

Energy Conservation Program

Hewlett-Packard Caribe, BV
Aguadilla PR

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ACEER



Hewlett-Packard Manufacturing Aguadilla, P.R.



Established

- March 1980

Size/Facilities

- 68 Acre Site
- 5 Owned Operations Buildings
- Employee Service Center
- Over 800K ft²
- 2 “Off-site” Leased Buildings

Location:

- 79 miles w of San Juan

Population:

- Approx. 1,100 HP
- 400 Onsite Contractors empl.
- 550 AC employees



Hewlett Packard Aguadilla

Aspectos Significativos Programa Energía (ECP)

- **Objetivos & Metas**
- **Monitoreo del ECP**
- **Línea Base**
- **Medidas**
- **Análisis**
- **Proyectos**
- **Equipos - Off**



Objetivos & Metas y Proyectos 2005

Significant Aspects Environmental	Objectives	Targets	Projects / (Programme)
<p style="text-align: center;">Uso de Recursos</p>	<p>1. Reducir el consumo de Electricidad en 10% en comparación al 2004.</p>	<p>Fin de año 2005</p>	<p>1. Power Factor Improvement in Building C. Done</p> <p>2. Install VFD's to air handling units. Done</p> <p>3. Install Power Monitors to top energy users (UPS, Chambers, Lighting loads, HVAC, etc) to Monitor and control consumption. The consumption via the Siemens BAS.</p> <p>4. Enhance site cooling towers operation.</p> <p>5. Re-lamp 2 X 4 lamps with reflectors. (632 Kwh/yr) Done</p> <p>6. Site chilled water balancing to effectively operate the site chilled water system. Done</p> <p>7. Ajustes de Temperatura. Done</p> <p>8. Horas de operacion de luces. Done</p> <p>9. Horas de operacion HVAC. Done</p>

Objetivos & Metas y Proyectos 2006

Significant Aspects	Objectives	Targets	Strategies / (Programme)
Environmental			
Resource Utilization	<ol style="list-style-type: none"> 1. Reduce consumption of Electricity by 3% in comparison to 2005 year. 2. Establish formal alternate commute program. 	Complete by December 2006	<ol style="list-style-type: none"> 1. Improve the Site chilled water operation (Major Electrical Consumption Utility) Done 2. Self-Monitoring the Building Automation System Software. Done 3. Reduce the quantity of environmental chambers used in PRMO manufacturing operation. Partial Completion 4. Evaluate the lease of “Molten Carbonate Fuel Cell Unit” for electrical power generation. Capacity about 1 MW. Done but is not cost effective right know. 5. Submit the commute program plan and complete the activities proposed. Done

ECP Monitoring Overview

HPPR Energy Conservation Program

Utilities Operation Efficiency

Description:

HVAC controls re-commissioning
CDA pressure switch set
Hi-Vac pressure switch set
EF usage reduction
Temperature monitoring

Contribution:

150 / 178 consumption FY-05
\$1,092,000 / year cost avoided
145 / 150 consumption FY-06
\$ 273,750 / year cost avoided

Shutdowns strategy

Description:

Equipment turn off
during weekends.

Contribution:

135 consumption
maintained

Improvement Projects

Description:

Improvements with a ROI
less than 1 year

Contribution:

\$ 375 K cost avoided

Administration

Description:

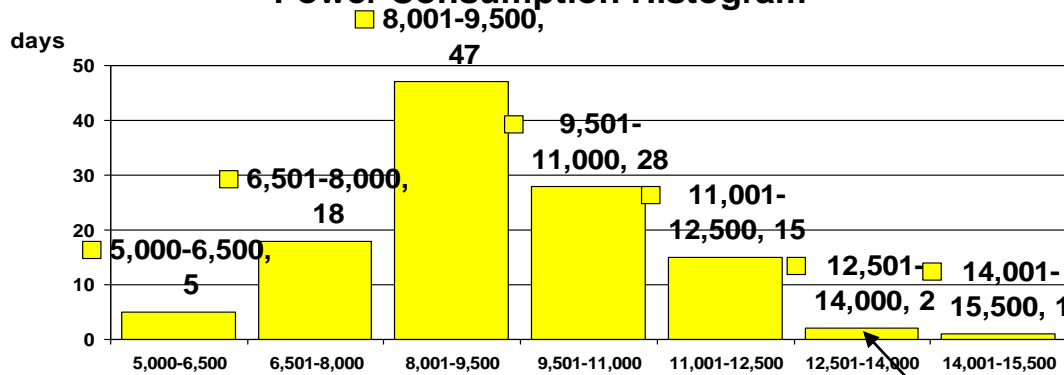
Communication
Data gathering
Meetings

Contribution:

