - Project Manager
 - Public Works
 - Maintenance and Operations
 - Other City Staff (depending on project scope. e.g., Planning, Engineering, Parks and Recreation)
 - Contractor Project Manager
 - Contractor Site Supervisor

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- Construction Manager
 - Contractor Engineer

The City Staff Project Manager (PM) leads the Project Team and is responsible for overseeing all aspects of the project from start to completion. The following list outlines the Project Manager's responsibilities:

- Oversee development of the project scope, project approval, procurement and financing.
- Develop and maintain a Project Management Plan and a Project Management Binder.
- Ensure all contractual requirements are met, such as contractor licenses, bonding and insurance requirements.
- Ensure all required regulatory permits are obtained, including environmental and waste disposal.
- Ensure all requirements for financing and rebates are met (including ensuring rebates are approved before work is started) and process necessary financing and utility rebate applications.
- Communicate with various stakeholders that are impacted by the work (e.g., staff that may be displaced or directly impacted by the project). For public projects (e.g. street lamp replacement), this may involve communication with the public and answering their questions and concerns.
- Oversee the Project Kick-off Meeting and subsequent project review meetings.
- Oversee and monitor project execution, including ensuring quality control checks are completed.
- Monitor project schedule and critical milestones.
- Make periodic reports to management on project status.
- Identify any problems or implementation concerns and recommend solutions.
- Verify invoices are in accordance with the contracted scope and actual work completed, then processed for payment.
- Bring change orders and contract disputes to management's attention for resolution or approval.
- Oversee pre-functional testing, commissioning and final project acceptance.
- Ensure facility staff has been trained on new equipment.
- Ensure all final project documents are prepared and delivered (e.g., as-built drawings, warranties, spare parts lists, operation and maintenance manuals).
- Oversee or conduct any Measurement & Verification (M&V) to ensure all utility rebates or incentives are received and estimated project savings area realized.
- Prepare a final project report for management, including lessons learned.

A Checklist of Project Managers Responsibilities can be found in Appendix D.

KEY POINTS AND CONSIDERATIONS: PROJECT PLANNING

- Careful project planning is essential to ensuring a smoothly run project.
- Developing a Project Management Plan (PMP) helps communicate to all stakeholders the important elements of the project, including Scope of Work, schedule, financing, procurement procedures and project closeout requirements, including M&V.

Project Kick-Off

One of the first steps of successful project management is to ensure a proper project kick-off meeting. All project stakeholders should be required to attend this meeting, including the Contractor Project Manager, Site Superintendent, and all associated local government staff members (e.g., Program Manager, Public Works, Maintenance, Operations, etc.).

The meeting is led by the staff Project Manager. The purpose of the project kick-off meeting is to ensure all stakeholders have the same understanding of all aspects of the project's execution. The project kick-off meeting should include the entire Project Team. The meeting should address all aspects of the project's implementation and closeout phases to ensure that there are no questions or misunderstandings. A final job walk/pre-construction site inspection should be accomplished as part of this meeting, with the contractor including a final review of the Scope of Work to ensure that there are no last-minute changes necessary prior to starting work. This job walk also allows for an inspection of the condition of the spaces to ensure there are no disagreements regarding potential damage done during the accomplishment of the work (e.g., damaged floors, walls or office equipment). Final coordination with staff that occupies the spaces should be checked during this final job walk (e.g., vacating office spaces if necessary to gain access to job site).

The following items should be reviewed during the kick-off meeting:

1. Contract terms and Scope of Work
2. Project equipment and materials specifications
3. Safety and environmental requirements and protocol
4. Project schedule and timing (e.g., after-hours requirements)
5. Access and security requirements
6. Change order procedures
7. Billing and payment procedures
8. Project closeout and M&V requirements

Appendix E provides a template for a project kick-off meeting agenda.

Once the project kick-off meeting is concluded and any identified issues have been resolved to the satisfaction of the staff Project Manager, the contractor is given the approval to start work.

KEY POINTS AND CONSIDERATIONS: PROJECT KICK-OFF

- The project kick-off meeting should include all stakeholders involved in the project and be used to ensure that there is a clear understanding of the project Scope of Work, work schedule, billing and change order procedures, safety considerations and other planning issues.
- The kick-off meeting should include a final job walk and job site inspection to ensure there are no misunderstandings on the details of the Scope of Work and to document the initial condition of the workspaces to avoid disputes upon project completion.

