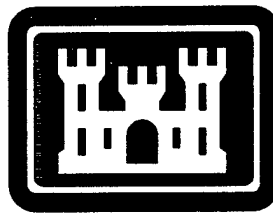


FINAL

LIGHTING STUDY
EEAP PROGRAM
FOR
LETTERKENNY
ARMY DEPOT



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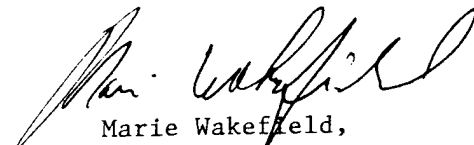


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**LETTERKENNY ARMY DEPOT
ENERGY ANALYSIS**

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1.0 EXECUTIVE SUMMARY

1.1 Project Authorization and Objectives

This project was authorized under the general provisions of Executive Order 12902 with specific implementation under the Army's Energy Engineering Analysis Program (EEAP). Entech Engineering, Inc. was commissioned under Contract DACA01-94-D-0037, Delivery Order 0004 issued by USAED, Mobile and Administered by USAED, Norfolk (Mlecik). The objectives of the project are to research, identify, evaluate, and define energy saving projects that meet the Army's criteria and lead to energy savings at the Letterkenny Depot with respect to lighting. Details of the authorization and objectives of this report, which delineates our contractual arrangement with the government, may be found in Section 9.1.

1.2 Synopsis of Findings

Entech Engineering, Inc. surveyed over 2 million square feet of lighting in defined areas of seventy-two buildings along with the roadway and parking lot areas. Overall, we considered over 14,000 luminaires with an annual estimated operating cost of \$330,000. Entech prepared documentation for seventeen (17) Energy Saving Opportunities (ECOs) complete with cost estimates and life cycle cost analysis.

Eight (8) ECO projects are recommended with a total implementation cost of approximately \$1,000,000 and an energy savings of 7,300 mmBtu (2,100,000 kWh). The recommended ECOs are listed in Table 1.2.1.

**Table 1.2.1
Recommended ECO's
Letterkenny Army Depot**

| ECO No. | ECO Description | Implementation Cost \$ | Energy Savings mmBtu | LCCID Simple Payback (Yrs) | LCCID SIR | 1st Yr \$ SAVINGS |
|--------------|--|------------------------|----------------------|----------------------------|-----------|-------------------|
| ECO-2 | Incandescent Exit Signs to LED Exit Signs | \$6,400 | 61.2 | 3.03 | 5.74 | 2,225 |
| ECO-3 | Incandescent Area Light over Paper Exit Sign | \$4,600 | 88.3 | 1.83 | 9.54 | 2,652 |
| ECO-4B | Incandescent Area Lighting Fixture Replacement | \$24,000 | 254.5 | 2.75 | 6.33 | 9,150 |
| ECO-5 | HID Lighting | \$41,000 | 531.4 | 2.88 | 6.06 | 14,763 |
| ECO-6 | Efficient Fluorescent Lighting Retrofit | \$628,000 | 4607 | 9.92 | 1.78 | 66,493 |
| ECO-11 | Industrial Fluorescent to High Pressure Sodium | \$261,000 | 1554 | 8.83 | 1.99 | 30,988 |
| ECO-12 | Occupancy Sensors | \$2,900 | 56.9 | 7.19 | 2.45 | 486 |
| ECO-15 | Building Exterior Lighting | \$7,000 | 102.4 | 2.14 | 8.13 | 3,444 |
| Total | | \$1,000,000 | 7,300 | | | 130,141 |

1.3 Organization of Report

The report consist of three (3) volumes:

Volume 1

| | |
|-----------|-------------------------------------|
| Section 1 | Executive Summary |
| Section 2 | Methodology |
| Section 3 | Facility Description |
| Section 4 | Billing History |
| Section 5 | Energy Calculations |
| Section 6 | Energy Conservation Opportunities |
| Section 7 | Operation and Maintenance Practices |
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Volume 2

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Volume 3

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| Section 10 | Lighting Survey Field Data |
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