



Philippine Industrial Energy Efficiency Project (PIEEP)

Survey Assessment of Project Impact/ Results

Final Report

Prepared for



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

By

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March 2019

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Acronyms

ABREVIATIONS

CASO	Compressed Air System Optimization
DOE	Department of Energy
EE	Energy Efficiency
EnMS	Energy Management System
ER	Emission Reduction
IIEC	International Institute for Energy Conservation
PIEEP	Philippine Industrial Energy Efficiency Project
PSO	Pumping System Optimization
SO	System Optimization
SSO	Steam System Optimization
UNIDO	United Nations Industrial Development Organization

WEIGHTS AND MEASURES

CO ₂ e	carbon dioxide emission equivalent
GWh	gigawatt-hour
kg	kilogram
kWh	kilowatt-hour
MT	Metric ton
MW	megawatt
MWh	megawatt-hour

EXECUTIVE SUMMARY

The Philippine Industrial Energy Efficiency Project (PIEEP) aims to promote sustainable energy management system and achieve energy efficiency best practices in the industrial sector. This has been done through capacity building activities that promote ISO 50001 energy management standard using the system optimization approach to improve industrial energy efficiency. The project is implemented by the United Nations Industrial Development Organization (UNIDO) in partnership with the Philippine Department of Energy (DOE) and the Philippine Department of Trade and Industry (DTI). The project is funded by the Global Environment Facility (GEF).

A survey has been conducted to gather information to assess the impacts/outcomes of the PIEEP.

A total of more than 400 survey recipients were contacted through industrial enterprises and national experts (NEs) combined. Out of the more than 400 survey form recipients, a total of 230 responses from industrial enterprises and NEs were obtained.¹

The profile of the feedback is shown in the following tables.

Nature of Feedback from the Survey Respondents - Industrial Enterprises

Feedback	Number	% to Total
Submitted accomplished survey form	72	41%
Received Survey Form through NE	2	1%
Agreed to submit, but did not send after the cut-off date	23	13%
Waiting approval from supervisor	5	3%
Contact person no longer connected, but identified responsible person and still did not submit	23	13%
Contact person no longer connected & cannot identify responsible person	21	12%
Did not attend training, but attended Awareness Workshop/ site was visited but no project implemented	5	3%
Replied, cannot participate/ not interested	20	11%
Industrial enterprise permanently closed	4	2%
Total Enterprises that provided feedback	175	100%

¹ As of 30 November 2018

Nature of Feedback from the Survey Respondents - National Experts

Feedback	Number	% to Total
Submitted accomplished survey form	39	71%
Agreed to submit, but did not submit after the cut-off date	9	16%
NE no longer connected with enterprise	3	5%
Replied did not push through with EnMS	2	4%
Decided not to participate in the survey	2	4%
Total National Experts that provided feedback	55	100%

Out of the 230 survey respondents, 84 % are male and 16% are female.

A total of 111 completed survey forms have been submitted by the survey respondents. There is one enterprise where data gathered from the survey form was supplemented by information gathered from a published report since the concerned personnel who originally took part in the PIEEP activities is no longer connected with the enterprise.

Energy Management System

No less than 46 enterprises that took part in the UNIDO capacity building activities of the PIEEP are implementing energy management systems (EnMS) in line with ISO 50001. At least eleven have plans to implement. The implementation of EMS under the PIEEP is estimated to result to emission reductions (ERs) of not less than 91,353 tons CO₂e/year and savings of not less than PHP 789M (equivalent to USD 16.7M)² per year. Total investments related to EnMS is estimated to be not less than PHP 889M (USD 18.9M). Please see the following tables.

Number of Industrial Enterprises implementing EnMS

Source of Information	Number of Enterprises			
	Planned	On going	Completed	Total
Survey Response from Enterprises	11	19	5	35
Survey Response from NEs	0	9	13	22
Total	11	28	18	57

Out of the 46 enterprises that reported that they are implementing EnMS, only 24 disclosed information on the savings. See the following table.

² Based on the average rate Php 47.15/ USD for the period 2013-2018. Source of basic data: Bangko Sentral ng Pilipinas (Philippine Central Bank)

EnMS Results in terms of Annual Savings

Status of Measures	From EnMS			
	Electricity Savings (MWh/y)	Fuel Savings (GJ/y)	Monetary Savings (PHP/y)	Monetary Savings (Equivalent USD/y) ³
Planned	15,786	82,564	188,586,824	3,999,721
On-going	27,819	27,754	206,239,608	4,374,117
Completed	58,601	199,375	394,123,874	8,358,937
Total	102,206	309,693	788,950,306	16,732,774

EnMS Results in terms of Annual CO₂-Emission Reductions

Status of Measures	From EnMS		
	Total ER from EnMS (tCO ₂ e/y)	ER from Electricity Savings (tCO ₂ e/y)	ER from Fuel Savings (tCO ₂ e/y)
Planned	15,159	9,612	5,547
On Going	19,764	16,939	2,825
Completed	56,430	35,682	20,748
Total	91,353	62,233	29,120

Out of the 46 enterprises that reported that they are implementing EnMS, only 15 disclosed information on related investment cost. Please see the following table.

EnMS Results in Terms of Investments and their Funding Sources

In Philippine Pesos (PHP)

Status	From EMS			
	Total Investments (PHP)	Internal Cash Generation (PHP)	Bank Loans (PHP)	Others (PHP)
Planned	49,823,700	823,700	49,000,000	-
On Going	324,085,974	45,948,493	278,137,481	-
Completed	515,370,478	355,370,478	160,000,000	-
Total	889,280,152	402,142,671	487,137,481	-

³ Based on average exchange rate of Php 47.15/ USD over the period 2013-2018. Source of basic data: Bangko Sentral ng Pilipinas (Philippine Central Bank)

In Equivalent US Dollars (USD)

Status	From EnMS			
	Total Investments (USD)	Internal Cash Generation (USD)	Bank Loans (USD)	Others (USD)
Planned	1,056,706	17,470	1,039,236	-
On Going	6,873,510	974,517	5,898,992	-
Completed	10,930,445	7,537,020	3,393,425	-
Total	18,860,661	8,529,007	10,331,654	-

There are some EnMS investments that would not only result in energy savings, but also savings in raw materials and improvement in process efficiency. There were also a few firms that disclosed only the investment cost, but did not disclose the energy savings. Thus, the total investment costs reported in the implementation of the EnMS should not be directly linked to the reported total energy savings, nor to the total CO₂ emission reductions.

System Optimization

No less than 57 enterprises are implementing system optimization measures as a result of the UNIDO capacity building of PIEEP. This will result to emission reductions estimated to be no less than 231,265 tons CO₂e/year and savings of not less than PHP 285M (USD 6.0M) per year. Total investments on system optimization is estimated to be not less than PHP 188M (USD 4M) of which not less than PHP 60.5M (USD 1.3M) have been financed through loans. Several system optimization measures involved only adjustments in parameter set-up and parameter alignment as well as routine/periodic repairs & maintenance that did not require financial investments.

Number of Industrial Enterprise Implementing System Optimization Solutions

Source of Information	Number of Enterprise
Survey Response from Enterprises	29
Survey Response from NEs	28
Total	57

System Optimization Results in terms of Savings

Status of Measures	Total from System Optimization			
	Annual Electricity Savings (MWh/y)	Annual Fuel Savings (GJ/y)	Annual Energy Savings (PHP/y)	Annual Energy Savings (Equivalent USD/y)
Planned	5,506	781,932	51,187,955	1,085,641
On Going	1,964	378,654	115,902,600	2,458,168
Completed	4,505	582,766	118,089,416	2,504,548
Total	11,975	1,743,353	285,179,972	6,048,356

System Optimization Results in terms of CO₂ Emission Reductions (ER)

Status of Measures	Total from ER System Optimization (tCO ₂ e/y)	SSO		CASO		PSO	
		ER from Electricity Savings (tCO ₂ e/y)	ER from Fuel Savings (tCO ₂ e/y)	ER from Electricity Savings (tCO ₂ e/y)	ER from Fuel Savings (tCO ₂ e/y)	ER from Electricity Savings (tCO ₂ e/y)	ER from Fuel Savings (tCO ₂ e/y)
Planned	92,720	-	85,933	2,866	-	487	3,435
On Going	63,969	-	62,773	509	-	687	-
Completed	74,576	-	71,833	2,699	-	44	0
Total	231,265	-	220,538	6,074	-	1,218	3,435

System Optimization Results in Terms of Investments and their Funding Sources
In Philippine Pesos (PHP)

Status of Measures	Total from System Optimization			
	Total Investments (PHP)	Internal Cash Generation (PHP)	Bank Loans (PHP)	Others (PHP)
Planned	77,930,000	20,450,000	57,480,000	-
On Going	9,330,000	9,330,000	-	-
Completed	100,889,055	97,889,055	3,000,000	-
Grand Total	188,149,055	127,669,055	60,480,000	-

In Equivalent US Dollars (USD)

Status	Total from System Optimization			
	Total Investments (USD)	Internal Cash Generation (USD)	Bank Loans (USD)	Others (USD)
Planned	1,652,810	433,722	1,219,088	-
On Going	197,879	197,879	-	-
Completed	2,139,747	2,076,120	63,627	-
Total	3,990,436	2,707,721	1,282,715	-

The survey indicated a total of more than 500 system optimization measures planned, on-going and completed as a result of the UNIDO capacity building activities. The details are shown as follows:

The number of EE projects/measures implemented by the enterprises after participating in UNIDO's programme/trainings on EnMS and or System Optimization are shown as follows:

Source of Data/ type of Optimization	Planned	On-going	Completed
SSO			
Survey Response from Enterprises	32	32	25
Survey Response from NEs	24	28	24
Sub Total	56	60	49
CASO			
Survey Response from Enterprises	80	43	54
Survey Response from NEs	36	7	34
Sub Total	116	50	88
PSO			
Survey Response from Enterprises	42	30	15
Survey Response from NEs	29	8	11
Sub Total	71	38	26
TOTAL			
Survey Response from Enterprises	154	105	94
Survey Response from NEs	89	43	69
Total	243	148	163

Total Project Life Savings and Emission Reductions

The estimated total savings over the total project life of the EnMS and system optimization measures are shown in the following table.⁴

Source of Data	Estimated Lifetime Savings					
	Energy Management		System Optimization		Total	
	Electricity Saving Measure (MWh)	Fuel Saving Measure (GJ)	Electricity Saving Measure (MWh)	Fuel Saving Measure (GJ)	Electricity Saving Measure (MWh)	Fuel Saving Measure (GJ)
Enterprises' Response	791,183	1,510,284	60,370	701,985	851,553	2,212,268
NEs Response	237,092	2,492,017	59,381	16,731,543	296,472	19,223,560
Total	1,028,275	4,002,301	119,750	17,433,528	1,148,025	21,435,828

The estimated total emission reductions over the total project life of the EnMS and system optimization measures are shown as follows:

⁴ The assumed project life per type of measure is based on the assumed project life data in the Mid Term Report on PIEEP which is discussed further in the main report.

Source of Data	Estimated Lifetime Emission Reduction from Savings							Grand Total Lifetime ER from Savings (tCO _{2e})
	Energy Management		System Optimization		Total			
	ER from Electricity Savings (tCO _{2e})	ER from Fuel Savings (tCO _{2e})	ER from Electricity Savings (tCO _{2e})	ER from Fuel Savings (tCO _{2e})	ER from Electricity Savings (tCO _{2e})	ER from Fuel Savings (tCO _{2e})		
Enterprises' Response	466,468	83,204	36,759	61,597	503,227	144,800	648,027	
From NEs Response	144,365	278,365	36,157	2,178,136	180,522	2,456,500	2,637,022	
Total	610,833	361,568	72,916	2,239,732	683,749	2,601,300	3,285,049	

The estimates on the total savings and total emission reductions over the project life are based on the assumptions that project life of operational improvements is 5 years' EnMS implementations are 15 years, and system optimization measures have a life of 10 years.⁵

The estimated direct and indirect emission reductions resulting from the project are shown in the following table⁶.

Source of Data	Total Direct ER from Savings (tCO _{2e})	Total Indirect ER from Savings (tCO _{2e})
Enterprises' Response	417,324	230,703
NEs Response	1,715,908	921,114
Total	2,133,232	1,151,817

The direct emission reductions are calculated over the full lifetime of the investments which are on-going and/ or completed during the PIEEP project period. This is in accordance with the GEF Methodology updated in March 2013.

The indirect emission reductions for projects planned are calculated over the full life time of the investments which are still in the planning stage by the end of the PIEEP project period.

Project Output/Outcome vs Project Targets

The project output/outcome compared to the project targets⁷ are shown in the following table:

⁵ Based on PIEEP Mid Term Report.

⁶ The definition of direct emission reductions follows the GEF Methodology as presented in the Manual Calculating Greenhouse Gas Benefits of the Global Environment Facility Energy Efficiency Projects version 1.0, March 2013

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 ₂ e)	1,515,810	2,133,232	141%
Indirect (tCO ₂ e) planned projects	3,031,619	1,151,817	38%

The target for the indirect emission reduction was computed by multiplying the (lifetime) direct emission reduction with an assumed replication factor (RF=2). If we are to consider only the projects currently being planned then 38% of the targeted indirect emission reductions have been achieved as of the end of PIEEP.

Other Matters

In terms of ISO Certification, five enterprise are now ISO 50001 registered, 23 are planning to register within two years.

The ISO Certification Status of the Enterprises

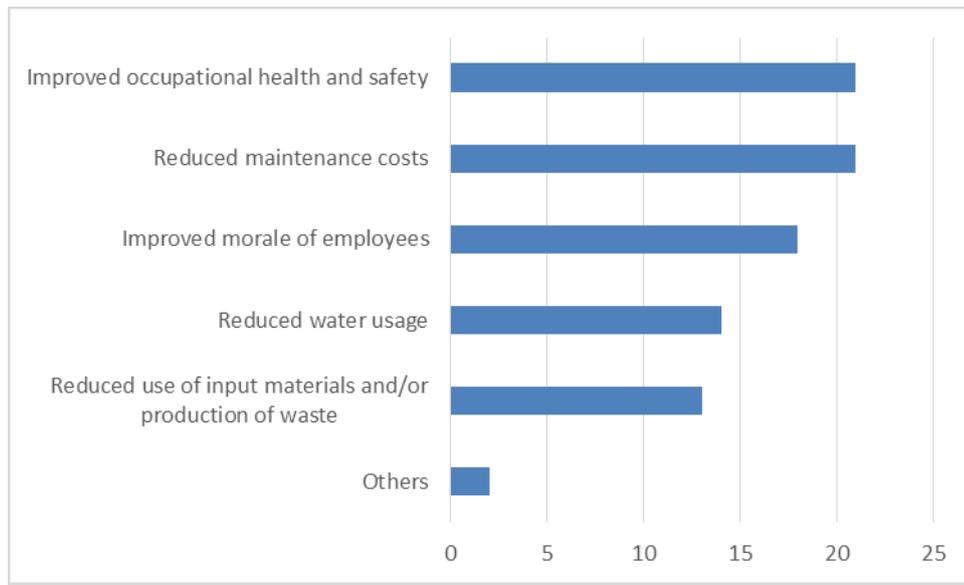
Registration Status	Response form Enterprise		Response from NE s		Total	
	Number	% of Total	Number	% of Total	Number	% of Total
Yes	1	2%	4	9%	5	4%
Not yet but plan to within 2 years	13	19%	10	23%	23	21%
No	30	44%	11	26%	41	37%
No Answer	24	35%	18	42%	42	38%
Total No. of Enterprises	68	100%	43	100%	111	100%

The most common barriers encountered by the industrial enterprise and national experts in conducting technical assessments to optimize the operation of steam systems, compressed

⁷ Based on PIEEP Mid-Term Report which presented the estimated targets based on the new GEF Methodology of computing emission reductions of energy efficiency projects

air systems and pump systems are: lack of tools & equipment (31%), failure to capture suitable measurement (25%), lack of technical capability (22%), lack of policy guidance/ support and incentives (16%).

The most common non-energy benefits realized by the industrial enterprises and national experts in implementing optimization measures are improved occupational health & safety, reduced maintenance costs, improved morale of the employees and reduced water usage.



Site visits to twenty six (26) plant sites located in Luzon, Visayas and Mindanao were conducted to validate, clarify and get additional information.

1 INTRODUCTION

1.1 BACKGROUND

The Philippine Industrial Energy Efficiency Project (PIEEP) is being implemented by the United Nations Industrial Development Organization (UNIDO) in partnership with the Philippine Department of Energy (DOE) and the Philippine Department of Trade and Industry (DTI). The project aims to promote sustainable energy management systems and achieve energy efficiency best practices in the industrial sector. This has been done through capacity building activities that promote ISO 50001 energy management standard using the system optimization approach to improve industrial energy efficiency in compressed air, pumping and steam systems. The project is funded by the Global Environment Facility.

PIEEP, which commenced in 2012 has three components:

Component 1: Energy Management System Compliant with ISO 50001

Component 2: Energy Systems Optimization

Component 3: Financial Capacity Enhancement

With the project set to close in March 2019, a survey has been conducted to gather information to assess the impacts/outcomes of the project. The International Institute for Energy Conservation (IIEC) has been contracted to conduct the survey.

1.2 OBJECTIVE AND SCOPE OF SURVEY

The objective of the survey is to collect data on Energy Management System (EnMS) and System Optimization (SO) project implementation. The target survey respondents are the national experts (NEs) and industrial enterprises that participated in the UNIDO training programs on EnMS and SO of steam systems, pumping systems and compressed air systems.

The final output of this assignment is a report on the survey findings, including:

- Number of industrial enterprises that have implemented EnMS in line with ISO 50001 and EnMS' results in terms of energy savings and CO₂ emission reductions, as well as investments made indicating the sources of funds (i.e. cash from internal generation, loans or any other financing source);
- Number of assessments of steam, pump and compressed air system optimization done by national experts trained under the UNIDO training programs;
- Number of industrial enterprises having implemented system optimization solutions, and their results in terms of energy savings and CO₂ emission reductions, as well as investments made indicating the sources of funds (i.e. cash from internal generation, loans or any other financing source);
- Number of energy efficiency projects/measures implemented by the enterprises after participating in UNIDO's programme/trainings on EnMS and or System

Optimization and their results in terms of energy savings, CO₂ emission reductions as well as investment made indicating the sources of funds (i.e. cash from internal generation, loans or any other financing source);

- Issues/barriers related to EnMS/SO implementation as well as industries' financing needs and support required;
- Non-Energy Benefits (NEB) experienced such as water saved, reduced number of downtime/maintenance, increased productivity/reliability of operations, jobs provided, etc.

Feedback from at least 200 companies that attended the training has to be obtained. The data collected from the survey has to be verified by phone and site visits will have to be conducted in at least 20-25 companies from various geographic locations.

1.3 OBJECTIVE OF THIS REPORT

The purchase order for the conduct of the survey was signed conforme by IIEC on 20 August 2018, but revisions were made. The final purchase order was signed on 17 September 2018. The survey questionnaire was released to the first batch of survey recipients starting 5 September 2018. A 1st Draft Report was submitted on 31 October 2018 to serve as an Interim Report. A Draft Final Report was submitted in 17 February addressing the comments received as of 30 November 2018.

This document presents the revisions made on the Draft Final Report addressing the comments received from UNIDO as of 22 February 2019.

2 SURVEY METHODOLOGY

2.1 APPROACH

The assignment included the following activities:

- A. Design of the Survey Questionnaire;
- B. Conduct of the survey;
- C. Interviews with at least 20-25 selected enterprise;
- D. Data Analysis and Reporting

2.2 QUESTIONNAIRES

The survey questionnaire was developed in consultation with the PIEEP Project Management Unit (PMU). A copy of the final version of the survey questionnaire is shown in Attachment 8.1.

2.3 RECIPIENTS

The list of survey recipients was developed in consultation with the PMU. A total of more than 400 survey recipients were contacted through NEs and/or industrial enterprises combined. The final lists of survey recipients as well as the status of each are shown in Attachment 8.2 for Industrial Enterprises and Attachment 8.3 for NEs.

2.4 IMPLEMENTATION

The survey questionnaire was distributed via email during the first week of September 2018. Follow ups were immediately conducted after two weeks and every two weeks to survey recipients who did not respond and/or who have not yet submitted the accomplished survey forms. PIEEP PMU provided assistance in following up recipients who were either not responding or were hesitant or not willing to share technical data on the operation of their enterprise.

Out of the more than 400 survey form recipients, a total of 230 responses from industrial enterprises and NEs have been obtained as of 30 November 2018.

3 PROFILE OF SURVEY RESPONDENTS

This section discusses the profile of the Industrial Enterprises and NEs that provided feedback on the survey.

3.1 NUMBER OF RESPONDENTS

Table 3.1 Number of Survey Respondents

Type of Respondent	Number
Response from Enterprises	175
Response from NEs	55
Total Response from Enterprises & NEs	230

Respondents are defined as entities to whom the surveys were sent, contacted and who subsequently provided their feedback by either submitting the accomplished survey form, or by providing information on the status or whereabouts of the originally targeted recipient and/or the status of the enterprise itself. This does not include entities who could not be contacted via email or phone calls due to various reasons such as erroneous email address, no email, phone number could not be contacted, and phone number ringing but no one answers.

3.2 FEEDBACK PROFILE

72 (41%) of the total 175 respondents from the Industrial enterprises from whom feedback was obtained, have submitted completed survey forms. 23 (13%) promised to submit the completed forms, but was not able to submit before the cut-off date of 30 November 2018, while five (3%) are still waiting for the supervisor to approve the data to be released for the survey.

39 (71%) of the 55 NEs from whom feedback were obtained have submitted completed survey forms. Nine (16%) promised to submit the completed forms, but did not submit even after the cut-off date.

The profile of the 230 enterprises that provided responses and the nature of their feedback are summarized in the following Table 3.2 for industrial enterprises and Table 3.3 for NEs.

Table 3.2 Nature of Feedback from the Survey Respondents - Industrial Enterprise

Feedback	Number	% to Total
Submitted accomplished survey form	72	41%
Received Survey Form through NE	2	1%
Agreed to submit but did not send after the cut-off date	23	13%
Waiting approval from supervisor	5	3%

Feedback	Number	% to Total
Contact person no longer connected but identified responsible person and still did not submit	23	13%
Contact person no longer connected & cannot identify responsible person	21	12%
Did not attend training but attended Awareness Workshop/ site was visited but no project implemented	5	3%
Replied, cannot participate/ not interested	20	11%
Industrial enterprise permanently closed	4	2%
Total Enterprises that provided feedback	175	100%

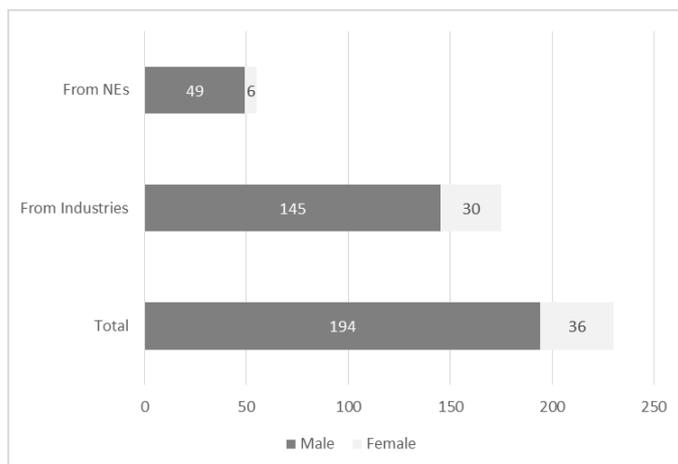
Table 3.3 Nature of Feedback from the Survey Respondents - National Experts

Feedback	Number	% to Total
Submitted accomplished survey form	39	71%
Agreed to submit but did not submit after the cut-off date	9	16%
NE no longer connected with enterprise	3	5%
NE did not push through with EnMS	2	4%
Decided not to participate in the survey	2	4%
Total National Experts that provided feedback	55	100%

3.3 GENDER PROFILE

Overall, 84 % of the survey respondents are male while 16% are female. Figure 3.1 shows the details of the 230 respondents' gender profile.

Figure 3.1 Gender Profile of Survey Respondents - Total

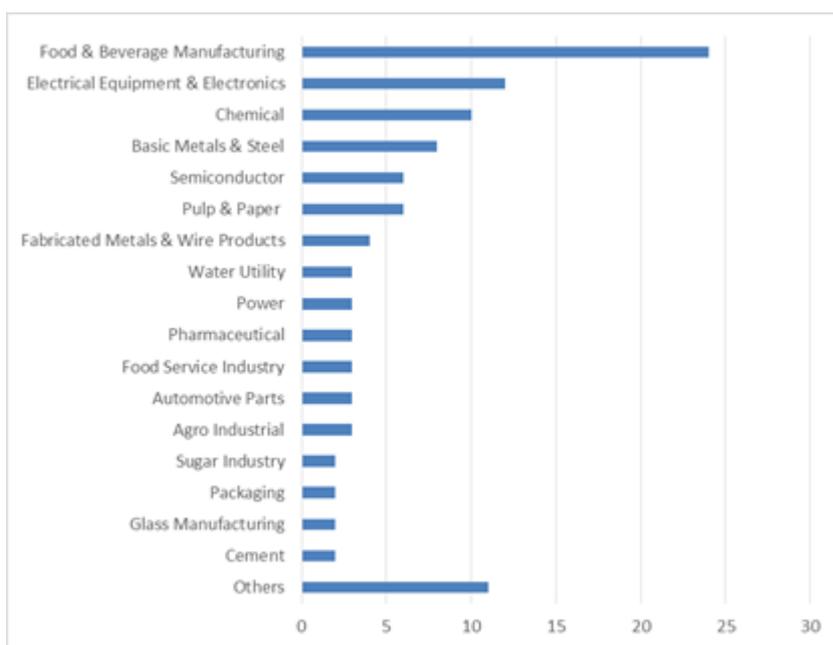


3.4 INDUSTRY PROFILE

Out of the 230 responses, information on 111 enterprises was obtained. While some completed survey forms covered more than 1 enterprise, there were some completed survey forms from NEs that referred to the same enterprise. Some NEs did not implement any measures/system, so no enterprise was reported.

These 111 enterprises come from a wide range of industry sectors. The industry profile of these enterprises that provided data on their EnMS and or SO activities are shown in the following figure.