Program documented

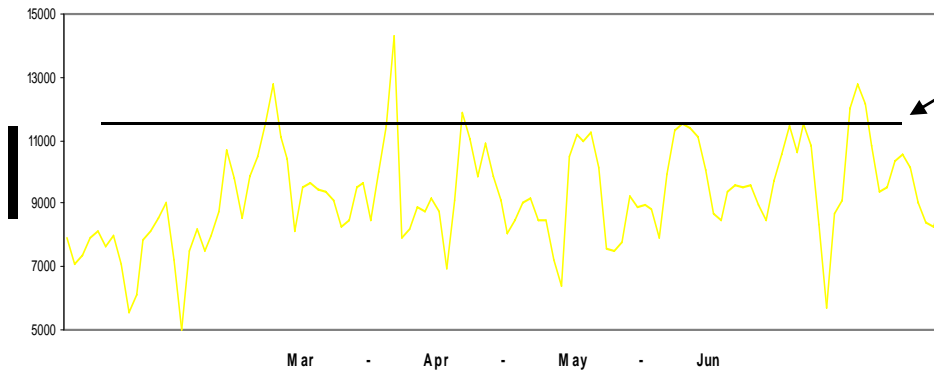
Baseline for Building 4 SWBD-B

Power Consumption Histogram



POWER DISTRIBUTION		
ATLAS COPCO	800 A	Air Compressor
DP4-4	800 A	
SPARE	1600 A	
CHAMBER #1	1600 A	Production
MCC B4-1	800 A	
MCC B4-2	800 A	
CHAMBER #4	800 A	Production
BY PASS UPS-2	1600 A	Production

Daily Consumption

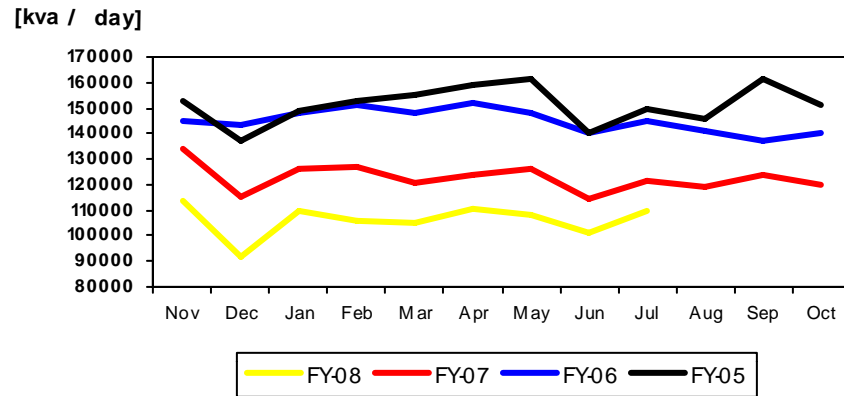


Situation on Q4 06

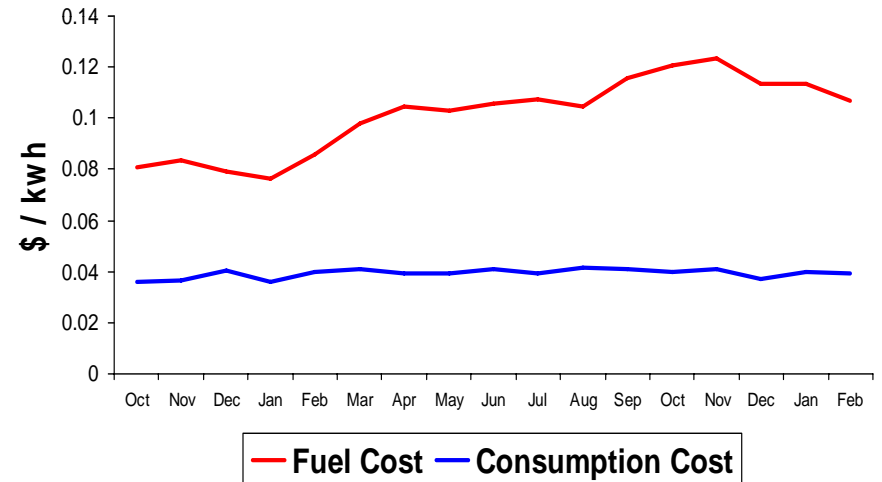
It is highly noticed that there is a difference on consumption between weekdays and weekends. This Main Distribution Switch is mostly dedicated to Building 4 Production and one Air Compressor, abrupt differences in demand represents loading/unloading condition of the unit. In the histogram we can detect a single distribution skewed to the right. The condition for normal operation is **10000 kva / day during week days and 8000 kva / day on weekends.**

