

HEMs

Switch to High
Efficiency Motors



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What is HEMs?

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Sponsor: European Union, Grant : 1,970,469 EU

Program duration: 2014 - 2017

Program lead: Institute of Integrated Electrical Engineers of the Philippines, Inc.

Partners:

- European Chamber of Commerce of the Philippines
- Asia Society for Social Improvement and Sustainable Transformation, Inc
- Association of Development Financing Institutions in Asia and the Pacific
- Association Action for Sustainable Development
- International Copper Association Southeast Asia

Associates:

- Philippine Sugar Millers Association, Inc
- Bank of the Philippine Islands
- Department of Energy

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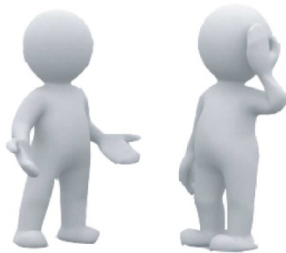
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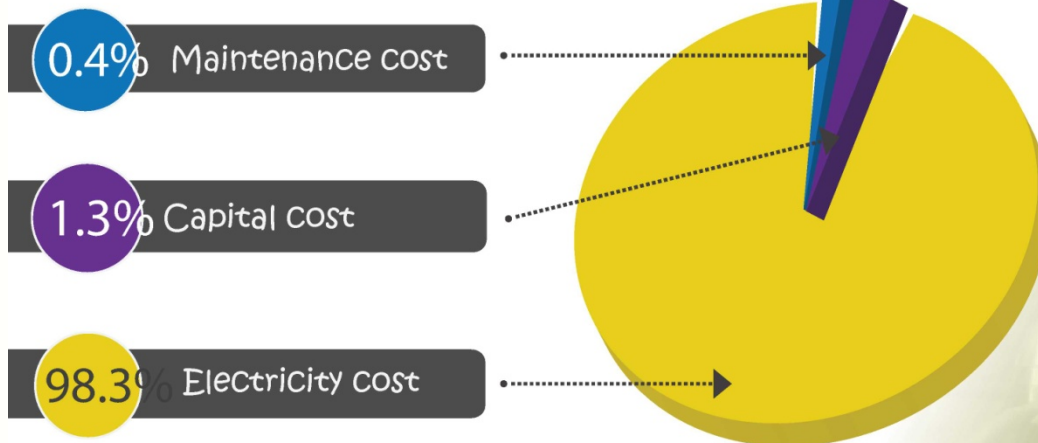
Huge Energy Saving Potential

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“The cost of replacing old and standard motors represents only 1.3% of the total life cycle costs of all the motors. The electricity costs are 98.3% of the lifecycle costs (13 years), and the remaining 0.4% is the maintenance costs to ensure that the HEM drive systems are kept in a good condition.”



Source: Scoping Study on Opportunities for High Efficiency Motors in Philippine Industries, 2010, IFC

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Short Payback

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“Typical payback period for replacement of old motors to high efficiency motors is less than 2 years.”

OLD MOTOR

NEW MOTOR



Payback < 2 yrs

Source: Scoping Study on Opportunities for High Efficiency Motors
in Philippine Industries, 2010, IFC

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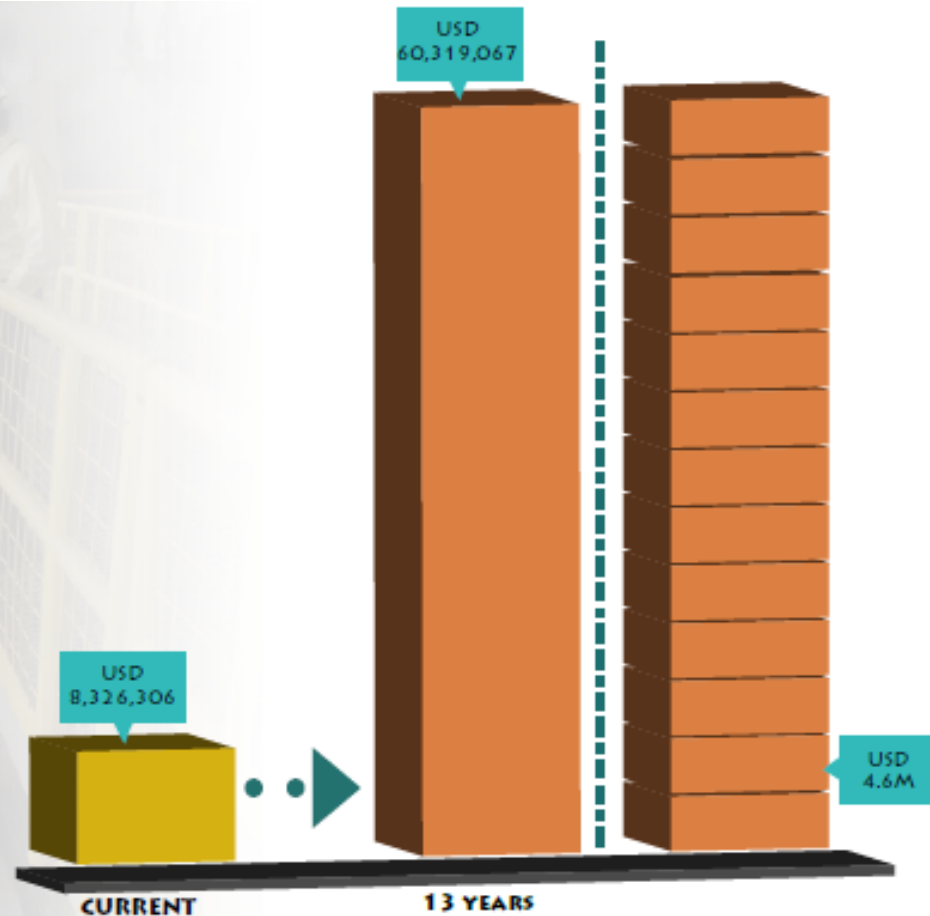
Huge Financial Savings