Figure 3.2 Enterprise Industry Profile

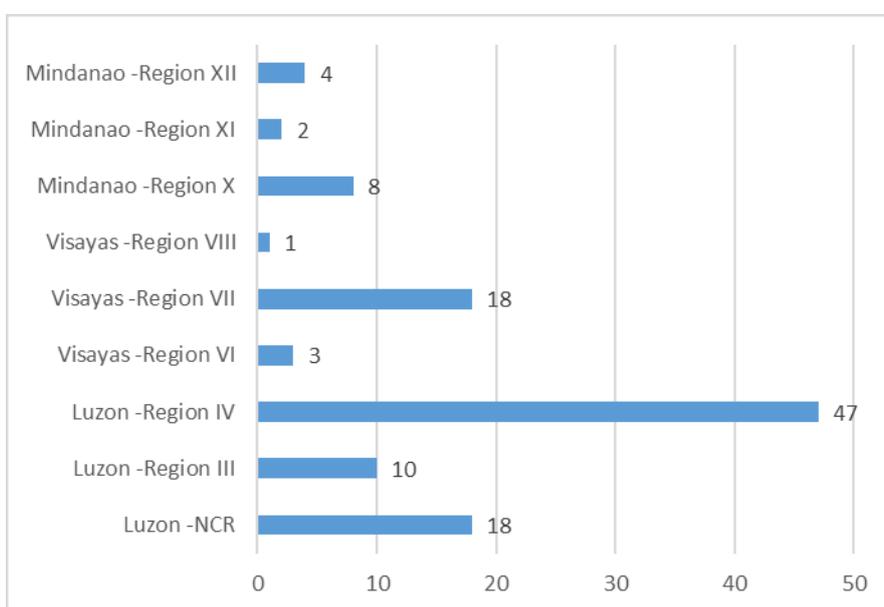


The majority of the enterprises are from the Food & Beverage sector (29%). This is followed by Electrical Equipment & Electronics (11%), Chemicals (9%), Basic Metals & Steel (7%), Semiconductor (6%), and Pulp & Paper (5%).

3.5 GEOGRAPHICAL DISTRIBUTION

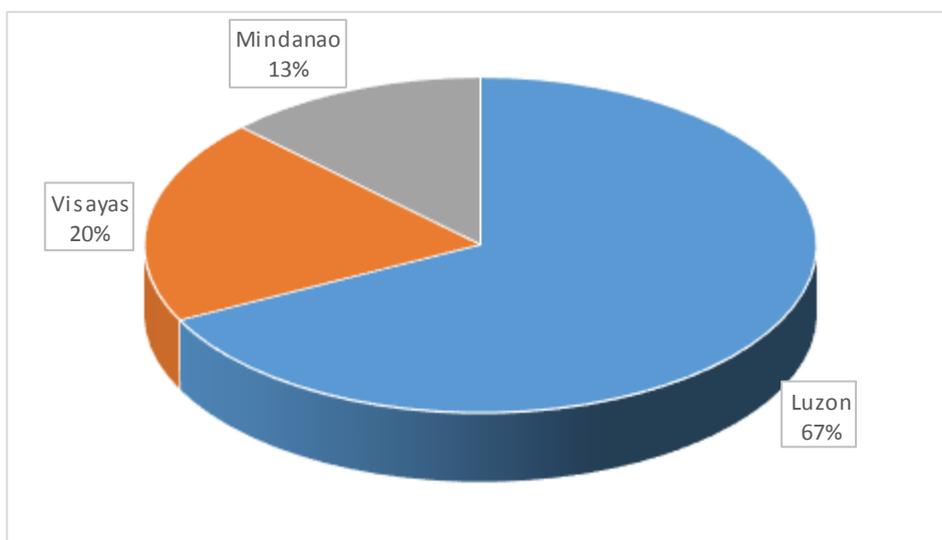
The Philippines consists of three major islands: Luzon, Visayas and Mindanao. Luzon is the largest. For administrative convenience, the Philippines is divided into regions. The 111 enterprises come from various regions as shown in the following Table 3.4.

Table 3.4 Geographical Locations of Enterprises, by Region



The majority of the enterprises that participated in the survey are located in Luzon (67%) while the rest are in Visayas (20%) and Mindanao (13%). See Figure 3.3.

Figure 3.3 Geographical Location of the Enterprises



4 SURVEY RESULTS

This section presents the analysis of the data gathered from the completed survey forms, phone calls and plant visits conducted. The information gathered from the surveys was supplemented by data sourced from published reports in certain cases where data gaps existed and the concerned officer/personnel that participated in the PIEEP activities is no longer connected with the enterprise.

There are several firms who did not disclose the investment cost but provided data on the energy savings. At the same time there are also firms that disclosed their investment cost but did not provide data on the corresponding energy savings. Thus the total investment costs reported in the implementation of the EnMS and System Optimization should not be directly linked to the reported total energy savings nor to the reported total equivalent CO₂ emission reductions. The figures obtained however serves to indicate the minimum level of impact/ outcome that PIEEP had on the industry sector.

The database containing the details of the survey data results will be submitted as a CD file. The details are not presented in this report in compliance with the agreement from survey respondents that detailed data obtained on the individual enterprise will be kept confidential.

4.1 IMPLEMENTATION OF ENERGY MANAGEMENT SYSTEMS

The number of industrial enterprises having implemented EnMS in line with ISO 50001 and EnMS' results in terms of energy savings and CO₂ emission reductions, as well as investments made and how they were funded are shown in the following tables⁸:

Table 4.1 Number of Industrial Enterprise Implementing EnMS

Source of Information	Number of Enterprises			
	Planned	On going	Completed	Total
Survey Response from Enterprises	11	19	5	35
Survey Response from NEs	0	9	13	22
Total	11	28	18	57

The survey revealed that there are 46 enterprises implementing EnMs. Only 24 disclosed information on their savings. The total savings reported and equivalent emission reductions are shown in the following tables. Table 4.2 shows the savings and Table 4.3 shows the equivalent CO₂ emission reductions both according to the status of the EnMs measures and

⁸ Based on 111 accomplished survey forms from 230 survey responses received as of 30 November 2018

the source of the information. Table 4.4 shows also the equivalent CO₂ emission reductions but this time by type of energy/ fuel saved.

Table 4.2 EnMS Results in terms Annual Energy Savings by Implementation Status

Status/ Source of Data	From EMS			Annual Energy Savings (Equivalent USD/y) ⁹
	Annual Electricity Savings (MWh/y)	Annual Fuel Savings (GJ/y)	Annual Energy Savings (PHP/y)	
Planned				
From Enterprises' Response	15,786	82,564	188,586,824	3,999,721
From NEs Response	-	-	-	-
Sub-Total	15,786	82,564	188,586,824	3,999,721
On Going				
From Enterprises' Response	26,906	21,101	191,067,608	4,052,335
From NEs Response	913	6,653	15,172,000	321,782
Sub-Total	27,819	27,754	206,239,608	4,374,117
Completed				
From Enterprises' Response	43,045	33,264	264,382,576	5,607,266
From NEs Response	15,557	166,111	129,741,299	2,751,671
Sub-Total	58,601	199,375	394,123,874	8,358,937
Grand Total	102,206	309,693	788,950,306	16,732,774

The details of the computation for the total savings from fuel reductions are shown in Attachment 8.4.

⁹ Based on average exchange rate of Php 47.15/ USD for the period 2013-2018. Source of basic data: Bangko Sentral ng Pilipinas (Philippine Central Bank)

Table 4.3 EnMS Results in terms CO2 Emission Reductions by Implementation Status

Status/ Source of Data	From EMS		
	Total Annual ER from EnMS (tCO ₂ e/y)	Annual ER from Electricity Savings (tCO ₂ e/y)	Annual ER from Fuel Savings (tCO ₂ e/y)
Planned			
From Enterprises' Response	15,159	9,612	5,547
From NEs Response	-	-	-
Sub-Total	15,159	9,612	5,547
	-		
On Going			
From Enterprises' Response	18,762	16,383	2,379
From NEs Response	1,002	556	447
Sub-Total	19,764	16,939	2,825
	-		
Completed			
From Enterprises' Response	28,443	26,210	2,233
From NEs Response	27,988	9,472	18,515
Sub-Total	56,430	35,682	20,748
Grand Total	91,353	62,233	29,120

Table 4.4 EnMS Results in Terms of Annual CO₂ Emission Reductions by Type of Energy/ Fuel Saved¹⁰

Type of Energy	Annual Savings From EnMS	Emission Factor *	Units	Total Emission Reductions from EMS (tCO ₂ e/y)
Power savings/ year				
Electricity (MWh)				-
Survey Response from Enterprises	85,736	0.6089	t CO ₂ e / MWh	52,205
Survey Response from NEs	16,469			10,028
Total from Power Savings	102,206			62,233
Fuel savings/year				

¹⁰ Emission Factors used are the emission factors officially used by the Philippine Climate Commission. Estimated emission reductions were computed in consultation with Ms. Jeanette Laurente, a Climate Change Mitigation Specialist.

Type of Energy	Annual Savings From EnMS	Emission Factor *	Units	Total Emission Reductions from EMS (tCO ₂ e/y)
Diesel (liters)				
Survey Response from Enterprises	840,000	0.002658	t CO ₂ e / li	2,233
Survey Response from NEs	228,067			606
Kerosene (liters)				
Survey Response from Enterprises	2,201,700	0.002519376	t CO ₂ e / li	5,547
Survey Response from NEs	-			-
Fuel oil (liters)				
Survey Response from Enterprises	-	0.002939342	t CO ₂ e / li	-
Survey Response from NEs	-			-
LPG (kg)				
Survey Response from Enterprises	-	2.98463E-06	t CO ₂ e / kg	-
Survey Response from NEs	18,386			0.055
Bagasse (MT)				
Survey Response from Enterprises	-	1.7472	t CO ₂ e / MT	-
Survey Response from NEs	-			-
Coal (MT)				
Survey Response from Enterprises	720	3.304	t CO ₂ e / MT	2,379
Survey Response from NEs	5,556			18,356
Total from Fuel Savings				29,120
Total from Power Savings and Fuel Savings				91,353

Emission factors used in computing for the CO₂ emission reductions are based on the emission factors officially used by the Philippine Climate Change Commission. The details of the emission factors used are presented as Attachment 8.5.

A number of respondents could not provide estimated savings in terms of energy and/ or in Peso monetary values, thus the estimated total annual CO₂ emission reductions presented are to be considered minimum amount. Several respondents indicated that failure to conduct measurements and lack of tools and equipment as barriers to getting the estimated savings. Succeeding sections of this report present the barriers encountered by national experts and enterprises.

Out of the 46 enterprises that reported that they are implementing EnMS, only 15 disclosed information on related investment cost and funding source. Please see the following table.

Table 4.5 EnMS Results in Terms of Investments and their Funding Sources

In Philippine Peso

Status/ Source of Data	From EMS			
	Total Investments (PHP)	Internal Cash Generation (PHP)	Bank Loans (PHP)	Others (PHP)
Planned				
From Enterprises' Response	49,823,700	823,700	49,000,000	-
From NEs Response	-	-	-	-
Sub-Total	49,823,700	823,700	49,000,000	-
On Going				
From Enterprises' Response	313,335,974	45,948,493	267,387,481	-
From NEs Response	10,750,000	-	10,750,000	-
Sub-Total	324,085,974	45,948,493	278,137,481	-
Completed				
From Enterprises' Response	213,609,053	53,609,053	160,000,000	-
From NEs Response	301,761,425	301,761,425	-	-
Sub-Total	515,370,478	355,370,478	160,000,000	-
Grand Total	889,280,152	402,142,671	487,137,481	-

In Equivalent US Dollars

Status/ Source of Data	From EMS			
	Total Investments (USD)	Internal Cash Generation (USD)	Bank Loans (USD)	Others (USD)
Planned				
From Enterprises' Response	1,056,706	17,470	1,039,236	-
From NEs Response	-	-	-	-
Sub-Total	1,056,706	17,470	1,039,236	-
On Going				
From Enterprises' Response	6,645,514	974,517	5,670,996	-
From NEs Response	227,996	-	227,996	-
Sub-Total	6,873,510	974,517	5,898,992	-
Completed				
From Enterprises' Response	4,530,415	1,136,989	3,393,425	-
From NEs Response	6,400,030	6,400,030	-	-
Sub-Total	10,930,445	7,537,020	3,393,425	-
Grand Total	18,860,661	8,529,007	10,331,654	-

4.2 IMPLEMENTATION OF SYSTEM OPTIMIZATION MEASURES

From the total of 230 that responded to the survey, no less than 56 industrial enterprises have implemented system optimization solutions. The results in terms of energy savings and CO₂ emission reductions, as well as investments made and how they were funded are shown in the following tables.

Table 4.6 Number of Industrial Enterprise Implementing System Optimization Solutions

Source of Information	Number of Enterprise
Survey Response from Enterprises	29
Survey Response from NEs	27
Total	56

Table 4.7 System Optimization Results in Terms of Annual Savings

Total of System Optimization

Status/ Source of Data	Total from System Optimization			
	Annual Electricity Savings (MWh/y)	Annual Fuel Savings (GJ/y)	Annual Energy Savings (PHP/y)	Annual Energy Savings (Equivalent USD/y)
Planned				
From Enterprises' Response	1,000	-	8,000,000	169,671
From NEs Response	4,506	781,932	43,187,955	915,969
Sub-Total	5,506	781,932	51,187,955	1,085,641
On Going				
From Enterprises' Response	1,928	38,016	13,520,000	286,744
From NEs Response	36	340,638	102,382,600	2,171,423
Sub-Total	1,964	378,654	115,902,600	2,458,168
Completed				
From Enterprises' Response	3,109	32,182	25,762,140	546,387
From NEs Response	1,396	550,583	92,327,276	1,958,161
Sub-Total	4,505	582,766	118,089,416	2,504,548
Grand Total	11,975	1,743,353	285,179,972	6,048,356

Steam System Optimization

Status/ Source of Data	SSO			
	Annual Electricity Savings (MWh/y)	Annual Fuel Savings (GJ/y)	Annual Energy Savings (PHP/y)	Annual Energy Savings (Equivalent USD/y)
Planned				
From Enterprises' Response	-	-	-	-

From NEs Response	-	763,059	2,037,955	43,223
Sub-Total	-	763,059	2,037,955	43,223
On Going				
From Enterprises' Response	-	38,016	120,000	2,545
From NEs Response	-	340,638	102,130,418	2,166,075
Sub-Total	-	378,654	102,250,418	2,168,620
Completed				
From Enterprises' Response	-	32,004	5,460,000	115,801
From NEs Response	-	550,583	82,473,910	1,749,182
Sub-Total	-	582,587	87,933,910	1,864,982
Grand Total	-	1,724,301	192,222,283	4,076,825

Compressed Air System Optimization

Status/ Source of Data	CASO			
	Annual Electricity Savings (MWh/y)	Annual Fuel Savings (GJ/y)	Annual Energy Savings (PHP/y)	Annual Energy Savings (Equivalent USD/y)
Planned				
From Enterprises' Response	200	-	1,600,000	33,934
From NEs Response	4,506	-	35,330,000	749,311
Sub-Total	4,706	-	36,930,000	783,245
On Going				
From Enterprises' Response	800	-	5,300,000	112,407
From NEs Response	36	-	252,182	5,349
Sub-Total	836	-	5,552,182	117,756
Completed				
From Enterprises' Response	3,037	-	19,301,220	409,358
From NEs Response	1,396	-	9,853,366	208,979
Sub-Total	4,433	-	29,154,586	618,337
Grand Total	9,975	-	71,636,768	1,519,338

Pumping System Optimization (PSO)

Status/ Source of Data	PSO			
	Annual Electricity Savings (MWh/y)	Annual Fuel Savings (GJ/y)	Annual Energy Savings (PHP/y)	Annual Energy Savings (Equivalent USD/y)
Planned				
From Enterprises' Response	800	-	6,400,000	135,737
From NEs Response	-	18,874	5,820,000	123,436
Sub-Total	800	18,874	12,220,000	259,173
On Going				
From Enterprises' Response	1,128	-	8,100,000	171,792
From NEs Response	-	-	-	-
Sub-Total	1,128	-	8,100,000	171,792
Completed				
From Enterprises' Response	72	179	1,000,920	21,228
From NEs Response	-	-	-	-
Sub-Total	72	179	1,000,920	21,228
Grand Total	2,000	19,052	21,320,920	452,193

The details of the computation for the total savings from fuel reductions resulting from system optimization measures are shown as Attachment 8.6.

Table 4.8 System Optimization Results in Terms CO₂ Emission Reductions by Implementation Status

Source of Data	Total from System Optimization (tCO ₂ e/y)	SSO		CASO		PSO	
		ER from Electricity Savings (tCO ₂ e/y)	ER from Fuel Savings (tCO ₂ e/y)	ER from Electricity Savings (tCO ₂ e/y)	ER from Fuel Savings (tCO ₂ e/y)	ER from Electricity Savings (tCO ₂ e/y)	ER from Fuel Savings (tCO ₂ e/y)
Planned							
From Enterprises' Response	609	-	-	122	-	487	-
From NEs Response	92,111	-	85,933	2,744	-	-	3,435

Source of Data	Total from System Optimization (tCO ₂ e/y)	SSO		CASO		PSO	
		ER from Electricity Savings (tCO ₂ e/y)	ER from Fuel Savings (tCO ₂ e/y)	ER from Electricity Savings (tCO ₂ e/y)	ER from Fuel Savings (tCO ₂ e/y)	ER from Electricity Savings (tCO ₂ e/y)	ER from Fuel Savings (tCO ₂ e/y)
Sub-Total	92,720	-	85,933	2,866	-	487	3,435
On Going							
From Enterprises' Response	3,726	-	2,552	487	-	687	-
From NEs Response	60,243	-	60,221	22	-	-	-
Sub-Total	63,969	-	62,773	509	-	687	-
Completed							
From Enterprises' Response	5,501	-	3,608	1,849	-	44	0
From NEs Response	69,075	-	68,225	850	-	-	-
Sub-Total	74,576	-	71,833	2,699	-	44	0
Grand Total	231,265	-	220,538	6,074	-	1,218	3,435

Table 4.9 System Optimization Results in Terms of Annual Emission Reduction by Type of Energy / Fuel Saved

Type of Energy	Annual Savings				Annual Emission Reductions					
	Total from System Optimization	SSO	CASO	PSO	Emission Factor *	Units	Total from Optimization Measures (tCO _{2e} /y)	SSO (tCO _{2e} /y)	CASO (tCO _{2e} /y)	PSO (tCO _{2e} /y)
Power savings/ year										
Electricity (MWh)										
Survey Response from Enterprises	6,037		4,037	2,000	0.6089	t CO _{2e} / MWh	3,676	-	2,458	1,218
Survey Response from NEs	5,938		5,938	-			3,616	-	3,616	-
Total from Power Savings	11,975		9,975	2,000			7,292		6,074	1,218
Fuel savings/year										
Diesel (liters)										
Survey Response from Enterprises	960,000	960,000		-	0.002658	t CO _{2e} / li	2,552	2,552	-	-
Survey Response from NEs	438,419	438,419		-			1,165	1,165	-	-
Kerosene (liters)										
Survey Response from Enterprises	-				0.002519376	t CO _{2e} / li	-	-	-	-
Survey Response from NEs	-						-	-	-	-
Fuel oil (liters)										
Survey Response from Enterprises	-	-			0.002939342	t CO _{2e} / li	-	-	-	-
Survey Response from NEs	259,458	259,458					763	763	-	-
LPG (kg)										
Survey Response from Enterprises	3,600			3,600	2.98463E-06	t CO _{2e} / kg	0.011	-		0.011
Survey Response from NEs	-			-			-	-	-	-

Type of Energy	Annual Savings				Annual Emission Reductions					
	Total from System Optimization	SSO	CASO	PSO	Emission Factor *	Units	Total from Optimization Measures (tCO ₂ e/y)	SSO (tCO ₂ e/y)	CASO (tCO ₂ e/y)	PSO (tCO ₂ e/y)
Bagasse (MT)										
Survey Response from Enterprises	-	-		-	1.7472	t CO ₂ e / MT	-	-	-	-
Survey Response from NEs	45,711	43,745		1,966			79,866	76,431	-	3,435
Coal (MT)										
Survey Response from Enterprises	1,092	1,092			3.304	t CO ₂ e / MT	3,608	3,608	-	-
Survey Response from NEs	41,168	41,168					136,019	136,019	-	-
Total from Fuel Savings							223,973	220,538	-	3,435
Total from Power Savings and Fuel Savings							231,265	220,538	6,074	4,653

Table 4.10 System Optimization Results in Terms of Investments and their Funding Sources

In Philippine Peso

Status/ Source of Data	Total from System Optimization			
	Total Investments (PHP)	Internal Cash Generation (PHP)	Bank Loans (PHP)	Others (PHP)
Planned				
From Enterprises' Response	-	-	-	-
From NEs Response	77,930,000	20,450,000	57,480,000	-
Sub-Total	77,930,000	20,450,000	57,480,000	-
On Going				
From Enterprises' Response	2,955,000	2,955,000	-	-
From NEs Response	6,375,000	6,375,000	-	-
Sub-Total	9,330,000	9,330,000	-	-
Completed				
From Enterprises' Response	58,386,983	55,386,983	3,000,000	-
From NEs Response	42,502,072	42,502,072	-	-
Sub-Total	100,889,055	97,889,055	3,000,000	-
Grand Total	188,149,055	127,669,055	60,480,000	-

In Equivalent US Dollars¹¹

Status/ Source of Data	Total from System Optimization			
	Total Investments (USD)	Internal Cash Generation (USD)	Bank Loans (USD)	Others (USD)
Planned				
From Enterprises' Response	-	-	-	-
From NEs Response	1,652,810	433,722	1,219,088	-
Sub-Total	1,652,810	433,722	1,219,088	-
On Going				
From Enterprises' Response	62,672	62,672	-	-
From NEs Response	135,207	135,207	-	-
Sub-Total	197,879	197,879	-	-
Completed				
From Enterprises' Response	1,238,324	1,174,697	63,627	-
From NEs Response	901,423	901,423	-	-
Sub-Total	2,139,747	2,076,120	63,627	-
Grand Total	3,990,436	2,707,721	1,282,715	-

¹¹ Exchange Rate of Php 47.15/ USD based on the average rate for the period 2013-2018.
Source of basic data: Bangko Sentral ng Pilipinas (Philippine Central Bank)

Table 4.11 Detailed System Optimization Results in Terms of Investments and their Funding Sources by type of Optimization System Solution

In Philippine Peso Value

Status/ Source of Data	SSO				CASO				PSO			
	Total Investments (PHP)	Internal Cash Generation (PHP)	Bank Loans (PHP)	Others (PHP)	Total Investments (PHP)	Internal Cash Generation (PHP)	Bank Loans (PHP)	Others (PHP)	Total Investments (PHP)	Internal Cash Generation (PHP)	Bank Loans (PHP)	Others (PHP)
Planned												
Enterprises' Response	-	-	-	-	-	-	-	-	-	-	-	-
NEs Response	4,250,000	4,250,000	-	-	66,080,000	8,600,000	57,480,000	-	7,600,000	7,600,000	-	-
Sub-Total	4,250,000	4,250,000	-	-	66,080,000	8,600,000	57,480,000	-	7,600,000	7,600,000	-	-
On Going												
Enterprises' Response	-	-	-	-	675,000	675,000	-	-	2,280,000	2,280,000	-	-
NEs Response	6,225,000	6,225,000	-	-	150,000	150,000	-	-	-	-	-	-
Sub-Total	6,225,000	6,225,000	-	-	825,000	825,000	-	-	2,280,000	2,280,000	-	-
Completed												
Enterprises' Response	15,000,000	15,000,000	-	-	32,986,983	29,986,983	3,000,000	-	10,400,000	10,400,000	-	-
NEs Response	29,927,072	29,927,072	-	-	12,575,000	12,575,000	-	-	-	-	-	-
Sub-Total	44,927,072	44,927,072	-	-	45,561,983	42,561,983	3,000,000	-	10,400,000	10,400,000	-	-
Grand Total	55,402,072	55,402,072	-	-	112,466,983	51,986,983	60,480,000	-	20,280,000	20,280,000	-	-

In Equivalent US Dollars

Status/ Source of Data	SSO				CASO				PSO			
	Total Investment s (USD)	Internal Cash Generation (USD)	Bank Loans (USD)	Others (USD)	Total Investments (USD)	Internal Cash Generation (USD)	Bank Loans (USD)	Others (USD)	Total Investment s (USD)	Internal Cash Generation (USD)	Bank Loans (USD)	Others (USD)
Planned												
Enterprises' Response	-	-	-	-	-	-	-	-	-	-	-	-
NEs Response	90,138	90,138	-	-	1,401,485	182,397	1,219,088	-	161,188	161,188	-	-
Sub-Total	90,138	90,138	-	-	1,401,485	182,397	1,219,088	-	161,188	161,188	-	-
On Going												
Enterprises' Response	-	-	-	-	14,316	14,316	-	-	48,356	48,356	-	-
NEs Response	132,025	132,025	-	-	3,181	3,181	-	-	-	-	-	-
Sub-Total	132,025	132,025	-	-	17,497	17,497	-	-	48,356	48,356	-	-
Completed												
Enterprises' Response	318,134	318,134	-	-	699,618	635,991	63,627	-	220,573	220,573	-	-
NEs Response	634,721	634,721	-	-	266,702	266,702	-	-	-	-	-	-
Sub-Total	952,854	952,854	-	-	966,320	902,693	63,627	-	220,573	220,573	-	-
Grand Total	1,175,017	1,175,017	-	-	2,385,302	1,102,587	1,282,715	-	430,117	430,117	-	-

Table 4.12 Number of EE projects/measures implemented by the enterprises and NEs after participating in UNIDO's programme/trainings on EnMS and or System Optimization

Source of Data/ type of Optimization	Planned	On-going	Completed
SSO			
Survey Response from Enterprises	32	32	25
Survey Response from NEs	24	28	24
Sub Total	56	60	49
CASO			
Survey Response from Enterprises	80	43	54
Survey Response from NEs	36	7	34
Sub Total	116	50	88
PSO			
Survey Response from Enterprises	42	30	15
Survey Response from NEs	29	8	11
Sub Total	71	38	26
TOTAL			
Survey Response from Enterprises	154	105	94
Survey Response from NEs	89	43	69
Total	243	148	163

The details of the Energy Efficiency (EE) Measures and number of enterprises that implemented each type of EE Measure is presented as Attachment 8.7 of this report.

Out of 39 NEs who submitted the completed survey forms, 22 indicated that they attended the EnMS training. 19 (86%) of these NEs are implementing and/or have plans to implement EnMS. There are 3 NEs who did not attend the EnMS training, but are implementing EnMS.

