

The Why's and How's of Energy Management for SMEs



ASEAN Workshop for Energy
Efficient SMEs

Acacia Hotel, Alabang

18 September 2019

Agenda

Why: Business competitiveness and electricity price

How: Using modern Internet of Things to understand own consumption

Business Competitiveness in the Context of the Energy Industry

why

SMEs in the Philippines

943,000 MSMEs



SMEs in the Philippines



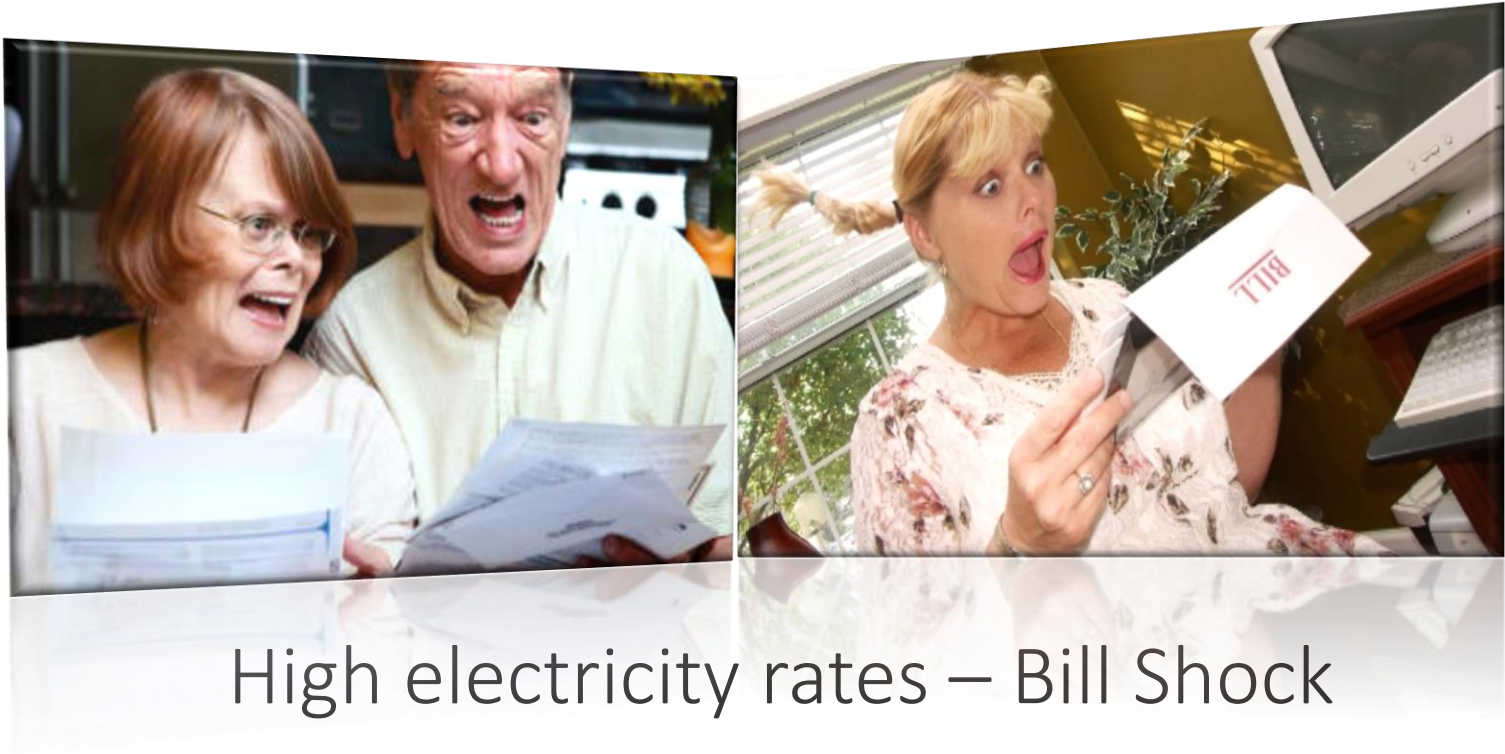
31% of Jobs

SMEs in the Philippines



37% of GDP

Electricity challenge for SMEs

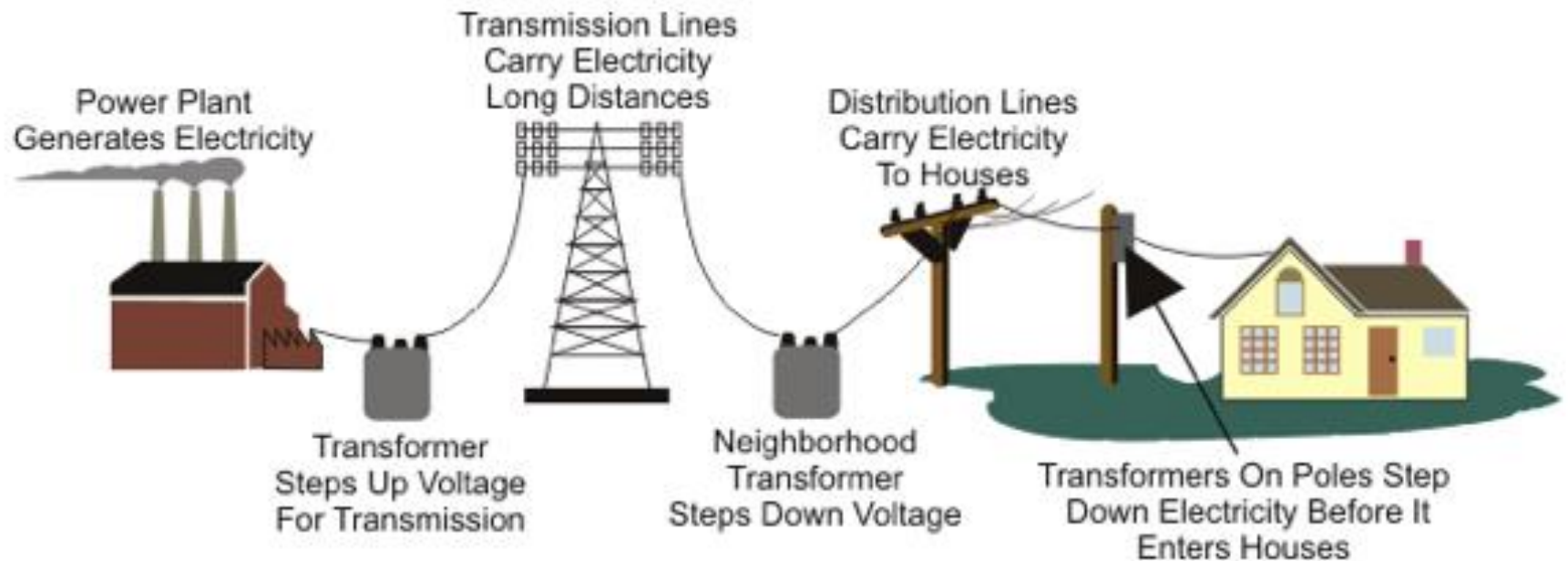


High electricity rates – Bill Shock

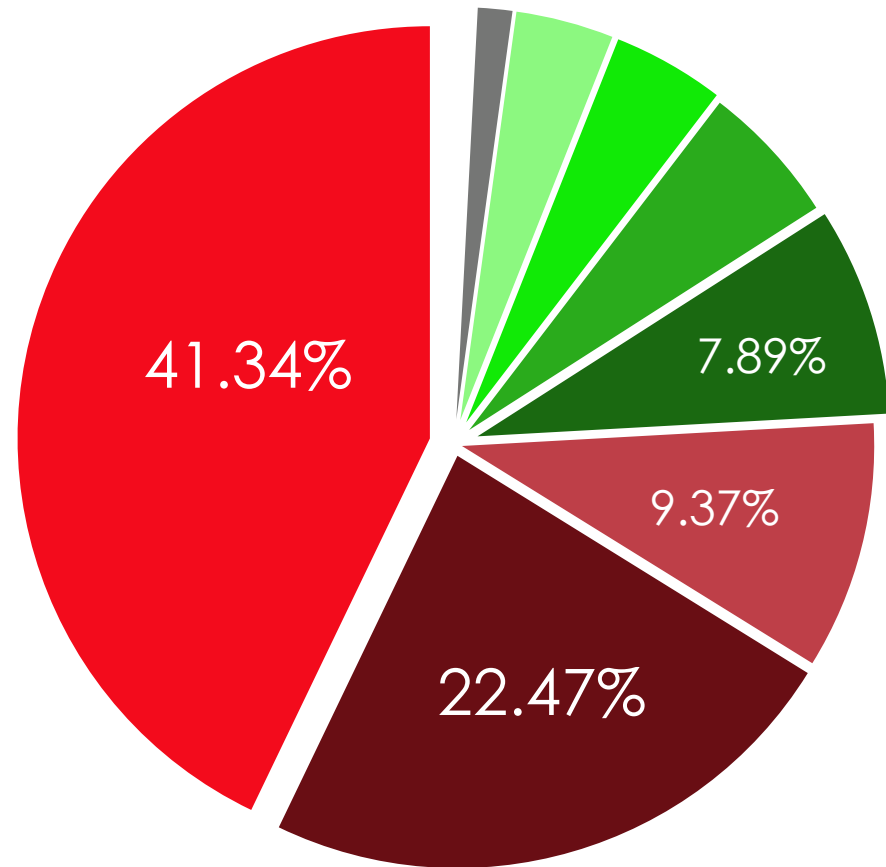
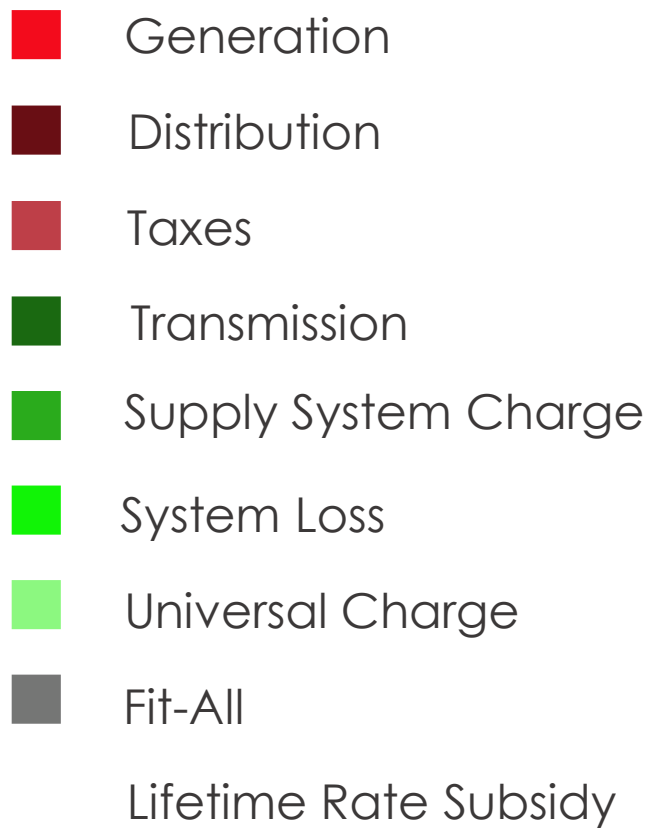
Increasing electricity payments

No help

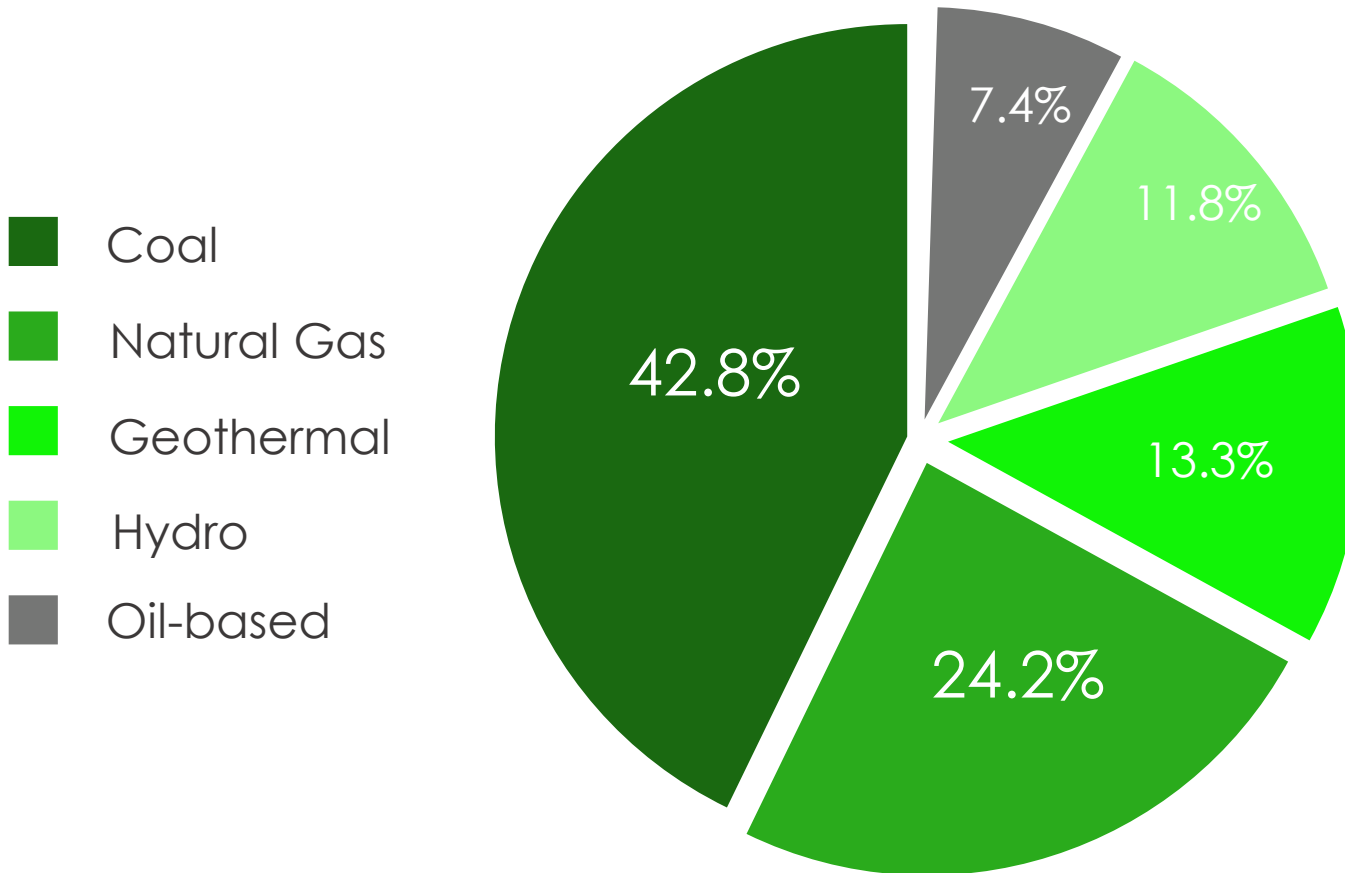
How is electricity made & sold?