Project Monitoring

It is important for the Project Manager to be available and fully engaged in monitoring a project's progress during all stages of the project. Frequent communication with the contractor's Project Manager (or work-site supervisor) is the best way to keep abreast of the project's progress and to spot potential problems before they become significant issues.

Closely monitoring progress during the implementation stage is critical to ensuring that the project will be completed on time and within budget. Although it is not essential that the staff Project Manager be on-site at all times, it is important that they are monitoring the project's progress closely. The interval for project monitoring will largely depend on the complexity and duration of the project. For smaller and shorter-duration projects, this may involve visiting the job site at the commencement of the project and upon project completion. For larger, longer-duration projects, this may require a daily presence (e.g., at the beginning and end of each workday). Visibility of the staff Project Manager will ensure a higher level of quality control by the Contractor as well as minimize the chance of variances from the Scope of Work. Also, potential safety issues, unanticipated impacts on staff, or other unexpected issues can be identified and rectified early.

Depending on the length of the project, it is useful to have periodic, scheduled project review meetings (at least weekly). These meetings should be attended by the City and Contractor Project Managers (at a minimum). This regular communication with the Contractor will ensure project quality control and that the project is completed according to the scope of work. Periodic project review meetings, even if very brief (at the end of the working day), gives the Contractor the opportunity to clarify issues and for you to check in on whether the project is on schedule. Most importantly, your presence clearly communicates that you are invested in the quality of the outcome of the project and its success.

It is not uncommon for a project to not go exactly as planned. Since changes are likely, it is necessary to be prepared for contingencies that may result in change orders or that impact the project schedule. As contingencies arise, they should be addressed immediately with the Contractor's Project Manager so that you can come to a mutually agreeable solution. Plans should be put in place to mitigate these issues and steps to keep the project on track should be negotiated and agreed upon by all parties. It is important to document any

agreements, particularly any changes in scope. If there is a major problem identified (e.g., a safety issue), immediately have work stop until the issue is resolved.

KEY POINTS AND CONSIDERATIONS: PROJECT MONITORING

- Regular project monitoring by being “present” on the job site is important to identify potential problems early and to develop timely mitigation strategies to deal with any unforeseen problems.
- The Project Manager should have regular project review meetings to more formally review the project Scope of Work and schedule and to identify any emerging problems with the Contractor Project Manager before they become more significant.

Project Reporting

Project reporting requirements will largely depend on the size, scope and nature of the project. Simple, single measure/single site projects may require a short completion report. Multi-staged, multi-measure projects may require more complex project reporting. For longer projects, regular progress reports will keep senior management apprised of the project’s progress and ensure any problems or issues are resolved quickly.

The Project Manager should issue regular reports of progress against budget, schedule and scope. The report should be distributed to all internal project team members. The reports should be brief, but should summarize all relevant aspects of the projects status. The report should follow the following format:

- Project Name
- Report Date
- Project Status Summary
- Schedule
- Key Issues
- Identified Risks
- Tasks and Next Steps
- Decisions Needed
- Key Future Dates
- Budgeted Cost
- Budget Expended to Date

Regular progress reports create a valuable written record and can provide important input for lessons learned and thereby help improve the management of future projects.

Appendix F provides a useful template for a Project Status Report.

KEY POINTS AND CONSIDERATIONS: PROJECT REPORTING

- Project status reports from the contractor allow you to gauge progress against the schedule and to spot problems early, such as schedule slippage.
- Periodic and complete project status reports to management help ensure that any problems or issues that need their support and approval can be resolved quickly.

Project Closeout

Project closeout activities are the last phase in the project lifecycle. Proper project closeout begins with the commissioning of all new equipment and systems prior to the Project Manager accepting that the project has been satisfactorily completed in accordance with the contracted Scope of Work. Project closeout activities include the following:

- Technical Closeout (including Commissioning of New Equipment and Measurement & Verification (M&V))
- Financial Closeout
- Administrative Closeout

Proper project closeout is important to ensure all contractual requirements are met and that the project Scope of Work is fully accomplished. During this phase staff training is accomplished on the new systems and equipment and turnover of all documentation on the equipment, including as-built drawings, O&M manuals and warrantee information takes place. M&V is accomplished to verify energy savings as required by the utility to receive rebates or incentives. This M&V may also be used to determine project payments for a performance contract or determine how much savings are attributed to an internal revolving energy loan fund.

