Lean Energy Conservation Program
Why?
Why create a Conservation Program?

- We spent over **6 millions a year** on fuel and electricity in our facility.
- **Energy** is a commodity which we cannot afford to waste and affects everyone of us.
- **Fuel costs** have increased considerably over the last five years.
- Saving energy makes **environmental** and **good business** sense.
- **Cultivate the mindfulness** of our colleagues.
- **Continuous Improvement** initiatives.
Commitment
LPO’s Energy Policy

LPO is committed to using and purchasing energy in the most efficient, cost effective and environmentally responsible manner possible.

Towards this end, LPO shall:

Improve energy efficiency continuously by establishing and implementing an effective energy management programs that supports all operations and customer satisfaction while providing a safe and comfortable work environment.
Teamwork
LPO Energy Custodian Team (ECT)

• Main Purpose:
  – Change the *culture and people’s mind set* within the organization
  – *Engage* all level of our organization
  – Helps *drive* the Lean Energy Program
  – Two main sub-committees
    • **Technical** subcommittee - composed by persons with strong technical background to help drive the implementation of the projects
    • **Steering** subcommittee - helps guide the activities of the energy management program and aids in communications through all organizational levels.
Teamwork Makes the Difference!
Tools and Methodologies
Structures...

LPO Lean Energy Methodology

- Information Gathering
- Assessment
- Monitoring & Feedback
- Implementation
- Management Directive
- Building The Plan

LPO Governance & Leadership Engagement

- TC: Training Council
- BRC #1: S&OP 13-18 months
- BRC #2: New Products
- BRC #3: Business Metrics
- BRC #4: Projects
- Visible Sponsorship
- Ongoing Knowledge Sharing and Proactive Communications
- Transparency
- Rigorous Review of Projects
Other tools used...

- Continuous Improvement Methodology (SIP)
  - Lean
  - Six Sigma
- Flowcharts
- Financial Analysis
- Usage Daily Monitoring
- SWOT Analysis
- ECT Monthly Meetings
Projects
Warehouse and Parking Lighting Retrofit

Savings:

KWh Before: 1,158,422 KWh/year
KWh After: 621,813 KWh/year

46% Energy Reduction
Boiler Control System

3% Fuel Reduction
63% Electricity Reduction

Savings:

Fuel Before: 1,274,000 Gal/year
Fuel After: 1,231,000 Gal/year

KWh Before: 174,000 KWh/year
KWh After: 67,000 KWh/year
Solar Water Heaters Farm

Expected Savings:
Yearly savings: 11,000 gal/year
Aprox: $40,000 per year
Other initiatives...

- Power Factor Correction for Air Compressor #2
- Non Essential Air Conditioning System Shut-off Schedule
- Preventive Energy surveillance by Security Officials and ECT
- Lighting Timers & Motions Sensors Installation
- Two 200 HP VFD of the Chiller Water Secondary Pump were repaired
- In-house Infrared Inspection
- Compressed Air System Assessment
- Clean Rooms re-classification
- Steam Traps Assessment
Results
Two Years Results…

35% Increment on $/KWh

109% Increment on $/Gal

14% Reduction on KWh

20% Reduction on Diesel
Combined Savings

Electricity

- 2005: $4,100,000
- 2006: $4,300,000
- 2007: $4,500,000

Without any Improvement

Actual

$1.0MM, 2 yrs Savings

Fuel

- 2005: $1,900,000
- 2006: $2,100,000
- 2007: $2,300,000

Without any Improvement

Actual

$834k, 2 yrs Savings
Benefits
Some benefits are...

• Direct Benefits
  – Economic
  – Environmental

• Indirect Benefits
  – Enhanced public image
  – Use of new technologies
  – Team Building and Team Awareness
  – Extended equipment life
  – Reduced maintenance costs
  – Reduced risk to energy supply price spikes
  – Reduced risk to environmental/legal costs
Sustainability
Sustainability tools...

- SP Global and Local Energy Policy
- Plant Goals and Objectives (PMP’s)
- Management Commitments
- Power Logic Monitoring System
- Department Staff meetings
- Monthly Metrics
- Lean Energy Guidelines
Cultivating Mindfulness
Rising awareness & Effective communications

- Energy Tips Brochure
- Energy Conservation Program Logo
- Monthly energy computer banners
- Awareness Stickers
- Awareness posters
- Intranet News and Projects’ Presentations
- New employees/contractors orientation
- Logo affixed to Plant Uniforms
Change a Light... Change the World

• A Compact Fluorescent Lamp (CFL) give away as part of the Energy Star campaign
Pioneers within our Company

• Based on our policy and success, **Global SP** has been using LPO as a benchmark and example for other sites

• **Support** deployment and implementation of the **SPARC** (SP Action for Resource Conservation) program

• Three **Certified Energy Managers** (CEM) by the Association of Energy Engineers (AEE)

• **LPO Energy Custodian Team** makes the difference
2007 Environmental Achievement Award for “Energy Excellence”

February 21, 2008

Mr. Miguel Pages,
General Manager
Schering-Plough, L.L.C.
La Pequeña Operation
Filipino Industrial Park, State Road #131
San Juan, Puerto Rico 0071

Re: 2007 Schering-Plough Environmental Achievement Awards

Dear Miguel:

I am pleased to inform you that the La Pequeña Operation Energy Team has been selected to receive a 2007 Schering-Plough Environmental Achievement Award for Energy Excellence for its energy improvement and conservation efforts that included a boiler control system, solar water heater, parking light retrofits, and other measures. LPO achieved its energy reduction goal (15% over five years) in just two years, reducing GHG emissions by 14%, gallons of fuel used by 27%, and MMBTU per square foot by 18%. Environmental benefits include reductions of particulates by 26%, SO2 by 17%, CO by 21%, VOC by 16%, and (NOx) by 21%. Even with increases in electrical and fuel costs, the site was able to reduce electricity spending by 4% and transport costs on fuel expenses. Your leadership and commitment to the highest standards of energy efficiency and environmental performance at the La Pequeña site earned the accomplishments detailed in this nomination.

The 2007 Safety and Environmental Achievement Award Ceremony will be hosted by Mr. Hanni and Dr. Aboulian at the Museum Hotel in New Jersey, on Wednesday, April 30, 2008. Please notify me (908-473-3441 or g.jackson@scheringplough.com) by March 11, 2008, as to the names of your site representatives who will be attending the ceremony. We request that you and the site SHE Manager and a representative from the team plan to attend the ceremony. Information concerning hotel reservations will be sent to you in the near future.

Congratulations on these significant achievements. We look forward to seeing you on April 30.

Sincerely,

A. E. Moffitt, Sr. D.
Vice President
Global Safety and Environmental Affairs

cc: J. McNamara
H. Munk
J. Czepelka
M. Ewen
T. Pagliaro

E. King
L. Bonger
M. Maznow
D. Czajkowski
Questions?

Contact person: Luis Bosques
Phone: 787-347-8156
Email: luis.bosques@spcorp.com