UNIDO ONUDI

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
ORGANISATION DES NATIONS UNIES POUR LE DEVELOPPEMENT INDUSTRIEL

**Progress Report**
(01 July 2018 – 30 June 2019)

**Philippines**

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| **Title[1]** | **Philippines: Industrial Energy Efficiency** |
| **GEF ID:** | **3601** |
| **UNIDO SAP ID:** | **103049** |
| **GEF Replenishment Cycle:** | **GEF-4** |
| **GEF Focal Area:** | **Climate Change Mitigation (CCM)** |
| **Integrated Approach Pilot (IAP) Programs[2]:** | **(select)** |
| **GEF Project Size:** | **Full-Sized Project (FSP)** |
| **UNIDO PTC Department:** | **Department of Energy (ENE)** |
| **UNIDO Project Manager:** | **Mr. Sanjaya Shrestha** |

## I. Brief description of the project

**I.1 Objective**: The objective of the project is to introduce ISO 50001 energy management standard along with system optimization approach for improvement of industrial energy efficiency in the Philippines.

The project has three components:

(i) Energy Management System based on ISO 50001;
(ii) Systems Optimization Approach (steam, compressed air and pump); and
(iii) Enhancement of Financing Capacity for EE projects.

The expected outcomes of the project include:

a. Energy management standard promulgated nationally
b. Capacity of industry and industry support organizations developed to implement ISO compliant energy management systems
c. Increased adoption of energy management standards by industry

[1] As per approved CEO Endorsement document
[2] Only for **GEF-6 projects**, if applicable

d. Capacity of industry and industry support organizations developed to implement systems optimization
e. Increased adoption of system optimization energy efficiency projects by industry
f. Increased availability of financial capacity and support for industrial energy efficiency projects

PIEEP aims to train national experts in energy management and the optimization of steam, compressed air and pumping systems, while at the same time introduce these concepts to participating industrial enterprises that will directly benefit from project implementation. Outputs include greenhouse gas (GHG) emissions reductions from savings in the use of fuel and electricity attributable to energy management system adoption and system optimizations undertaken by the participating industrial enterprises. The project will also build capacity for industries in order to introduce an energy management system standard - ISO 50001. Adoption of energy management system and compliance with this ISO 50001 Standard will provide an incentive for continuous improvement of energy performance.

The project's systems optimization approach and energy management system are applicable to all industries to achieve its direct impacts on energy savings and associated GHG emission reductions. The project targets sub-sectors include:

- Food & Beverages
- Basic Metals & Steel
- Chemicals
- Paper & Paper Products
- Cement
- Water utilities
- Semi-conductor & Microelectronics

The estimated project energy savings and GHG emission reductions compared to the project targets (calculated based latest GEF methodology as presented in MTR Report) are shown in the following table:

| Parameter | Target | Achieved | % to Target |
|---|---|---|---|
| | A | B | B/A x 100 |
| Total Annual Savings | | | |
| Fuel Savings/yr (GJ/yr) | 623,995 | 2,053,045 | 329% |
| Power Savings/yr (MWh/yr) | 190,043 | 114,181 | 60% |
| | | | |
| Lifetime Energy Savings | | | |
| Fuel Savings/yr (GJ/yr) | 6,673,910 | 21,435,828 | 321% |
| Power Savings/yr (MWh/yr) | 2,074,790 | 1,148,025 | 55% |
| | | | |
| Emission Reductions | | | |
| Direct ($tCO_2e$) | 1,515,810 | 2,133,232 | 141% |
| Indirect ($tCO_2e$) planned projects | 3,031,619 | 1,151,817 | 38% |
| | | | |

**I.2 Baseline:** The Philippines is endowed with abundant but underdeveloped indigenous energy resources. The country is dependent on fossil fuel imports and is very susceptible to volatile world oil prices. Despite efforts to further strengthen energy efficiency and conservation initiatives in the country by upgrading the energy efficiency guide; a lot of work is very much needed to improve its energy performance. Among the identified challenges is the lack of information on energy management services and market interest in energy efficiency. Consequently, efforts to improve

energy efficiency have not been consistent and do not enjoy continuous attention from senior industry managers in the country.