Project closeout activities are addressed in more detail in Guidebook 6.

KEY POINTS AND CONSIDERATIONS: PROJECT CLOSEOUT

- Proper project closeout is important to ensure all project requirements are met in accordance with the contract and SOW.
- Careful attention to meeting all rebate application submittal and M&V requirements in a timely manner is important to ensure all rebates and incentives are received as anticipated.

Large Energy Projects and Hiring a Construction Manager (CM)¹

For larger projects that require significant contract and construction management expertise that exceeds staff capabilities, it may be necessary to hire a Construction Manager (CM). A CM is an individual or firm with specific expertise in the project scope, that is contracted by your organization to oversee the construction and installation of the energy project. Whether you need a CM depends largely on the magnitude, scope and complexity of the project, the expertise of your staff, the critical nature of the timing of the project, and the availability of funding to hire a CM. Projects that are being implemented by an ESCO involve the use of a CM who is part of the ESCO team. An ESCO's CM is paid for as part of the project costs.

To some extent, hiring a CM frees your staff from most day-to-day project oversight activities. Even so, it is important that a staff Project Manager provides oversight and management of the CM. Ultimately, accountability for the project's success will rest with the staff Project Manager. If you have knowledgeable, trained and available staff, hiring a CM is not necessary.



If you do not have a full-time Energy Manager with exceptional project management skills to oversee the project, hiring a CM will expedite the construction and installation of your energy efficiency measures. The CM's duties are similar to those of the Project Manager for the Contractor for smaller projects. They include:

- Developing the project's overall approach.
- Assisting in developing construction and commissioning schedules.
- Assisting in developing construction drawings and technical specifications.
- Managing the selection of contractors, including the bid process and the award.
- Facilitating the writing of the construction contract.
- Providing on-site construction management and inspection services.
- Controlling and monitoring costs.
- Developing or directing project testing, commissioning, and acceptance requirements.
- Ensuring that the project complies with all applicable environmental, health and safety rules and regulations, building standards and codes, and other regulatory requirements.
- Preparing and submitting progress reports to the owner.
- Ensuring that the operation and maintenance staff is properly trained.
- Ensuring that the owner receives operation and maintenance manuals, operation and maintenance procedures and checklists, and recommended spare parts lists.

¹ Adapted from the California Energy Commission guidebook on "[How to Hire a Construction Manager for your Energy Efficiency Project](http://www.energy.ca.gov/reports/efficiency_handbooks/400-00-001E.PDF)" that can be accessed in its full form at http://www.energy.ca.gov/reports/efficiency_handbooks/400-00-001E.PDF

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- Submitting “as-built” drawings and other documents to the owner.

The advantages to hiring a CM include:

- As experts and specialists, CMs have more experience and expertise specific to the project than your staff will. As a result, they should be able to expedite the completion of the project. The sooner a project is finished, the sooner you realize the benefits.
- Your staff can be free to handle other responsibilities.

The disadvantages of hiring a CM include:

- The cost of a CM is typically five to ten percent of the project’s construction budget. For large projects, this can be a lot of money.
- Hiring a CM will not totally free up your staff, since they still need to prepare the competitive bid documents, review proposals and prepare administrative contracts. Once the CM is hired, your staff should oversee the CM and be available to answer questions, verify invoices and resolve conflicts.

APPENDIX A: GUIDELINES FOR DEVELOPING A GANTT CHART

The following is the basic process for developing a project Gantt chart in a spreadsheet program (See example Gantt Chart in Appendix B):

1. Make a list of all project tasks and subtasks in the first column (each task or subtask takes up one row).
2. Indicate the task start date and completion date (or duration in days).
3. Tabulate dates along the top as columns with increments of days or weeks, depending on the total length of the project.
4. Indicate the expected time for each task by a horizontal bar whose left end marks the expected beginning of the task and whose right end marks the expected completion date. Tasks may run sequentially, in parallel or they may overlap.
5. As the project progresses, the chart is updated by drawing a vertical line on the current date. The bars are filled in to a length proportional to the fraction of work that has been accomplished on each task.
6. Completed tasks lie to the left of the “current date” line and are completely filled in. Current tasks cross the line and are behind schedule if their filled-in section is to the left of the line and ahead of schedule if the filled-in section stops to the right of the line. Future tasks lie completely to the right of the line.

