

Statement of Project Objectives

Clark County, NV

DE-SE0000729

Clark County Energy Efficiency – Outdoor Lighting Projects

A. Project Objectives

Goals and Objectives: The primary goal of the Energy Efficiency Outdoor LED Retrofit Project administered by the Department of Energy is to enhance energy efficiency and sustainability in outdoor lighting infrastructure through the widespread adoption of LED technology. The project aims to achieve the following objectives:

1. Retrofit existing outdoor lighting fixtures with LED technology to significantly reduce energy consumption and operating costs.
2. Optimize lighting design and controls to minimize light pollution, enhance nighttime visibility, and improve overall lighting quality.
3. Educate and engage stakeholders to promote awareness and adoption of LED retrofitting practices, fostering a culture of energy conservation and sustainability.

Expected Outcomes: The project anticipates the following outcomes:

1. Substantial reduction in energy consumption and greenhouse gas emissions associated with outdoor lighting infrastructure.
2. Improvement in nighttime visibility, safety, and security in public spaces, enhancing quality of life for communities.
3. Cost savings for municipalities and organizations through decreased energy bills and maintenance expenses.
4. Promotion of sustainable practices and technologies, contributing to the DOE's mission of advancing energy efficiency and environmental stewardship.

B. Technical Scope Summary

Work Scope Description:

1. Conduct Preliminary Assessment:
 - Assess the current outdoor lighting infrastructure, including energy usage, fixture types, and condition.
 - Identify potential retrofit candidates based on energy efficiency potential and feasibility.
 - Expected End Result: Completion of preliminary assessment report and identification of priority retrofit areas.

2. Develop Project Plan:
 - Develop a detailed project plan outlining the scope, objectives, timeline, and budget for the LED retrofit project.
 - Identify key stakeholders and establish communication channels for project coordination.
 - Expected End Result: Finalized project plan approved by stakeholders and project team.
3. Retrofit Planning and Procurement:
 - Develop detailed retrofit plans for identified priority areas, including lighting design and fixture specifications.
 - Procure LED lighting fixtures and necessary equipment for retrofit projects.
 - Expected End Result: Completed retrofit plans and procurement of LED fixtures.
4. Retrofit Installation:
 - Coordinate with the electrical contractor to schedule the installation of LED fixtures.
 - Ensure that a qualified electrical contractor handles the supply, installation, and hook-up in compliance with national, state, and local codes, as well as safety standards.
 - Prior to installation, thoroughly inspect all wiring for any signs of damage.
 - Dispose of electronic waste responsibly, adhering to all relevant laws and regulations.
 - Before any field modifications, inspect base and pole sections for any damage.
 - Verify the quality of materials used to protect exposed bolts.
 - Test the earth ground connections of the pole for safety.
 - Conduct insulation tests on all conductors to ensure each exceeds 100 Mohms.
 - Remove existing equipment to be replaced, including electrical components enclosures, wire harnesses, and pole top wire assemblies.
 - Disconnect the pole harness from the enclosure harness in the electrical components enclosure and feed the pole harness into the pole interior.
 - Remove the entire pole top assembly.
 - Install the electrical components enclosure and ball tracker luminaire.
 - Install crossarms and securely attach luminaires.
 - Install the wire harness.
 - Connect the supply wiring at the subpanel.
 - Install the lighting control system.
 - Use a laser alignment beam and field aiming diagram to accurately aim the luminaire assembly.
 - Commission the lighting system, ensuring that both the design lighting levels, and environmental lighting trespass levels are met.
 - Expected End Result: Successful installation of LED fixtures in target locations.
5. Lighting Design Optimization:
 - Optimize lighting design plans to maximize energy efficiency and lighting quality.
 - Implement smart lighting controls and sensors for adaptive lighting solutions.