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The results of the study showed that the total possible investment in HEMs for the **20 companies** is **USD 8,326,306**. These industries can generate total savings of **USD 60,319,067** in 13 years or about **USD 4.6 million annually.**



Source: Scoping Study on Opportunities for High Efficiency Motors in Philippine Industries, 2010, IFC

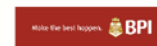
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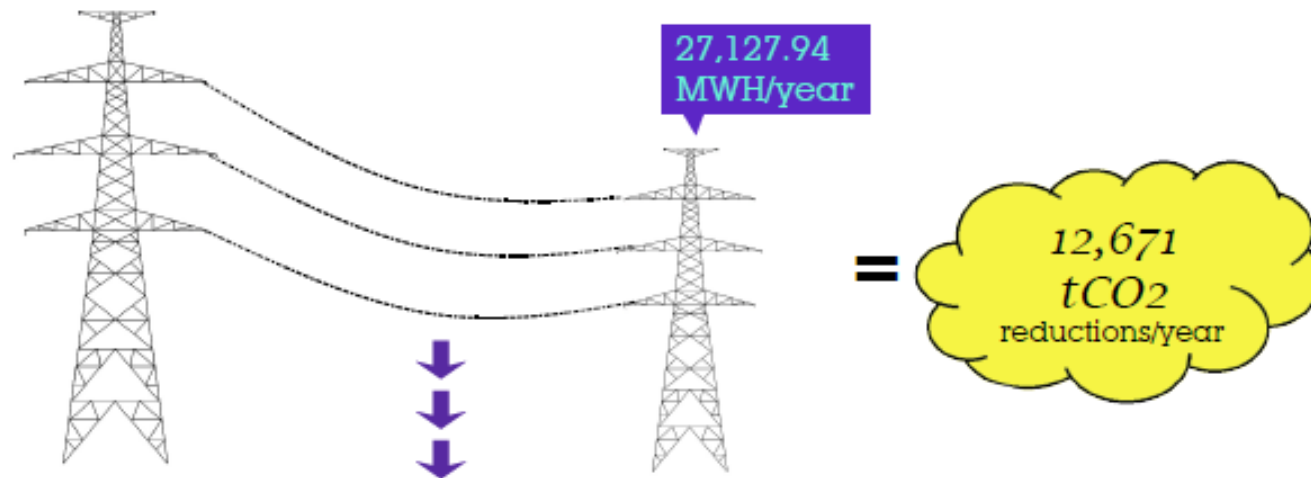
Huge Energy Saving Potential

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"The potential electricity savings in the 20 firms studied is **27,127.94 MWH/year**, which translates to **12,671 tCO₂** emission reductions per year."



Source: Scoping Study on Opportunities for High Efficiency Motors
in Philippine Industries, 2010, IFC

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Program Objectives

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Increase the deployment of more efficient motors and drive systems in the Philippine industries (sugar mills as pilot)

Design of model investment and financing schemes

Implementation of replicable pilot projects

Mobilization of key stakeholders

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Barriers in HEMs Adoption

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- Lack of awareness of End-Users
- Lack of available financing mechanism for End-Users
- Lack of awareness of Financing Institutions on the potential financing mechanism on HEMS
- Lack of technical capacity of ESCOs & Equipment and Service Providers
- Lack of specific policy mechanism to support HEMS
- Absence of an industry alliance

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Work Packages

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WP1 Pilot Project Implementation

WP2 Formulation of Financing Programs

WP3 Capacity Building for Financial Institutions

WP4 Capacity Building for Service Providers

WP5 Formulation of Policy

WP6 Networking, Dissemination, and Business Matching

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Logical Framework

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2014

2015

2016

2017

ER1

The technical and financial feasibility and benefits of adopting HEMs are demonstrated through Pilot Projects

ER2

Industries and ESCOs have access to financing for the implementation of HEMs projects

ER3

The capacity of commercial banks to evaluate HEMs investment, especially regarding technology risk, is built

ER4

The capacity of ESCOs and service providers to investigate and implement HEMs projects, is built