Out of the 39 NEs who submitted the completed survey forms, 24 indicated that they attended the SO trainings of which 18 (75%) NEs have implemented, are implementing and/or have plans to implement system optimization measures.

4.3 LIFE TIME SAVINGS AND EMISSION REDUCTIONS

The lifetime impact of the EnMS and SO measures resulting from the implementation of PIEEP are as follows

Table 4.13 Total Lifetime Savings of the EnMS and SO Measures

Source of Data	Estimated Lifetime Savings					
	Energy Management		System Optimization		Total	
	Electricity Saving Measure (MWh)	Fuel Saving Measure (GJ)	Electricity Saving Measure (MWh)	Fuel Saving Measure (GJ)	Electricity Saving Measure (MWh)	Fuel Saving Measure (GJ)
Enterprises' Response	791,183	1,510,284	60,370	701,985	851,553	2,212,268
NEs Response	237,092	2,492,017	59,381	16,731,543	296,472	19,223,560
Total	1,028,275	4,002,301	119,750	17,433,528	1,148,025	21,435,828

Table 4.14 Total Lifetime Emission Reduction Impact of the EnMS and SO Measures

Source of Data	Estimated Lifetime Emission Reduction from Savings						
	Energy Management		System Optimization		Total		Grand Total Lifetime ER from Savings (tCO _{2e})
	ER from Electricity Savings (tCO _{2e})	ER from Fuel Savings (tCO _{2e})	ER from Electricity Savings (tCO _{2e})	ER from Fuel Savings (tCO _{2e})	ER from Electricity Savings (tCO _{2e})	ER from Fuel Savings (tCO _{2e})	
From Enterprises' Response	466,468	83,204	36,759	61,597	503,227	144,800	648,027
From NEs Response	144,365	278,365	36,157	2,178,136	180,522	2,456,500	2,637,022
Total	610,833	361,568	72,916	2,239,732	683,749	2,601,300	3,285,049

The assumptions used in estimating the project life of the implementation measures undertaken are based on the PIEEP Mid Term Report. These are as follows:

Implementation Measures	Lifetime (years)
Energy Management	
- Operational Improvement	5
- EnMS Implementation	15
System Optimization	
- Steam	10
- Compressed Air	10
- Pumps	10

4.4 DIRECT AND INDIRECT EMISSION REDUCTIONS

The GEF Methodology for computing emission reduction uses the following classification system on emission reductions during the design stage of a project (ex ante) to be funded by GEF:¹²

- Direct GHG emission reductions are “those achieved by project investments such as technology demonstrations and discrete investments financed or leveraged during the project’s supervised implementation period (from the project start to the project closure)”. Resulting emission reductions over the lifetime of these investments/ improvements are considered direct project impact.
- Indirect GHG emission reductions are “those achieved, for example as a result of market facilitation and development through project-supported policy and institutional frameworks, capacity building, information gathering and replication effects of demonstration activities”.
- Direct post-project emission reductions used to quantify the GHG emissions of GEF supported revolving financial mechanisms that are still active after the project’s closure (ex post).

Thus the minimum direct and indirect emission reductions resulting from PIEEP are as estimated to be as follows.

Table 4.15 Summary of Direct and Indirect Emission Reductions

Source of Data	Total Direct ER from Savings (tCO ₂ e)	Total Indirect ER from Savings (tCO ₂ e)
Enterprises' Response	417,324	230,703
NEs Response	1,715,908	921,114
Total	2,133,232	1,151,817

¹² Scientific and Technical Advisory Panel administered by UNEP, Calculating Greenhouse Gas Benefits of the Global Environment Facility Energy Efficiency Projects version 1.0, March 2013

Table 4.16 Details of the Direct Lifetime Emission Reductions

Estimated Lifetime Direct Emission Reduction from Savings											
	Energy Management		Total System Optimization		SSO		CASO		PSO		
Source of Data	ER from Electricity Savings (tCO ₂ e)	ER from Fuel Savings (tCO ₂ e)	ER from Electricity Savings (tCO ₂ e)	ER from Fuel Savings (tCO ₂ e)	ER from Electricity Savings (tCO ₂ e)	ER from Fuel Savings (tCO ₂ e)	ER from Electricity Savings (tCO ₂ e)	ER from Fuel Savings (tCO ₂ e)	ER from Electricity Savings (tCO ₂ e)	ER from Fuel Savings (tCO ₂ e)	Total Direct ER from Savings (tCO ₂ e)
Enterprises' Response	325,057	-	30,670	61,597	-	61,596	23,363	-	7,307	0	417,324
NEs Response	144,365	278,365	8,719	1,284,460	-	1,284,460	8,719	-	-	-	1,715,908
Total	469,422	278,365	39,389	1,346,057	-	1,346,057	32,082	-	7,307	0	2,133,232

Table 4.17 Details of the Indirect Lifetime Emission Reductions

Estimated Lifetime Indirect Emission Reduction from Savings											
	Energy Management		Total System Optimization		SSO		CASO		PSO		
Source of Data	ER from Electricity Savings (tCO ₂ e)	ER from Fuel Savings (tCO ₂ e)	ER from Electricity Savings (tCO ₂ e)	ER from Fuel Savings (tCO ₂ e)	ER from Electricity Savings (tCO ₂ e)	ER from Fuel Savings (tCO ₂ e)	ER from Electricity Savings (tCO ₂ e)	ER from Fuel Savings (tCO ₂ e)	ER from Electricity Savings (tCO ₂ e)	ER from Fuel Savings (tCO ₂ e)	Total Indirect ER from Savings (tCO ₂ e)
Enterprises' Response	141,410	83,204	6,089	-	-	-	1,218	-	4,871	-	230,703
NEs Response	-	-	27,438	893,676	-	859,326	27,438	-	-	34,350	921,114
Total	141,410	83,204	33,527	893,676	-	859,326	28,656	-	4,871	34,350	1,151,817

The higher emission reductions reported by NEs compared to the enterprises is attributed to the fact that the NEs are more knowledgeable in measuring energy savings and generally are more cooperative in providing /sharing information on the results of their EnMS and /or SO activities. The figures shown here should not be treated as absolute amounts, but rather minimum amounts.

4.5 ISO 50001 CERTIFICATION

A total of 5 enterprises are now certified with the ISO 50001. 23 are planning to get certification within 2 years.

Table 4.18 shows the number of enterprise with ISO 50001 Certification and the plans of those who are not yet certified.

Table 4.18 ISO Certification Status

Registration Status	Response form Enterprise		Response from NEs		Total	
	Number	% to Total	Number	% to Total	Number	% to Total
Yes	1	2%	4	9%	5	4%
Not yet but plan to within 2 years	13	19%	10	23%	23	21%
No	30	44%	11	26%	41	37%
No Answer	24	35%	18	42%	42	38%
Total No. of Enterprises	68	100%	43	100%	111	100%

The reasons cited for having no plans to register for ISO 50001 are shown in Table 4.19.

Table 4.19 Reasons for not Getting ISO 50001 Certification

Reasons for not registering	Number of Response from	
	Enterprise	NEs
Not required	2	
Need to attend trainings and workshops regarding implementation of ISO 50001. The company is very willing to comply	1	
Implementing in-house energy management	1	
Under subway construction	1	
Not yet discussed with HO Maintenance Team	1	
No directive yet from top management	1	2

Reasons for not registering	Number of Response from	
	Enterprise	NEs
The company prioritized ISO 14001	1	
The company is still new	1	
It is only a branch and all projects/ programs should be proposed in the Head office	1	
Lack of personnel to focus on the project	1	
Limited resources of branch and cannot implement such project	1	
Lack of support from main plant and knowledge about the project	1	
Certified with IATF 16949:2016 and ISO 14001:2015	1	
Just certified with ISO 9001:2015		1
Company had its own management system that incorporated energy management which is called MMSR (Minimum mandatory standard requirements)		1
But we intend to have systems / programs compliant to ISO 50001		1
Current focus is on other ISO such as QMS, FSMS and ISO 15378		1
Energy saving is the primary objective of the company		1
Budget constraint		1
Total	14	8

4.6 BARRIERS ENCOUNTERED

In the conduct of technical assessments to determine solutions in optimizing the operation of steam systems, compressed air systems and pump systems, the most common barriers encountered by the industrial enterprise and national experts are lack of tools & equipment (31%), failure to capture suitable measurement (25%), lack of technical capability (22%), lack of policy guidance/ support and incentives (16%). See Table 4.20 for the details.

Table 4.20 Barriers Encountered

Barriers	In terms of Numbers			Percent of total Respondents		
	Enterprise	NE	Total	Enterprise	NE	Total
Lack of Tools & Equipment	19	14	33	28%	36%	31%
Failure to capture suitable measurement	17	10	27	25%	26%	25%
Lack of technical capability	17	7	24	25%	18%	22%
Lack of policy guidance/support and incentives	11	6	17	16%	15%	16%
Difficulty in getting the cooperation of the management of facility	5	5	10	7%	13%	9%
Lack of Capital	6	3	9	9%	8%	8%
Difficulty in gathering substantial data due to issue on confidentiality	4	3	7	6%	8%	7%
Lack of loan financing	1	0	1	1%	0%	1%

Other barriers cited by respondents from the industrial enterprises are:

- Lack of time and not a priority by the management of the enterprise
- Need to have more detailed energy audit to establish more reliable baseline consumption for pump & motors
- Being transferred to other department not related to powerhouse and boiler operations which made it difficult for the person who participated in the UNIDO capacity building to implement optimization measures.
- Being on a roving status that is not being assigned to 1 particular plant which resulted to not being able to implement the project.
- No directive from top management

From the National Experts the other barriers encountered are:

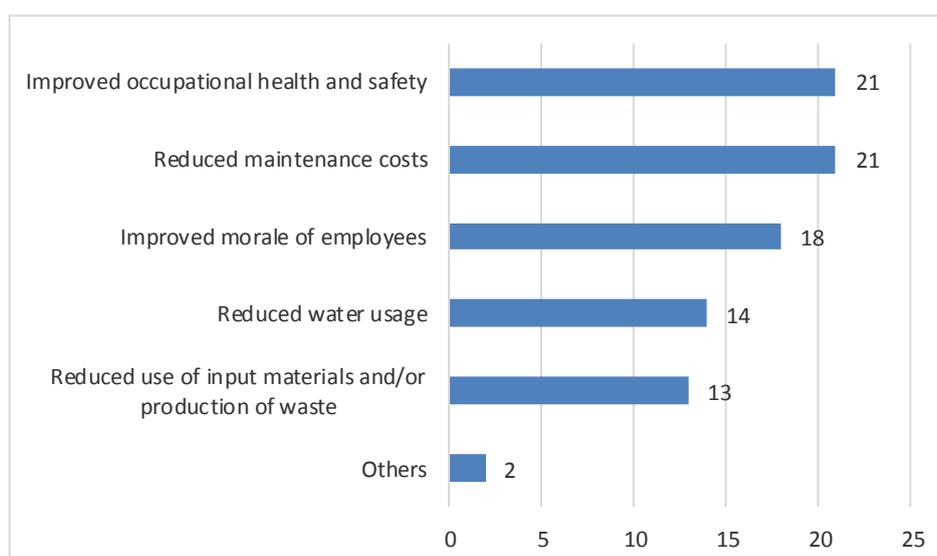
- Facility design/ piping not conducive to measurement
- Lack of personnel
- Management culture, slow in making decisions, reactive rather than pro active

4.7 NON-ENERGY BENEFITS

Some industrial enterprises and NEs indicated having realized non energy benefits in implementing optimization measures. The most common are improved occupational health & safety, reduced maintenance costs, improved morale of the employees and reduced water usage.

The number of enterprises and NEs that realized non-energy benefits resulting from optimization measures is shown in the following figure.

Figure 4.1 Number of Enterprises that Realized Non-energy Benefits Resulting from Optimization Measure

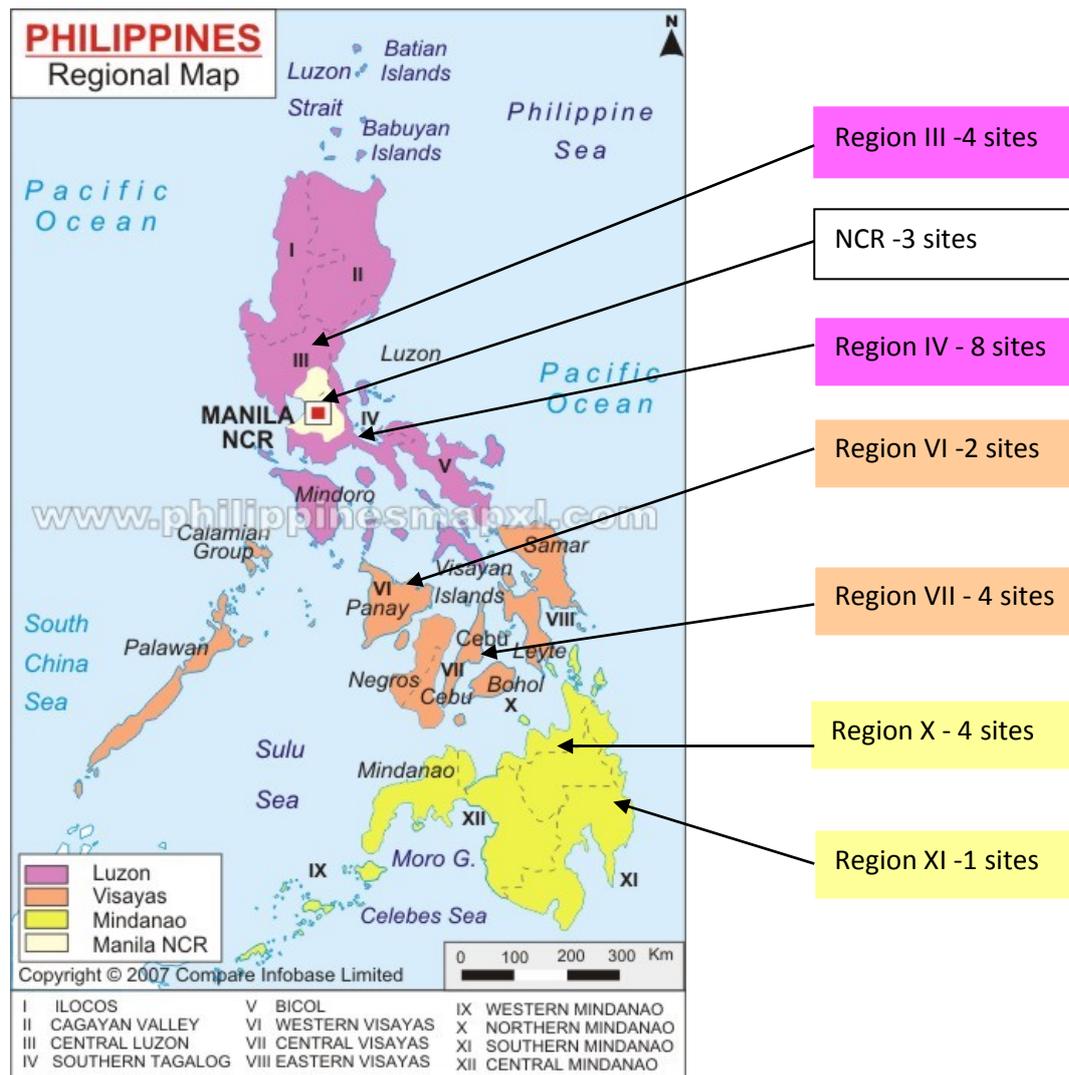


5 SITE VISITS

5.1 SITES VISITED

IIEC has conducted site visits to 26 enterprises. The geographical distribution of the plant facilities visited are shown in the following figure:

Figure 5.1 Geographical Location of Industrial Facilities Visited



The sites visited came from various industry sectors. Please see Table 5.1.

Table 5.1 Sites Visited by Industry Sector

Sector	Number
Agro-Industrial	2
Basic Metals & Steel	2
Cement	1
Chemical	1
Electrical Equipment, Electronics & Computer Manufacturing	3
Food & Beverage	4
Glass Manufacturing	1
Metal Stamping	1
Pharmaceutical	1
Plastics	1
Pulp & Paper	3
Semiconductor	3
Sugar	1
Water Utility	2
Total	26

The details of the enterprises visited are shown in Attachment 8.8.

The following are the pictures taken and some of the highlights of the findings during the visits.

1.

Name of Company : **STEEL ASIA Manufacturing Corporation**
Calaca Industrial Seaport Corporation, Gate 1, Calaca, Batangas

Contact Person/s : **Mr. Edwin Chiu, AVP – Melt Shop**
Mr. Jason Alvin Ballelos



- Status of energy management plan
 - Item 1. Replacement of all fluorescent tubes with LED – DONE
 - Item 2. On-going. Scrap shear to arrive mid-November 2018
 - Item 3. Planned. Replacement of jet burners
 - Item 4. Deferred. Due to unavailability of LNG terminal/facility
 - Item 5. Upgrade of dust collector system. Done. Completed May 2018.
- Other benefits to derived from item 2 implementation
 - Incremental volume* - Reducing bucket system from 4 to 3, results to time saving since 1 bucket charge is about 2 minutes therefore a minimum of 3 MT/hr in production is expected.
 - Scrap yield improvement* – When the scrap is processes the dust and other non-ferrous material will be separated. With a cleaner feed charge, yield would improve which is estimate to be around 0.3% but actual figures are higher. The added volume, would result to additional saving from charging hot billets to the rolling mill.
 - Use of cheaper scrap* - by shearing the cheap scrap to improve their densities the use of expensive scrap is minimized, the sheared scrap is still cheaper even with the additional cost of processing.
 - Could not give you actual figures on total savings aside from energy savings since the data are confidential
- Plan to change 110 kW and 132 kW motor pumps to more energy efficient pumps

- Future project to install metering system to monitor electrical and water consumption
- Average load capacity 42 MVA
- Suggested to have site visit to other company for new methods and technology (if UNIDO will be extended)

2.

Name of Company : **Coca-Cola FEMSA**
Canlubang Plant
Silangan Industrial Estate, Brgy. Canlubang, Calamba City, Laguna

Contact Person/s : **Mr. Val Gregana**
Maintenance Head



- 65% of the Energy Management Plans are being implemented
- Details of savings submitted to DOE (c/o Joan Sotelo) as part of documentation for the Don Emilio Abello Awards
- Assumption on the savings; 1 bar = 1% power reduction when using VSD
- There are 19 Coca Cola Plants but only Coca Cola Plant in Canlubang is seriously implementing EnMS and participating in government ENERCON projects and programs
- For PSO annual savings of efficient pump and installation of VSDs cannot be determined due to metering requirements before and after installation of these equipment (no baseline)
- Will implement Manufacturing Execution System (MES) for the monthly monitoring of electrical, water and fuels consumption

3.

Name of Company : **BAXTER Healthcare Philippines, Inc.**

Silangan Industrial Estate, Brgy. Canlubang, Calamba City, Laguna

Contact Person/s : **Mr. Nestor A. Valderama**
Engineering Manager



- Annual target savings 3%
- Impact of attending the UNIDO training: Understanding EnMS scope and boundaries
- Calculation of savings were converted to kWh (thermal and others)
- For SASO will provide additional information on the savings. They are using some in-house formulas
- For CASO annual savings; installation of VSD cannot be determined. Installed as an energy efficient equipment
- Prioritization on the implementation of EnMS due to office urgent deliverables
- The annual savings as indicated is the direct savings calculated for both electrical and thermal
- Under thermal, savings should be placed under Fuels, savings converted to kWh.

4.

Name of Company : **ITO SEISAKUSHO Philippines Corporation**
Lot C2-1B, Carmelray Industrial Park II, Km 54 National Highway
Brgy. Tulo & Punta, Calamba, Laguna

Contact Person/s : **Mr. Joey Alvaro**
Facility Supervisor



- Data indicated in the EMP (Electrical) p. 3, is the year-end report covering Sept 2017-2018
- EnMS being implemented as part of Environmental Impact of ISO 1400 (water and energy)
- Building 3 (new building) is now using energy efficient equipment e. g., using LED lamps, inverter ACU, piping in closed loop
- Building 1 targeted to be retrofitted with LED high bay luminaires and LED lamps replacing T8 with electronic ballast starting 2019. Building 2 will be retrofitted mid-2019
- Confirmed that for CASO change piping systems is around P1M loan
- Confirmed the installation of VSD compressor is around P2 M loan

5.

Name of Company : **SAGARA METRO PLASTICS INDUSTRIAL CORP**
Brgy. Paciano, Rizal, Calamba City, Laguna

Contact Person/s : **Mr. Fritz S. Oñang**
Facility Supervisor



- For the CASO, the annual savings and investment were calculated in-house by their Engineering Group

6.

Name of Company : **TONG HSING ELECTRONICS**
103 Prosperity Avenue, Carmelray International Business Park

Brgy. Canlubang, Calamba City, Laguna

Contact Person/s : **Mr. Desiderio M. Caliba**
Administration Manager



- Quarterly monitoring of facility consumption (electricity, water, fuel, etc.) for Plant 1 and 2.
- Three (3) intensive energy consuming equipment; chillers, compressors, and air-conditioning system are focused of optimization activities
- For the CASO the investment for three (3) system optimization measures were undertaken in-house by their Engineering Group as part of ENERCON targets
- Annual target savings 8% to 10%
- Details of savings submitted to DOE as part of documentation for the Don Emilio Abello Awards

7.

Name of Company : **TOSHIBA INFORMATION EQUIPMENT (PHILS), INC.**
SEPZ – Carmelray Industrial Park, Canlubang, Laguna

Contact Person/s : **Mr. Roberto B. Tan**
Section Manager



- EnMS being implemented as part of Environmental Impact of ISO 1400
- Prioritization on the implementation of EnMS due to office urgent deliverables/target production
- Cannot cope with target savings due to fast changing technology (need additional power for R&D including testing)
- Details of savings submitted to DOE as part of documentation for the Don Emilio Abello Awards

8.

Name of Company : **ATLANTIC COATINGS, INCORPORATED**
Lukbahan Rd., Brgy. Hugo Perez, Trece Martirez City, Cavite

Contact Person/s : **Mr. Francis C. San Agustin**
Maintenance Engineer





- The three (3) system optimization system were undertaken in-house as part of facility regular maintenance, thus no investments
- Report was submitted to PIEEP by Mr. San Agustin
- Mr. San Agustin attended the Compressed Air System optimization sometime in 2015
- Will submit to IIEC the report submitted to PIEEP

9.

Name of Company : **MAYNILAD WATER SERVICES, INCORPORATED**
La Mesa Treatment Plant 1 & 2, Greater Lagro, Quezon City

Contact Person/s : **Mr. Enrique G. De Guzman**
AVP & Head, Integrated Management System





- 90% of energy consumed coming from pump motors
 - 6 units 285 hp
 - 4 units 500 hp
 - 5 units 180 hp
- Established Project Management System (PMS) to improve utilization of energy
- Baseline measurement in terms of volume of water produced or treated
- Targeted to install water meter to a number of motor pumps

10.

Name of Company : **HOLCIM Philippines, Incorporated**
Brgy. Matictic, Norzagaray, Bulacan

Contact Person/s : **Mr. Geert U. Kuiper**
Mr. Nick John Cawicaan, Process Engineer



- 2016 Don Emilio Abello Awardee
 - Plan to install renewable technologies
 - 10 MW Solar Panel
 - Wind energy
 - Report was submitted to PIEEP in 2015
-

11.

Name of Company : **AMKOR TECHNOLOGY PHILIPPINES, INCORPORATED**
Km 22 East Service Road, Cupang, Muntinlupa City

Contact Person/s : **Mr. Mario Navalta, Senior Manager**
Mr. Marlon Licup, Facilities Engineer



- The Company is already a Don Emilio Abello Hall of Famer
 - The latest energy efficiency activity is the retrofitting of lighting system from T8 lamps (36 watts) operated with magnetic ballast to LED (18 watts)
-

12.

Name of Company : **Manila Water Co., Inc.**
San Juan Pumping Station 1, Horseshoe Village, Cubao, Quezon City

Contact Person/s : **Mr. William C. Alcantara**
Energy Innovations Department Head



- 90% of energy consumed coming from pump motors
 - 5 units 800 hp
 - 1 unit 500 hp
 - 1 unit 300 hp
 - Report was submitted to PIEEP in 2015
 - Copy of presentation materials submitted to IIEC
-

13.

Name of Company : **RDF FEED, LIVESTOCK & FOODS, INCORPORATED**
Purok 6, Barangay Lara, San Fernando City

Contact Person/s : **Mr. Mark Anthony Mercado**
Feed Mill Operations Head





- Continuing activity on machine optimization (regular monitoring on the motor performance)
- Combine other line processes to reduce processing time

14.

Name of Company : **SMYPC - Metal Closure & Lithography Plant San Fernando**
San Miguel Complex, San Fernando, Pampanga

Contact Person/s : **Mr. Marciano Payumo, Jr.**
Engineering Head



- Installed 13 kW Solar Panel to reduced dependency on electric energy. Will increase capacity depending on the availability of the space in the existing facility.
- Replacement of streetlights and high bay lighting from high pressure sodium lamps to energy efficient LED lamps.
- Replacement of office fluorescent lighting to energy efficient LED lamps.

15.

Name of Company : **UNITED PULP & PAPER COMPANY, INCORPORATED**
KM 48 McArthur Highway, Calumpit, Bulacan

Contact Person/s : **Mr. Jezreel Magbanua**
Energy Officer - Maintenance & Energy Dept



Note: No photos taken due to strict implementation of “NO CAMERA WITHIN THE PREMISES” of the management. The facility is now being operated by Thais.

- 85% to 90% of energy consumed coming from motors
- Need training and best practices on the operation of fans and blowers
- Problem on power supply (short period power failure)

16.

Name of Company : **MINDANAO CORRUGATED FIBREBOARD, INCORPORATED**
Km 12, Sasa, Davao City

Contact Person/s : **Mr. Pablo Catipay, Jr.**
Engineering Head



- Difficulty in monitoring and recording baseline parameters due to fluctuating production.
- Major clients are from agriculture (if low harvest (e.g. banana and pineapple) demand for carton box is also low).
- Other clients include fisheries (seasonal) and food (from Nestle).
- Submitted report to PIEEP in 2016

17.

Name of Company : **ASIA BREWERY, INCORPORATED**
Butuan-Cagayan de Oro-Iligan Road, El Salvador, Misamis Oriental

Contact Person/s : **Mr. Nane Cres Remulta**
Department Head



- Major energy intensive equipment are pumps and motors and fans and blowers almost running at 24/7 which is around 90% to 95% of the total energy consumption.
- ENERCON Group has been established to monitor facility consumption (electricity, power, and water).
- Conducted periodic (monthly) energy conservation measures among personnel

18.