- Expected End Result: Finalized lighting design plans and integration of smart controls.
6. Performance Monitoring and Evaluation:
- Monitor energy savings and performance metrics of retrofitted areas.
 - Evaluate the effectiveness of LED retrofit projects in achieving energy efficiency goals.
 - Expected End Result: Comprehensive performance evaluation report with documented energy savings and outcomes.
7. Final Reporting and Documentation:
- Prepare final project reports and documentation for submission to the Department of Energy.
 - Ensure all project deliverables are completed and documented according to grant requirements.
 - Expected End Result: Submission of comprehensive final project report and documentation package.

C. Tasks To Be Performed

Task 1.0: Project Kickoff and Planning [M1-M3]

Task Summary: This task involves initiating the project and developing a detailed project plan to guide the implementation process. The objectives include defining project goals, establishing roles and responsibilities, and creating a timeline for project activities.

Milestones:

- Milestone 1.1: Project kickoff meeting held to introduce team members and stakeholders to the project objectives and scope.
- Milestone 1.2: Project plan developed, including a detailed schedule of activities, budget allocation, and resource allocation.
- Milestone 1.3: Stakeholder engagement strategy finalized, outlining methods for communication and collaboration throughout the project.

Task 2.0: Inventory and Assessment of Existing Lighting Infrastructure [M1-M3]

Task Summary: This task involves conducting a comprehensive inventory and assessment of the existing outdoor lighting infrastructure. The objectives include identifying the types and conditions of lighting fixtures, assessing energy usage and efficiency, and determining priority areas for LED retrofitting.

Milestones:

- Milestone 2.1: Inventory of existing outdoor lighting fixtures completed documenting fixture types, locations, and conditions.
- Milestone 2.2: Energy usage and efficiency assessments conducted, analyzing historical energy consumption data, and identifying opportunities for improvement.
- Milestone 2.3: Priority areas for LED retrofitting identified based on assessment findings and criteria such as energy savings potential and cost-effectiveness.

Task 3.0: Procurement and Installation of LED Lighting Fixtures [M1-M3]

Task Summary: This task involves procuring LED lighting fixtures and equipment for the retrofit projects and coordinating their installation. The objectives include selecting appropriate LED fixtures, ensuring compliance with project specifications, and completing the installation process efficiently.

Milestones:

- Milestone 3.1: Procurement of LED lighting fixtures completed, with orders placed and delivery scheduled.
- Milestone 3.2: Installation of LED fixtures initiated, with designated areas prepared and installation teams mobilized.
- Milestone 3.3: LED fixtures successfully installed in targeted outdoor lighting locations, meeting project requirements and specifications.

Task 4.0: Testing, Commissioning, and Optimization of LED Fixtures [M5]

Task Summary: This task involves testing and commissioning the retrofitted LED fixtures to ensure proper functionality and performance. The objectives include conducting quality assurance checks, optimizing lighting design and controls, and verifying energy savings and environmental benefits.

Milestones:

- Milestone 4.1: Testing and commissioning protocols developed, outlining procedures for fixture testing and performance evaluation.
- Milestone 4.2: LED fixtures undergo testing and commissioning processes, with functionality and performance verified against project criteria.
- Milestone 4.3: Lighting design and controls optimized based on testing results and feedback, maximizing energy efficiency and lighting quality.

End of Project Goal: The SMART end-of-project goal is to achieve a minimum of 40% energy savings from the LED retrofit projects compared to baseline energy consumption. Verification will be conducted through comprehensive energy audits and analysis of post-retrofit energy usage data.

D. Project Management and Reporting

Project Management and Reporting Activities:

Throughout the budget period, effective project management and reporting activities will ensure timely progress monitoring, communication, and accountability. The project team will adhere to the Federal Assistance Reporting Checklist for delivering reports and other required deliverables to the Department of Energy (DOE). In addition to the standard reporting requirements, the project will include the following special reporting activities and deliverables:

1. Quarterly Progress Reports:
 - The project team will submit quarterly progress reports to DOE, detailing accomplishments, challenges, and milestones achieved during each reporting period.
 - These reports will provide updates on project activities, budget utilization, and any deviations from the project plan.