METRICA del ECP

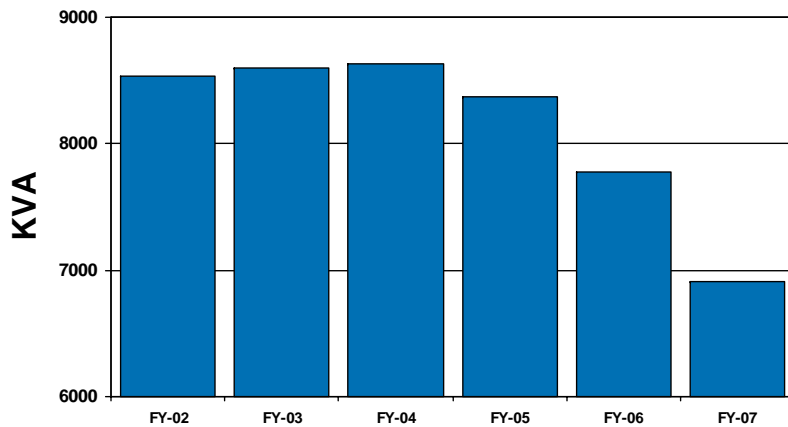
Average Electrical Daily Consumption



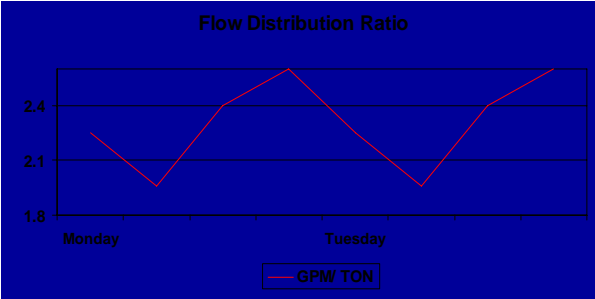
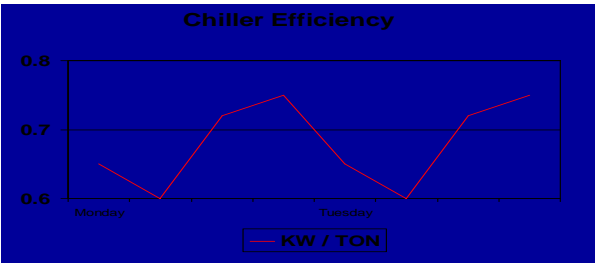
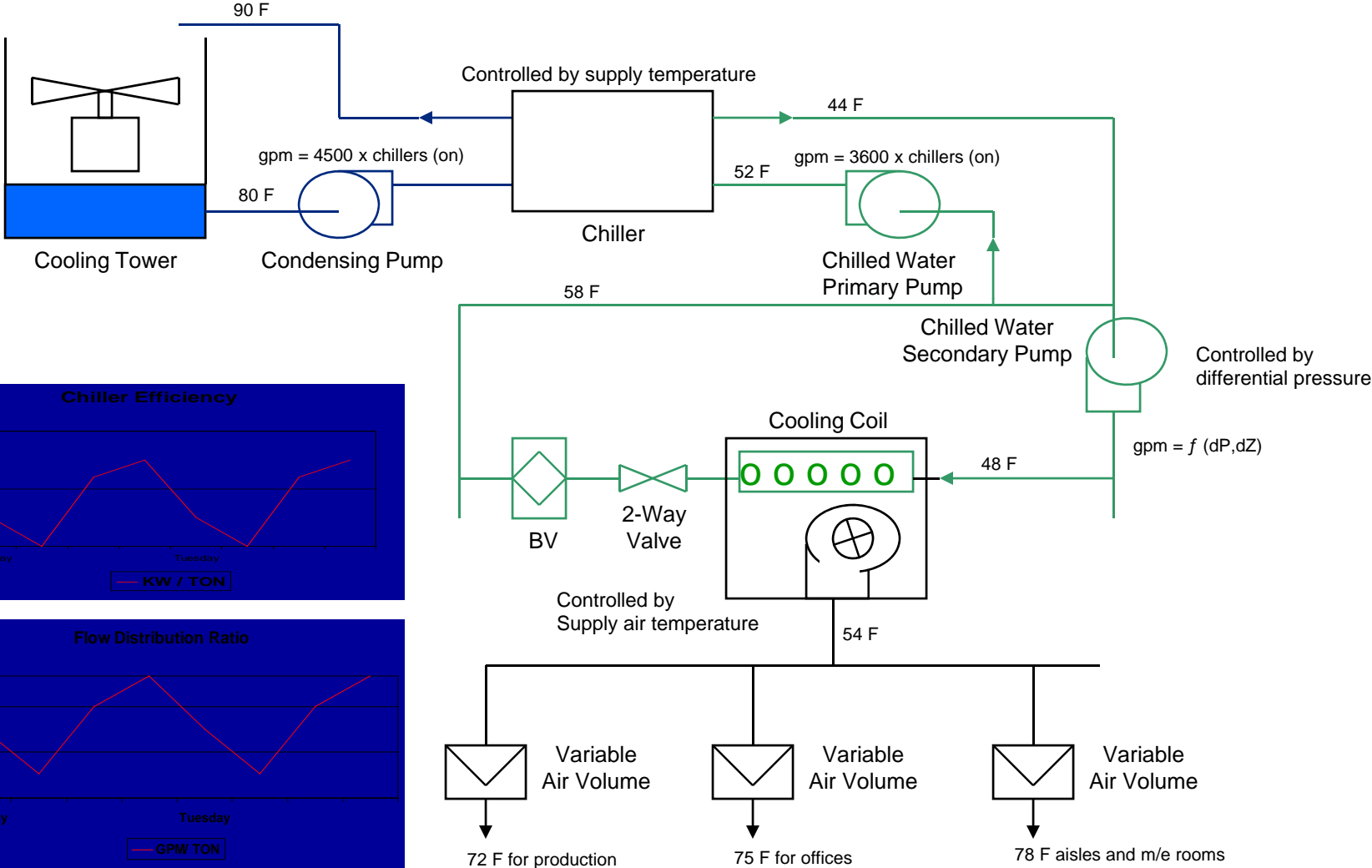
AEE Costs