Name of Company : **COCAL-COLA FEMSA PHILIPPINES, INCORPORATED**
Misamis Oriental Plant
9665 National Highway, Villanueva, Misamis Oriental

Contact Person/s : **Mr. Ronelo Medino**
Maintenance Area Manager



- Pro-active ENERCON Committee to undertake monitoring of consumption (electricity and water).
- One of the activities to reduce energy consumption is the increase of compressor efficiency from 70% to at least 90%.
- Conduct routine parameter set-up including alignment and adjustment (e. g., pressure adjustment from 10 bars to 6.5 bars) without sacrificing the production output.
- Regular monitoring of line process steam leaks and others.

19.

Name of Company : **SAN MARTIN STEEL, INCORPORATED**
Phividec Industrial Estate, Brgy. San Martin, Villanueva Misamis Oriental

Contact Person/s : **Mr. Milbert Calunsag**
Assistant Manager- Production



- Major supplier of rebars (10 mm, 12 mm, and 16 mm) in Mindanao.
- Difficulty in monitoring and recording baseline parameters due to fluctuating production of rebars (unavailability of raw materials and warehouse space).
- Produced around 150,000 MT of rebars in 2017.
- Maintain the excess air ratio for air system optimization.

20.

Name of Company : **LIMKETKAI MANUFACTURING CORPORATION**
Julio Pacana Street, Puntod, Cagayan de Oro City

Contact Person/s : **Ms. Linalyn Pallasigue**
Head of Continuous Improvement Department



- Set-up ENERCON Group to conduct monitoring of consumption (electricity and water).
- Target activity is to replace low efficiency motors (around 60% - 65%) with higher efficiency.
- Regular monitoring of line process. Activities include steam traps repairs and replacement, replacement of busted relief valves, cladding of valves and pipes.

21.

Name of Company : **RICOH IMAGING PRODUCTS (PHILS) CORPORATION**
4th Blk C4, MEZ 1, Lapu-Lapu City, Cebu

Contact Person/s : **Mr. Elvis Tumulak**
Facilities In-Charge / Supervisor



- Major activity to reduce energy consumption is the line (process) merging to reduce process time
- Place some signage on the lighting (turn-off during break time and after use) and aircon operation (set not lower than 23 °C).
- Energy consumption around 6,000 kWh to 7,600 kWh per day
- Plan to install solar panel (400 kWp to 500 kWp) to cope with high average power rate of Php 8.72 per kWh
- Submits every 6 months Environmental Report to Ricoh Office in Japan on ENERCON updates.

22.

Name of Company : **Muramoto Audio-Visual Philippines, Inc. - Factory 2**
4th Street, Third Avenue, MEZ 1, Lapu-Lapu City, Cebu

Contact Person/s : **Mr. David Ray Urot**
Facility Maintenance Section Manager



- There is an ENERCON Committee to look into the day to day monitoring of energy consumption
- Embarking on the installed solar panel with a capacity of 428 kWp for their power supply due to high power rate of PHP 8.75 per kWh (average)
- Submit quarterly report to Main Headquarters on the ENERCON Activities
- Submit annual report to DOE

23.

Name of Company : **SAN MIGUEL YAMAMURA PACKAGING CORPORATION**
Cebu Glass Plant
SMC Mandaue Complex, MC Briones Avenue, Mandaue City, Cebu

Contact Person/s : **Mr. Jessie Vero**
Engineering Head



- There is an Energy Management Team (EMT) composed of personnel from Engineering Department
- The EMT monitor day to day activity of different facilities

- Uses bunker fuel with additives to reduce fuel consumption
 - Submit annual report to DOE
-

24.

Name of Company : **CORBOX CORPPORATION**
Purok Gemelina Tayud, Lilo-an, Cebu

Contact Person/s : **Mr. Michael Faciolan**
Maintenance Manager



- There is an ENERCON Committee to look into the day to day monitoring of energy consumption

- Installed solar panel with a capacity of 50 kWp for their power supply to augment electric source from VECO with power rate of PHP 8.50 per kWh (average)
 - Plan to install additional 500 kW solar panel
 - On-going office policy of turning off lights and aircon during break time
-

25.

Name of Company : **SAN CARLOS BIO-ENERGY, INC.**
Brgy. Palampas & Punao, Ecozone, San Carlos, Negros Occidental

Contact Person/s : **Mr. Emelito Villare**
Engineering Division Manager



- There is an ENERCON Management Committee to look into the day to day monitoring of energy consumption
 - Utilized the installed solar panel with a capacity of almost 90 MWp for their power supply due to unstable supply from power grid
-

26.

Name of Company : **LOPEZ SUGAR CORPORATION**
Brgy. Paraiso, Sagay City, Negros Occidental

Contact Person/s : **Mr. Senen Soberano**

Energy Manager and Head of Industrial Engineering



- There is an Energy Management Team (EMT) composed of personnel from different section of the facility that monitors consumption (electricity, power, and fuel).
- Implement selected provisions of ISO 50001 in their energy management system.
- Plan to integrate ISO 22000 (Food Safety Management System) with ISO 50001 to further achieving continuation improvement of their energy performance.

5.2 CRITERIA FOR SELECTING SITE VISITS

The criteria used by IIEC in selecting the sites to be visited are shown in the following Table 5.2.

Table 5.2 Criteria in Selecting Sites to be Visited

No.	Criteria	Parameter for measuring	Must	Want	Estimated #
1.	Owner / management willingness to allow the visit and there is robust set of data provided.	Written or verbal confirmation and accomplished survey form	√		At least 20
2.	High savings generated compared to the other respondents	KWh/ year saved or PHP savings/ year	√		6
3.	Significant or high investments made compared to the other respondents.	Project costs (PHP)	√		6
4.	Firm implemented EnMS System Optimization and is ISO 50001 certified	As indicated in the accomplished survey questionnaire		√	2
5.	Firm obtained ISO 50001	Yes/ No, as indicated in the accomplished survey questionnaire		√	1
6.	Sector representation – the firm belongs to a-sub industry sector that is not represented after applying criteria 3 and 4. This includes whether Large or MSME*.	Highest savings or highest investment in that sector	√		3
7.	Geographical representation. At least one firm/ facility located in Luzon, Visayas and Mindanao regions has been included	Plant site	√		3

Criteria 4 and 5 ensure that a representative firm from each target subsector has been included. The sub-industry sectors are Metals & Steels, Food & Beverages, Chemicals, and Pulp & Paper. It also refers to the size of the firm i.e., at least one large and/or one MSMEs has been included.

6 ACTUAL VS PROJECTED PERFORMANCE

The comparison between PIEEP's actual output/outcome against the project targets are shown in the following table:

Table 6.1 Comparative Analysis of Actual vs Targeted Output/Outcome

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 ₂ e)	1,515,810	2,133,232	141%
Indirect (tCO ₂ e) planned projects	3,031,619	1,151,817	38%
Indirect (tCO ₂ e) bottom up; RF=2	3,031,619	4,266,464	141%

Although PIEEP attained only 60% of the targeted annual power savings, it was able to generate fuel savings of more than 300% of the project's annual target. In terms of total lifetime energy savings, the project attained likewise more than 300% of the target for fuel savings and 55% of the target for power savings.

In terms of emission reductions, PIEEP generated a total direct emissions of 2.1 million tCO₂e which is 141% of the target. In accordance with the new GEF Methodology for computing greenhouse gas benefits for energy efficiency projects, total direct emissions include the estimated emission reductions of the total project life of the investments or measures done within the implementation period of PIEEP.

As of the end of PIEEP an estimated 38% of the targeted indirect emission reductions is already in the planning stage.

It should be noted that the target for the indirect emission reduction was computed by multiplying the (lifetime) direct emission reduction with an assumed replication factor (RF=2).

7 KEY SURVEY RESULTS AND CONCLUSIONS

The key survey results and conclusions from the survey are as follows:

1. There were a total of 230 responses, 111 submitted accomplished survey forms from which information on 111 enterprises were obtained. 84 % of the survey respondents are male while 16% are female.
2. No less than 46 enterprises are implementing energy management systems in their operation following the capacity building intervention of the PIEEP. This has resulted to an EnMS related investments totalling no less than PHP 889M (USD 18.9M). It is also estimated to result to an annual electricity power savings of 102,206MWh/yr, fuel savings of 309,693 GJ/yr and annual emission reductions of no less than 91,353 tons CO₂e/yr and annual savings of at least PHP 789M (USD 16.7M).
3. No less than 57 enterprises are implementing system optimization programs in their operation following the capacity building intervention of the PIEEP. This has resulted to an SO related investments totalling no less than PHP 188M (USD 4M) of which not less than PHP 60.5M (USD1.3M) were financed through loans. It is also estimated to result to an annual power savings of 11,975 MWh/y, annual fuel savings of 1,743,353 GJ/yr, annual emission reduction of at least 231,265 tons CO₂e/yr and annual savings totalling to at least PHP 285 M (USD 6 M). Many of the system optimization measures only required adjustments in parameter settings and/ or alignment as well as routine/periodic repairs and maintenance that did not require financial investments.
4. PIEEP is estimated to result to a total of 1.1 million MWh of savings and 21.4 million GJ fuel savings if one were to consider the impact of the measures over its total lifetime.
5. The project is estimated to yield direct emission reductions of not less than 214,739 tons CO₂e/yr and indirect emission reductions not less 107,879 tons CO₂e/yr from projects that are still in the planning stage at the end of PIEEP.
6. In terms of total lifetime of the measures implemented, CO₂e emission reductions is estimated to reach 3.3 million tCO₂e of which 2.1million tCO₂e are direct emission reductions.
7. Out of 39 NEs that submitted the completed survey forms, 22 indicated that they attended the EnMS training. 19 (86%) of these NEs are implementing and/or have plans to implement EnMS. There are 3 NEs who did not attend the EnMS training but are implementing EnMS.
8. Out of the 39 NEs that submitted the accomplished survey forms, 24 indicated that they attended the SO trainings of which 18 (75%) NEs have implemented, are implementing and / or have plans to implement system optimization measures.

9. The majority of the enterprises captured in the survey are located in Luzon (67%) while the rest are in Visayas (20%) and Mindanao (13%).
10. There were several industry sectors that participated in the UNIDO capacity building activities. Most of the survey respondents who readily shared information were from the following: Food & Beverage sector (22%), Electrical Equipment & Electronics (11%), Chemicals (9%), Basic Metals & Steel (7%), Semiconductor (6%), and Pulp & Paper (5%).
11. A respondent from a water utility has expressed desire to attend capacity building activities on pumping system optimization should there be future additional interventions by UNIDO.
12. Most NEs connected with the enterprise itself either as an employee or operations officer have been able to implement several measures based on knowledge obtained from the UNIDO capacity building.
13. Several NEs connected with the enterprise on a consultancy basis could not readily share much information due to the issue of having signed confidentiality agreement with the enterprise.
14. Site visits have been conducted in 26 industrial facilities. The sites visited come from various industry sectors: Agro-industrial; Basic Metals & Steel; Cement; Chemical; Electrical equipment, electronics & computer manufacturing; Food & Beverage; Glass Manufacturing; Metal Stamping; Pharmaceutical; Plastics; Pulp & Paper; Semiconductor; Sugar and Water Utilities.
15. The PIEEP has attained 329% of the targeted annual fuel savings and 60% of the targeted annual power savings. In terms of lifetime energy savings, the project has achieved 321% of the targeted fuel savings and 55% of the targeted power savings. In terms of total emission reductions PIEEP generated a total direct emissions of 2.1 million tCO₂e which is 141% of the target. As of the end of PIEEP, 38% of the target indirect emission reductions has already been achieved

8 ATTACHMENTS

8.1 SURVEY QUESTIONNAIRE

Survey Questionnaire

Name of Respondent	
Name of the Affiliated Enterprise	
Title/Position	
Telephone/ Mobile Phone/ Fax No.	
E-mail address	
Respondent's gender	<input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Prefer not to respond

- Please check (✓) UNIDO training(s) attended
 Energy Management System
 Steam System Optimization
 Compressed Air System Optimization
 Pumping System Optimization
- Please list the actions, projects or programs undertaken where the knowledge you have obtained from the training were applied. If no action, projects or program has been implemented, please proceed to item 3.

For Energy Management System (EnMS)

Name of the Enterprise where the action(s), project(s) or program(s) was/were implemented			
Industry Sector ¹³			
Location of the Facility (Region) ¹⁴		Size of the Enterprise ¹⁵	
Is the Enterprise ISO 50001 certified <input type="checkbox"/> Yes, certified in (month / year) ____/____ <input type="checkbox"/> Not yet, but plan to certify in (month / year) ____/____ <input type="checkbox"/> No, because _____			

¹³ Indicate if: Basic Metals & Steel; Chemicals; Food & Beverage; Pulp & Paper Products or if others please specify.

¹⁴ Indicate region number

¹⁵ Indicate MSME if micro small medium enterprise or L if large enterprise as defined by the Department of Trade and Industry- Bureau of Micro Small Medium Enterprise. MSMEs are firms with total assets less than PHP 100M and has less than 200 employees.

Actions / Projects/ Programs related to EnMS	Status (✓)		
	Planned	Ongoing	Complete
Role and Responsibility			
1.1 Management Roles and Responsibilities			
1.2 Energy Management Representative Roles and Responsibilities			
1.3 Energy Management Team Roles and Responsibilities (Male = persons; Female = persons; Total = persons)			
Energy Policy			
Energy Planning			
3.1 Legal and other requirements			
3.2 Energy Source Identification			
3.3 Analyse Energy Use			
3.4 Identify and quantify Significant Energy Uses (SEUs)			
3.5 Analyse SEUs			
3.6 Identify and quantify drivers			
3.7 Identify Energy Performance Indicator (EnPIs)			
3.8 Estimate future energy use			
3.9 Identify energy saving opportunities			
3.10 Establish Energy baseline			
3.11 Establish EnPIs			
3.12 Create Energy Objective.....			
3.13 Targets Target Set..... Electrical..... Thermal.....			
3.14 Create Action Plan			
Implementation and Operation			
4.1 Create Training Plan for SEUs related person			
1.2 Plan for awareness activities			
1.3 Create internal communication and suggestion			
1.4 Decide if external communication is required			
1.5 Documentation			
1.6 Create document control procedure			
1.7 Create Operational Control Procedures/Work Instructions for SEUs			
1.8 Create Energy Efficient Design (EED) for SEUs			
1.9 Create purchasing procedure about SEUs			

Monitoring			
5.1 Create Monitor and Measuring Plan			
5.2 Create calibration plan for SEUs related equipment			
5.3 Create procedure in case significant deviation happen			
5.4 Review conformity of legal and other requirements			
5.5 Announce Internal Audit team			
5.6 Internal audit plan			
5.7 Do internal audit as a plan			
5.8 Internal audit report			
5.9 Document non-compliance (NCs) number and status			
5.10 NCs correction records and report			
5.11 CARs follow up records and report			
5.12 PARs follow up records and report			
5.13 Documentation procedure			
Management review			
6.1 Establish management review plan			
6.2 Energy management review meeting as planned			
6.3 Documenting meeting reports			

Note: If there is more than one enterprise or if this page is not enough, just copy and paste the table

For Steam System Optimization (SSO)

Name of the Enterprise					Location of the Facility (Region) ²							
Industry Sector ¹					Size of the Enterprise ³							
	System Optimization Measures	Status(✓)			Annual Savings					Investment (PHP) ⁴		
		Planned	Ongoing	Complete	Type of fuel ⁵	Estimated Quantity/y	Actual Quantity/y	Actual PHP/y	Unit ⁶	Cash	In-kind	Loan
1	Reduce excess air											
2	Reduce blowdown rate											
3	Improve insulation											
4	Recover flash steam											
5	Recover condensate											
6	Repair leaks in steam distribution system											
7	Repair or change steam traps											
8	Install economizer											
9	Install efficient boiler											
10	Other(s), please specify:											
	Unit Cost of Fuel/Electricity:	Total										

For Compressed Air System Optimization (CASO)

Name of the Enterprise					Location of the Facility (Region) ²							
Industry Sector ¹					Size of the Enterprise ³							
	System Optimization Measures	Status(✓)			Annual Savings					Investment (PHP) ⁴		
		Planned	Ongoing	Complete	Type of fuel ⁵	Estimated Quantity/y	Actual Quantity/y	Actual PHP/y	Unit ⁶	Cash	In-kind	Loan
1	Reduce leak in compressed air system											
2	Reduce inlet air temperature											
3	Reduce pressure set point											

4	Use booster pump for high pressure user separate										
5	Change piping system from branch to ring loop system										
6	Install air compressor sequence controller										
7	Use highly efficient air compressor										
8	Install VSD air compressor										
9	Other(s), please specify:										
Unit Cost of Fuel/Electricity:		Total									

For Pump System Optimization (PSO)

Name of the Enterprise					Location of the Facility (Region) ²							
Industry Sector ¹					Size of the Enterprise ³							
	System Optimization Measures	Status(✓)			Annual Savings					Investment (PHP) ⁴		
		Planned	Ongoing	Complete	Type of fuel ⁵	Estimated Quantity/y	Actual Quantity/y	Actual PHP/y	Unit ⁶	Cash	In-kind	Loan
1	Use mainly highly efficient pump											
2	Reduce water flow											
3	Reduce the size of impeller											
4	Install tachometer											
5	Reduce friction loss in pipe											
6	Install VSDs											
7	Reduce water usage											
8	Other(s), please specify:											
Unit Cost of Fuel/Electricity:		Total										

3. What were the barriers encountered in conducting technical assessment on steam, pump and compressed air system optimization?

Please indicate a check (✓) mark on the appropriate answer.

- Lack of technical capability
- Difficulty in getting the cooperation of the management of the facility
- Difficulty in gathering substantial data due to issue on confidentiality
- Lack of policy guidance/support and incentives
- Failure to capture suitable measurement
- Lack of tools and equipment
- Lack of capital
- Lack of loan financing
- Other(s), please specify _____

4. Did the Enterprise experience any Non-Energy Benefits (NEB) as a result of the EnMS/SO implementation(s)?

	Non-Energy Benefit (NEB)	NEB Experienced (✓)	If NEB quantified, Value [please indicate unit]	If NEB monetized, Value [PHP]	Type of measure
1	Reduced maintenance costs				
2	Improved occupational health and safety				
3	Reduced water usage				
4	Reduced use of input materials and/or product waste				
5	Improved morale of employees				
6	Other(s), please specify:				

Thank you for participating in this survey. Please return the completed survey either by fax to +632 426 8566 or email to elayus@iiec.org

8.2 SURVEY RECIPIENTS & STATUS – INDUSTRIAL ENTERPRISES

No.	Name of Enterprise / Facility Owner	Name of Respondent	Contact Details	RESPONSE FROM ENTERPRISE										FOLLOW UP				
				Received Survey Form	Received Survey Form Thru NE	Agreed To Submit Did Not Send After The Cut-Off Date	Waiting Approval From Superior	Contact Person No Longer Connected & Identified Responsible Person	Contact Person No Longer Connected & Can't Identify Responsible Person	Attended Awareness Workshop / Site Visit & No Project	Replied Can't Participate	Not Interested To Participate In The Survey	Enterprise Permanently Closed	Previous Contact Details Erroneous & Now Updated	Re-Sent Using Updated Email	Contact Person From The Master list	Number Couldn't Be Contacted	Number Ringing But No Answer
1	Amber Golden Bowl Restaurant Corp.	Jomarie Balaba	Tel: +632 372-2222 Mobile: +63 949 103-7253 Email: Jomarie.balaba@amber.com.ph	1											1			
2	Asia Brewery Inc. - Laguna Plant	Genaro B. Catalan, Jr.	Tel: +632 810-2701 to 10 loc 137 Mobile: +63 917 880-7952 Email: genaro.catalan@asia-brewery.com	1														
3	Asia Brewery Inc. - Misamis Oriental Plant	Robert S. Jocson	Tel: +632 816-5590 Mobile: +63 917 717-4003 Email: rbrt_jocson@yahoo.com	1														
4	Bohol Agro-Marine Development Corporation	Jennifer Catamora	Tel: +6338 508-8114 / 8092 Email: boholagromarine@alturasbohol.com	1										1				
5	Chowking Commissary - Muntinlupa Plant & Sucat Plant	Ronaldo Sales	Tel: +632 688-3000 loc 5529 Mobile: +63 918 963-3243 Email: dong.sales@jollibee.com.ph	1											1			
6	Coca Cola FEMSA - Misamis Oriental Plant	Ronelo A. Medino	Tel: +6388 563-6000 Mobile: +63 917 581-3207 Email: ronelo.medino@coca-cola.com.ph	1											1			
7	Dalisay Sweets	Maria Rosilyn Ortua	Tel: +632 291-8227 Email: sales@dalisaysweets.com	1											1			

No.	Name of Enterprise / Facility Owner	Name of Respondent	Contact Details	RESPONSE FROM ENTERPRISE										FOLLOW UP				
				Received Survey Form	Received Survey Form Thru NE	Agreed To Submit Did Not Send After The Cut-Off Date	Waiting Approval From Superior	Contact Person No Longer Connected & Identified Responsible Person	Contact Person No Longer Connected & Can't Identify Responsible Person	Attended Awareness Workshop / Site Visit & No Project	Replied Can't Participate	Not Interested To Participate In The Survey	Enterprise Permanently Closed	Previous Contact Details Erroneous & Now Updated	Re-Sent Using Updated Email	Contact Person From The Master list	Number Couldn't Be Contacted	Number Ringing But No Answer
8	Del Monte Philippines, Inc.	Roberto Molas	Tel: +632 856-2888 Email: rtmolas@yahoo.com	1												1		
9	DOLE Philippines, Inc.	Warren Paul P. Jarloc	Tel: +632 771-2146 Email: warren.paul.jarloc@doleintl.com	1														
10	General Milling Corporation	Christopher R. Gorgonio	Tel: +6332 340-8888 loc 416 Email: christopher_gorgonio@genmil.com.ph	1										1				
11	Max's Kitchen Inc.	Alvin Villanueva	Mobile: +63 920-551-7534 Email: maxs_0197@maxschicken.com	1														
12	Philbest Canning Corporation	Nesan Banol	Tel: +6383 552-8550 Email: nsbanol@philbest.com.ph	1											1			
13	Philippine Flour Mills	Mark Kenneth Jaro	Mobile: +63 946 432-1251 Email: Reginevictor91@gmail.com	1														
14	Silver Star Resources Co. Inc.	Joy C. Del Valle	Tel: +632 932-8094 / 931-0617 Mobile: +63 917 770-1753 Email: humanresources@silverstar.com.ph	1										1				
15	Sunlight Foods Corp.	Crispin Muyrong, Jr.	Tel: +632 943-2583 to 84 Email: babot_78@yahoo.com	1										1	1			
16	Best Chemicals and Plastics Inc.	Ressie D. Santiago	Tel: +6346 430-2261 Mobile: +63 917 546-3083 Email: ressiesantiago@yahoo.com	1														
17	Cenapro Chemical Corporation	Giovanni S. Tabada	Tel: +6332 344-1135 Email: ggpsalm@yahoo.com.ph / hr.cenapro75@yahoo.com	1										1	1			

No.	Name of Enterprise / Facility Owner	Name of Respondent	Contact Details	RESPONSE FROM ENTERPRISE										FOLLOW UP					
				Received Survey Form	Received Survey Form Thru NE	Agreed To Submit Did Not Send After The Cut-Off Date	Waiting Approval From Superior	Contact Person No Longer Connected & Identified Responsible Person	Contact Person No Longer Connected & Can't Identify Responsible Person	Attended Awareness Workshop / Site Visit & No Project	Replied Can't Participate	Not Interested To Participate In The Survey	Enterprise Permanently Closed	Previous Contact Details Erroneous & Now Updated	Re-Sent Using Updated Email	Contact Person From The Master list	Number Couldn't Be Contacted	Number Ringing But No Answer	
18	CSI Chemical Co.,Ltd.	Oliver C. David	Tel: +632 771-1806 Mobile: +63 998 510-3074 Email: jojo.david@csichemical.com	1											1	1			
19	First in colours, Inc.	Gil E. Ofina	Tel: +632 635-0680 / 0696 loc 352/353 Mobile: +63 917 856-8575 Email: gilofina@firstincolours.com	1											1				
20	JG Summit Petrochemical Corp.	Jaime V. De Guzman	Tel: +6343 740-5675 Email: Jaime.Deguzman@jgspetrochem.com	1											1				
21	Kalinisan Chemical Corporation	Casselyn Alamag	Tel: +6388 231-3214 Mobile: +63 936 772-2298 Email: casselyn.alamag@kalinisanchemicals.com	1											1	1			
22	Mabuhay Vinyl Corporation	Jomar S. Gorgolon	Tel: +6363 223-6794 Email: jsgorgolon@mvc.com.ph	1												1			
23	Resins Incorporated Chemical Corporation	Emmanuel Veloso	Mobile: +63 917 706-9823 Email: ecveloso@richem.com.ph	1											1				
24	DRAKA Philippines Inc.	Godofredo Pardico, Jr.	Mobile: +63 917 321-3486 Email: jhun.pardico@prysmiangroup.com	1															
25	EXAS Phils. Inc.	Jeffrey Monatad	Tel: +6332 340-0691 loc 118 Email: maintenance@exas.com.ph	1															
26	Muramoto Audio-Visual Philippines, Inc. - Factory 2	David Ray B. Urot	Tel: +6332 340-1580 / +6332 340-0798 Mobile: +63917 322-5497 Email: david@maple.muramoto.com	1															
27	Martian Steel Corporation	Restie Javier	Tel: +632 641-8978 Email: martiansteelcorporatio	1											1	1			

