

7 Energy Efficiency Projects Report

ENERGY EFFICIENCY IMPROVEMENT PROJECTS - 2024 REPORT

Company: Assem Manufacturing LLC
Electricity Meter: ELC0001234 (Main Office - ADDC)
Project Period: January - September 2024
Report Generated: October 5, 2024

BASELINE ENERGY CONSUMPTION (2023):

Annual Electricity Usage: 52,800 kWh
Monthly Average: 4,400 kWh
Peak Demand: 18.5 kW
Energy Cost: AED 23,760

ENERGY EFFICIENCY PROJECTS IMPLEMENTED:

PROJECT 1: LED LIGHTING RETROFIT

Implementation: February 2024
Investment: AED 8,500

- Replaced 180 fluorescent fixtures with LED
- Power Reduction: 2.2 kW (45% lighting energy savings)
- Annual Savings: 4,320 kWh (AED 1,944)
- Payback Period: 4.4 years

PROJECT 2: HVAC SYSTEM OPTIMIZATION

Implementation: April 2024
Investment: AED 12,500

- Installed programmable thermostats
- Upgraded to variable speed drives
- Power Reduction: 3.8 kW
- Annual Savings: 6,840 kWh (AED 3,078)
- Payback Period: 4.1 years

PROJECT 3: COMPRESSED AIR SYSTEM EFFICIENCY

Implementation: June 2024
Investment: AED 15,000

- Replaced oversized compressors
- Fixed air leaks (18 leaks identified)
- Installed smart controls
- Power Reduction: 4.5 kW
- Annual Savings: 8,760 kWh (AED 3,942)
- Payback Period: 3.8 years

PROJECT 4: MACHINERY UPGRADES

Implementation: August 2024
Investment: AED 45,000

- Upgraded 3 CNC machines to energy-efficient models
- Installed servo motors
- Power Reduction: 6.2 kW
- Annual Savings: 12,480 kWh (AED 5,616)
- Payback Period: 8.0 years

CURRENT ENERGY PERFORMANCE (September 2024):

Monthly Consumption: 3,450 kWh (down from 4,400 kWh)
Peak Demand: 12.3 kW (33% reduction)
Energy Intensity: 8.6 kWh/unit produced (was 11.0 kWh/unit)

CUMULATIVE ENERGY SAVINGS:

- Total Power Reduction: 16.7 kW
- Monthly Savings: 950 kWh (21.6% reduction)
- Annual Projected Savings: 11,400 kWh
- Cost Savings: AED 5,130 per year
- CO2 Emissions Avoided: 5.7 tons per year

FINANCIAL PERFORMANCE:

Total Investment: AED 81,000

Annual Operating Savings: AED 14,580

Simple Payback Period: 5.6 years

10-Year NPV: AED 62,400 (at 8% discount rate)

ADDITIONAL BENEFITS:

- Improved Power Factor: 0.85 to 0.93
- Reduced Maintenance Costs: AED 2,400/year
- Enhanced Equipment Reliability: 15% improvement
- Better Indoor Air Quality
- Noise Reduction: 8 dB average

ENERGY MANAGEMENT INITIATIVES:

- + Installed smart energy monitoring system
- + Weekly energy performance reviews
- + Employee energy awareness training (85% participation)
- + Energy star equipment procurement policy

RENEWABLE ENERGY ASSESSMENT:

- Solar PV Feasibility Study: Completed
- Rooftop Solar Potential: 25 kW system
- Estimated Solar Generation: 15,600 kWh/year
- Solar Investment Required: AED 87,500
- Solar Payback Period: 7.2 years

PLANNED 2025 PROJECTS:

1. Solar PV Installation (25 kW): Q2 2025
2. Power Factor Correction: Q1 2025
3. Energy Storage System: Q4 2025
4. Heat Recovery System: Q3 2025

ENERGY EFFICIENCY METRICS:

- Overall Energy Intensity Improvement: 22%
- Energy per Production Hour: 28.7 kWh (was 36.8 kWh)
- Energy Cost per Unit: AED 8.6 (was AED 11.0)

CERTIFICATION & COMPLIANCE:

- ISO 50001 Energy Management: In progress
- UAE Energy Efficiency Program: Participating
- ADDC Demand Side Management: Compliant

NEXT QUARTER TARGETS:

- Achieve 25% total energy reduction vs 2023 baseline
- Implement predictive maintenance for energy equipment
- Conduct comprehensive energy audit
- Begin solar PV installation planning

Prepared by: Energy Management Team

Approved by: Technical Director - Eng. Mohamed Al-Hashimi

Reference: EEP-2024-Q3-REPORT