WP5

A supportive policy framework for HEMs investments is put in place

WP6

Project developers, SMEs and financier have increased ability and capacity to get information, discussing and negotiating business opportunities related to HEMs

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Pilot Project

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- 4 mills participating in the pilot project
 - Lopez Sugar Corporation (LSC)
 - Central Azucarera de Tarlac (CAT)
 - Central Azucarera de Don Pedro (CADP)
 - Central Azucarera de la Carlota (CACI)

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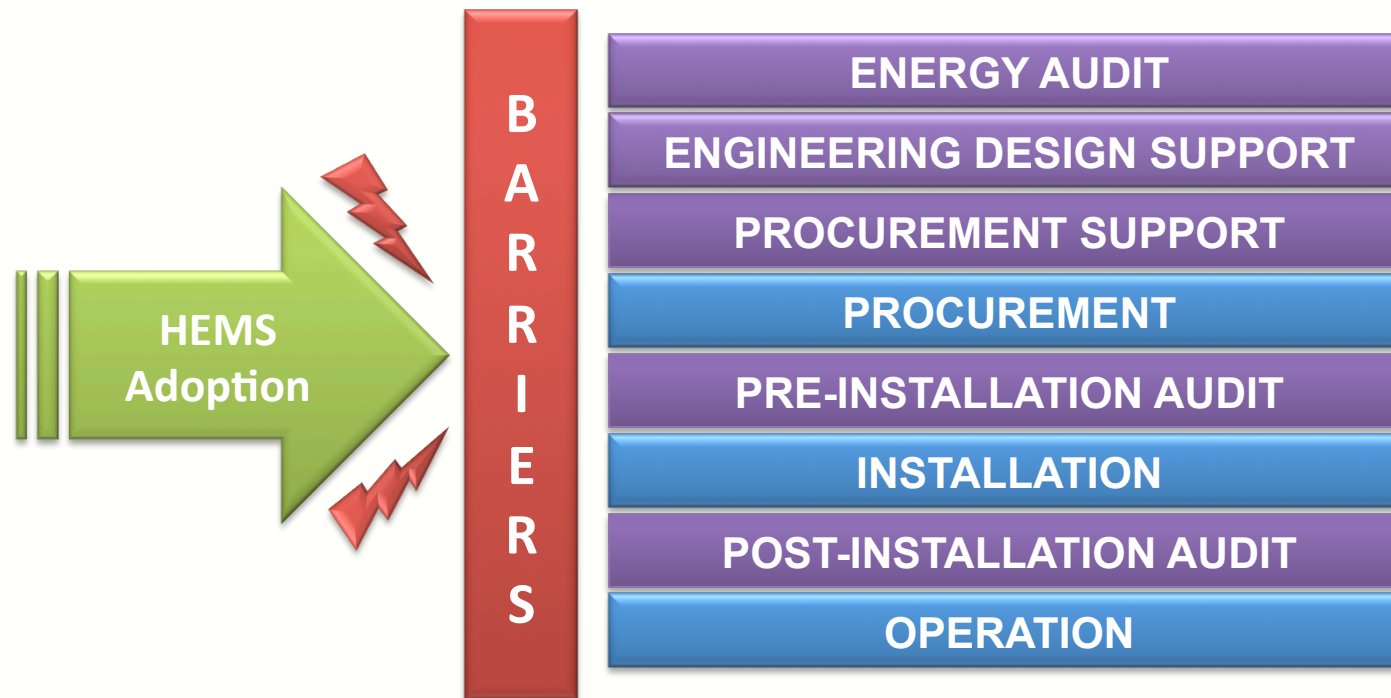
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Pilot Project Activities

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Results of the Motor Audit

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Findings of the detailed audit

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MILL 1

Upgrading of 223 out of 763 motors with HEMs

| | |
|-----------------------|-----------------|
| Total Investment Cost | Php 28,530,174 |
| Simple Payback | 0.78 years |
| Energy Savings/yr | 5,422,707 kWhrs |

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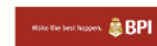


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Opportunity

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MILL 1

| Sale of Energy Saved from HEMs upgrade* | |
|--|----------------|
| Hourly | Php 5,350 |
| Daily | Php 128,402 |
| Monthly | Php 3,852,059 |
| Yearly | Php 35,952,547 |

*Annual energy savings x Php6.63/kWhr

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Findings of the detailed audit

HEMs

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MILL 2

Upgrading of 179 motors with HEMs

| | |
|-----------------------|-----------------|
| Total Investment Cost | Php 59,548,635 |
| Simple Payback | 1.39 years |
| Energy Savings/yr | 7,089,039 kWhrs |

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Opportunity

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MILL 2

| Sale of Energy Saved from HEMs upgrade* | |
|--|----------------|
| Hourly | Php 10,971 |
| Daily | Php 263,307 |
| Monthly | Php 7,899,215 |
| Yearly | Php 46,078,754 |

*Annual energy savings x Php6.50/kWhr

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“The best way to predict the future is to
create it”

Buckminster Fuller

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Thank You!

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