## II. Targeted results and progress to-date

II.1 Describe in tabular form the project's progress made in achieving its outputs against key performance indicator's targets in the project's **M&E Plan/Log-Frame at the time of CEO Endorsement/Approval**. Please expand the table as needed.

| Outcomes by Project Component | Indicator(s) | Target Level | Progress To Date |
|---|---|---|---|
| **Component 1: Energy Management** | | | |
| 1.1 Policy support | Policy paper | • Policy paper focusing on energy management in the context of negotiated agreements and experience in developed economies and China | • The Project continues to provide support to the Department of Energy in promoting Department Circular No. 930305 - Voluntary submission of energy consumption data of Philippine private businesses and Administrative Order 110, which mandates all government offices and buildings to implement energy management program to bolster the passage of the Enercon Bill requiring both the private and public sector to implement energy-related standards such as ISO 50001, as well as energy efficiency and conservation best practices |
| 1.2 Training materials and tools developed | Availability of training materials on energy management | • Detailed and tested training materials to facilitate industries' conformance with an energy management standard (ISO 50001) | • The training materials developed have been continuously reviewed and updated during the course of the workshops and training activities. These include a) EnMS Awareness Workshop; b) EnMS Two-Day User Training; and c) EnMS Experts Training (3 modules). |

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| 1.3 National Awareness campaign on ISO 50001 launched | A national campaign to promote industrial energy management and ISO 50001 | • Publicity materials; brochures | • Set-up a booth at the SM Mall of Asia during the Access to Sustainable Energy Program (ASEP)on October10, 2017 organized by the EU;<br>• Four (4) Awareness Workshops on energy management system were organized 3 in Luzon, and 1 in Visayas during FY 2018<br>• Six (6) 2-day User training on EnMS were organized 4 in Luzon, 1 in Visayas and 1 in Mindanao regions during FY 2018<br>• Attendance to Energy Investment Forum and Stakeholders Conference to serve as Resource Person and present project updates and promote energy management based on the ISO 50001<br>• Attendance to Energy Summit organized by the DOE<br>• Presented EnMS to two (2) associations (electronics & environmentalists) |
| 1.4 Peer-to-peer network developed | A peer-to-peer (information sharing) web-based network established to enable companies to share information on energy management | • Network in operation and in use to document energy savings by companies participating in the project and to identify companies worthy of recognition | • Created two (2) groups on Facebook one for national experts in Systems Optimization and another one for national experts in EnMS to facilitate communication among local experts and easily manage assignments on who will be resource person/s for training/workshops and/or technical person/s for site assessment/survey |
| 1.5 Trained national experts/factory personnel on energy management | Number of Filipino experts trained in energy management practice and procedures | • 40 engineers trained specifically in energy management to a level such that they can train others | • To date, 44 national experts have been trained on energy management system based on the ISO 50001 standard and passed the EnMS Expert Modules; 19 from Batch 1 and 25 from Batch 2.These experts stem from diverse backgrounds; consultants, experts from beneficiary industries, partner government agencies, equipment and service providers and academia. |
| | | • Personnel from 500 factories familiar with energy management of which 200 will be capable of implementing energy management plans | • To date, 1,097 management personnel and factory staff from 556 factories have been trained by the project on EnMS and are familiar with energy management system and capable of implementing energy management plans. |

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| 1.6 ISO compliant energy management systems implemented | Number of factories implemented ISO compliant energy management systems and operational energy management projects | • 200 factories complete operational improvement projects. | • On-going survey with factories to collect data on the number of operational improvement projects actually implemented by companies after their staff attended the 2-day User Trainings; |
| | | • National experts work with 40 factories to fully implement ISO 50001. | • 34 companies have implemented ISO compliant energy management system, out of which 4 companies have achieved full ISO 50001 certification.<br>• 12 National Experts have worked with the additional 12 companies who have implemented ISO compliant energy management system |
| | | • 30 case studies | • 24 case studies have been developed and are currently in the finalization stage |
| 1.7 Recognition program developed | Recognition program (award scheme) for participating factories based on successful achievement. | • Existing DOE award program strengthened | • For the 2017 Award, the DOE recognized 12 national practitioners of energy management system and 12 companies/plants that have implemented energy management system based on the ISO 50001. |
| **Component 2: Systems Optimization** | | | |
| 2.1 Training materials and tools developed | Availability of technical training materials and tools on systems optimization for industries | • Training curricula and guidelines for steam, compressed air and pumping systems optimization | • Training materials and manuals completed for steam, pump and compressed air systems optimization are continuously updated during training. |
| 2.2 Trained national experts/factory personnel on systems optimization | Number of trained national experts | • 40 Filipino engineers intensively trained on compressed air, pump/fan systems and steam system optimization | • To date, 90 locals were trained by the project for the systems optimization but only 44 were able to complete the training and passed the final exam to be considered national experts. |