2. Technical Reports:

- Technical reports will be prepared for each major task or milestone, detailing methodologies, findings, and technical analyses conducted.
- These reports will provide in-depth information on LED retrofitting processes, lighting design optimizations, and energy savings calculations.

3. Energy Savings Analysis:

- A comprehensive energy savings analysis report will be prepared at the end of the project, summarizing the achieved energy savings from LED retrofit projects compared to baseline energy consumption.
- This report will include detailed data analysis, methodologies used, and recommendations for future energy efficiency initiatives.

4. Final Project Report:

- A final project report will be submitted to DOE at the conclusion of the project, summarizing all project activities, outcomes, and lessons learned.
- This report will provide a comprehensive overview of project achievements, impacts, and recommendations for further action.

Special Deliverables:

1. Subtask 2.1 - Energy Efficiency Assessment Report: This report will detail the findings of the energy efficiency assessment conducted during the Budget Period, including energy consumption data, efficiency metrics, and recommendations for LED retrofit projects.
2. Task 3 - LED Fixture Procurement Documentation: Documentation of LED fixture procurement activities, including purchase orders, vendor contracts, and delivery confirmations, will be provided to DOE for review.

These reporting activities and deliverables will ensure transparency, accountability, and effective communication throughout the project lifecycle, facilitating DOE's oversight and evaluation of project progress and outcomes.

Milestone Summary Table							
Recipient Name:		Clark County, NV					
Project Title:		Clark County Energy Efficiency Projects					
Task Number	Task or Subtask (if applicable) Title	Milestone Type (Milestone, , End of Project Goal)	Milestone Number	Milestone Description	Milestone Verification Process (What, How, Who, Where)	Anticipated Date (Months from Start of the Project)	Anticipated Quarter (Quarters from Start of the Project)
1	Inventory & Assessment	Milestone	1	Completion of inventory and assessment of existing lighting infrastructure (completion of assessment criteria met).	Review of assessment reports by project manager	M1	Q1
2	Identification of Retrofit Candidates	Milestone	2	Identification of priority areas and fixtures for LED retrofitting (Retrofit candidates identified based on assessment).	Approval of retrofit candidate list by project team.	M1	Q1
3	Procurement of LED lighting fixtures	Milestone	3	Purchase of LED lighting fixtures and equipment for retrofitting projects. (Completion of procurement process)	Confirmation of purchase orders by procurement officer	M1	Q1
	Installation of LED Fixtures	Milestone	4	Completion of LED fixture installation in designated areas (Successful installation of fixtures according to specifications)	Inspection and verification of installations by project supervisor	M3	Q1
5	Testing and Commissioning	Milestone	5	Successful testing and commissioning of retrofitted fixtures (Fixtures pass functionality and performance tests)	Testing protocols executed by designated technicians.	M4	Q2
6	Lighting Design Review and Optimization	Milestone	6	Review and optimization of lighting design plans (Optimized plans aligned with	Approval of revised design plans	M5	Q2

				energy efficiency and safety standards)			
7	Integration of Smart Lighting Controls	Milestone	7	Integration of smart lighting controls and sensors (Successful integration of controls for adaptive lighting solutions)	Functional testing of controls and sensors	M6	Q2
8	Nighttime Visibility Assessments	Milestone	8	Completion of nighttime visibility assessments (Satisfactory visibility and safety standards achieved in retrofitted areas)	Evaluation of assessment results	M6	Q2

Sites Included in Clark County Energy Efficiency Project:

Clark County Project Sites	Quantity	LED Sports Lighting Fixtures	Quantity	LED Area / Parking Fixtures
1 McCarran Marketplace Park 5800 Surrey St, Las Vegas, NV 89119 Lat. 36.0855 Long. 115.1218	40	Musco - TLC-LED-1200, 5700K - 75 CRI, 1170W, 136,000 Lumens	13	13 - Cooper Lighting Solutions - ATO-PRV-C15-D-UNV-T3-SA-BZ (SINGLE ASSEMBLY)
			2	2 - Cooper Lighting Solutions - ATO-TT-D5-840-U-WQ-NW GAZEBO SURFACE
			3	3 - Cooper Lighting Solutions - ATO-PRV-XL-C100-D-UNV-T3-SA-BZ (DOUBLE ASSEMBLY)
			14	14 - Cooper Lighting Solutions - ATO-PRV-XL-C100-D-UNV-T4-SA-BZ (SINGLE ASSEMBLY)
2 Mountain's Edge Regional Park 8101 W Mountains Edge Pkwy, Las Vegas, NV 89178 Lat. 36.0049 Long. 115.2665	5	Musco - TLC-LED-900, 5700K - 75 CRI, 890W, 89,600 Lumens	42	4 - Cooper Lighting Solutions - ATO-PRV-C100-D-UNV-T4-SA-BZ (SINGLE ASSEMBLY)
	45	Musco - TLC-LED-1500, 5700K - 75 CRI, 1430W, 160,000 Lumens	20	Cooper Lighting Solutions - ATO-PRV-C25-D-UNV-T3-SA-BZ-8040 (SINGLE ASSEMBLY).
			4	Cooper Lighting Solutions - ATO-TT-D5-840-U-WQ-NW GAZEBO SURFACE MOUNT.
			9	Cooper Lighting Solutions - ATO-PRV-C40-D-UNV-T3-ADJS-AP-8040.
3 Shadow Rock Park 2650 Los Feliz St, Las Vegas, NV 89156 Lat. 36.2084 Long. 115.0136	32	Musco - TLC-LED-575, 5700K - 75 CRI, 575W, 52,000 Lumens	15	Cooper Lighting Solutions - ATO-PRV-C60-D-UNV-T4-SA-BZ-8040 (SINGLE ASSEMBLY).
	76	Musco - TLC-LED-1200, 5700K - 75 CRI, 1170W, 150,000 Lumens		Cooper Lighting Solutions - ATO-PRV-C60-D-UNV-T4-SA-BZ-8040 (DOUBLE ASSEMBLY. QTY. (30) HEADS).
	32	Musco - TLC-LED-900, 5700K - 75 CRI, 880W, 104,000 Lumens		
4 Desert Bloom Park 8405 S Maryland Pkwy, Las Vegas, NV 89123 Lat. 36.0376			8	Cree OSQ LED 5700k - 70 CRI, 104W, 15,939 Lumens
			6	Cooper Lighting Solutions - ATO-PRV-C60-D-UNV-T3-SA-XX (SINGLE ASSEMBLY)
			6	Cooper Lighting Solutions - ATO-PRV-XL-C175-D-UNV-T4-SA-XX (SINGLE ASSEMBLY)
			3	Cooper Lighting Solutions - ATO-PRV-XL-C175-D-UNV-T4-SA-XX (DOUBLE ASSEMBLY. QTY. (6) HEADS. REMOVE EXISTING BULLHORN
			10	Cooper Lighting Solutions - ATO-TT-D5-840-U-WQ-NW GAZEBO SURFACE MOUNT
			10	Cooper Lighting -ATO-PRV-C60-D-UNV-T3-SA-XX-MA1017-XX (SECURITY LIGHT ON SPORTS POLES WITH TENON ADAPTOR USE EXISTING MOUNTING ARM)
			16	Cooper Lighting Solutions - ATO-PRV-XL-C100-D-UNV-T3-SA-XX (SINGLE ASSEMBLY)
			4	Cooper Lighting Solutions - ATO-PRV-XL-C175-D-UNV-T4-SA-XX (SINGLE ASSEMBLY)
		2	Cooper Lighting Solutions -ATO-PRV-XL-C175-D-UNV-T4-SA-XX-L90-R90 (DOUBLE ASSEMBLY. QTY. (4) HEADS; (2) L90; (2) R90. REMOVE EXISTING BULLHORN	