No.	Name of Enterprise / Facility Owner	Name of Respondent	Contact Details	RESPONSE FROM ENTERPRISE										FOLLOW UP				
				Received Survey Form	Received Survey Form Thru NE	Agreed To Submit Did Not Send After The Cut-Off Date	Waiting Approval From Superior	Contact Person No Longer Connected & Identified Responsible Person	Contact Person No Longer Connected & Can't Identify Responsible Person	Attended Awareness Workshop / Site Visit & No Project	Replied Can't Participate	Not Interested To Participate In The Survey	Enterprise Permanently Closed	Previous Contact Details Erroneous & Now Updated	Re-Sent Using Updated Email	Contact Person From The Master list	Number Couldn't Be Contacted	Number Ringing But No Answer
			n@yahoo.com															
28	Nakayama Technology Corporation	Lyne Osorio	Tel: +6382 553-8701 Email: l_lerin@nkym.com.ph / lyne.osorio@gmail.com	1														1
29	Pag-asa Steel Works Inc.	Fortunato V. Rilles, Jr.	Tel: +632 737-6300 loc 2204 Email: badgeo77@gmail.com / jojo.rilles@pagasasteel.com	1											1	1		
30	Phil-Japan Metals	Jamil Anoos	Tel: +6332 340-0121 Email: jamil.anoos@pjmrefinery.net	1														1
31	San Martin Steel, Inc	Lorena B. Pading	Mobile: +63 997 7010-132 Email: lbpadding@steelasia.com	1											1			
32	Steel Asia Manufacturing Corporation	Edwin S. Chiu	Mobile: +63 917 507-6258 Email: eschiu@steelasia.com	1														
33	Bataan 2020, Inc.	Dhantly La Paz	Mobile: +63 998 964-3813 / 3814 loc 286 Email: dhantly.lapaz@bataan2020.net	1														1
34	Corbox Corp.	Michael P. Faciolan	Mobile: +63 922 899-9096 Email: mikefaciolan@yahoo.com.ph	1											1			
35	Mindanao Corrugated Fibreboard, Inc.	Pablo P. Catipay, Jr.	Tel: +6382 234-1004 Email: pcatipay@smypc.sanmiguel.com.ph	1														
36	St. Thomas Paper Corporation	Dennis Lakapuenga	Mobile: +63 917 323-8186 Email: jdlakapuenga@batangaspaper.com	1											1	1		
37	Aikawa Philippines Inc	Adventor J. Fernandez	Tel: +6343 405-5661 loc 158 Mobile: +63 917 329-7353 Email: adventor_fernandez@	1														

No.	Name of Enterprise / Facility Owner	Name of Respondent	Contact Details	RESPONSE FROM ENTERPRISE										FOLLOW UP				
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			aikawa.com.ph															
38	Amkor Technology Philippines, Inc.	Marlon Licup	Tel: +632 850-7000 loc 5201 Email: Marlon.Licup@amkor.com	1														
39	Cebu Microelectronics Inc.	Tirso H. Aninon Jr.	Tel: +6332 340-6024 Mobile: +63 928 937-0985 Email: taninon@cmi.com.ph	1														
40	El Sol Electronics Device Phil. Inc.	John Xavier Medalla	Tel: +6343 405-5999 Email: jx.medalla@elsol-ph.com	1										1				
41	Fort Wayne Wire Die Phils. Inc.	Melvin A. Lising	Tel: +6343 405-5555 Email: mlicing@fwwd.com	1														
42	Fuji Electric Phils. Corp.	Ricardo Garcia, Jr.	Tel: +632 844-6183 Email: ricardo-garcia@fujielectric.com	1										1				
43	Fuji Electric Phils. Corp.	Alex M. Pellejo	Tel: +632 844-6183 Email: alex-pellejo@fujielectric.com / alexpellejo1@gmail.com	1											1			
44	Funai Electric Cebu Incorporated	Tomas Borromeo Jr.	Tel: +6332 349-1824 / 1800 Email: tborrome@funai-cebu.com.ph	1														
45	Ichinomiya Electronics Philippines Corp.	Renan Contreras	Mobile: +63 917 840-4151 Email: r.contreras@ichinomiya.com.ph	1														
46	ITO-Seisakusho Philippines Corporation	Jay O. Alvaro	Tel: +6349 545-5152 loc 334 Email: facilities@ispc.com.ph	1														
47	Jeco Auto Parts Phils., Inc. (JAPI)	Noel Agustin	Tel: +6349 549-2095 Mobile: +63 998 954-8564 Email: noel@jeco.com.ph	1										1				
48	JTEKT Philippines	Edilberto Hernandez	Tel: +6343 981-0088 Email:	1										1				

No.	Name of Enterprise / Facility Owner	Name of Respondent	Contact Details	RESPONSE FROM ENTERPRISE										FOLLOW UP				
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	Corporation		ydelhernandez@jtek.ph															
49	Nexperia	Ramil Soriano	Mobile: +63 917 504-4603 Email: ramil.soriano@nexperia.com	1														
50	On Semiconductor Phils. Inc. - Cebu	Philip Diaz	Tel: +6332 340-0534 loc 5418/5419 Email: philip.diaz@onsemi.com	1										1	1			
51	Ricoh Imaging Products (Phils.) Corp.	Elvis Tumalak	Tel: +6332 340-0505 loc 1250 Email: elvis.tumulak@ph.ricoh-imaging.com	1														
52	SHI Manufacturing and Services Inc.	Carl Michael J. Medina	Tel: +6343 405-6263 Mobile: +63 998 860-6173 Email: carl.michael.medina@shi-g.com	1										1				
53	Surface Technology International - Phils.	Rolito Jamilarin	Tel: +6332 340-4361 Mobile: +63 917 811-2530 Email: rolito-jamilarin@sti-limited.ph	1											1			
54	Teradyne Philippines Ltd.	Lemuel Y. Del Mar	Tel: +6332 340-5447 loc 1130 Mobile: +63 947 893-4416 Email: Lemuel.del.mar@teradyne.com	1														
55	TMX Philippines Inc.	Irving E. Padillo	Mobile: +63 917 639-7481 Email: ipadillo@timex.com	1													1	
56	Toshiba Information Equipment Phils. Inc.	Lisa Lapid	Tel: +6349 541-2030 Mobile: +63 917 590-7510 Email: Elisa.Lapid@toshiba.co.jp	1														
57	Laguna Water District Aquatech Resources Corporation	Fatima Jean R. Alvarez	Tel: +6349 536-4127 loc 100 Email: fjr.alvarez@larc.com.ph	1										1				
58	Maynilad Water Services	Enrique de Guzman	Tel: +632 981-3436 Email: enrique.deguzman@m	1										1				

No.	Name of Enterprise / Facility Owner	Name of Respondent	Contact Details	RESPONSE FROM ENTERPRISE										FOLLOW UP				
				Received Survey Form	Received Survey Form Thru NE	Agreed To Submit Did Not Send After The Cut-Off Date	Waiting Approval From Superior	Contact Person No Longer Connected & Identified Responsible Person	Contact Person No Longer Connected & Can't Identify Responsible Person	Attended Awareness Workshop / Site Visit & No Project	Replied Can't Participate	Not Interested To Participate In The Survey	Enterprise Permanently Closed	Previous Contact Details Erroneous & Now Updated	Re-Sent Using Updated Email	Contact Person From The Master list	Number Couldn't Be Contacted	Number Ringing But No Answer
			ayniladwater.com.ph															
59	Baxter Healthcare Philippines, Inc.	Nestor Valderama	Tel: +632 238-8060 Mobile: +63 917 858-2392 Email: nestor_valderama@baxter.com	1														
60	Air Liquide Philippines Inc.	Lito Morta	Mobile: +63 917 873-5655 Email: lito.morta@airliquide.com		1													
61	Atlantic Coating, Inc.	Gretchen Fontejon-Enarie	Mobile: +63 917 590-1811 Email: g_fontejon@boysen.com.ph		1													
62	Belcris Foods	Ruel R. Sta. Iglesia	Tel: +6332 238-8899 Email: r.sta.iglesia@belcris.com			1												
63	Cagayan Corn Products Corp	Erlito Soldivillo	Tel: +6388 855-2901 to 02 Mobile: 0917 726-5683 Email: ccpc_cdo@yahoo.com / erl.soldivillo@gmail.com			1							1	1				
64	MEPZ Mixed Gases Corp.	Kirby Chua	Mobile: +63 917 323-5149 Email: josekirbychua@gmail.com			1												
65	Halsangz Plating Cebu Corporation	Severino D. Amodia Jr.	Mobile: +63 909 846-9684 Email: bohramodia41@yahoo.com / bohramodia78@gmail.com			1							1	1				
66	Jea Steel Industries Inc.	Josephine M. Lauresta	Tel: +6382 238-0880 Email: jea_davao07@yahoo.com.ph			1							1					
67	MM Steel Service Center Corporation	Joey M. Mendoza	Tel: +6346 430-2041 to 46 Email: mendoza-j@mmsteel.com.ph			1							1					
68	Philippine TRC, Inc.	Melvin Eugenio	Mobile: +63 917 596-2213 Email: melvin.eugenio@trc-ph.com			1												

No.	Name of Enterprise / Facility Owner	Name of Respondent	Contact Details	RESPONSE FROM ENTERPRISE										FOLLOW UP					
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69	Union Galvasteel Corporation	Bernard Bonnie Capin	Mobile: +63 917 790-0723 Email: bernard_capin@yahoo.com.ph / bernardcapin@gmail.com			1									1	1			
70	Vilpar Steel	Marbic Richard Martinez	Tel: +6332 888-9764 Mobile: +63 932 426-8663 Email: vilparsteel@yahoo.com			1									1				
71	Adampak & Print (Phils) Inc	Susana Agutaya	Tel: +6349 545-6090 Email: susan@adampak.com.ph			1													
72	AP Genco	Jimmy A. Legaspi	Mobile: +63 939 407-7717 Email: jimmy_asjlegaspi@yahoo.com			1													
73	EPSON Precision Phils.	Darwin Velasco	Tel: +6343 981-2000 Mobile: +63 917 504-9779 Email: darwin.velasco@eppi.epson.com.ph			1									1				
74	Laguna Metts Corporation	Jesunito Botin	Tel: +6349 541-2714 Email: n.botin@lagunametts.com			1													
75	Microchip Operations (Phils.) Corp	Robinie D. Batacandolo	Mobile: +63 998 565-5909 Email: robinie.batacandolo@microchip.com			1													
76	Nippon Micrometer Corp. Phils.	Erwin B. Caño	Mobile: +63 917 304-7539 Email: ecano@nmc-net.co.jp			1													
77	Schneider Electric Philippines	Purito Vecina	Mobile: +63 917 803-2728 Email: purito.vecina@schneider-electric.com			1													
78	Taisei Electronics Phils. Inc.	Aaron Sallador	Tel: +6343 455-6935 loc 106 Email: aaron@taiseiph.com			1													
79	Texas Instrument Phils.	Glenn C. De Leon	Tel: +6374 447-1100 Mobile: +63 917 598-7919 Email: g-deleon@ti.com			1													

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80	Calamba Water District	Pedro M. Estalar	Mobile: +63 932 892-2863 Email: doy_estalar@yahoo.com			1									1	1			
81	Philippine Resins Industries Inc.	Jennifer Franz T. Teodoro	Tel: +6347 244-7108 Email: jfteodoro@prii.com.ph				1								1				
82	Cathay Metal Corp.	J Allan Javier	Mobile: +63 998 544-3299 Email: jallanjavier@yahoo.com				1										1		
83	Cebu Ymtechnology Inc.	Levi Cuarto	Tel: +6346 437-9540 / +032 318-7107 Email: levi@ymtec.net				1								1				
84	Quanta Paper Corporation	Raul Oclarit	Mobile: +63 916 742-4909 Email: raul.oclarit@quantaper.com				1												
85	Trust International Paper Corporation	Ella Villanueva	Tel: +6345 893-0676 to 79 Email: ella_villanueva@tipco.com.ph				1												
86	Brenntag Ingredients, Inc.	Silvania Rodulfo	Tel: +632 771-2253 loc. 237 /632 812-9385 Email: silvania.rodulfo@brenntag-asia.com bunny.rodulfo@gmail.com					1							1				
87	Liberty Flour Mills, Inc.	Jordan Estacio	Mobile: +63 532 2001-04 loc. 118 Email: jordanestacio@yahoo.com					1											
88	Nutri-Asia, Inc.	Ponn Ramos	Tel: +6349 543-0216 Email: ponn.ramos@nutriasia.com					1											
89	Phil. Union Frozen Foods, Inc.	Mary Grace Denaga	Tel: +6332 341-4165 Email: gdenaga@phil-union.com					1											
90	Prime Pacific Grill Corp. - Gerry's Grill	Tom Francisco	Mobile: +63 998 846-7714 Email: tsfrancisco@gerrysgrill.com					1											
91	Queen City Food Chain,	Jimmy Go	Tel: +6332 346-7256 Email:					1											

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	Inc.		hansim216@gmail.com															
92	RAMCAR- Food Group	Renald Pagunsan	Tel: +632 373-9434 Email: renald.pagunsan@assembuilders.ph					1										
93	San Pablo Manufacturing Corporation	Julio Abril	Tel: +6343 727-1656 Email: jabril@ciif.com.ph / abril-j@yahoo.com					1										
94	Seven Dragons Food Galore Inc.	Rowena Evangelista	Mobile: +63 906 972-4563 Email: sevendragons@ymail.com					1										
95	Traditional Food Corporation	Mary Jo Lachica	Tel: +632 584-2505 Email: maryjolachica@gmail.com					1										
96	Aichi Forging Company of Asia, Inc.	Angel P. Serra III	Tel: +632 892-2263 Email: serra@afc.ph					1						1				
97	Sanyo Seiki Stainless Steel Corporation	Rey U. Urbina	Tel: +632 657-2696 loc 3000 Mobile: +63 927 552-9693 Email: info@SANYOSEIKI.com					1						1				
98	Kanepackage Philippines Inc.	Ma. Grace V. Casanada	Tel: +6349 545-7167 Email: grace@ph.kanepackage.net / mgvilla@superflex.com.ph					1										
99	Funai Electric Philippines Inc.	Miguel C. Pielago	Tel: +6343 430-7000 Email: fph-m.pielago@funai.co.jp					1										
100	Futaba Corp.	Victor Amor Murillo	Tel: +6349 541-1060 loc 228 / +632 843-2866 Email: emu@futaba.com.ph					1						1				
101	Galvaphil, Inc.	Sheryll Ann A. Lianza	Tel: +6332 345-1714 Email: sheryllannlianza@yahoo.com					1										
102	Ibiden Phils. Inc.	Rommel Real	Tel: +6343 405-5250 loc 3313 Email:					1						1				

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			rommel_r.iji@ibiden.com															
103	NHK Spring Phils., Inc.	Glenn M. Santos	Tel: +6349 541-1122 Mobile: +63 917 674-6222					1										
104	Panasonic Precision Devices Phils., Corp.	Santy De Mesa	Tel: +6349 502-9562 Email: santy.demesa@ph.panasonic.com					1						1				
105	Sanritsu Great International	Adonis Ibarra	Mobile: +63 928 210-3283 Email: esm_laguna@sanritsu.com.ph					1										
106	Tsukiden Electronics Phil. Inc.	Rutchie Maturan	Mobile: +63 998 845-1314 Email: facilities-electrical@tsukiden-ph.com					1										
107	Carmen's Best International Dairy Company, Inc.	Ruel Lucas	Mobile: +63 921 743-2891 Email: ruel@carmensbest.com						1									
108	Central Azucarera Don Pedro Inc.	Angelito Angeles	Mobile: +63 928 504-8364 Email: joseangeles1026@yahoo.com						1									
109	Dencio's Bar and Restaurant	Nancy Naag	Mobile: +63 923 179-2746 Email: nancynaag@gmail.com						1									
110	Monde Nissin Corporation	Carlito S. Cablao	Tel: +6332 346-1859 Email: hvismn@gmail.com						1									
111	Nestle Philippines Inc. - Lipa Factory	Severino Galinato	Tel: +6343 756-8000 Email: severino.galinato@ph.nestle.com						1									
112	PERF Restaurants Inc. - Burger King (Bagumbayan)	Joel T. Reyes	Mobile: +63 916 645-4868 Email: bkc5ilbis@philking.com.ph						1									
113	Porf Restaurant Inc./ Burger King	Gabriel I. Sison Jr.	Mobile: +63 925 474-2257 Email: gabrielsisonjr@yahoo.com						1									

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114	Sunpride Foods, Inc.	Ruan Solloso	Tel: +6332 345-7859 / 345-1211 Email: ruan_solloso@yahoo.com							1								
115	Victorias Milling Company, Inc.	Globert Baldonaza	Tel: +6334 399-3226 Email: vmc.mgbaldonaza@gmail.com							1								
116	New Carcar Mfg. Inc. (Steel-Asia Davao Works)	Rhea M. Tanzo	Tel: +632 645-6888 (MNL Office)							1				1				
117	Steel Corp of the Phil.	Edgar G. Canoy	Tel: +632 813-8382 Email: canoy_ed53@yahoo.com							1				1				
118	TKC Steel	Teresita Panganiban	Tel: +632 864-0734 to 36 Email: teresita.panganiban@yahoo.com							1								
119	Newtech Pulp Inc.	Alex Larrazabal	Tel: +6363 833-9000 Email: CatalinoLarrazabal@glatfelter.com							1				1				
120	Fastech	Jerome Sayas	Tel: +6349 543-0476 Email: jertin_09@yahoo.com							1				1				
121	Holcim Philippines Inc.	Jaime C. Bernabe	Mobile: +63 917 589-1035 Email: jaime.bernabe@holcim.com							1								
122	Omnipack	Hipolito Manalac III	Mobile: +63 949 567-6663 Email: polman_aquino@yahoo.com							1								
123	Coca Cola Export Corporation	Redentor Salonga	Tel: +632 849-8365 Email: rsalonga@coca-cola.com								1						1	
124	Mekeni Food Corp.	Albert L. Marinay	Mobile: +63 917 596-3084 / +63 947 572-1952 Email: treblayaniram@yahoo.com albert_marinay@mekeni.com								1						1	
125	Closure Systems	Joel Mancilla	Mobile: +63 908 815-8218								1			1	1			

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			Email: joel.mancilla@pactgroup.com															
126	Gotoh Phils Corp	Geraldine Y. Estioko	Tel: +6349 549-7856 to 60 Email: ge@gotohphils.com							1								
127	Taiheiy Cement Phil., Inc.	Romulos Q. Romo	Tel: +6332 232-2688 / 230-7333 Email: rqrromo@taiheiyocement.com.ph							1				1	1			
128	Big Glory Bay Salmon and Seafood Company Inc.	Jim Lluisma	Tel: +6383 554-4063 Mobile: +63 917 112-1383 Email: jlluisma@bigglorybay.com.ph								1				1			
129	Capiz Sugar Central, Inc.	Miko Del Rosario	Tel: +6336 658-0487 Mobile: +63 927 138-0740 Email: miko.delrosario@lafilgroup.com								1				1			
130	Franke Food Service Systems Phils. Inc.	Jaime De Guzman	Tel: +6349 508-8888 Mobile: +63 998 537-5416 Email: jaime.deguzman@franke.com								1				1			
131	Jojo's Food Products Inc.	Eugene King Co	Tel: +6332 346-3286 / 346-4054 / 346-9572 Email: jp729@gmail.com								1							
132	KSK Food Products	Edward Lao	Tel: +632 370-5352 / 983-9928-30 Email: edward.lao@kskfoodproducts.com								1			1				
133	Sweet Crystals Integrated Sugar Mill	Almira Rey	Mobile: +63 939 913-5268 Email: almira.rey@sweetcrystals.ph								1							
134	Carmen Copper Corporation	Antonio P. Bullecer	Tel: +6332 888-1200 loc 5203/5204 Email: apbullecer@carmencopper.com								1					1		
135	Newman Chemicals Corporation	Mary Joy Mendaros	Tel: +6332 236-0173 Email: maryjoymendaros@gmail.com								1				1			

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			mail.com															
136	Pryce Gases, Inc.	Robin N. Delima	Tel: +6382 222-6673 Email: bin_delima@yahoo.com								1							
137	Philippine Manufacturing Co. of Murata Inc.	Malvin de Luna	Tel: +6343 455-2092 loc 3071 Email: malvin.deluna@murata.com								1				1			
138	CEMEX - Apo Cement Plant	Oliver B. Solijon	Tel: +6332 489-3348/3221 Email: oliver.solijon@cemex.com								1			1				
139	CEMEX - Solid Cement Plant	Kristine Gayem	Tel: +632 849-3656 Email: kristine.gayem@cemex.com								1			1				1
140	Carmona Water District	Ma. Nieves Mañabo	Tel: +6346 430-0832 loc 109 Email: carmonawd@yahoo.com								1			1	1			
141	Metropolitan Cebu Water District	Juanito D. Ando	Tel: +6332 254-4189 Email: jd_ando@yahoo.com								1							
142	Bogo - Medellin Milling Company Inc.	Alfred Acopan	Mobile: +63 915 318-2373 Email: alfredacopan@gmail.com									1						
143	North Star Flour Milling Corp.	Michael Cabagua	Tel: +632 245-5333 Email: mccabagua@gmail.com									1		1				
144	SYSCORE	Marc Abangan	Mobile: +63 917 712-0808 Email: marc.abangan@mdci.com.ph									1						
145	Rowell Lithography & Metal Closure, Inc.	Lucio Yan	Tel: +632 671-9958 Email: dahily1210@gmail.com									1						
146	Minebea Philippines, Inc.	Leonard G. Pidlaon	Tel: +6343 405-5021/5022/5027 loc 1201 Email: pidlaon15@gmail.com									1		1				

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147	JFS Precisions Technology	Remirito P. Benavides	Tel: +632 519-4425 (MNL) Email: REM.BENAVIDES@gmail.com										1	1				
148	Orophil Industries Corporation	Gabriel Sam Responso	Tel: +6388 855-9634 Email: orophil.industries@yahoo.com										1				1	
149	Asia Paper Industrial Corporation	Rolando Manalo	Tel: +632 983-8000 Email: asiapapercorporation@yahoo.com										1	1				
150	Atmel - ACP Test Inc.	Melanio Jarin Jr.	Tel: +632 575-3900 / 6349 549-0563 Email: jhune.jarin@atmel.com										1					
151	3K Golden Food	Aldwin T. Almonte	Tel: +632 724-2287 Email: store32@mcdpartner.com.ph											1	1			
152	Arlee's Bread House, Inc.	Daisy B. Calangin	Tel: +632 872-5019 Email: daisy13_flower@yahoo.com											1				
153	Big Glory Bay Salmon and Seafood Company Inc.	Walter Rosete	Tel: +6383 554-4063 Email: wnrosete@bgb.allianceselectfoods.com.ph											1				
154	Bogo - Medellin Milling Company Inc.	Arnel B. Aguilar	Tel: +63 848 -0114 /032 436-3091-93 Email: arnelemilyaguilar@yahoo.com											1			1	
155	Bounty Fresh Foods Inc.	Louie Balceda	Tel: +6344 676-3104 Mobile: +63 908 878-7416 Email: louiembalceda@gmail.com											1				
156	Busco Sugar Milling Company	Ireneo L. Tangon, Jr.	Tel: +632 817-8403 Email: rentang2@yahoo.com											1				
157	CIIF OIL MILLS	Nilo Calba	Tel: +632 892-7961 loc 6107 Mobile: +63 918 918-0154 Email: ncalva@ciif.ph											1	1			

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158	D & L Industries, Inc.	Alvin Lao	Tel: +632 635-0680 Email: info@dnl.com.ph												1	1			
159	Del Monte Philippines, Inc.	Eddie De Guzman	Tel: +632 856-2888 Email: deguzmanep@delmonte.phil.com												1			1	
160	Destileria Limtuaco and Co. Inc.	Olivia Limpe Aw	Tel: +632 361-7491 Email: nsgatmaitan@limtuaco.com												1	1			
161	Foodsphere, Inc.	Lord Norman Cosca	Tel: +632 588-5900 loc 7238 Email: norman.cosca@cdo.com.ph												1				1
162	Freyvonne Milling Services	Antonio Sanglay, Jr.	Tel: +6382 291-1831 Mobile: +63 918 922-1395 Email: freyvonnemillingservices@yahoo.com												1				
163	Limketkai Manufacturing Corporation	Archie Magtagad	Tel: +6388 856-2221-2228/ +6388 856-6998 Mobile: +63 905 246-6946 Email: argos_eye@yahoo.com												1				
164	Nestle Philippines Inc. - Cabuyao Factory	Eduardo Emata Jr.	Tel: +6349 531-2117 to 2119 loc 4240 Email: eduardojr.emata@ph.nestle.com												1				
165	Pepsi-Cola Products Phils., Inc.	Arwin Mariano	Mobile: +63 998 963-7264 Email: arwin.mariano@yahoo.com.ph / arwin.mariano@outlook.com												1	1			
166	Philbest Canning Corporation	Jovelyn Pajo	Tel: +6383 552-8550												1				
167	Virginia Food, Inc.	Benito Pescadero, Jr.	Tel: +6332 425-8711 / 239-8800 Mobile: +63 932 331-4221 Email: allensacuragi@yahoo.com												1				
168	ASA Color & Chemical	Roberto Mante	Mobile: +63 917 531-4240 Email:												1	1			

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			roberto.mante@asacol.or.com.ph															
169	Carmen Copper Corporation	Uriel B. Medellin	Tel: +6332 888-1200 loc 5203/5204 Email: ubmedellin@carmencopper.com												1			
170	CHEMLUX, INC.	Jose P. Raquel Santos	Tel: +632 837-0259 Email: jpraquelsantos@chemluxinc.com												1			
171	DELSA Chemicals & Multi-Products, Inc.	Reynaldo Y. Cabrerros	Tel: +632 842-9052 Email: jr.octavo@delsa.com.ph												1	1		
172	Mabuhay Vinyl Corporation	Eric Pagaling	Tel: +6363 223-6794												1			
173	Philippine Japan Active Carbon Corp. (Pjac)	Erwin B. Acosta	Tel: +6382 238-0073 to 74 Email: erwin_acosta78@yahoo.com												1	1		
174	Pilipinas Kao Inc.	Rindbergh Develos	Tel: +6388 890-5020 to 27 Mobile: +63 917 822-7608 Email: rindels@hotmail.com												1			
175	Shemberg Biotech Corp.	Nelson Olorvida	Tel: +6332 429-8191 loc 225 Email: ndolorvida@gmail.com												1			1
176	TNC Chemicals Philippines, Inc.	Marila S. Palisoc	Tel: +6349 545-1646 Email: dallpalisoc@gmail.com												1			
177	Tosoh Polyvin Corp.	Ruby P. Dones	Tel: +6343 981-4839 / 981-3001 Email: rubypdones@tosohpolyvin.com.ph												1			
178	Goodyear Steel Pipe Corp.	Efren M. Torres	Tel: +632 330-7028 Email: goodyear128@yahoo.com												1			
179	Miyoshi Technologies Phils. Inc.	Laurencio D. Mueco	Tel: +6349 508-1388 loc 115/110 Email: engineering@ph.miyoshi.biz												1	1		