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| | | • 400 factory personnel familiar with systems optimization of which 150 are familiar with the use of UNIDO's tools | • To date, 1,172 factory personnel have been trained and are familiar with systems optimization, of which 424 are familiar with the use of UNIDO's tools. |
| 2.3 Vendors participation on systems optimization training | Number of equipment vendors participated on the training programs | • 40 Filipino equipment vendors (pumps, compressors motors, etc.) knowledgeable about capture of systems level efficiency opportunities applicable to their products | • To date, 29 equipment vendors (pump, boiler and compressed air) have been trained by the project on System Optimization. |
| 2.4 Documented systems optimization demonstration projects | Documented energy efficiency (SO) demonstration projects | • 60 systems assessments completed, of which 40 lead to completed projects and 25 case studies documenting energy savings. | • Ongoing survey with factories to check if systems optimization have been pursued and documented for demonstration project purposes.<br>• 34 factories have served as host plants for SO assessments; |
| **Component 3 Enhancement of financial capacity** | | | |
| 3.1 Harmonized energy efficiency project evaluation criteria | Evaluation criteria are harmonized within financial institutions to help them select better EE projects institutions to help them select best EE projects | • Evaluation criteria are harmonized within financial institutions to help them select better EE projects | • Project evaluation criteria were harmonized among 7 local banks and 2 leasing companies that attended the workshop in May 2016. A scoring tool was developed to aid the evaluation criteria for EE projects. The Harmonization report is currently being finalized. |
| 3.2 Training materials developed | Availability of training materials on financing energy efficiency projects | • IEE-specific training materials and guidelines available to both loan applicants and FI staff | • 3 sets (hardcopies) with accompanying CDs of training materials for financial institutions, local experts and industries were developed, along with 3 sets (hardcopies) of Guidelines on the following were developed and published together with accompanying CDs: 1) Developing Financial Proposals for Energy Efficiency Projects; 2) Using the Automated Worksheet for the Financial Modelling of EE Investment Projects; and 3) Harmonized Evaluation Criteria for EE Projects |

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| 3.3 Managers trained on financial aspects of energy efficiency projects | Number of managers trained | • Financial managers with increased knowledge of risk assessment, technical issues and legal concerns, pertaining to evaluation of IEE investments | • To date, 52 financial managers have been trained on financial aspects of EE projects. |
| 3.4 Support for packaging of loans for industrial energy efficiency projects | Number of persons trained on the support for packaging for industrial energy efficiency projects. | • Financial managers with improved understanding of IEE investment project appraisal | • To date, 52 financial managers were trained on improved understanding of EE investment project appraisal. |

## III. Project Risk Management

III.1 Please indicate the overall risk management: (i) as identified in the CEO Endorsement document, and (ii) progress to-date.