Electricity price



Philippine Electricity Sources



Philippine Laws

- Electric Power Industry Reform Act
- Renewable Energy Law
- Grid Code of the Philippines
- Distribution Code of the Philippines

Regulatory bodies

- Department of Energy
- Energy Regulatory Commission

Study shows PHL has the highest electricity rates in Asia

By Philexport News and Features | Updated February 7, 2011 - 12:00am

MANILA, Philippines - The Philippines has gained a new record, that of having the most expensive electricity in the whole of Asia.

The new record was reported by the Manila Electric Co. (Meralco) to the power and energy committee of the Philippine Chamber of Commerce and Industry (PCCI) chaired by Jose Alejandro during its meeting last Thursday, Feb. 3.

WHY ARE ELECTRICITY RATES IN THE PHILIPPINES THE HIGHEST IN ASIA?

This is what I thought about electricity in the Philippines:

Phl power rates among highest in Asia

By Iris C. Gonzales (The Philippine Star) | Updated October 7, 2013 - 12:00am

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MANILA, Philippines - Electricity rates in the Philippines are among the highest in the world, the Statistical Coordination Board (NSCB) said in a report.

"Data from Asean Center for Energy show that among the ten countries in Southeast Asia, the Philippines ranks as having the third highest residential electricity tariffs, fifth highest for commercial and industrial electricity rates."

PHL power rates 3rd highest in Asia

By **Lenie Lectura** - SEPTEMBER 30, 2016

397 0

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POWER rates in the Philippines are the third highest in Asia and fourth in the Asia-Pacific region, said a survey done by the International Energy Consultants (IEC), an Australia-based consulting firm specializing in Asian power markets.

Philippines has highest electricity rates in Asia

The Philippines has the most expensive electricity in the whole of Asia.

The new record was reported by Meralco to the power and energy committee of the Philippine Chamber of Commerce and Industry (PCCI) chaired by Jose Alejandro during its meeting last Thursday, Feb. 3.

Business Challenges for SMEs

- Electricity price competitiveness

SME	Multinational
1 kWh per unit	1 kWh per unit
PHP 10 per kWh	PHP 7.5 per kWh
PHP 10 per unit electricity cost	PHP 7.5 per unit electricity cost
-	+ 5% Net Profit

		January 2017			
		(Jan. 15, 2017 to Feb. 14, 2017)			
Customer Class		Consumption (kWh)	Demand (kW)	Load Factor	
Schedule I -FZ	Streetlights	12,521	34,300		9.0919
Schedule II -R	Residential	200			10.8785
Schedule III-P	General Service	572			11.0921
Schedule IV -P	General Power	5,353			9.5349
Schedule V -P	Bulk Power	36,504	100	50%	8.6980
Schedule VI -P	Wholesale Power	273,780	750	50%	8.0051
Schedule VII-P	Special Wholesale	730,080	2,000	50%	7.9108

Note:

- 1.) Average rate was derived using the 0.75% Local Franchise Tax (LFT) of Cebu City. Customers outside Cebu City will be charged with 0.50% LFT.
- 2.) Using the typical consumption of each customer class, except for scheduled V, VI & VII
- 3.) Schedules V, VI & VII are simulated using a load factor of 50%. Rates will vary depending on their load factor.

Your Bill

[Bill Updates](#)
[Bill Deposit FAQ](#)
[Unbundled Rates](#)
[Payment Choices](#)
[How To Read Your Meter](#)
[Text, ASKVECO\(space\)BILL](#)
[VECO Bills In Braille](#)
[Dec. 2016 Gen Rate](#)
[Jan. 2017 Gen Rate](#)
[Average Monthly Rate](#)

Business Challenges for SMEs

- Electricity price competitiveness

SME

Typical Operation
8am to 8pm

Demand charge
impact

+10 to 20%
On total energy bill

Multinational

Typical Operation
24 hours over 7 days

Demand charge
impact

+5%
On total energy bill

Business Challenges for SMEs

- Operational efficiency competitiveness

SME	Multinational
1.25 kWh per unit	1 kWh per unit
PHP 10 per kWh	PHP7.5 per kWh
PHP 12.5 per unit electricity cost	PHP 7.5 per unit electricity cost
-	+ 10% Net Profit

Why: Business Challenges for SMEs

- Electricity industry **designed for large users** through bilateral contracts and spot market accessible only by them (cheaper electricity price)
- Bigger companies have budget to optimize production
- **Double whammy**, +10% profit for multinationals, SME competitiveness limited.

How

Using Internet of Things for Energy Efficiency

compete

survive

thrive

Energy Audit

What's an Energy Audit?

It is a comprehensive study of your business' energy behavior. Through an Energy Audit, you can compare the energy consumption and efficiency of your appliances.



Benefits:

- Effective energy management
- Detailed energy consumption report
- Long-term financial gains
- Professional energy consultation
- Guaranteed safe and hazard-free systems