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180	Pag-asa Steel Works Inc.	Howard Tong	Tel: +632 737-6300 Email: howie.tong@pagasasteel.com												1				
181	PDY Metal Recycling Corporation	Philip Dy	Tel: +6332 238-2688 Email: jaime@pdy-metal.com												1	1			
182	Philippine Iron Construction	Rene Dungog	Mobile: +63 915 598-4249 Email: rendungs_29@yahoo.com												1				
183	SOMICO	Gualbert D. Degoma	Mobile: +63 917 862-6710 Email: somico_steel@yahoo.com / gualbertdegoma@yahoo.com												1	1			
184	Bataan 2020, Inc.	Sean Oka	Mobile: +63 998 964-3813/3814 loc 286 Email: sean.oka@bataan2020.net												1				
185	Specialty Pulp Manufacturing Inc.	Ken Jerick Lim	Tel: +632 254-3824 loc 227 Email: kenjerrick.lim@spmi-pulp.com												1				1
186	Specialty Pulp Manufacturing Inc.	Nelson Lim	Tel: +632 254-3824 loc 227 Email: nelsonlim@spmi-pulp.com												1				1
187	AMS Asia Inc.	Benjamin Talactac	Tel: +6349 554-9008 / 9000 Email: benjamin.talactac@ams.com												1				
188	Analog Devices Inc.	Jaime Giovanni H. Tan	Tel: +632 867-7030 Email: engineering_ACI@yahoo.com												1			1	
189	Analog Devices Inc.	Melgar G. Murillo	Tel: +632 867-7030 Mobile: +63 917 873-6234 Email: melgar.murillo@analog.com												1				
190	Daikoku Electronics (Phils) Inc.	John Lister N. Recupero	Tel: +6349 554-9210 Email: j_recupero@daikoku.com.ph												1				

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191	First Sumiden Circuits, Inc.	Ivy M. Alintanahin	Tel: +632 730-9999 Mobile: +63 917 552-1605 Email: imalintanahin@fsci.sei.co.jp												1	1			
192	Fuji Electric Phils. Corp.	Arturo Mangente	Tel: +632 844-6183 Email: arturo-mangente@fujielectric.om												1	1			
193	HGST Phils. Corporation	Joseph U. Delgado	Tel: +632 757-5400 Email: joseph.delgado@hgst.com												1				
194	IM Digital Philippines Inc.	Janefero C. Serra	Mobile: +63 916 297-9887 Email: j.serra@im2006.com												1	1			
195	Integrated Microelectronics, Inc.	Gil Alcantara	Tel: +632 756-6840 loc 5270 Email: Gil.Alcantara@global-imi.com												1				
196	Jeco Auto Parts Phils., Inc. (JAPI)	Danny Fornoles	Tel: +6349 549-2095 Email: danny@jeco.com.ph												1				
197	Kinpo Electronics Philippines	Raymond Sulit II	Tel: +6343 233-8888 Email: rhsulit@kinpo.com.ph												1				1
198	Littelfuse Phils. Inc.	Jaymee Solomon	Tel: +6243 430-0100 Mobile: +63 917 792-8027 Email: jsolomon@littelfuse.com												1				
199	Meinan Phils., Inc.	Gideon Manigbas	Tel: +6347 541-1371 Email: gideon@meinanss.co.jp												1				
200	On Semiconductor Phils.	Alejandro Odasco	Mobile: +63 927 512-6696 Email: al.odasco@onsemi.com												1	1			
201	Taiyo Yuden Philippines, Inc.	Leonardo V. Desucatan	Tel: +6332 349-9298 loc 181 Email: lvesucatan@pty.yuden.co.jp												1	1			
202	TMX Philippines Inc.	Rolando Abasolo	Tel: +6332 230-1111 Mobile: +63 923 622-2879 Email: rollyabasolo@gmail.com												1				

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			m															
203	Tsakasa Electrics Phil. Inc.	Julie N. Alayra	Tel: +6343 406-6001 loc 101 Email: julieta.alayra@tsukasa-ph.com											1	1			
204	Young Shin Starlink Phils. Inc.	Rommel L. Suelto	Tel: +6349 530-9722 Mobile: +63 927 472-1150 Email: rommel@youngshin-slp.com											1				
205	CEMEX - Solid Cement Plant	Joseph Jurado	Tel: +632 849-3585 Email: josephjurado@cemex.com											1				
206	Republic Cement	Emeliano Aron, Jr.	Mobile: +63 917 554-2151 Email: emeliano.aron@republiccement.com											1	1			
207	Alaminos (Laguna) Water District	Emiliano Castillo	Tel: +6349 567-1432 Mobile: +63 908 894-4305 Email: alwd_govserv@yahoo.com / alaminoslagunawaterdistrict@yahoo.com											1				
208	Gen. Mariano Alvarez Water	Antonio C. Jacer	Tel: +6346 460-4645 / 4176 Email: gmawaterdistrict@yahoo.co.in											1	1			
209	Sta Cruz Water District	Aris Alcantara	Mobile: +63 919 433-2197 Email: araengg303@yahoo.com											1	1			
210	Amber Golden Bowl Restaurant Corp.	Raquel Conan	Tel: +632 889 4114 Mobile: +63 916 318-4250 Email: Raquel.conan@amber.com.ph												1			
211	Brenntag Ingredients, Inc.	Michelle Panganiban	Tel: +632 771-2253 loc. 237 /632 812-9385 Email: michelle.panganiban@brenntag-asia.com												1			

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212	GenOsi, Inc.	Rex de Leon	Tel: +632 655-7383 loc 125 Email: rbdeleon@genosi.com / rexbdeleon@gmail.com												1		1	
213	Liberty Flour Mills, Inc.	Raffy Laforteza	Mobile: +632 532 2001-04 loc. 118 Email: rclaforteza@libertygroup.com.ph												1			
214	Mead Johnson Nutrition Philippines	Anthony Mendoza	Tel: +632 841-8181 Email: anthony.mendoza@rb.com												1			
215	Mega Fishing Corporation	Sheena Domingo	Tel: +632 888-8600 Email: eamega@megasardines.com												1			
216	Nestle Philippines Inc. - Lipa Factory	Lester Adviento	Tel: +6343 756-8000 Email: lester.adviento@ph.nestle.com												1			
217	Nutri-Asia, Inc.	Fiel Palomares	Tel: +6349 543-0216 Email: fiel.palomares@nutriasia.com												1			
218	Phil. Union Frozen Foods, Inc.	Mary Ann Booc	Tel: +6332 341-4165 Email: mbooc@phil-union.com												1			
219	Prime Pacific Grill Corp. - Gerry's Grill	George Ginis	Mobile: +63 998 846-7714 Email: gaginis@gerrysgrill.com												1			
220	Queen City Food Chain, Inc.	Jade Sayaang	Tel: +6332 346-7256 Email: mcjadesayaang@gmail.com												1			
221	RAMCAR- Food Group	Rhett Regalado	Tel: +632 373-9434 Email: rhett.regalado@assetbuilders.ph												1			
222	San Pablo Manufacturing Corporation	Nilo Calva	Tel: +6343 727-1656 Email: ncalva@ciif.ph												1			
223	Seven Dragons Food Galore Inc.	Lyn Tanglao	Mobile: +63 906 972-4563 Email:												1			

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			sevndragons@ymail.com															
224	Traditional Food Corporation	Jen Dimalanta	Tel: +632 584-2505 Email: traditionalfoodcorporation@gmail.com												1			
225	Aichi Forging Company of Asia, Inc.	Marko Laserna	Tel: +632 892-2263 loc 209 Email: marko.laserna@afp.ph												1			
226	SHS Perforated Materials, Inc.	Peter Levenzon F. Logmao	Tel: +6349 545-7489 Email: peter.logmao@shs-perforated.com												1			
227	Kanepackage Philippines Inc.	Rhodora Miranda	Tel: +6349 545-7167 Email: rrmiranda@ph.kanepackage.net												1			
228	Funai Electric Philippines Inc.	Wendell De Galicia	Tel: +6343 430-7000 Email: fph-g.wendell@funai.co.jp												1			
229	Futaba Corp.	Jonathan Abunda	Tel: +6349 541-1060 loc 316 / +632 843-2866 loc 228 Email: abunda@futaba.com.ph												1			
230	Galvaphil, Inc.	Pacifico Eccuadro, Jr.	Tel: +6332 345-1714 Email: galvaphil_mnt@yahoo.com												1			
231	Ibiden Phils. Inc.	Catherine Pascua	Tel: +6343 405-5250 Email: catherine_p.ipi@ibiden.com												1			
232	NHK Spring Phils., Inc.	Criselda Nosce	Tel: +6349 541-1122 Email: cnosce@nhk-ph.com												1			
233	Panasonic Precision Devices Phils., Corp.	Jewel Anglo	Tel: +6349 502-9562 Email: Jewel.anglo@ph.panasonic.com												1			
234	Sanritsu Great International	Andy de Zafra	Mobile: +63 917 544-1773 Email: esm_laguna@sanritsu.com.ph												1			

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235	Tsukiden Electronics Phil. Inc.	Aron Comia	Tel: +6349 541-3031 Mobile: +63 998 845-1314 Email: facilities-electrical@tsukiden-ph.com												1			
236	Metro Cebu Water District	Jose Eugenio B. Singson, Jr.	Tel: +6332 254-8434 Email: gmo@mcwd.gov.ph												1			
237	MEPZ Mixed Gases Corp.	Paul C. Serevilla	Tel: +6332 340-2901 Mobile: +63 917 310-2242 Email: pcerevilla@yahoo.com / pcerevilla@gmail.com													1		
238	Pilipinas Kao Inc.	Ronaldson A. Ronquillo	Tel: +638822 760-114 Email: raronquillo@kao-phil.com													1		
239	Pryce Gases, Inc.	Raul P. Liñan	Mobile: +63 943 330-5150 Email: raul_linan@yahoo.com.ph													1		
240	Sanyo Seiki Stainless Steel Corporation	Jenny Chan	Tel: +632 657-2696 loc 3000 Mobile: +63 927 552-9693 Email: c.rosales@SANYOSEIKI.com / s.teo@sanyoseiki.com													1		
241	Newtech Pulp Inc.	Jose Q. Avanzado, Jr.	Tel: +6363 833-9000 Email: Jose.Avanzado@glatfelter.com													1		
242	Chiyoda Phils. Mfg. Corp.	Allan de Silva	Tel: +6343 981-1904 Mobile: +63 917 500-0118 Email: allan.desilva-cpmc@hotmail.com													1		
243	Dyson Electronics	Miguelito C. Yalung	Tel: +6349 508-8000 Email: miguelito.yalung@dysion.com													1		
244	Gotoh Phils Corp	Aproniano Rey C. Olvida, Jr.	Tel: +6349 549-7856 to 60 Email: junrey@gotohphils.com													1		

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245	Tsukiden Electronics Phil. Inc.	Marites Dulan	Tel: +6349 541-3031 Email: env@tsukiden-ph.com														1		
246	Carmona Water District	Arlan R. Ibe	Tel: +6346 430-0832 Mobile: +63 917 378-7733 Email: tacio827@yahoo.com														1		
247	Alliance Select Foods International Inc.	Alex Joy Meode	Tel: +6383 380-7284 to 85/ 635 5241-44 Email: ajtmeode@yahoo.com															1	
248	Central Azucarera Don Pedro Inc.	Simon Turno III	Tel: +6343 931-2302 to 04 Mobile: +63 917 867-6302 Email: simon.turno.cadp@rhi.com.ph															1	
249	Dragon Asia Rolling Mills, Inc.	Reynante Edcel Balean	Tel: +632 412-1800 Mobile: +63 920 408-1602 / 947 771-5406 Email: banahaw_otoyan@yahoo.com.ph															1	
250	Fresh Fruit Ingredients Inc	Albert B. Lego	Tel: +632 851-0730 to 39 Email: albert.lego@freshfruit.ph															1	
251	Ginebra San Miguel, Inc.	Jose C. Cordova	Tel: +6332 346-0001 Email: jcordova@smg-sanmiguel.com.ph															1	
252	Granexpot Manufacturing Corporation	Rey R. Dela Cruz	Mobile: +63 905 898-6152 / +63 939 922-8105 Email: becky_inubio@yahoo.com															1	
253	Kraft Foods Philippines, Inc.	Noel Montano	Tel: +632 815-7238 Email: nmontano@kraftfoods.com															1	
254	Lagaspi Oil Company Inc.	Gino Nacion, Jr.	Tel: +6352 480-2741 Mobile: +63 925 801-5873 Email: gnnacion@gmail.com															1	
255	London Biscuit Company (Lonbisco)	Benjie F. Go	Mobile: +632 318-0762 Email:															1	

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			jehrd123@gmail.com															
256	Nestle Philippines Inc. - Lipa Factory	Michael O. Buquiron	Mobile: +63 925 823-4105 Email: michael.buquiron@ph.nestle.com															1
257	Nestle Philippines Inc. - Lipa Factory	Dennis V. Sibulo	Mobile: +63 939 367-1996 Email: dennis.sibulo@ph.nestle.com															1
258	Pancake House Inc.	Melliza C. Alcantara	Mobile: +63 998 357-5820															1
259	Philippine Pizza Inc.	Paolo Batoon	Tel: +632 912-1921 / 9121 Email: jbattoon@pizzahut.com.ph															1
260	Pristine	Marcelo Tumala	Mobile: +63 926 702-5408 Email: marcelo.tumala@yahoo.com															1
261	Unilever Philippines, Inc.	Mark Anthony Centeno	Tel: +632 645-5011 Mobile: +63 998 965-2613 Email: mark.centeno@unilever.com															1
262	Unilever Philippines, Inc.	Rolan E. Fontana	Mobile: +63 998 965-2613 Email: Rola.Fontana@unilever.com															1
263	Universal Robina Corporation	Edsel Escario	Tel: +632 671-4623 Email: edsel.escario@urc.com.ph															1
264	Zenith Foods Corporation	Ferdinand Bucago	Mobile: +63 908 893-8206 Email: stephannie.judilla@jollibee.com.ph / ferninand.bucago@jollibee.com.ph															1
265	Zenith Foods Corporation	Dionisio M. Villahermosa	Mobile: +63 998 898-7038 Email: diony.villahermosa@jo															1

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			libee.com.ph															
266	Zenith Foods Corporation	Manny Mandigma	Mobile: +63 908 895-8623 Email: manny.mandigma@jolibee.com.ph															1
267	Zenith Foods Corporation	Donnel Valenciano	Mobile: +63 919 441-8242 Email: donnel.valenciano@jolibee.com.ph															1
268	Zenith Foods Corporation	Francis Mariano	Mobile: +63 943 361-5615 Email: francis.mariano@jolibee.com.ph															1
269	CP Kelco Phils., Inc.	Cristituto M. Nuñez, Jr.	Tel: +6332 486-0000 loc 2124 / +6332 340-0691 Email: cristituto.nuñez@cpkelco.com															1
270	CP Kelco Phils., Inc.	Rolito O. Rosil	Tel: +6332 486-0000 Email: Rolito.Rosil@cpkelco.com															1
271	Philippine Batteries, Inc.	Froi Tejada	Tel: +632 370-1000 / 373-7922															1
272	United Coconut Chemicals, Inc.	Evelina L. Patino	Tel: +632 816-0371 to 72 / 752-1870 to 73 / +6343 727-1511 / +6343 984-1602 to 06 Email: elpatino@cocochem.ph															1
273	7 Castles, Inc.	Edwin Maninang	Tel: +632 647-2134 / 941-3746 / 941-5055 / 723-4792 / 721-0024 Email: ehm@7castles.com															1
274	First Asian Metals Corporation	Gerry Dumalugdog	Tel: +632 223-9439 Email: firstasianmetals@yahoo.com															1
275	Kokonat, Inc.	Emmanuel Barayang	Tel: +6345 499-0646 Email: kokonatinc@7castles.com															1

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276	Philsteel Holdings Corporation	Noel Ong	Mobile: +63 918 911-4717 Email: gilbert670117@yahoo.com														1	
277	Priometal Mindanao Corp	Jeffrey Co	Tel: +6388 858-3882 Email: jsc112770@gmail.com														1	
278	Acbel Polytech Phils. Inc.	Pedrito B. Retirado	Tel: +6349 502-7253 / 7269 Mobile: +63 922 851-9066 Email: pretirado@acbel.com.ph														1	
279	Asurion-Technology Center Phils.	Eugene Garcia	Mobile: +63 917 564-4643 Email: eugene.garcia@asurion.com														1	
280	Cypress	Nonoy Lutrinia	Mobile: +63 917 505-2048 Email: lge@cypress.com														1	
281	Cypress	Noel Bunag	Tel: +632 324-8880 Mobile: +63 917 868-5705 Email: Noel.Bunag@cypress.com														1	
282	Prime Micro Electronics Phils. Inc.	Rodolfo B. Lacsamana	Mobile: +63 936 790-7664 Email: rodney_kkk@yahoo.com														1	
283	PSI Technologies, Inc.	Rizaldy A. Mero	Tel: +6349 554-9997 Email: ramero@psitechnologies.com.ph														1	
284	Bounty Fresh Foods Inc.	Tennyson Chen	Tel: +632 687-7230 Email: hr@bountyfresh.com.ph															1
285	Davao Sugar Central Co., Inc.	Lubert Bolaños	Tel: +6382 305-6432 Email: lsbolanos@davaosugar.com															1
286	Golden Arches Development Corporation - McDonalds Edsa Panay	Raymond B. Jimenez	Mobile: +63 917 600-1071 Email: raymond.jimenez@mc.d.com.ph															1

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287	Jollibee Foods Corporation	John Mark Camello	Mobile: +63 906 209-0479 Email: jb0539@jollibee.com.ph															1
288	Lukfoo International Cuisine Inc.	Kathleen Gail Retutas	Tel: +63 365-4978/281-8041 Mobile: +63 977 214-0999 Email:															1
289	Mondelez	Dario Bait	Tel: +632 814-6670 Email: dbait@mdlz.com															1
290	San Miguel Brewery, Inc. - Bacolod Brewery	Kristian Theodore C. Manalo	Tel: +6334 434-7851 loc 3401 Email: kmanalo@smg.sanmiguel.com.ph															1
291	Southern Philippine Fresh Fruits Corp.	Lou Jay Sta. Cruz	Tel: +6382 238-0573 Mobile: +63 912 358-6491 Email: spffcdvo@gmail.com															1
292	Wyeth Phils., Inc.	Merven Roperero	Tel: +632 884-6800 Mobile: +63 905 322-7147 Email: metven.roperero@wyethnutrition.com ; jufuxs529@yahoo.com															1
293	Ramcar Technology, Inc.	Michael M. Mayo	Tel: +632 299-6300 Email: mmmayo@motolite.com															1
294	SOMICO	Jose B. Tan	Mobile: +63 917 808-7130 Email: joetan27@yahoo.com															1
295	Cagayan de Oro Handmade Paper Products	Zara Cabanlet	Tel: +6388 856-2819 Email: zbc@cabanletlaw.com															1
296	National Book Store Inc.	Reynaldo E. Tuazon	Mobile: +63 917 861-7244 Email: reytuazon30@yahoo.com															1
297	Autoliv Cebu Safety Manufacturing Inc.	Isagani Pacumba	Mobile: +63 998 583-5315 Email: isagani.pacumba@autoliv.com															1
298	Chiyoda Phils. Mfg. Corp.	Nina Joy P. Dayao	Tel: +6343 981-1904 Email: joy.punto-cpmc@hotmail.com															1

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299	KEPPEL Subic Shipyard, Inc.	William Lin	Mobile: +63 998 598-3832 Email: william.lin@subicship.com															1
300	Keyrin	Ricardo San Agustin	Mobile: +63 920 570-2254 Email: jonkeyrin@yahoo.com															1
301	Taihan Precision Technology Phils. Co. Inc.	Chen Ching-Chung	Tel: +6343 455-6942															1
302	Eagle Cement	John Paul L. Ang	Tel: +632 301-3453 Email: info@eagle-cement.com.ph															1
303	Holcim Philippines Inc.	Divina B. Cambangay	Tel: +6363 225-8503 Email: divine.cambangay@lafargeholcim.com															1
304	Cagayan de Oro City Water District	Rodolfo Bonsilao, Jr.	Tel: +638822 729-742 / 722-705 / +6388 856-1499 Email: rodolfojr.bonsilao@gmail.com															1
305	Ajinomoto Philippines Corp.	Rodel Padilla	Tel: +632 895-9807 / 895-6081 Email: rodel_padilla@ajinomoto.com															
306	Alaska Milk Corporation	Ignacio C. Tating	Tel: +632 847-8001-10 Email: octating@alaskamilk.com.ph															
307	Alaska Milk Corporation	Roy A. Barredo	Tel: +632 847-8001-10 Email: rabarredo@alaskamilk.com.ph															
308	ALPLA Phils., Inc.	Cecille Avelino	Mobile: +63 917 576-9327 Email: cecille.avelino@alpla.com															
309	Bohol Agro-Marine Development Corporation	Charmen Banas	Tel: +6338 508-8114 / 8092 Email: charmz_exoticgurl@yahoo.com															
310	Capiz Sugar Central, Inc.	Daniel Earl S. Celis	Tel: +6336 658-0487 Email: danielearcelis@gmail.com															

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			com															
311	Continental Milling Company	Maricel Virtus	Tel: +632 671-4623 Email: maricel.virtus@urc.com.ph															
312	Destileria Limtuaco and Co. Inc,	Antonio R. Carpio	Mobile: +63 919 895-9429 Email: tonycarpio@limtuaco.com															
313	Epicurean Partners Exchange Inc. - Kenny Rogers (Katipunan)	Dominic Flores	Tel: +632 928-0112 Email: kr_kat@roasters.com.ph															
314	Far East Corn Inc	Eduardo Dimaisip																
315	FPD Food International, Inc.	Nathan Ombina	Tel: +6332 255-1695															
316	Franke Food Service Systems Phils. Inc.	Jojit S. Garcia	Tel: +6349 508-8888 Mobile: +63 998 537-5414 Email: jojit.garcia@franke.com / jonathan.segubre@franke.com															
317	Global Food Solutions Inc.	Patrick Noel Young	Tel: +6349 562-6695 Mobile: +62 917 552-7288 Email: Patrick.Young@global-foodsolutions.com / patrick_young@global-foodsolutions.com															
318	Harvester Vegetarian	Cyrose Bismanos	Mobile: +63 998 288-2698															
319	Healthy Sweets Mindanao Corp.	Betty M. More	Mobile: +63 917 548-2620 Email: healthysweets.dvo@gmail.com															
320	Marigold Manufacturing Corporation	Raymond D. Jarilla	Tel: +632 643-8778 Email: raymond_jarilla@yahoo.com															
321	Mead Johnson Nutrition	Fernando Flores	Tel: +632 841-8181 Email:															

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	Philippines		fernando.flores@mjn.com															
322	Mega Fishing Corporation	Malcolm Davey Tiu Lim	Tel: +632 888-8600 Email: malcolm@megasardines.com															
323	Mekeni Food Corp.	Marilou O. Uy	Tel: +6345 458-0000 Loc. 4301 Email: marilou_uy@yahoo.com															
324	Mondelez	Leah Roquin	Mobile: +63 917 866-5324 Email: lroquin@hse.com															
325	Philippine Foremost Milling	Juanito Espiso, Jr.	Mobile: +63 928 689-6673 Email: jun_espiso@yahoo.com															
326	Regent Foods	Daniel Padal	Mobile: +632 641-5688 Email: hr@regentfoods.com.ph															
327	Seven Dragons Food Galore Inc.	Imee Narciso	Email: sevendragons@ymail.com															
328	Silver Star Resources Co. Inc.	Mary Grace Tugano	Tel: +632 932-8094 Email: mgmtugano@silverstar.com.ph															
329	Synonyms Co., Inc.	Rowena Evangelista	Mobile: +63 906 972-4563 Email: sevendragon@gmail.com															
330	Universal Robina Corporation - SONEDCO	George Garcia	Mobile: +63 917 811-3695 / 998 840-1505 Email: George.Garcia@urc.com.ph															
331	Year Luck Food Industrial Corp.	Jeremy Tan	Mobile: +63 917 517-8170 Email: Jeremy_tan@yearluck.com															
332	ASA Color & Chemical	Raquel dela Rosa	Mobile: +63 925 720-0261 Email: rezci_020202@yahoo.com															

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333	ASA Color & Chemical	Jose B. Arbatin	Tel: +632 371-4533 Email: glo.labao@asacolor.com.ph																
334	Newman Chemicals Corporation	Anna Cybel Montana	Tel: +6332 236-0173 Email: cy_violet08@yahoo.com																
335	Polymer Chemicals Inc.	Glenda Aquino	Tel: +632 352-6389 Email: rezcoat@resinsgroup.com																
336	Accutech Steel and Service Center, Inc.	Luningning S. Tesyon	Tel: +632 838-9195 Email: accutechsteel@pltdsl.net																
337	Capitol Steel Corporation	Maricel Diesta	Tel: +632 359-8888 Email: qa@capitolsteel.com.ph																
338	Cathay Metal Corp.	Edward R. Hufana	Tel: +632 936-1990 Email: cathaymetalcorp@gmail.com																
339	Nippon Promac Philippines, Inc.	Ronald G. Ferreras	Tel: +632 937-8791 Email: ronald@nposk.com																
340	Nissho Seiken Philippines Corporation	Rodelito J. Ella	Tel: +6332 238-3586 Email: ella.nisshouseiken@gmail.com																
341	Phil-Japan Metals	Ryan Gustilo	Tel: +6332 340-0034 Mobile: +63 919 470-8483 Email: rryyaann1008@gmail.com																
342	Pigmentex Inc.	Ricardo R. Rodriguez Jr.	Tel: +632 885-7553 Email: rrrodriguez@pigmentex.com																
343	Sohbi Kohgei Phils. Inc.	Wilma C. Albufera	Tel: +6343 981-3830 loc 112 Email: wilma@sohbi.com.ph																
344	Steel Asia Manufacturing Corporation	Gabriel Y. Gabriel	Mobile: +63 927 850-2655 Email: gygabriel@steelasia.com																