| | (i) Risks | (i) Risk level | (i) Mitigation measures | (ii) Progress to-date | New defined risk[3] |
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| 1 | Failure to achieve sustainable market transformation for energy using industrial equipment | Low risk (L) | Through the introduction of energy management and linkages to an international management system standard (ISO 50001), the project builds on the regular audit process, which assures that proper and efficient operation of industrial energy systems is maintained and becomes part of each firm's operating culture, while transferring much of the long term burden and cost associated with regulatory compliance enforcement to independent auditors and other market actors. The combination of national/global standards with tools and training will allow companies to "hardwire" industrial energy efficiency projects/investments into management structures that require independent verification, and continuous improvement | Forty-six (46) companies have implemented the energy management system with 10 of them going for full certification while 163 companies have initiated systems optimization approach within their operation. These numbers, while not big mostly includes conglomerates and industries operating inside economic zones and industrial parks. The transformation effect of these figures will cascade to the allied industries and services doing business with the aforementioned companies, especially now that the law on energy efficiency and conservation is about to take effect. | ☐ |
| 2 | Change of focus within government counterparts | Low risk (L) | DOE is fully supportive of the project which is designed to strengthen existing government IEE Programs. Also, the project will be primarily market and industry-driven | With the impending energy efficiency and conservation law to take effect within the year, DOE is planning to reorganize its institutional set-up and capability so as to streamline its implementation | ☐ |
| 3 | Market risk | Low risk (L) | Some drivers for industrial energy efficiency programs already exist including high energy costs | Although the energy efficiency and conservation law does not explicitly mention that industries should be ISO 50001 certified, implementing the system based on the standard and combining it with systems optimization approach guarantees companies adopting it to be fully compliant with the law. With this, the risk of losing the market's interest with energy efficiency is nil as the law will prompt them to continuously implement energy efficiency programs within their organizations. | ☐ |
| 4 | Financial risk | Modest risk (M) | The project was able to train 52 financial managers in proper evaluation and assessment of energy efficiency projects from 22 local banks under Component 3. In addition, a harmonization workshop was also organized by the project to initiate among the participating local banks in the workshop in standardizing the financial assistance steps of energy efficiency projects | During the project implementation, no industry approach the project management unit in seeking financial assistance from local banks on energy efficiency projects. However, this does not indicate that the industry did not seek bank loans but may have self-financed their small to medium EE projects and only sought financial assistance for very big EE projects. | ☐ |

[3] New risk added in reporting period. Check only if applicable.

III.2 If the project received a sub-optimal risk rating (H, S) in the previous reporting period, please state the actions taken since then to mitigate the relevant risks.

NA

## IV Environmental and Social Safeguards (ESS) & Stakeholder Engagement

IV.1 As part of the requirements for **projects from GEF-6 onwards**, and based on the screening as per the UNIDO Environmental and Social Safeguards Policies and Procedures (ESSPP), which category is the project?

☐ Category A project

☐ Category B project

☐ Category C project

(By selecting Category C, I confirm that the E&S risks of the project have not been escalated to Category A or B).

IV.2 Please provide any feedback submitted by co-financiers, and other Partners/Stakeholders of the project (e.g. private sector, CSOs, NGOs, etc.).

NA

IV.3 Please provide any **relevant stakeholder consultation documents**:

[Examples: *Project Steering Committee minutes, Aide Memoire, Meeting Agenda, etc*.
All attachments are to be named as per the GEF required format, i.e.: **"GEFID_Document Title"**]

The project organized its 8th and last Project Steering Committee (PSC) to discuss and plan the closure and sustainability of the PIEEP. Please see the attached meeting minutes (3601_8th PSC Meeting Minutes_March 2019).

## V Knowledge Management

V.1 Please provide any **relevant knowledge management mechanisms** / **tools** that the project has generated:

Promotional Video
Results and Impact Video
25 EnMS and SO case studies

PIEEP Brochure, folder and USB handout
EnMS Brochure, Infographic and Flyer
SO Brochure and Flyer
IEE Awareness training materials
EnMS training materials (User and Expert)
SO training materials (User and Expert) – CASO, SSO and PSO
Guidelines for Development of Financial Proposals for Energy Efficiency Projects
Guidelines in Using the Automated Worksheet for Financial Modelling of Energy Efficiency Investment Projects
Guidelines on the Harmonized Project Evaluation Criteria for Energy Efficiency Projects

## VI Financial report

VI.1 **Financial** implementation of the project:

Please see the attached Project Delivery Report.

## VII Work Plan and Budget

VII.1 Please provide **an updated project work plan and budget** for the remaining duration of the project, as per last approved project extension. Please expand/modify the table as needed.

Project reached operational completion and ended 31 March 2019. The Project Final Report and the independent Terminal Evaluation Report are attached herewith.

## VIII Synergies

VIII.1 **Synergies** achieved:

[Describe potential synergies arising out of closer integration of the service modules within the project or cooperation with (external) multilateral and bilateral projects/programmes.]

The Project has built a trusted relationship with the executing partner DOE and have cooperated closely throughout the implementation of the project.

After the MTR, the Project engaged a wider section of stakeholders by including 3 other sectors (water districts, semiconductors/microelectronics, and cement) and in reaching out to institutional stakeholders such as Quezon City, PEZA, and other LGUs.

At the end of the project, the project has managed to create a good reputation and requests for technical assistance continue to come from companies.