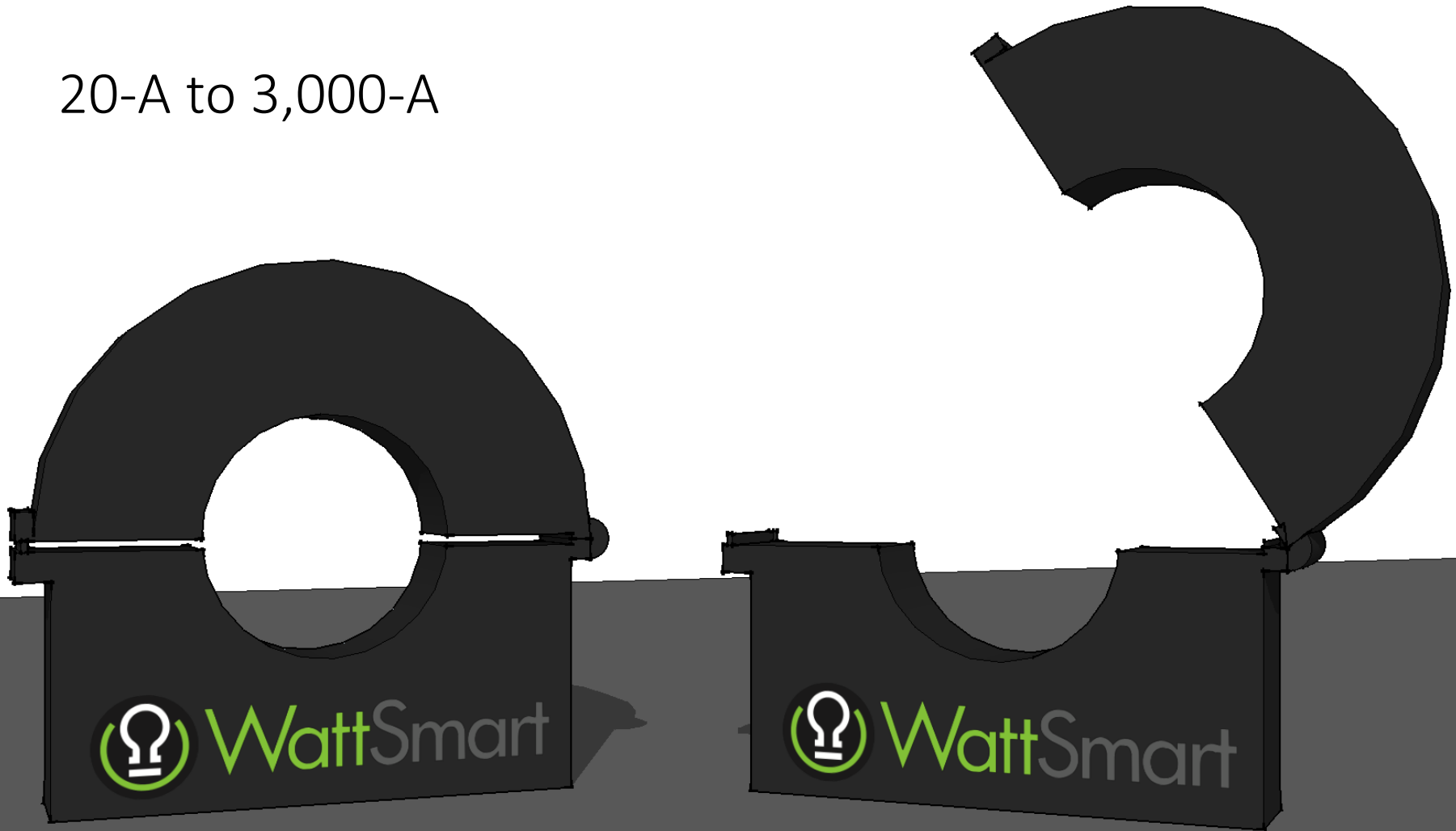


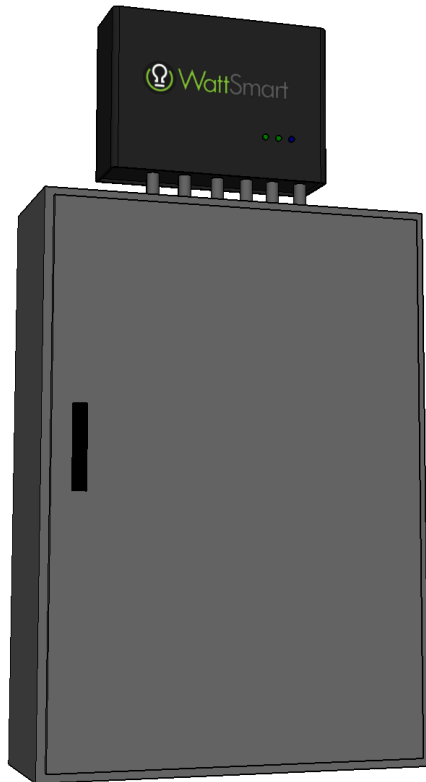
WattSmart EMS



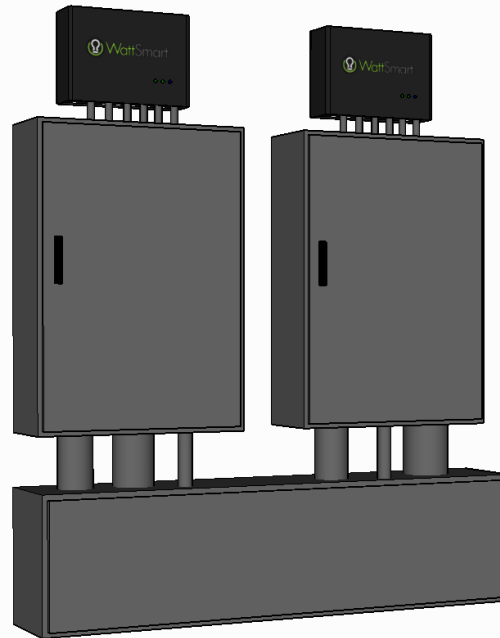
Sensors

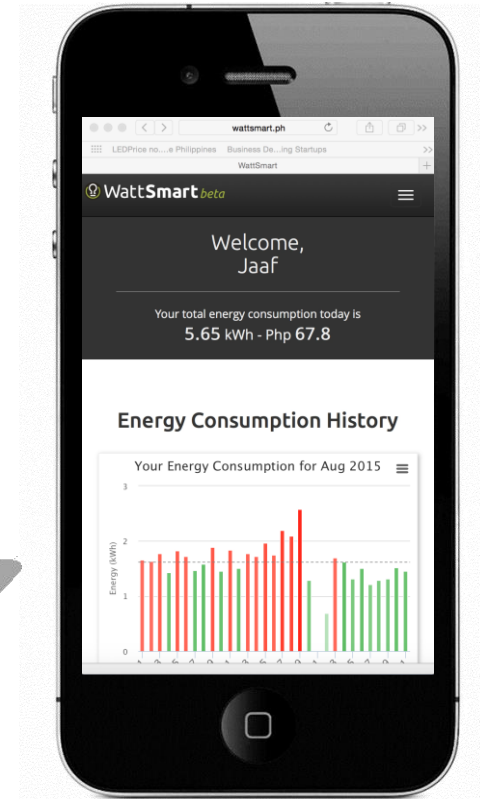
20-A to 3,000-A





Modular and Flexible







WattSmart EMS technology is patent-pending

Application filed 08 October 2015

Application No. 1-2015-000340



Smart Energy Program

Objectives and Rationale

- Provide support to Filipino SMEs in manufacturing
- Obtain baseline data on energy consumption behaviors as guide for future energy efficiency policy definitions
- Identify opportunities in energy efficiency and management for SMEs in manufacturing

Energy Management Seminars

COMPLETED

- Davao
- Cebu
- Bulacan
- Laguna
- Cavite
- Pampanga
- La Union
- Pangasinan
- Bataan



250

Participants



120

Site Visits

Participants

Quezon City

Primatech Paper

Rags2Riches

Betonit

Calamansi Squeeze

Panadynamics Metal

Cater King Foods Corp

Tarlac

Bambike

Prado Homebuilders

Bulacan

Plush and Play

Bayani Brew

First Harvest

Food Machinery Industries
Corp.