Main Site Power Demand

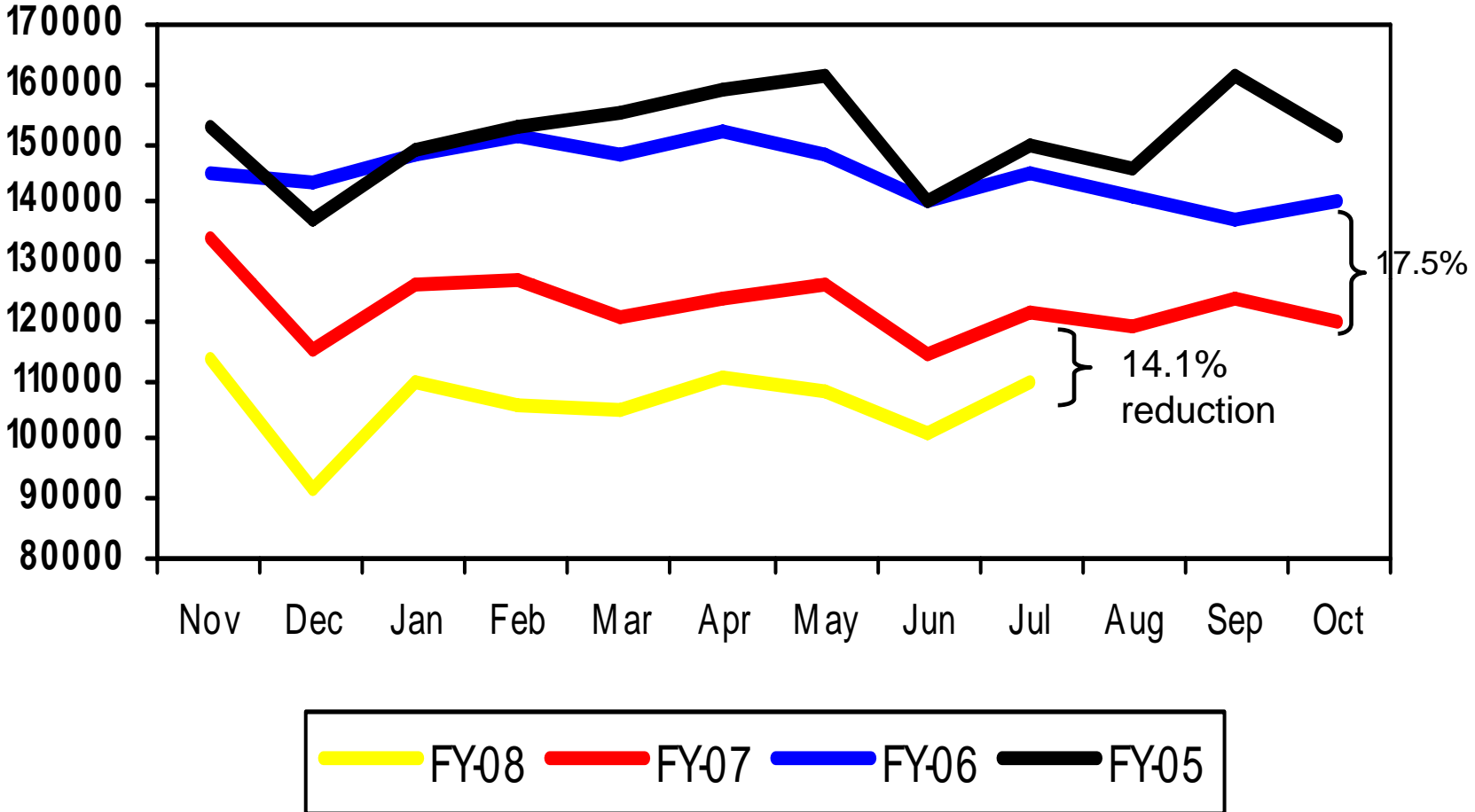


Chiller Plant Diagram



Average Electrical Daily Consumption

[kva / day]






alianza energética
asociación de industriales de puerto rico



PRMA National Energy Alliance

- **Visión - Misión**
- **Programa de trabajo para el 2008-2009**
- **Fundación PR Climate Exchange**

VISIÓN

Viabilizar una industria energética puertorriqueña sustentable, competitiva y líder en las regiones tropicales del planeta.