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345	Liberty Paper, Inc.	Anthony Chiongson	Tel: +632 984-0334 Email: tonychiongson@yahoo.com																
346	Paperlink, Inc.	Edgar Y. Ty (thru M. Aileen Jane L. Lee)	Tel: +632 330-9901 Email: marketingspecialist3@paperlink.com.ph																
347	Sanitary Care Products Asia Inc.	John Rey Flores Artiaga	Mobile: +63 936 122-1743 Email: johnreyartiaga49@yahoo.com																
348	Trust International Paper Corporation	Antonio V. Tayrus Jr.	Tel: +6345 893-0676 to 79 Email: avtayrus@yahoo.com																
349	United Pulp and Paper	Silverio de Guzman	Tel: +6344 202-4301 / 4306 Mobile: +63 917 890-3251 Email: silverig@uppc.com.ph																
350	Beltonotoku Phils. Inc.	Jefferson John T. Reyes	Tel: +6349 508-1000 Email: jeffersonjohn.r@beltonotoku.com																
351	Citizen Machinery Phil. Inc.	Jenner Bustamante	Tel: +6343 405-6241 Mobile: +63 917 561-9074 Email: jennerb@cmp-citizen.com.ph																
352	Continental Temic Electronics Phils. Inc.	Marc Leigh Roca	Tel: +632 581-5000 Email: marc.roca@continental-corporation.com																
353	Continental Temic Electronics Phils. Inc.	Edgar Bondoc	Tel: +632 786-7000 loc 7013 Mobile: +63 917 872-4980 Email: edgar.bondoc@continental-corporation.com																
354	Dyson Electronics	Alan Tang	Mobile: +63 977 877-8808 Email: alan.tang@dyson.com																
355	El Sol Electronics Device Phil. Inc.	Aquilino Salarda, Jr.	Tel: +6343 405-5999 Email: aquilino.salarda@elsol-ph.com																

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356	KKM Works Inc.	Vernon Cristino Tejada	Mobile: +63 908 864-0012 Email: vtejada@kkm-works.com																
357	Knowles Electronics Philippines Corporation	Danilo Pilones	Tel: +6332 230-4100 loc 4222 Email: danilo.pilones@knowles.com																
358	MOOG Controls Corp.	Enrique L. Torio Jr.	Tel: +6374 447-3352 loc 300 Email: etorio@moog.com																
359	MOOG Controls Corp.	Richard Villarico	Mobile: +63917 808-8088 Email: rvillarico@moog.com																
360	Ogino Phils. Corp.	Ephraim Maduro	Mobile: +63 949 889-1979 Email: facilities@ogino.com.ph																
361	P.IMES - Rosario Plant	Jonathan Custodio	Tel: +6346 437-2401 to 10 Mobile: +63 998 583-9794 / 917 839-3975 Email: jcustodio@pimes.com.ph																
362	P.IMES - Rosario Plant	Ria Pamela Lanting	Tel: +6346 437-2401 Email: rlanting@pimes.com.ph																
363	Philippine Manufacturing Co. of Murata Inc.	Armie I. Vinas	Tel: +6343 455-2092 Email: armie.vinas@murata.com																
364	Rohm Mechatech Phils. Inc.	Stephanie D. Ela	Tel: +6346 430-2281 Mobile: +63 917 859-3596 Email: ga1_rmpi@roh-mechatech.co.jp																
365	SIIX EMS Philippines	Gilbert Ollet	Tel: +6349 508-4014 loc 2106 Email: GILBERT.OLLET@SIIX.COM.PH																
366	Tonghsing Electronics Phils. Inc.	Antonio Matienzo	Mobile: +63 922 869-6014 Email: amatienzo@net.tongh																

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			sing.ph															
367	Toshiba Information Equipment Phils. Inc.	Rolando Arciaga	Tel: +6349 541-2030 Mobile: +63 917 590-7482 Email: rolando.arciaga@toshiba.co.jp															
368	Republic Cement	Rob Hynes	Tel: +632 885-4599 / 238-9881 Email: rob.hynes@republiccement.com															
369	Carmona Water District	Marvie Manigbas	Tel: +6346 430-0832 Email: engr@carmonawd.com.ph															
370	Metro Cebu Water District	Ronnie R. Legaspi	Tel: +6332 254-8434 Email: rlegaspi@mcwd.gov.ph															
371	SMYPC - MPP	Alner S. Antonio	Mobile: +63 917 803-1713 Email: aantonio@smypc.sanmiguel.com.ph															
372	SMYPC - MPP	Ferdinand A. Tumpalan	Tel: +632 702-4200 Email: asanmateo@smypc.sanmiguel.com.ph															
ADDITIONAL LIST - FROM UNIDO DATABASE																		
1	Bureau Veritas	Christian Joel S. Hernandez	Tel: +632 521-1068 Mobile: +63 917 710-6891 Email: christian-joel.hernandez@ph.bureauveritas.com	1														
2	Calamba Premier International Park	Monalissa R. Perez	Tel: +6349 545-6998 Mobile: +63 925 846-7985 Email: perezmonalissa@gmail.com	1										1	1			
3	DNV GL	Marita Bayon	Mobile: +63 917 811-6522 Email: marita.lemu.bayon@d	1														

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			nvgl.com															
4	DNV GL	Randy Magnaye	Mobile: +63 917 836-6355 Email: rpmagnaye@yahoo.com	1														
5	Engtek Precision Phils., Inc.	Gilbert L. Lacatan	Tel: +6349 549-1748 Mobile: +63 929 181-1619 Email: facilities@engtek.com.ph	1														
6	GC Gentech Metal Fabrication Inc.	Richard R. Fajiculay	Tel: +6349 536-0024 Mobile: +63 995 653-0673 Email: engineering@gcgentech.com	1														
7	Inatec Corp.	Allan M. Del Mundo	Tel: +6349 530-1956 Mobile: +63 909 451-1117 Email: allandelmundo@gmail.com	1										1	1			
8	NBC (Phil) Car Technology Corporation	Anthony B. Atienza	Tel: +6343 779-8111/8818 Mobile: +63 929 601-3681 Email: anthony.atienza@nbc-p.com	1														
9	Phil. Nishiyama Pipe Mfg. Inc.	Robert A. Calapardo	Mobile: +63 907 527-6088 Email: calapardo@pnpm.com.ph	1										1	1			
10	Sagara Metro Plastics Industrial Corporation	Fritz S. Onang	Tel: +6349 531-2072 Mobile: +63 917 850-4646 Email: fonang@smpiclaguna.com	1														
11	Sanden International Philippines, Inc.	Alvin L. Resusta	Mobile: +63 917 834-0351 Email: alvin.resusta.yv@g-sanden.com / aresusta2013@gmail.com	1														
12	Shoketsu Smc Corp., Las Pinas City	Dennet C. Lino	Mobile: +63 928 507-9605 Email: dennet.lino@shoketsu-smc.com.ph	1														

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13	TUV Rheinland Philippines, Inc.	Eufronio A. Alonzo	Tel: +632 812-8887 Mobile: +63 999 887-9685 Email: eufronio.alonzo@tuv.com	1														
14	Supercast Foundry, Valenzuela City	Juan Carlos Pineda	Mobile: +63 918 340-5306 Email: jccpineda@gmail.com			1												
15	Tanigawa Seisakusito Carmelray Inc.	Conrado Dalde Jr.	Tel: +6349 545-0766 Mobile: +63 916 554-3970 Email: planning@tsc.com.ph			1												
16	TDK Phils. Corp. Plant 2	Jun Caramay	Tel: +632 584-4380 Mobile: +63 917 511-8766 Email: jun_caramay@phil.tdk.com			1												
17	Testech Incorporated	Marlon Banigos	Mobile: +63 998 300-8281 Email: marlon.banigos@testech.com.ph			1												
18	Foxcolor Tech Inc.	Mary Joe D. Vistal	Tel: +6346 430-1892 Mobile: +63 919 733-3091 Email: mj060594@gmail.com					1										
19	SGS Philippines Inc.	Edna Apanay	Tel: +632 784-9400 Mobile: +63 917 535-7284					1										
20	CPL Packaging Inc.	Emmanuel E. Jeresano	Tel: +6349 545-7233 Mobile: +63 977 832-9895 Email: eej@cerebos.com.ph						1									
21	Morning Mountain Inc.	Adrian D. Velasco	Tel: +6349 543-9671 to 73 Mobile: +63 910 851-5798 Email: adrianvelasco94@yahoo.com						1									
22	North East Precision Inc.	Franchette Guerra	Tel: +632 545-6254 Mobile: +63 912 917-2869 Email: guerrrafranchette1126@gmail.com						1									
23	OPTODEV Inc.	Jaypee Deriada	Tel: +6349 539-0977 Mobile: +63 928 244-7779 Email: Deriadaj@optodev.essilor.com.ph						1									
24	Sanritsu Great	Jose Ballano,	Tel: +6349 549-2206						1									

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	Int'l Corp.	Jr.	Mobile: +63 928 948-7307 Email: hanuman6k4@gmail.com																
25	Daiwa Seiko Phils. Corp.	Edmundo B. Flores	Tel: +6349 539-0114 Mobile: +63 928 226-3393 Email: e_flores@daiwa-seiko.com.ph								1								
26	Artnature Manufacturing Phils. Inc	Rafael Marasigan	Tel: +6343 405-6086 Email: rafael.marasigan@anmp.com.ph											1	1				
27	Cathay Pacific Steel Corp.	Roger G. Nulada	Mobile: +63 929 952-7303 Email: rogernulada@yahoo.com											1	1				
28	JAPLAS Injection Moulders Corporation	Noel De leon	Tel: +6343 405-7031 to 35 Mobile: +63 939 393-8330 Email: mcf2@jmc.com.ph											1	1				
29	Nippo Metal Tech Phils., Inc.	Rommel E. Sta. Ana	Tel: +6349 530-3355 Mobile: +63 995 014-6319 Email: r-staana@nmpahls.com / sta.anarommel573@yahoo.com.ph											1	1				
30	Philippine Bio-industries Inc.	Reggie C. Dimaiwat	Mobile: +63 950 496-2130 Email: ogiedimaiwat@gmail.com											1	1				
31	Sancheong Phils. Inc.	Jeanette M. Torres	Mobile: +63 919 650-8695 Email: jtorres@stepan.com											1	1				
32	Sekisui Jushi Phils. Inc.	Medin M. Rivera	Tel: +632 549-3387 Mobile: +63 998 434-0345 Email: medin_rivera@yahoo.com											1	1				
33	TUV Rheinland Philippines, Inc.	Ernesto Demoy	Tel: +632 812-8887 Mobile: +63 999 887-9294 Email: Ernesto.Demoy@tuv.net											1	1				
34	Foxcolor Tech Inc.	Angelica Perico	Tel: +6346 430-1892 Email: perico.angelica@yahoo.com												1				

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35	SGS Philippines Inc.	Liza Funelas	Tel: +632 784-9400 Email: liza.funenas@sgs.com												1			
36	Shimano Phils. Inc.	Edward Manalo	Tel: +6343 430-6111 Email: edwardm@sph.shimano.com.sg												1			
37	Aeonstar Multiproduct Sales, Inc. Malate Manila	Cornelio S. Belecina	Tel: +632 58820555 Email: vira.factorin@compresstech.com.ph														1	
38	Aeonstar Multiproduct Sales, Inc. Malate Manila	Harrold R. Maravilla	Mobile: +63 916 380-1239 Email: harrold.maravilla@compresstech.com.ph														1	
39	Brightbox Energy, Quezon City	Joseph H. Severa	Mobile: +63 917 806-5559 Email: jettsevera@brightbox.energy														1	
40	C. B. Andrew Philippines, Inc., Tagulug City	Kevin David I. Aleta	Mobile: +63 90 637-04626 Email: kdialeta26@gmail.com														1	
41	C. B. Andrew Philippines, Inc., Tagulug City	Renato H. Batac	Mobile: +63 917 556-9865 Email: enet.batac@cbandrew.com														1	
42	Calamba Shinei Industry Phils. Corp.	Joel M. Rico	Tel: +6349 502-2035 Email: joel.rico@shineiph														1	
43	Cathay Pacific Steel Corp.	Aloysius A. Redillas	Mobile: +63 917 552-3409 Email: redillasaloyus@yahoo.com														1	
44	DQS Certification Phils. Inc	Kristine Diane M. Villanueva	Tel: +632 840-3340 Mobile: +63 905 285-3143 Email: zterf@ymail.com														1	
45	EATON Industries Phil.-LLC-PH	Celso D. Cervantes	Mobile: +63 998 965-5423 Email: celsodcervantes@eaton.com														1	
46	Em-Pol Corporation, Bagumbayan, Tagulug City	Joseph Odon L. Barroga	Mobile: +63 92 538-68111 Email: empol@resinsgroup.com														1	

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47	GC Gentech Metal Fabrication Inc.	Aldwin Carpena	Tel: +6349 536-0024 Mobile: +63 917 801-2476 Email: aldwin.carpena@gc-gmfi.com														1	
48	GT JIGS & Checkers Manufacturing Inc.	Pablito Sabalvaro	Tel: +632 502-6410 Mobile: +63 917 805-5450 Email: pcsabalvaro@yahoo.com														1	
49	Hundred Folds Industrial Tries Corp. Davao	Alfredo Rebenito	Mobile: +63 925 847-0926 Email: alfred_rebenito@yahoo.com														1	
50	JMS Healthcare PHL Inc.	Ardene Abayon	Tel: +6343 302-1200 Mobile: +63 917 805-5450 Email: a.abangon@jmshp.com.ph														1	
51	K2 Corporation	Randy A. Bobadilla	Tel: +6345 545-6038 Mobile: +63 922 943-8736 Email: randybobadilla@gmail.com														1	
52	Kobelco Compressors And Machineries Phils. Corp	Christopher A. Luzentales	Mobile: +63 917 859-8920 Email: chris.luzentales@kobelco.com.ph														1	
53	Kobelco Compressors And Machineries Phils. Corp	Vincent A. Azarcon	Mobile: +63 917 859-8921 Email: vincent.azarcon@kobelco.com.ph														1	
54	Linearworks Corporation	Art Krisus Dunzo	Mobile: +63 939 865-99460 Email: art@linearworks.net														1	
55	Mold Parts Manufacturing Asia	Kennedy A. Dadios	Tel: +632 502-01185 Mobile: +63 919 855-5651 Email: ch_gangster18@yahoo.com														1	
56	MTE Technology Inc.	Milo S. Pitogo	Tel: +632 508-0328 Mobile: +63 922 845-1852 Email: milo.pitogo@microtech-asia.com														1	

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57	Rezcoat Inc.	Rexon R. Ramos	Mobile: +63 916 464-6408 Email: rezcoat@resinsgroup.com														1	
58	SHS Perforated Materials Inc.	Jermaine B. Bunyi	Tel: +6349 545-7489 Mobile: +63 995 220-9253 Email: bunyi_karl@yahoo.com														1	
59	Supercast Foundry, Valenzuela City	Rene A. Aller	Mobile: +63 927 347-2125 Email: aller_rene@yahoo.com														1	
60	Testech Incorporated	Floresco Ambas	Mobile: +63 997 557-3601 Email: floresco.ambas@testech.com.ph														1	
61	Xin Kwan Corp.	Ryan Jorge T. Gallon	Tel: +632 523-7700 Mobile: +63 915 848-0265 Email: gallonryan@yahoo.com														1	
62	Yamaichi Seiko Phils. Inc.	Monte Carlo Lontoc	Mobile: +63 918 354-3866 Email: montecarlolontoc@yahoo.com														1	
63	ACP Test Co. Inc.	Ariel S. Malonzo	Tel: +6349 549-0563 Mobile: +63 919 911-5351 Email: ariel.malonzo@microchip.com															
64	AJA Registrars Inc.	Gilmore A. Rivera	Tel: +632 850-2040 Mobile: +63 917 572-6851 Email: garivera@ajaphils.com															
65	AJA Registrars Inc.	Melvin D. Grueso	Tel: +632 850-2040 Mobile: +63 977 801-0009 Email: melvin.grueso@ajaphils.com															
66	Atlas Copco	Mark A. Magpantay	Tel: +632 843-0536 Mobile: +63 919 911-5351 Email: mark.john.magpantay@ph.atlascopco.com															
67	Atlas Copco	Nathan C. Nofuente	Mobile: +63 920 914-3413 Email: nathan.nofuente@ph.atlascopco.com															

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68	Bureau Veritas	Marvin A. Bernardino	Tel: +632 521-1068 Mobile: +63 995 417-7470 Email: marvin.bernardino@p.h.bureauveritas.com																
69	Citizen Fine Device Phils. Corp.	Ismael V. Wagan	Tel: +632 640-6873 Mobile: +63 917 621-8357 Email: iwwagan@cfdevice.com																
70	Compresstech Resources Inc.	Kent Mulingtapang	Mobile: +63 922 816-1260 Email: kent.mulingtapang@compresstech.com.ph																
71	Delta Design Phils. LLC	Gerry Jucutan	Tel: +632 843-2052 Mobile: +63 949 881-2649 Email: gjucutan@cohu.com																
72	DNV GL	Alexander Jose Javier	Mobile: +63 917 529-6045 Email: alexander.javier@dnvgl.com																
73	Dole Philippines Incorporated, South Cotabato	Jake M. Soberano	Mobile: +63 920 918-0522 Email: Jake.Soberano@doleintl.com																
74	DOLE Philippines, Inc.	Jesus T. Arcas	Mobile: +63 932 889-5382 Email: jesus.arcas@doleintl.com																
75	DQS Certification Phils. Inc.	Romeo V. Zamora	Mobile: +63 917 821-1148 Email: romeo.zamora@dqs-phils.org																
76	EHS Lens Phils. Inc.	Sergie James L. Nasan	Tel: +6349 530-0590 Mobile: +63 910 449-9418 Email: sergiejames.nasan@gmail.com																
77	Engtek Precision Phils., Inc.	Carlos Estrella	Mobile: +63 917 501-3775 Email: carlos_estrella@engtek.com.ph																
78	Hundred Folds Industrial Tries Corp. Davao	Roque B. Sonico	Email: roque.sonico@gmail.com																
79	JAPLAS	Crister T.	Tel: +6343 405-7031																

No.	Name of Enterprise / Facility Owner	Name of Respondent	Contact Details	RESPONSE FROM ENTERPRISE										FOLLOW UP				
				Received Survey Form	Received Survey Form Thru NE	Agreed To Submit Did Not Send After The Cut-Off Date	Waiting Approval From Superior	Contact Person No Longer Connected & Identified Responsible Person	Contact Person No Longer Connected & Can't Identify Responsible Person	Attended Awareness Workshop / Site Visit & No Project	Replied Can't Participate	Not Interested To Participate In The Survey	Enterprise Permanently Closed	Previous Contact Details Erroneous & Now Updated	Re-Sent Using Updated Email	Contact Person From The Master list	Number Couldn't Be Contacted	Number Ringing But No Answer
	Injection Moulders Corporation	Aballa	to 35															
80	JMS Healthcare PHL Inc.	Herman N. Vilegano Jr.	Tel: +6343 302-1200 loc 1117 Mobile: +63 929 652-9928 Email: facility@jmsph.com.ph															
81	Micro Mechanics Technology Int'l. Inc.	Eugene E. Binas-o	Tel: +6349 545-7718 Mobile: +63 920 404-6621 Email: jeebinaso@micro-mechanics.com															
82	Nissim Precision Phil. Corp.	Randy Delos Reyes	Tel: +632 405-5037 Mobile: +63 916 210-8061															
83	OMTPI/GPC	Frederick B. Dilig	Tel: +6349 549-1733 Mobile: +63 939 917-9304 Email: fdilig@omtpi.com.ph															
84	Q-Trade Corp.	Ramiro Espiritu	Tel: +6349 512-9852 Email: ram.espiritu@qtrade.com.ph															
85	RCEEE Professional Consulting	Enrico Claro R. Delmoro	Tel: +632 868-2002 Mobile: +63 921 991-2362 Email: rico.delmoro@gmail.com															
86	Shimano Phils. Inc.	Jonathan Tretasco	Mobile: +63 917 534-5113 Email: JonathanT@sph.shimano.com.sg															
87	Shimano Phils. Inc.	Michael Montenegro	Tel: +6343 430-6111 Mobile: +63 905 518-9355 Email: michaelm@sph.shimano.com.sg															
88	Shindengen Phils. Corp.	Marvin J. San Juan	Mobile: +63 910 452-4643 Email: marvinsanjuan26@yahoo.com															
89	Shoketsu Smc Corp., Las Pinas City	Benjie L. Ducut	Mobile: +63 928 507-9615 Email: benjie@shoketsu-smc.com.ph															

No.	Name of Enterprise / Facility Owner	Name of Respondent	Contact Details	RESPONSE FROM ENTERPRISE										FOLLOW UP					
				Received Survey Form	Received Survey Form Thru NE	Agreed To Submit Did Not Send After The Cut-Off Date	Waiting Approval From Superior	Contact Person No Longer Connected & Identified Responsible Person	Contact Person No Longer Connected & Can't Identify Responsible Person	Attended Awareness Workshop / Site Visit & No Project	Replied Can't Participate	Not Interested To Participate In The Survey	Enterprise Permanently Closed	Previous Contact Details Erroneous & Now Updated	Re-Sent Using Updated Email	Contact Person From The Master list	Number Couldn't Be Contacted	Number Ringing But No Answer	
90	Simplex Machineries	Francis Jayson O. Salinas	Tel: +6349 530-9939 Email: operations_ecd@simpexmachineries.com / info@simpexmachineries.com																
91	Thermal Solutions Inc (ST Microelectronics Inc.)	Lakan R. Mabasa	Tel: +632 792-5639 Email: lakan.mabasa@st.com																
92	Thermal Solutions Inc (ST Microelectronics Inc.)	Roberto B. Arceo	Tel: +632 792-5639 loc 714 Email: robertoarceo@gmail.com																
93	Toyota Autoparts Philippines Inc.	Manuel R. Panahon	Tel: +6349 543-8911 Mobile: +63 917 678-0257 Email: mpanahon@tap.toyota.com.ph																
94	Toyota Autoparts Philippines Inc.	Teody R. Barrinuevo	Tel: +6349 543-8911 Mobile: +63 917 847-6247 Email: Powerplant_maint@tap.toyota.com.ph																
95	TUV Nord Philippines Inc.	Hyacinth Therese Mercano	Tel: +632 807-8446 Email: hmercano@tuv-nord.com																
96	TUV Nord Philippines Inc.	Jennifer Pambid	Tel: +632 807-8446 Email: jpambid@tuv-nord.com																
97	TUV Nord Philippines Inc.	Jocelyn Magat	Tel: +632 807-8446 Email: jmagat@tuv-nord.com																
98	TUV Rheinland Philippines, Inc.	Melody O. Mokamad	Tel: +632 812-8887 Mobile: +63 919 999-4317 Email: melody.mokamad@tuv.com																
99	TUV SUD PSB Philippines Inc.	Brenda Bathan Estonanto	Tel: +632 687-5673 Mobile: +63 917 594-3560 Email: bren_bathan@hotmail.com																

No.	Name of Enterprise / Facility Owner	Name of Respondent	Contact Details	RESPONSE FROM ENTERPRISE										FOLLOW UP					
				Received Survey Form	Received Survey Form Thru NE	Agreed To Submit Did Not Send After The Cut-Off Date	Waiting Approval From Superior	Contact Person No Longer Connected & Identified Responsible Person	Contact Person No Longer Connected & Can't Identify Responsible Person	Attended Awareness Workshop / Site Visit & No Project	Replied Can't Participate	Not Interested To Participate In The Survey	Enterprise Permanently Closed	Previous Contact Details Erroneous & Now Updated	Re-Sent Using Updated Email	Contact Person From The Master list	Number Couldn't Be Contacted	Number Ringing But No Answer	
100	TUV SUD PSB Philippines Inc.	Celeste Bitong	Tel: +632 687-5673 Mobile: +63 939 910-7371 Email: celeste.bitong@tuv-sud-psb.com																
101	Vacuum Tech Phils. Inc.	Frank Lester V. Ceribo	Tel: +6343 779-8688 Email: fceribo0203@gmail.com																
102	YTM Component Inc.	Daniel Joseph T. Castro	Tel: +6349 502-1638 Mobile: +63 917 341-0159 Email: dicastro1988@gmail.com																
103	Zama Precision Industry Mfg. Phils. Inc.	Girard Perky Eleda	Tel: +6343 425-9262 Mobile: +63 927 326-9550 Email: girard-perky.eleda@zamacorp.com																
104	Zir-con Labs Inc.	Pelagio Cabrera Jr.	Mobile: +63 906 409-6142 Email: bebot@interdentinc.com																
TOTAL				72	2	23	5	23	21	5	15	5	4	124	90	15	70	27	

8.3 SURVEY RECIPIENTS & STATUS- NATIONAL EXPERTS

NO	NAME OF RESPONDENT	CONTACT DETAILS	POSITION	NAME OF COMPANY / FACILITY OWNER	RESPONSE FROM NATIONAL EXPERT					FOLLOW-UP		
					Received Survey Form	Agreed To Submit But Did Not Submit After The Cut-Off Date	Ne No Longer Connected With The Enterprise	Replied Did Not Push Thru Enms	Decided Not To Participate In The Survey	Email Re-Sent	Number Couldn't Be Contacted	Number Ringing But No Answer
1	Agra, Paul Cedric F.	Mobile: +63 998 860-2416 Email: paulcedric.agra.cadp@gmail.com / cedie.agra@monde-nissin.com	Seasoning Supervisor	Monde Nissin Corp	1							
2	Albatana, Rosemarie	Mobile: +63 917 595-5273 Email: rosemarie.albatana@airliquide.com	Energy Specialist	Air Liquide Phils. Inc.	1							
3	Alcantara, William	Tel: +632 966-9437 Mobile: +63 917 520-0593 Email: william.alcantara@manilawater.com	Energy & Innovations Department Head	Manila Water Company, Inc.	1							
4	Aquillo, Danilo B.	Tel: +632 632-8397 Mobile: +63 999 884-7174 Email: dbaquillo@meralco.com.ph	Energy Solutions Specialist	Manila Electric Company	1							
5	Arancon, Renato G.	Tel: +6382 227-8192 Mobile: +63 918 784-3365 / 922 565-3921 Email: jdr_ij@yahoo.com	Project Director	University of Eastern Philippines - Affiliate Renewable Energy Center	1							
6	Araullo, Eugenio F.	Tel: +632 622-2244 Mobile: +63 920-968 8488 Email: efaraullo@meralco.com.ph	Chief Technology Adviser	Meralco Spectrum	1							
7	Balais, Wilfredo A.	Tel: +63 837-2071 loc 2190 Mobile: +63 916 587-3531 Email: wilfredobalais@gmail.com	Senior Science Research Specialist		1							
8	Basubas, Jazz Dayroll	Tel: +632 437-2401 loc 5274 Email: jbasubas@pimes.com.ph	Facility Engineer	Philippine International Manufacturing & Engineering Services Corp. (P.IMES Corp.)	1							
9	Caliba, Desiderio	Mobile: +63 922 838-0846 Email: dcaliba@net.tonghsing.ph / deo.caliba@yahoo.com	Adminstration Manager	Tong Hsing Electronics Philippines Inc.	1							