5S Metalworks

Packetworks

San Juan

Theo & Philo

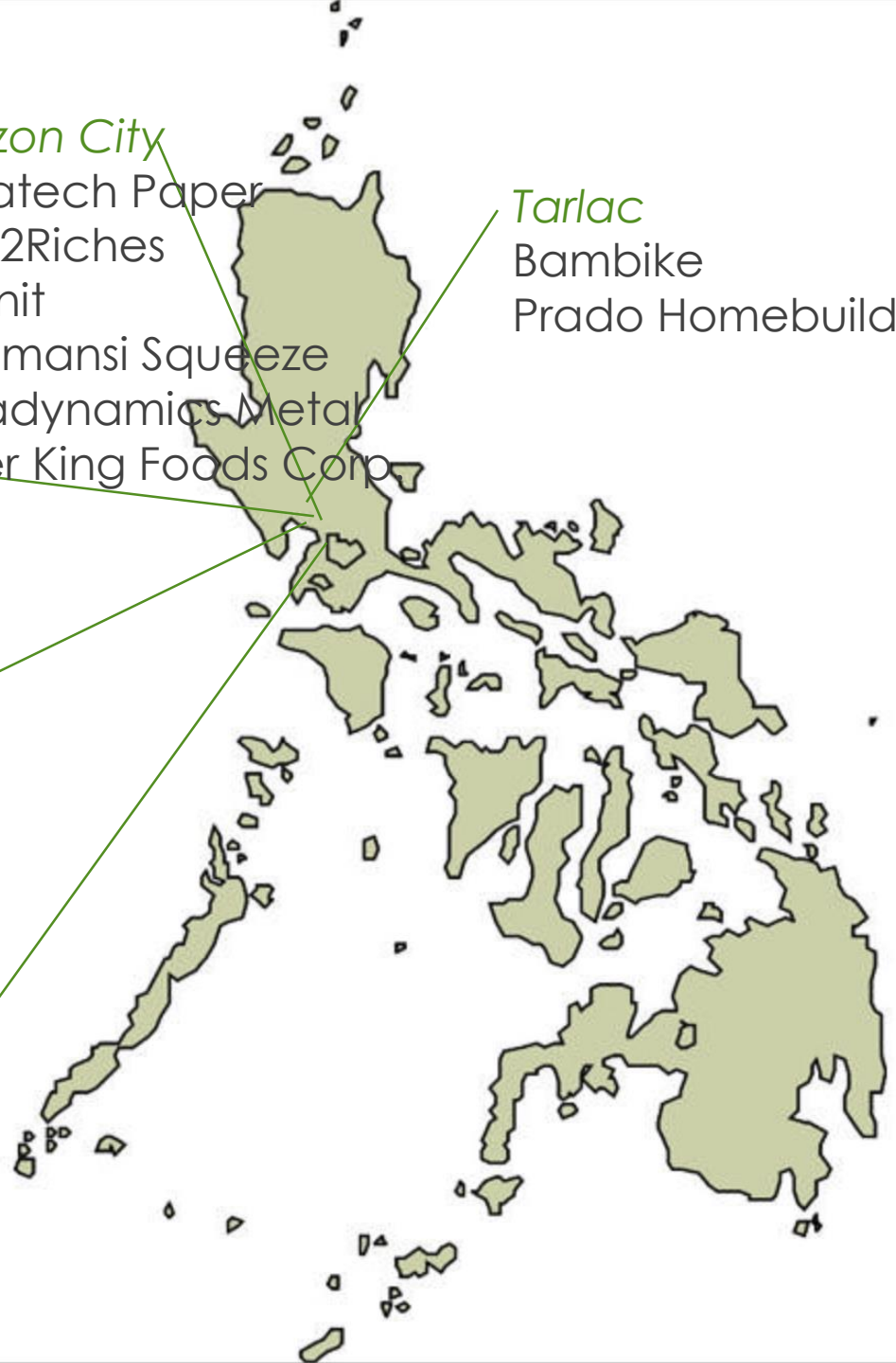
Chocolates

Independent Minds

Prod.