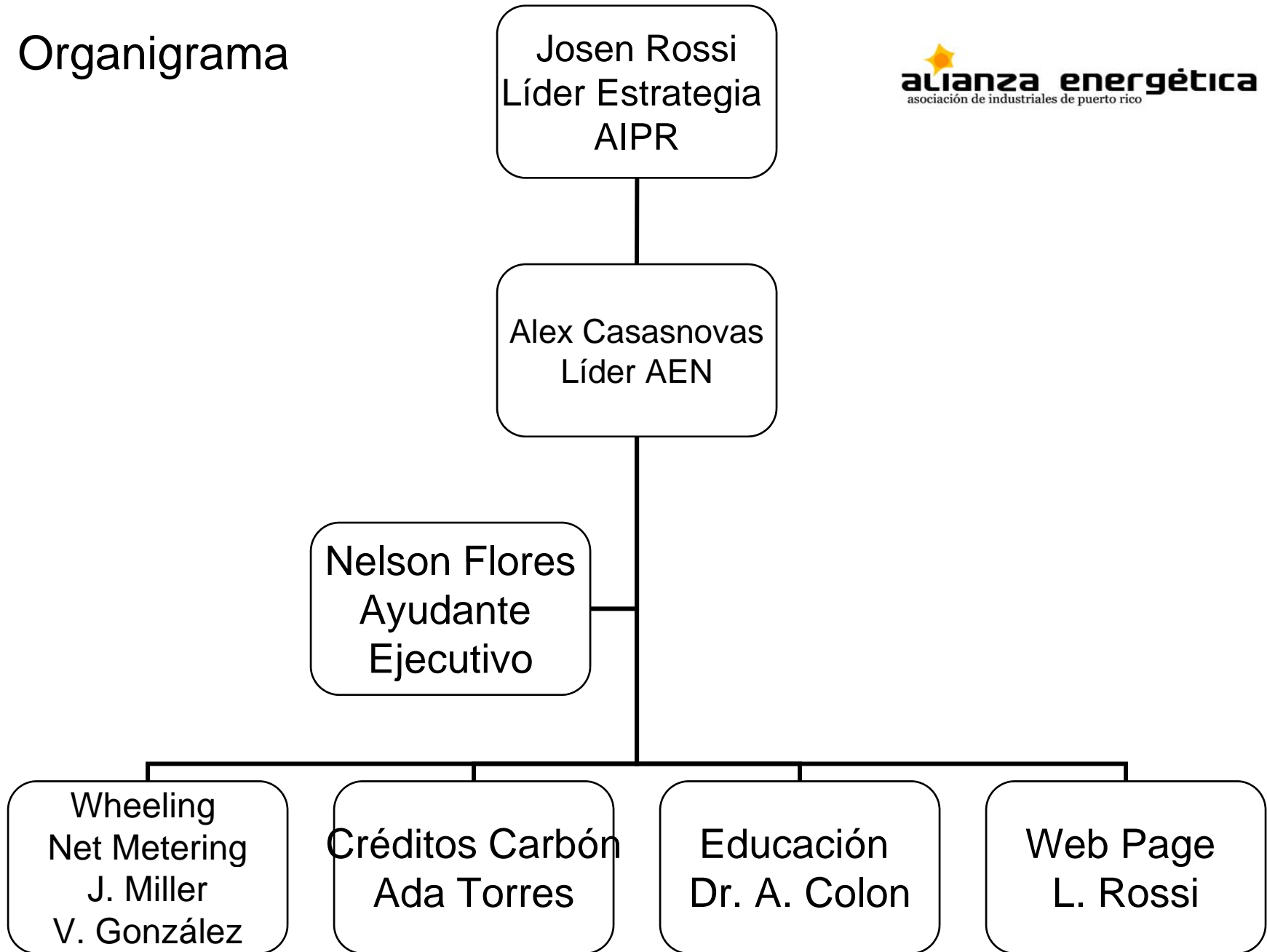
MISIÓN

Líderes en promover y mantener la participación amplia, experta y urgente, que en balance con la naturaleza, desarrolle e implante políticas, objetivos y métricas energéticas que logren la sustentabilidad, competitividad energética y crecimiento económico en ésta y las futuras generaciones.

VALORES

- Transparencia
- Integración Multisectorial
- Participación
- Conocimiento
- Continuidad

Organigrama



Política Publica Energética

Propuesta por la Alianza e INTECO:

‘Gobernador envíe un estudio

- ordenando a la AEE llevar a cabo la reestructuración de la generación recomendada a ser completada para una fecha cierta que no excederá dos años y someterá legislación modificando la ley de la AEE para prohibir que la misma tenga generación propia más allá de proyectos de energía renovable o de recursos hídricos.’
- Transparencia de la AEE
- Enfocada en Energía Renovable
- Fomentando Traspaso (proyectos Pilotos)
- Jurisdicción exclusiva de AEE en ubicación, construcción o instalación según ley #73.

REDUCCIÓN DE EMISIONES (ER) EN PUERTO RICO