In constructing a Gantt chart, it is advisable to keep the tasks to a manageable number (no more than 15 to 20) so that the chart fits on a single page. More complex projects may require subordinate charts which detail the timing of all the subtasks, which make up one of the main tasks. For team projects, it often helps to have an additional column indicating who on the team is responsible for the task. Tasks or milestones that require staff Project Manager's involvement or sign-off should be clearly indicated as such.

Often the project has important events that you want to appear on the project timeline, but that are not tasks. You enter these on the Gantt chart as a "milestone" event and mark them with a special symbol, like an upside-down triangle. Milestones are stages of the project that should receive special attention. Milestones may either signal the completion of a key deliverable or phase of a project, or they can be scheduled before the end of a phase so that corrective actions can be taken in the event problems or issues are identified. A milestone may also identify the need for an important decision or a point in the project where certain information needs to be gathered to determine the next steps in the project. Milestones are useful to gauge whether projects are on schedule. Constrained dates associated with milestones could determine a critical path. The critical path is the sequence of project activities that determine the shortest possible overall project schedule. An example of a “critical path” activity is the delivery of materials or the completion of a required inspection. Critical path activities require special attention to ensure they are completed on time, otherwise, the project schedule will inevitably slip and additional costs may be incurred.

APPENDIX B: TYPICAL GANTT CHART USED FOR PROJECT SCHEDULING

APPENDIX C: SAMPLE PROJECT MANAGEMENT PLAN

Please visit www.theenergynetwork.com for a list of Project Management Plans on whole building, pool pump and street lighting projects.

APPENDIX D: CHECKLIST FOR A PROJECT MANAGER'S RESPONSIBILITIES

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- Oversee development of the project scope, project approval process, procurement and financing (See Guidebooks 1, 2, 3 and 4).
 - Develop a “Project Management Plan.”
 - Ensure all contractual requirements are met, such as contractor licenses, bonding and insurance requirements.
 - Ensure all required regulatory permits are obtained, including environmental and waste disposal.
 - Ensure all requirements for financing and rebates are met (including ensuring rebates are approved before work is started) and to process necessary financing and utility rebate paperwork.
 - Communicate and deal with various stakeholders that are impacted by the work or the result of the work (e.g., staff that may be displaced or directly impacted by the project). For public projects (e.g. streetlamp replacement), this may involve communication with the public.
 - Develop and keep current a “Project Management Binder.”
 - Oversee the Project Kick-off Meeting and subsequent project review meetings.
 - Oversee and monitor project execution/ installation, periodically completing quality control checks.
 - Monitor project schedule and critical milestones agreed to in the contracted Scope of Work.
 - Make periodic reports to management on project status.
 - Identify any problems or implementation concerns and recommend solutions.
 - Verify invoices are in accordance with the contracted scope, in line with the work accomplished, then process invoices for payment.
 - Bring change orders and contract disputes to management’s attention for resolution.
 - Oversee pre-functional testing, commissioning and final project acceptance.
 - Ensure facility staff has been trained on new equipment.
 - Ensure all final project documents are prepared and delivered (e.g., as-built drawings, warranties, spare parts lists, operation and maintenance manuals).
 - Oversee or conduct any Measurement & Verification to ensure all utility rebates or incentives are received and estimated project savings area realized.
 - Prepare final report for management including lessons learned.

APPENDIX E: PROJECT KICK-OFF MEETING AGENDA TEMPLATE

Meeting:
Date:
Call #:
Attendees:

Jon Smith – City of XYZ	x	x	Jane Doe – ABC Consultant

Phase: Project Development
Progress:
Pending Milestones:
Date of Next Milestone:
Recently Completed Milestones:
Overdue Items:

Agenda:

1. Review project contract terms and Scope of Work.
2. Review pre-construction inspection requirements.
3. Review project equipment and materials specifications.
4. Review safety and environmental requirements and protocol.
5. Project schedule and timing (e.g., after hours requirements).
6. Access and security requirements.
7. Change order procedures.
8. Billing and payment procedures.
9. Project closeout and M&V requirements.

Action Items:

1. AI 1
2. AI 2
3. AI 3

APPENDIX F: PROJECT STATUS REPORT TEMPLATE

Project Name	
Report Date	
Project Status Summary	
Schedule	
Key Issues	
Identified Risks	
Tasks and Next Steps	
Decisions Needed	
Key Future Dates	
Budgeted Cost	
Budget Expended to Date	