Makati

Nipa Brew



Participants

Compostela
A&Y Fruit Juice

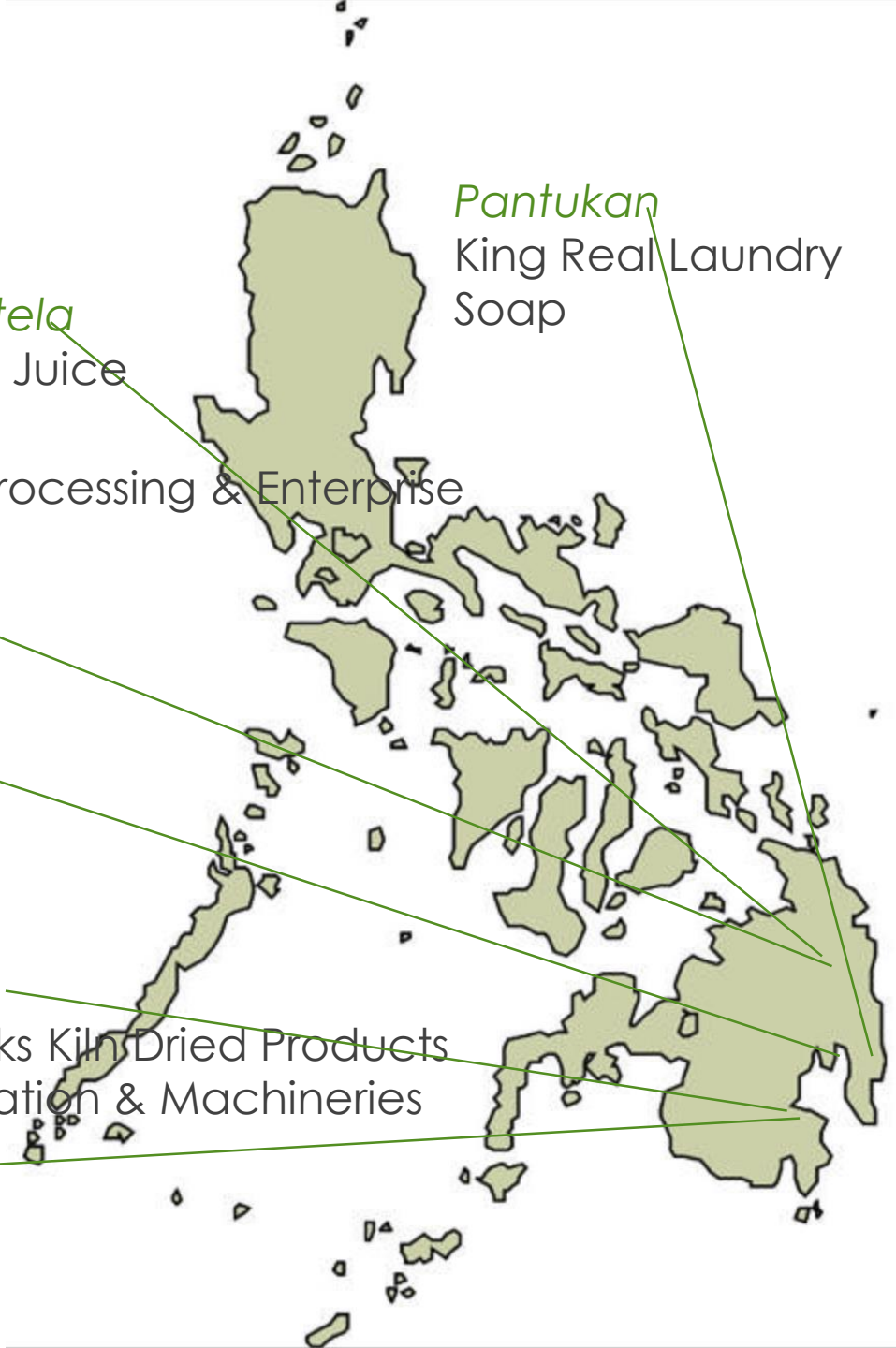
Pantukan
King Real Laundry
Soap

Nabunturan
St. Jude Thaddeus Agri Products Processing & Enterprise

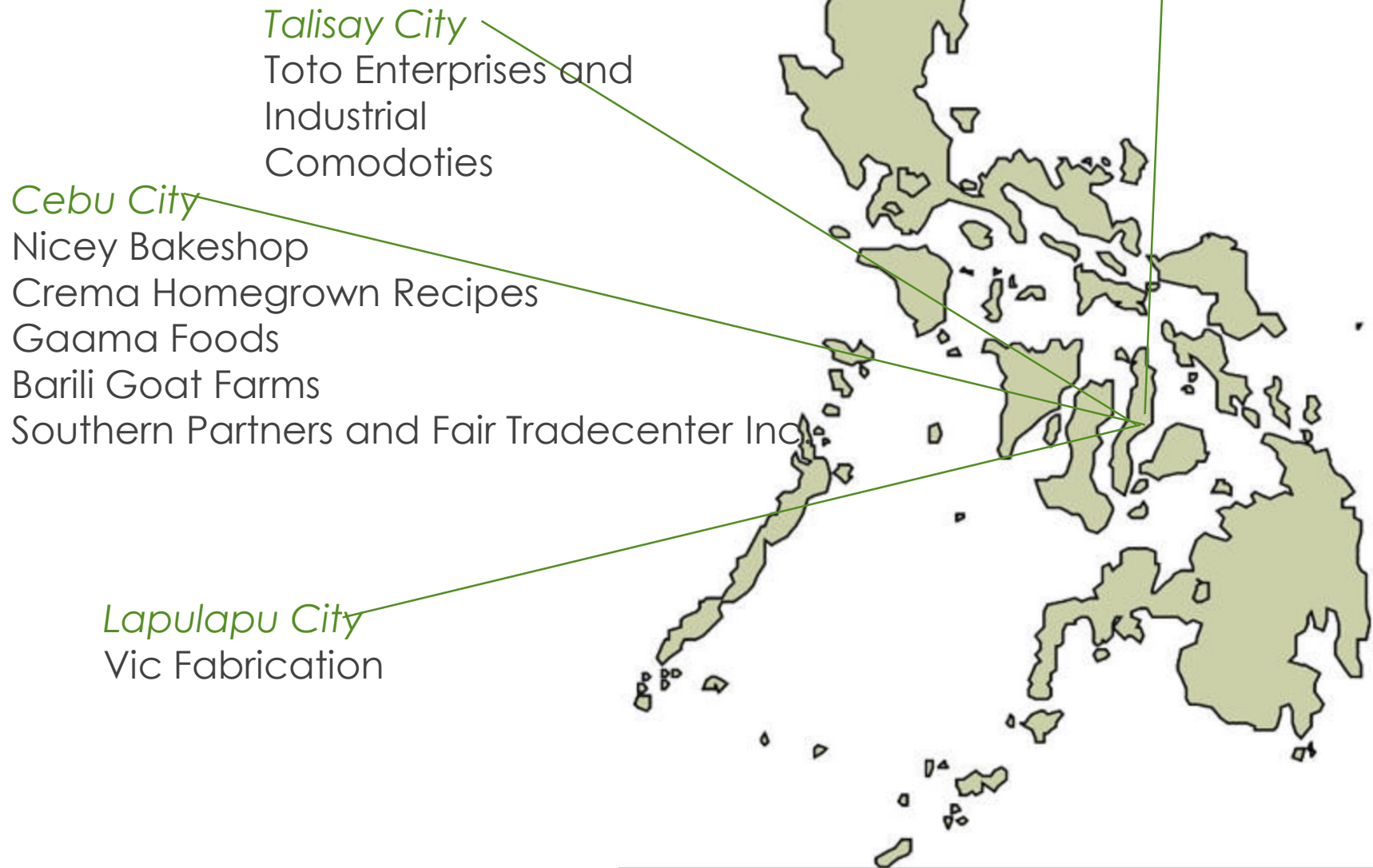
Davao City
Davao Gramp
Prime Jevo
Fed. of Davao Dairy Farmers
Brylles Bakeshop
Resyabs Industrial Sales & Services
Anniepie Bakeshop
Rosarios Delicacies
Moondels Food Corp.

Digos City
Woodworks Kiln Dried Products
DP Fabrication & Machineries

Bansalan
CPRP Manufacturing



Participants



Participants Profile

- Manufacture of Food Products
- Manufacture of Beverages
- Manufacture of Wearing Apparel
- Manufacture of Leather and Related Products
- Manufacture of Wood Products
- Manufacture of Chemicals and Chemical Products
- Manufacture of Other Non-metallic Mineral Products
- Manufacture of Fabricated Metal Products
- Manufacture of Machinery and Equipment NEC
- Manufacture of Other Transport Equipment
- Other Manufactures



~1 Thousand

Sensors

~400 Thousand

Hours of data

~24 Million

Data points

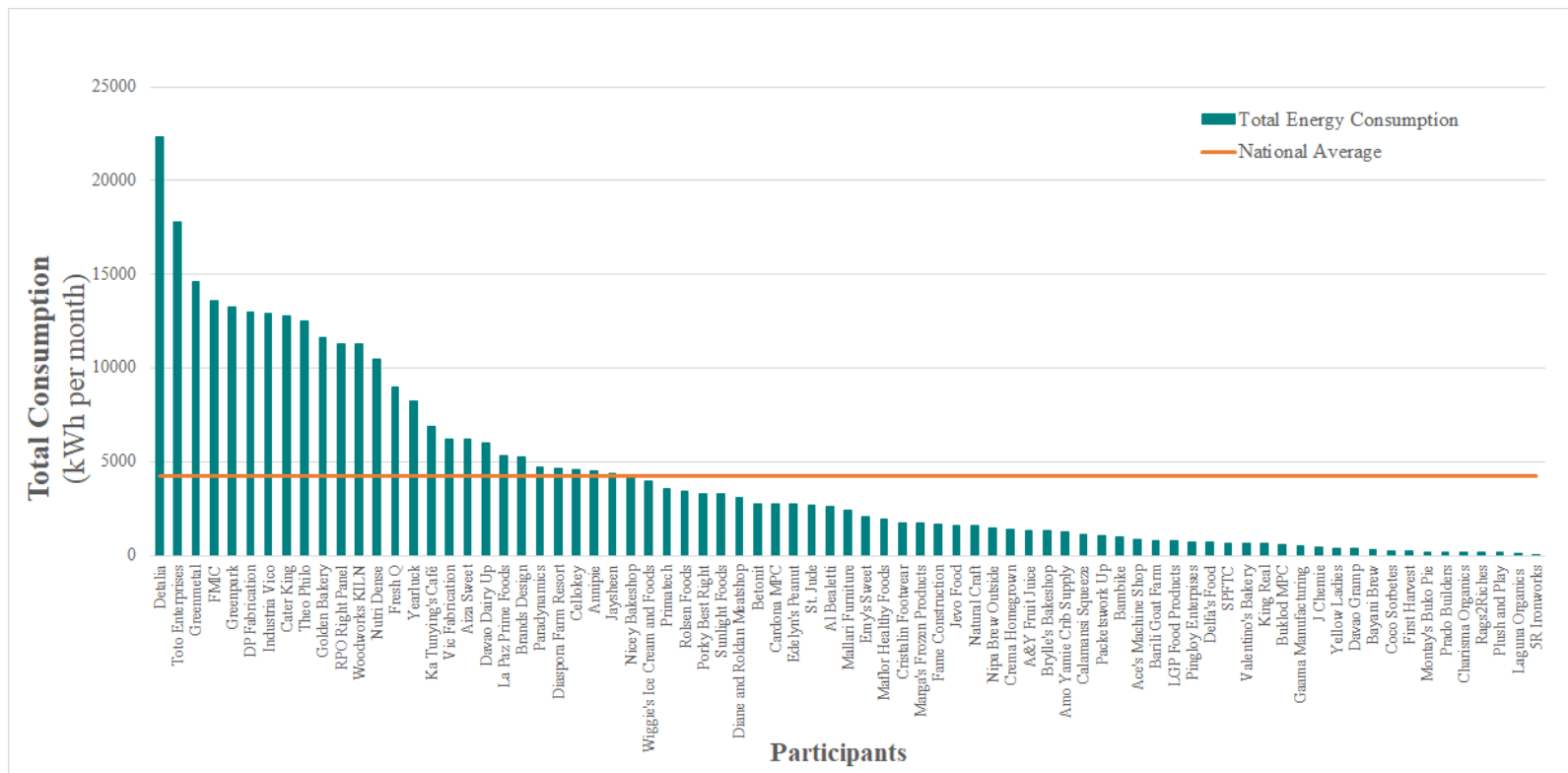
Area Energy Utilization Index

- The monthly energy consumption normalized against the total area of the facility.