10	Cañesares, Charlito L.	Tel: +6382 296-1084 Email: clcanesares@umindanao.edu.ph / clcanesares@yahoo.com	Dean, College of Engineering	University of Mindanao and Higher Education Consultant	1								
11	Caringal Jr., Bienvenido	Tel: +632 242-5853 Email: bcaringaljr@smypc.sanmiguel.com.ph	Senior Compressed Air & Power Plant (CAPP) Staff Engineer	San Miguel Yamamura Packaging Corp. (SMYPC) - Manila Glass Plant	1								
12	Cawicaan, Nick John	Mobile: +63 917 850-8536 Email: nickjohn.cawicaan@lafargeholcim.com	Process Engineer	Holcim Philippines, Inc. - Bulacan Plant	1								
13	Collantes, Greg	Mobile: +63 917 860-2130 Email: Greg.Collantes@ph.spiraxsarco.com	National Accounts Manager	Spirax - Sarco Philippines, Inc.	1								
14	Columna, Lope S.	Mobile: +63 926 876-8236 / 0928 082-6782 Email: lope.columna@yahoo.com	Consultant	Columna Energy Consulting	1								
15	Eala, Kirby D.	Mobile: +63 917 812-4772 Email: kirbyeala@gmail.com	Environmental Management Officer	Central Azucarera Don Pedro, Inc.	1								
16	Epil, Rosalia D.	Tel: +632 815-3737 Fax: +632 815-2915 Mobile: +63 908 552-2900 Email: sallyepil@gmail.com		OSP ESCO International Inc.	1								
17	Fresnido, Roberto	Tel: +632 858-1000 loc 8056 Mobile: +63 917 563-3424 Email: bobby_fresnido@yahoo.com	Manager	Unilab, Inc.	1								
18	Gonzales, Job Jacob A.	Mobile: +63 917 591-1723 Email: jja.gonzales@gmail.com	Lead Consultant	CB Energy and Environment System Consultancy (CBEEMS)	1								
19	Gregana, Val	Mobile: +63 917 816-9467 Email: val.gregana@coca-cola.com.ph	Maintenance Head	Coca-Cola FEMSA Phils. Inc. - Canlubang Plant	1								
20	Jarquio, Robert I.	Mobile: +63 917 851-5663 Email: bjarquio777@gmail.com	Managing Director	RHEMA Management System Consultancy	1								
21	Labaguis, Michael Martin V.	Mobile: +63 922 816-1529 Email: Michael.labaguis@compresstech.com.ph	Sr. Product Engineer	Compresstech Resources, Inc. / Aeonstar Multiproduct Sales, Inc.	1								
22	Mabaga, Mario M.	Tel: +632 308-8900 loc 5678 Mobile: +63 917 805-8551 Email: mmabaga@smypc.sanmiguel.com.ph / mario.mabaga@gmail.com	Maintenance & Engineering Head	San Miguel Yamamura Packaging Corp. (SMYPC) - Canlubang PET & Caps Plant	1								

23	Magbanua, Jezreel B.	Tel: +6344 202-4720 loc 267 Mobile: +63 905 277-3586 Email: jezreelb@uppc.com.ph / jezreel.b.magbanua@gmail.com	Energy Officer - Maintenance & Energy Department	United Pulp and Paper Co., Inc.	1								
24	Marquez, Raymond A.	Mobile: +63 947 890-5901 Email: ram882000@gmail.com	Energy Efficiency Expert	HEMS Project	1								
25	Maturan, Lucky Mart S.	Mobile: +63 917 852-5895 Email: Lucky_maturan@yahoo.com	Process Safety and EHS & Sustainability Manager	CP Kelco Phils. Inc.	1								
26	Mercado, Mark Anthony C.	Mobile: +63 998 988-9160 Email: mark.mercado@reddragonfarm.com	Feedmill Operations Head	RDF Feed, Livestock & Food Inc.	1								
27	Mocas, Jr., Eliseo Jose S.	Tel: +632 358-9332 Mobile: +63 920 958-9833 Email: junmocas@gmail.com	Proprietor		1								
28	Naldoza, Cornordia L.	Mobile: +63 917 622-5238 Email: cnaldoza@gmail.com	Consultant	Summit Consultancy & Research Services / Accelence Consulting	1								
29	Panabe, Gilbert T.	Tel: +632 709-2478 Mobile: +63 917 436-2578 / +63 998 578-6180 Email: gilbertpanabe@hotmail.com	General Manager	Flexilever Phils. Corporation	1								
30	Peralta, Marionel P.	Tel: +6388 856-2221 / 2228 / 5692 / 723-886 Mobile: +63 917 865-4441 Email: nelperalta16@gmail.com	Consultant to the President and COO	Limketkai Manufacturing Corporation	1								
31	Perello, Jacob	Tel: +632 732-5240 / 741-1594 Mobile: +63 917 828-5262 Email: jacobperello.jp@gmail.com / 2m.emdevco@gmail.com / dc_2melemech@yahoo.com	President	2M Electro Mechanical Development Company	1								
32	San Agustin, Francis C.	Tel: +6346 484-8023 / +6346 419-1287 6Mobile: +63 915 638-1887 Email: francis.sanagustin@gmail.com	Maintenance Engineer	Atlantic Coatings, Inc.	1								
33	San Mateo, Anthony B.	Tel: +632 702-4200 Fax: +632 702-4376 Mobile: +63 917 855-7035 Email: asanmateo@smg.sanmiguel.com.ph		San Miguel Yamamura Packaging Corporation	1								
34	Soberano, Senen D.	Tel: +6334 722-1515 Mobile: +63 912 448-3472 Email: senensoberano@yahoo.com / lopezsugar_operations@yahoo.com	Energy Manager and Head of Industrial Engineering	Lopez Sugar Corporation	1								
35	Surita, Melvin A.	Mobile: +63 948 207-9714 Email: melvin.surita@yahoo.com	Consultant	Biscom, Inc.	1								

36	Sy, Rolex	Tel: +632 634-4802 / 632-0307 Mobile: +63 917 324-3025 Email: rrsy@silverhorizon.com	AVP & Division Manager	Silver Horizon Trading Co., Inc.	1							
37	Vero, Jessie	Tel: +6332 230-7500 Email: jvero@smypc.sanmiguel.com.ph	Engineering Head	SMYPC-Cebu Glass Plant	1							
38	Villare, Emelito D.	Tel: +632 771-7800 to 05 Mobile: +63 998 591-4837 Email: emelito.villare.scbi@rhi.com.ph	Engineering Manager	San Carlos Bioenergy, Inc.	1						1	
39	Vines, Maricris C.	Mobile: +63 917 593-2023 Email: maricris.vines@urc.com.ph	Integrated Management Systems Manager	Universal Robina Corporation	1							
40	Bacalso, Rodrigo G.	Mobile: +63 920 910-5627 Email: rodrigo.bacalso@gmail.com		LTH Food Industries		1						
41	Bautista, Juan	Mobile: +63 977 746-4511 Email: juan.bautista@analog.com				1						
42	Cabaraban, Gunnar Marc Shane C.	Tel: +6388 858-3116 loc 1217 Mobile: +63 919 205-9618 / 917 792-1026 Email: gunnarmarc_cabaraban@yahoo.com		Xavier University		1						
43	Capinding Jr., Aquilino L.	Tel: +632 810-8901 / +6343 931- 2304 loc 2862 / 2929 Mobile: +63 917 813-7966 Email: jun.capinding@yahoo.com.ph/aquilino.capindingjr.cadp@rhi.com.ph		Central Azucarera Don Pedro Inc.		1					1	
44	Dimal, Jr., Rafael V.	Tel: +632 702-4129 Mobile: +63 917 881-0534 Email: rdimaljr@smg.sanmiguel.com.ph/rafaeljrdimal@yahoo.com		San Miguel Yamamura Packaging Corp		1						
45	Domingo, Frederick Ryan C.	Mobile: +63 917 859-2742 Email: fcdomingo@unilab.com.ph				1						
46	Domingo, Marlon Romulo U.	Tel: +632 419-2900 loc 214 Mobile: +63 926 621-8063 Email: mrd_2_ph2002@yahoo.com		OSP ESCO International Inc.		1						
47	Pua, Frederick	Mobile: +63 905 330-3153 Email: frederick_pua@yahoo.com.ph		Metro Dragon Steel Corp.		1						
48	Tamayosa, Robert T.	Tel: +632 655-7426 Mobile: +63 998 555-5159 Email: obet_tamayosa@yahoo.com		Engie Services Philippines		1						
49	Agbing, Francis Martin Y.	Mobile: +63 915 501-8785 Email: francismartin.agbing.cadp@gmail.com					1					

50	Daylo, Elaine D.	Tel: +632 687-5675 Fax: +632 687-2651 Mobile: +63 917 817-9418 Email: elaine.daylo@tuv-sud-pasb.ph / elaine_daylo@yahoo.com		TUV SUD PSB Phils, Inc.			1				
51	Quezon, Jonathan D.	Tel: +632 393-9567 Mobile: +63 922 855-3275 Email: jquezon_doe@yahoo.com					1				
52	Go, Jerick	Tel: +632 936-9781 loc 168 Mobile: +63 906 425-4589 Email: jerickgo@gmail.com	Energy Representative	Metro Dragon Steel Corp.				1			
53	Valenzuela, Dante S.	Tel: +632 671-9842 Email: dsvalezuela@richem.com.ph	Environmental Advocacy Officer	Resins Incorporated Chemical Corp.				1			
54	Epino, Nestor	Mobile: +63 919 355-5827 Email: nestor.epino@wyethnutrition.com		Wyeth Phils., Inc.					1		
55	Lu, Rofuat	Mobile: +63 917 854-4690 Email: rlu@smg.sanmiguel.com.ph							1	1	
56	Posadas, Jesus P.	Mobile: +63 917 535-2742 Email: jessppos@gmail.com		USEC-Department of Energy						1	
57	Alvarado, Prudence T.	Tel: +632 975-0649 Mobile: +63 917 624-6160 Email: dennis64_pembo@yahoo.com / pmmoc_chemicals@yahoo.com.ph		PMMOC Chemicals Trading							1
58	Angon, Allan	Mobile: +63 915 493-8188 Email: aangon@pimes.com.ph		P.IMES							1
59	Bata, Sheena C.	Tel: +632 843-6020 loc 143 Fax: +632 844-2235 Mobile: +63 917 528-4159 Email: sheenasz_19@yahoo.com		James Hardie Phils. Inc.							1
60	Comaling, Marijane	Tel: +6343 424-0345 Mobile: +63 925 897-7141 Email: mjrcomaling@gmail.com		TUV SUD PSB Phils, Inc.							1
61	Dionisio, Danilo R.	Mobile: +63 919 998-0518 Email: dionisio.danilo@gmail.com		Philippine Energy Market Traders Inc.							1
62	Espina Jr., Cesar D.	Mobile: +63 917 853-7327 Email: czarspin.09@gmail.com		Funai Electric Cebu, Inc.							1
63	Fornales, Mark	Mobile: +63 920 269-9779 Email: markfornales@gmail.com									1
64	Palaca, Henry O.	Tel: +632 434-6833 Fax: +632 434-3583 Mobile: +63 917 541-0303 Email: henrypalaca@yahoo.com / hop@qplusconsulting.com		Quality Plus Management Consulting Co.							1
65	Taan, Christopher	Mobile: +63 908 110-0569		RAMCAR Technology							1

80	Espina, Randell	Tel: +6382 221-2411 Fax: +6382 241-2413 Mobile: +63 917 959-1991 Email: ranespina@yahoo.com / randell.espina@gmail.com	Ateneo de Davao University									
81	Garcia, George	Mobile: +63 922 814-5167 Email: George.Garcia@urc.com.ph										
82	Hermano, Joseph Ezekiel	Mobile: +63 936 985-2223 Email: jhermano@smg.sanmiguel.com.ph										
83	Julaton, Maria Vilma	Mobile: +63 917 835-3234 Email: rmjulaton@gmail.com	AVATOR Consultancy, Inc.									
84	Manalo, Rodelito V.	Tel: +632 562-3951 Email: rodelito.manalo@unilever.com	Unilever Philippines, Inc.									
85	Mero, Rizaldy A.	Tel: +6349 545-2071 Mobile: +63 999 887-1643 / 921 957-3743 Email: zaldymero@yahoo.com / zmero@cohuseg.com										
86	Quirante, Charlie	Mobile: +63 919 824-1440 Email: chaq1954@yahoo.com										
87	Razon, Rembert Xavier	Mobile: +63 917 808-9335 Email: rembert.razon@jec.com										
88	San Pablo, Zosimo	Tel: +632 632-2650 Fax: +632 632-3967 Mobile: +63 917 502-2795 Email: zsanpablo@gmail.com / zsanpablo@smg.sanmiguel.com.ph										
89	Sanglap, Eusebio P.	Tel: +632 862-4102 Mobile: +63 920 482-4776 Email: noysanglap@yahoo.com	Sanvir Systems Management Services									

TOTAL					39	9	3	2	2	2	14	5
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8.4 ENMS RESULTS IN TERMS OF POWER & FUEL SAVINGS BY ENERGY SOURCE

Type of Energy	Savings From EnMS	Conversion Factor *	Units	Total from EnMS
Power savings/ yr				
Electricity (MWh)				-
Survey Response from Enterprises	85,736	1	MWh/MWh	85,736
Survey Response from NEs	16,469			16,469
Total from Power Savings (MWh/Y)	102,206			102,206
Fuel savings/yr				
Diesel (liters)				
Survey Response from Enterprises	840,000	0.0396	GJ/liters	33,264
Survey Response from NEs	228,067			9,031
Kerosene (liters)				
Survey Response from Enterprises	2,201,700	0.0375	GJ/liters	82,564
Survey Response from NEs	-			-
Fuel oil (liters)				
Survey Response from Enterprises	-	0.0401976	GJ/liters	-
Survey Response from NEs	-			-
LPG (kg)				
Survey Response from Enterprises	-	0.0496	GJ/kg	-
Survey Response from NEs	18,386			912
Bagasse (MT)				
Survey Response from Enterprises	-	9.6	GJ/MT	-
Survey Response from NEs	-			-
Coal (MT)				
Survey Response from Enterprises	720	29.3076	GJ/MT	21,101
Survey Response from NEs	5,556			162,820
Wood (MT)				
Survey Response from Enterprises	-	16.2	GJ/MT	-
Survey Response from NEs	-			-
Total from Fuel Savings (GJ/y)				309,693

8.5 LIST OF EMISSION FACTORS FOR THE PHILIPPINES¹⁹

Emissions from Electricity Generation

Country/Region/Grid*	Application	Emission Factors	Units	Uncertainty of Emission Factor	Emission Factor Source
		CO ₂		CO ₂ e	
Philippines (national default)	National Default Overall greenhouse gas intensity for electricity-specific <i>consumption</i> , which includes transmission and distribution losses and excludes heat generation.	0.609	kg GHG / kWh	10%	WRI/WBCSD GHG Protocol Emission Factors From Cross-Sector Tools (Excel Workbook). Version 1.3, August 2012. Table 16.

Emissions from Stationary Fuel Use

Fuel Type	Fuel Type Units	Application	Emission Factors CO ₂	Units	Uncertainty of Emission Factor CO ₂	Emission Factor Source
Biodiesels (International)	kg	Stationary combustion. All applications - residential, commercial, industrial (e.g. generators, boilers, HVAC, cooking etc...)	0.001912	tons / kg	1%	WRI/WBCSD GHG Protocol Emission Factors From Cross-Sector Tools (Excel Workbook). Version 1.3, August 2012. Tables 1-3. - IPCC 2006 Guidelines for National Greenhouse Gas Inventories, http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html
Blended Diesel Industrial (Philippines)	liters	Stationary combustion. Blend is 2% CME/98% diesel for industrial applications only.	0.002658	tons / L	1%	2006 IPCC Guidelines for National GHG Inventories, Volume 2, Chapter 1, http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf

¹⁹ Source: Philippine Climate Change Commission

Technical Advisor: Ms. Jeanette Laurente, Climate Change Mitigation Specialist

Blended Gasoline Residential/Commercial (Philippines)	liters	Stationary combustion. Blend is 10% ethanol/90% gasoline for residential/commercial applications only.	0.002067	tons / L	1%	2006 IPCC Guidelines for National GHG Inventories, Volume 2, Chapter 1, http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf
Charcoal (Biomass, International)	ton	Stationary combustion. All applications - residential, commercial, industrial (e.g. generators, boilers, HVAC, cooking etc...)	3.304000	tons / ton	1%	WRI/WBCSD GHG Protocol Emission Factors From Cross-Sector Tools (Excel Workbook). Version 1.3, August 2012. Tables 1-3. - IPCC 2006 Guidelines for National Greenhouse Gas Inventories, http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html
Kerosene (International)	liters	Stationary combustion. All applications - residential, commercial, industrial (e.g. generators, boilers, HVAC, cooking etc...)	0.002519	tons / L	1%	WRI/WBCSD GHG Protocol Emission Factors From Cross-Sector Tools (Excel Workbook). Version 1.3, August 2012. Tables 1-3. - IPCC 2006 Guidelines for National Greenhouse Gas Inventories, http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html
Motor Gasoline (International)	liters	Stationary combustion. All applications - residential, commercial, industrial (e.g. generators, boilers, HVAC, cooking etc...)	0.002272	tons / L	1%	WRI/WBCSD GHG Protocol Emission Factors From Cross-Sector Tools (Excel Workbook). Version 1.3, August 2012. Tables 1-3. - IPCC 2006 Guidelines for National Greenhouse Gas Inventories, http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html
Propane or Liquefied Petroleum Gases (International)	ton	Stationary combustion. All applications - residential, commercial, industrial (e.g. generators, boilers, HVAC, cooking etc...)	0.002985	tons / ton	1%	WRI/WBCSD GHG Protocol Emission Factors From Cross-Sector Tools (Excel Workbook). Version 1.3, August 2012. Tables 1-3. - IPCC 2006 Guidelines for National Greenhouse Gas Inventories, http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html
Residual Fuel Oil (International)	liters	Stationary combustion. All applications - residential, commercial, industrial (e.g. generators, boilers, HVAC, cooking etc...)	0.002939	tons / L	1%	WRI/WBCSD GHG Protocol Emission Factors From Cross-Sector Tools (Excel Workbook). Version 1.3, August 2012. Tables 1-3. - IPCC 2006 Guidelines for National Greenhouse Gas Inventories, http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html
Wood or Wood Waste (Biomass, International)	ton	Stationary combustion. All applications - residential, commercial, industrial (e.g. generators, boilers, HVAC, cooking etc...)	1.747200	tons / ton	1%	WRI/WBCSD GHG Protocol Emission Factors From Cross-Sector Tools (Excel Workbook). Version 1.3, August 2012. Tables 1-3. - IPCC 2006 Guidelines for National Greenhouse Gas Inventories, http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html

8.6 SO RESULTS IN TERMS OF POWER & FUEL SAVINGS BY ENERGY SOURCE

Type of Energy	Conversion Factor *	Units	Total from Optimization Measures	SSO	CASO	PSO
Power savings/ yr						
Electricity (MWh)						
Survey Response from Enterprises	1	MWh/MWh	6,037	-	4,037	2,000
Survey Response from NEs			5,938	-	5,938	-
Total from Power Savings (MWh/Y)			11,975	-	9,975	2,000
Fuel savings/yr						
Diesel (liters)						
Survey Response from Enterprises	0.0396	GJ/liters	38,016	38,016	-	-
Survey Response from NEs			17,361	17,361	-	-
Kerosene (liters)						
Survey Response from Enterprises	0.0375	GJ/liters	-	-	-	-
Survey Response from NEs			-	-	-	-
Fuel oil (liters)						
Survey Response from Enterprises	0.0402	GJ/liters	-	-	-	-
Survey Response from NEs			10,430	10,430	-	-
LPG (kg)						
Survey Response from Enterprises	0.0496	GJ/kg	179	-	-	179
Survey Response from NEs			-	-	-	-
Bagasse (MT)						
Survey Response from Enterprises	9.6	GJ/MT	-	-	-	-
Survey Response from NEs			438,826	419,952	-	18,874
Coal (MT)						
Survey Response from Enterprises	29.3076	GJ/MT	32,004	32,004	-	-
Survey Response from NEs			1,206,538	1,206,538	-	-
Total from Fuel Savings (GJ/y)			1,743,353	1,724,301	-	19,052

8.7 EE MEASURES UNDERTAKEN AND NUMBER OF IMPLEMENTING ENTERPRISE

SSO related EE Measure	Response from Enterprise			Response from NEs		
	Planned	On-going	Completed	Planned	On-going	Completed
Reduce excess air	4	6	0	2	4	2
Reduce blowdown rate	1	7	3	1	3	1
Improve insulation	6	0	5	3	3	4
Recover flash steam	4	5	0	4	4	1
Recover condensate	3	3	5	4	5	4
Repair leaks in steam distribution system	2	5	3	1	4	4
Repair or change steam traps	5	4	1	2	3	3
Install economizer	4	2	3	3	0	2
Install efficient boiler	3	0	4	4	0	3
Others						
Blow down heat recovery	0	0	1			
Usage of GRID power under WESM during off milling					1	
Utilization of distillery waste heat					1	
Total	32	32	25	24	28	24

CASO related EE Measure	Response from Enterprise			Response from NEs		
	Planned	On-going	Completed	Planned	On-going	Completed
Reduce leak in compressed air system	5	17	5	2	4	7
Reduce inlet air temperature	13	4	4	6	1	3
Reduce pressure set point	10	6	8	3	2	5
Use booster pump for high pressure user separate	12	3	3	5	0	2
Change piping system from branch to ring loop system	10	3	6	5	0	5
Install air compressor sequence controller	12	3	6	5	0	2
Use highly efficient air compressor	9	5	7	4	0	3
Install VSD air compressor	8	1	12	5	0	3
Other(s), please specify:						

CASO related EE Measure	Response from Enterprise			Response from NEs		
	Planned	On-going	Completed	Planned	On-going	Completed
Point of use air tank, energy saving vacuum ejector units, shut off valves	0	1	0			
Procure smaller unit for peak load				1	0	0
Avoid air purging				0	0	1
Uninstall few vibrator				0	0	1
Replace process water pneumatic pump to centrifugal pump				0	0	1
Turned off 1 compressor				0	0	1
Total	79	43	51	36	7	34

PSO related EE Measure	Response from Enterprise			Response from NEs		
	Planned	On-going	Completed	Planned	On-going	Completed
Use mainly highly efficient pump	8	4	4	6	0	3
Reduce water flow	3	6	2	4	1	1
Reduce the size of impeller	6	3	0	4	0	3
Install tachometer	7	2	0	6	0	0
Reduce friction loss in pipe	6	5	1	5	1	0
Install VSDs	9	2	4	3	2	3
Reduce water usage	3	8	3	1	3	1
Other(s), please specify:	0	0	0	0	1	0
Installation of R-TAP Device	0	0	1			
Total	42	30	15	29	8	11

8.8 SITE VISITS CONDUCTED

No	Name Of Enterprise	Industry Sector	Province	Region	Date Visited
1	High Street Manufacturing Corporation	Basic Metals & Steel	Batangas	Region IV-A	29-Oct-18
2	Coca-Cola FEMSA Philippines, Inc. - Canlubang Plant	Food & Beverage	Laguna	Region IV-A	29-Oct-18
3	Baxter Healthcare Philippines, Inc.	Pharmaceutical	Laguna	Region IV-A	29-Oct-18
4	Ito-Seisakusho Philippines Corporation	Semiconductor	Laguna	Region IV-A	29-Oct-18
5	Sagara Metro Plastics Industrial Corporation	Plastics	Laguna	Region IV-A	30-Oct-18
6	Tong Hsing Electronics Phils., Inc.	Electrical Equipment, Electronics, & Component Manufacturing	Laguna	Region IV-A	30-Oct-18
7	Toshiba Information Equipment (Phils.), Inc.	Semiconductor	Laguna	Region IV-A	30-Oct-18
8	Atlantic Coatings, Inc.	Chemical	Cavite	Region IV-A	30-Oct-18
9	Maynilad Water Services, Inc.	Water Utility	NCR	NCR	08-Nov-18
10	Holcim Philippines, Inc. - Bulacan Plant	Cement	Bulacan	Region III	08-Nov-18
11	Amkor Technology Philippines, Inc.	Semiconductor	Muntinlupa	NCR	09-Nov-18
12	Manila Water Co., Inc.	Water Utility	NCR	NCR	09-Nov-18
13	RDF Feed, Livestock & Food, Inc. - Feed mill	Agro-Industrial	Pampanga	Region III	16-Nov-18
14	San Miguel Yamamura Packaging Corp. (SMYPC) - Metal Closure & Lithography Plant San Fernando	Metal Stamping	Pampanga	Region III	16-Nov-18
15	United Pulp & Paper Co., Inc.	Pulp & Paper	Bulacan	Region III	16-Nov-18
16	Mindanao Corrugated Fibreboard, Inc.	Pulp & Paper	Davao	Region XI	21-Nov-18
17	Asia Brewery, Inc.	Food & Beverage	Misamis Oriental	Region X	22-Nov-18
18	Coca-Cola FEMSA Philippines, Inc. - Misamis Oriental Plant	Food & Beverage	Misamis Oriental	Region X	22-Nov-18
19	San Martin Steel, Inc.	Basic Metals & Steel	Misamis Oriental	Region X	22-Nov-18
20	Limketkai Manufacturing Corporation	Food & Beverage	Cagayan De Oro	Region X	22-Nov-18
21	Ricoh Imaging Products (Phils.) Corp	Electrical Equipment, Electronics & Computer Manufacturing	Cebu	Region VII	27-Nov-18
22	Muramoto Audio-Visual Philippines, Inc. - Factory 2	Electrical Equipment, Electronics & Computer Manufacturing	Cebu	Region VII	27-Nov-18
23	SMYPC - Cebu Glass Plant	Glass Manufacturing	Cebu	Region VII	28-Nov-18
24	Corbox Corporation	Pulp & Paper	Cebu	Region VII	28-Nov-18
25	San Carlos Bio-Energy, Inc.	Agro-Industrial	Negros Occidental	Region VI	29-Nov-18
26	Lopez Sugar Corporation	Sugar	Negros Occidental	Region VI	29-Nov-18