OBJECTIVES

- Identify most significant Energy Efficiency Opportunities (EEO)
- Assessment recommendations categories
- Standard Industrial Classification (SIC) code
- Determine and benchmark the potential energy and cost savings per SIC
- Total energy savings including electricity and gas in kWh/year
- Energy cost savings in US$/year
- Implementation rate
- Provide guidance for plant managers, energy engineers and other personnel involved in the energy assessment process
- Data analysis of 40 assessments conducted by UWM-Industrial Assessment Center in the years 2014 & 2015
- Outcomes of the assessments are evaluated in terms of energy savings, cost savings, payback period and implementation rate. The criteria of the analysis:
  1. SIC grouping of the industrial facilities
  2. Recommended energy savings per SIC group in kWh/year
  3. Recommended energy cost savings per SIC group in US$/year
  4. Assessment recommendations grouping
  5. Recommended energy savings per AR group in kWh/year
  6. Recommended energy cost savings per AR group in US$/year
  7. Payback period per AR group
  8. Implementation rate per SIC group
  9. Implementation rate per AR group
- The assessment recommendations are categorized into eight groups:
  2. Motors
  3. Compressed air systems
  4. Lighting
  5. Heat recovery systems
  6. Building Envelope (BE)
  7. Electrical Demand Management and Utility Bills (EDMUB)
  8. Waste Management and Productivity Enhancement (WMPE)

RESULTS

- 40 assessments were analyzed based on the SIC and EEO by considering Energy and Cost Savings, Payback Period and Implementation Rate.
- 5 assessments for Plastic products facilities, while millwork, commercial printing, metal stamping, fabricated metal products, and water supply were visited twice.
- Commercial printing, sausages and other prepared meats, Aluminum die-castings, Iron and steel forgings, and plastic products facilities have the most significant energy and cost savings per year.
- A total of 376 ARs were suggested. Lighting, motors, compressors and HVAC EEOs were the most contributing groups in the total of recommendations with about 74% and 26% for the rest of the groups. WMPE and motors groups were the most cost saving (in US$/year) groups, whereas heat recovery and HVAC groups were the most energy saving (in kWh/year) ones.
- This study could be considered as a guide for plant managers, energy engineers and other personnel involved in the energy assessment process.