Employee Energy Utilization Index

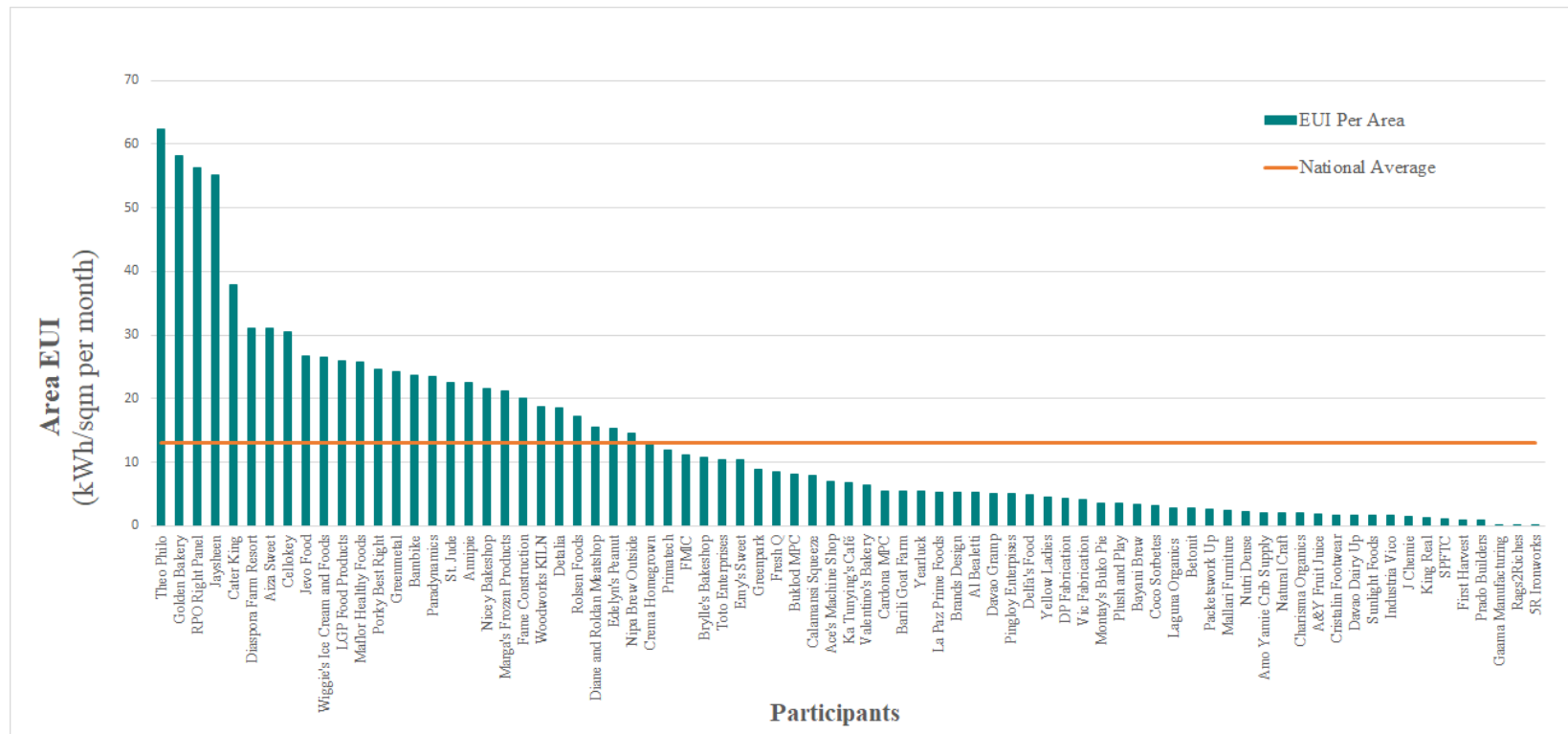
- The monthly energy consumption normalized against the total number of employees of the facility.