ENERGY DEMAND AND MARKET VALUE OF CO2 EMISSIONS REDUCTION BY SEGMENT

Energy Demand by	BGF Report (mm kWh)	Percent (%)	KWh	MW	CO2 mt *	3% CO2 ER goal	Potential Market Value (US\$) est**
Residential	6,757	34%	6,757,000,000	6,757,000	405,420,000	12,162,600	\$37,339,182
Comercial	8,744	45%	8,744,000,000	8,744,000	524,640,000	15,739,200	\$48,319,344
Industrial	3,743	19%	3,743,000,000	3,743,000	224,580,000	6,737,400	\$20,683,818
Others	358	2%	358,000,000	358,000	21,480,000	644,400	\$1,978,308
	19,602	100%	19,602,000,000	19,602,000	1,176,120,000	35,283,600	\$108,320,652

Source: Puerto Rico's Government Development Bank (GDB)

Note: Government operations does not figure as a separate segment in data supplied by Puerto Rico's GDB

* Conversion Factor: 60 mt per mw -- US Average. Source: Energy Information Administration, DOE

** Reference: Regional Greenhouse Gas Initiative (RGGI)

PUERTO RICO CLIMATE EXCHANGE

MISIÓN

PRCE proveerá apoyo a comercios y a comunidades en la implantación de prácticas ambientales (BEMP's) y manejo de energía (MSE) en conjunto con las agencias reguladoras, la industria y la academia.