Monthly Energy Consumption All Participants



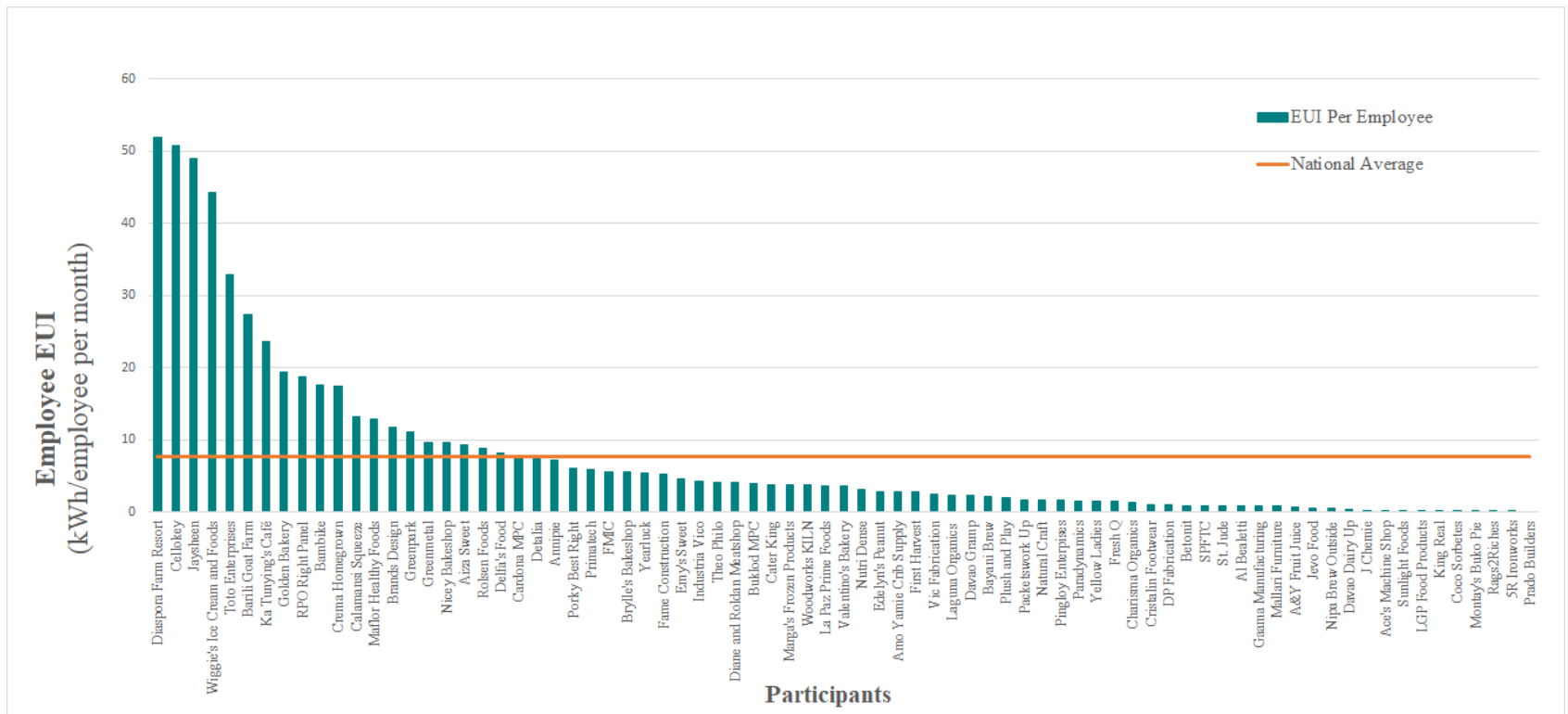
Area Energy Utilization Index

All Participants



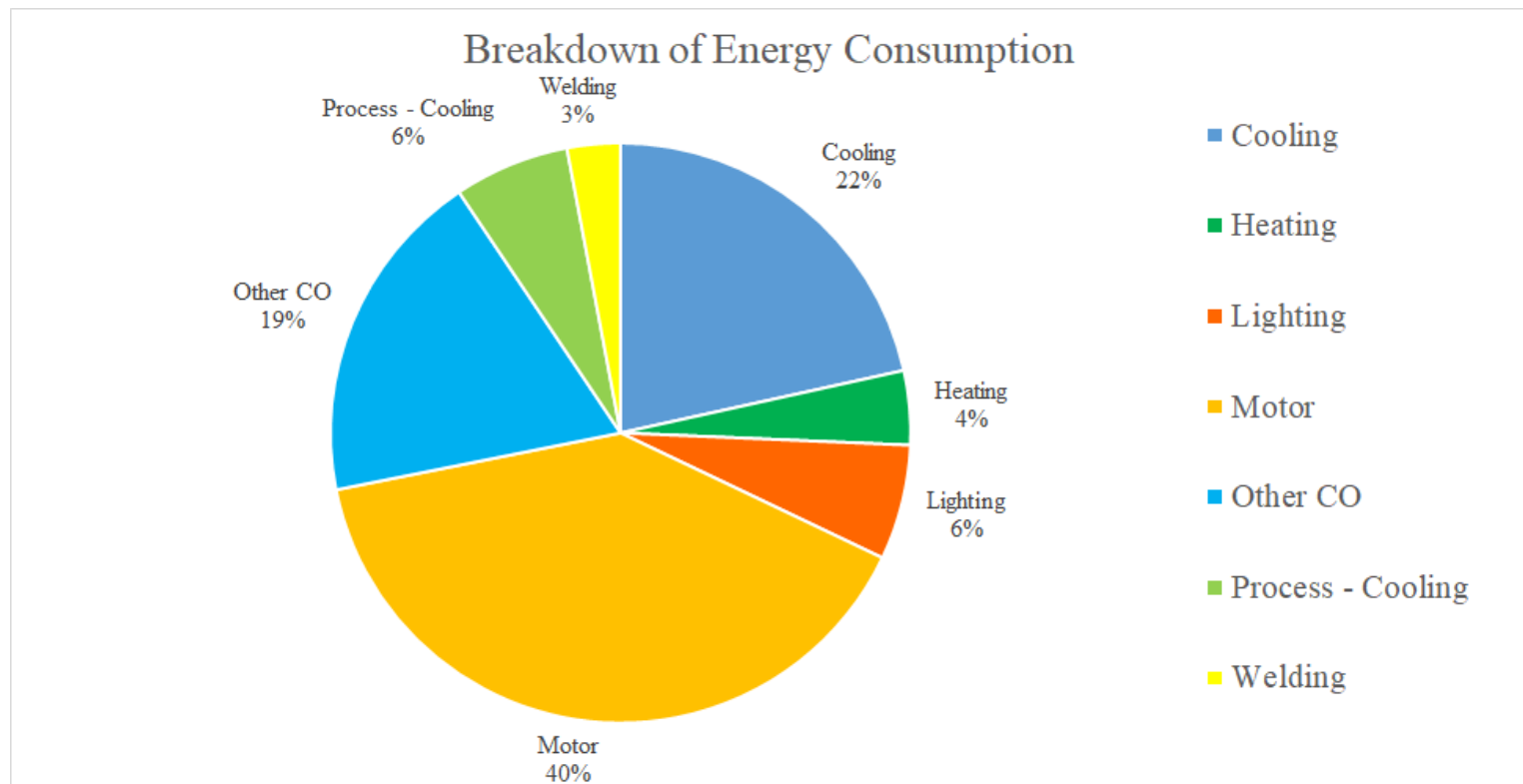
Employee Energy Utilization Index

All Participants



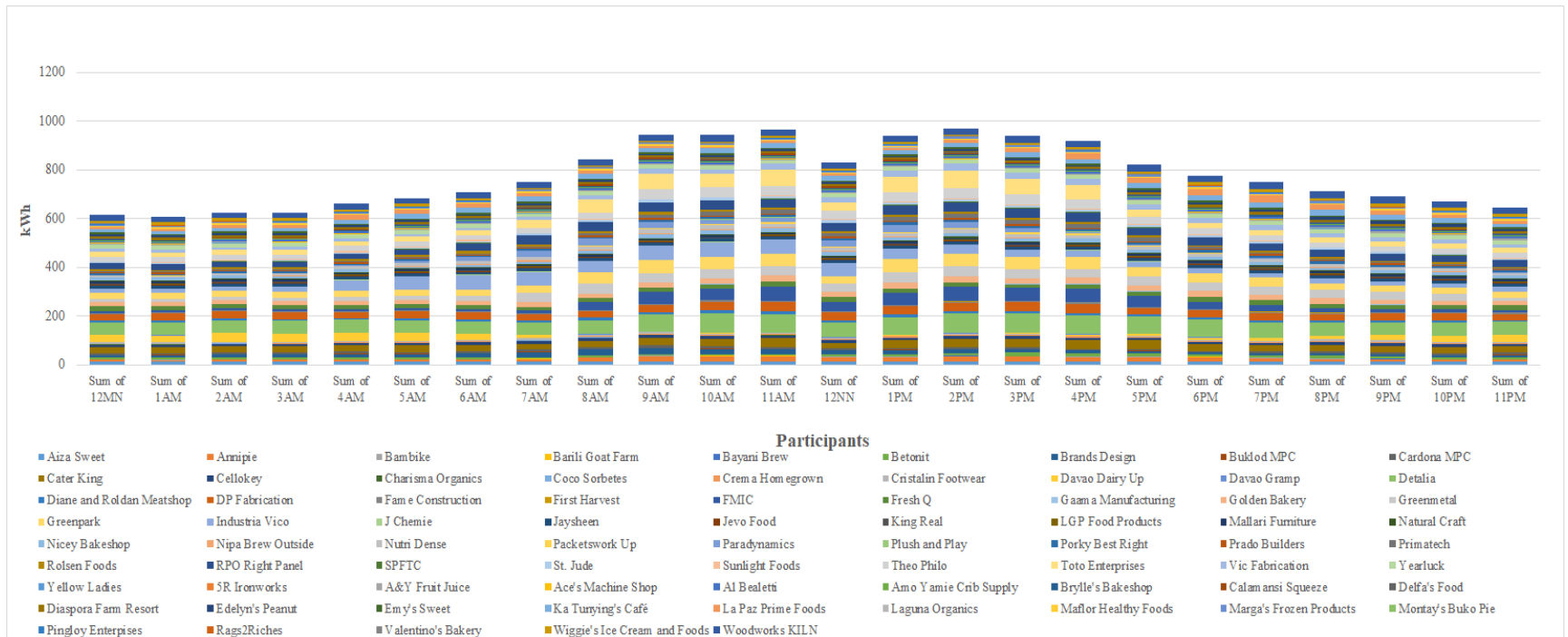
Breakdown of Energy Consumption

All Participants



Load Profile

All Participants



How: Internet of Things

- Understand energy consumption, specific actionable awareness
- Focus on biggest energy consumers, apply pareto principle
- Plan out electricity supply

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