Engaging Human Resources in Improving Energy Performance

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2018 World Energy Engineering Congress
Charlotte, NC
The Volvo Group and Sustainability

17 Sustainable Development Goals

Accepted by United Nations General Assembly in September 2015.
Volvo Group North America Energy Management Highlights


Volvo Group North America Energy Program Focus

Practical Sustainability Management Programs

Technical
- Audits & Assessments
- Infrastructure – HW & SW
- Equipment replacement & upgrades
- Metering & Sub-metering
- Tools & Vendor Contracting

Operational
- Policies and Procedures
- Strategy & Planning
- Operational Work Processes
- Roles & Accountabilities
- Communications & Change Mgt.
- Training, Awareness & Behavior

Source: Aly Shawky, Director Energy Management, Entegreat
Energy Treasure Hunts

- Focus on operational and behavioral opportunities
  - Turning off equipment when not in use
  - Changing set points
  - Automating shutdowns
  - Reducing load on the equipment

Source: DOE
Advantages of a Treasure Hunt

• A Treasure Hunt Exchange encompasses both training and a “hunt”
  • Does not require sophisticated technical analysis
  • Calculations are (relatively) simple
  • Can be applied by employees of varying disciplines
  • Train selected participants to facilitate future treasure hunts

• A three day activity – at completion, the facility has sufficient information to execute identified opportunities and an employee who can facilitate future treasure hunts within the organization

• Opportunities/ideas are solicited from many disciplines and can be replicated across similar processes and businesses

Source: DOE
90% of opportunities identified have < 1 year paybacks

Identified Opportunity

Implementation Cost | Payback

Source: DOE
Energy Awareness and Engagement Program

• Enlisted an EDF Climate Corps Fellow to design an Energy Awareness and Engagement Program

• Program comprises a framework, tools/templates and implementation schedule

• Program design based primarily on our three largest plants – 85% of U.S. energy use

• Development involved Energy, HSE, HR, Real Estate, Operations, Communications, Labor relations and Union representatives from five plants and corporate functions
Program Overview

Phase 1
Awareness Building

1. Energy Survey
2. Educational Brochures
3. Posters & Labels
4. Energy Booth

Phase 2
Employee Engagement

5. Weekly Energy Newsletter
6. Earth Hour & Earth Day Events
7. Energy Facilitator
8. Energy Kaizen Week

Phase 3
Continuous Improvement

Phase 1&2 Programs
- Progress Evaluation
- Continual Training
- New Material
Energy Survey Design

- Anonymous optional; enter name for a drawing of rewards

- 13-Question Survey with a comment section

Four Sections:
- Employee Awareness (3 questions)
- Employee Participation (4 questions)
- Energy Support Activities (2 questions)
- Workplace Support and Participation (4 questions)
Energy Survey Results

• Results from two plants (n = 500) show:
  ▪ **98%** employees believe energy conservation is important and has a positive attitude towards it
  ▪ Nearly **half** feels motivated to save energy at work
  ▪ Employees want to learn about how to save energy at home
  ▪ **60%** employees think energy saving tips aren’t available to them at work

• Survey distribution via both web & paper copy is the most effective way

• Employees want to learn more but don’t think resources are always available or easily accessible

• HAG employees hope to see more visual displays and educational materials, while LVO employees are more interested in training/workshops, games and contests


Educational Brochure Template

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Energy Awareness & Engagement Program

How Can I help save Energy at Work?

Here are a few simple things you can do to help reduce energy consumption at work:

- Turn off the lights every time you leave a conference room
- Turn off computer monitors during lunch breaks & at the end of the day
- Close the doors behind you to prevent heat & cool air from escaping
- Find and report air leaks
- Turn off point-of-use fans during breaks and shift changes
- Turn off air to nonproductive equipment
- Turn off equipment when not needed
- Submit energy saving ideas to the environmental team

Why should we care about saving energy at work?

Doing everything we can to conserve energy leads to a cleaner, healthier, and safer environment;

Volvo’s business is dependent on environmental sustainability;

It is good business and good for our business;

Our employees’ awareness and engagement in energy conservation are necessary for success;

By minding our behaviors and actively trying to save energy at work, we can have significant positive impact to increase company profit and improve the environment;

It is the right thing to do

Have questions? Contact Insert Energy Manager Name at xxx@volvo.com.

The Volvo Group has pledged to reduce its energy intensity by 25% or more by 2020.

To this end, Insert Facility Name’s intention is to become carbon neutral on its operations.

Having achieved the ISO 50001 and the Superior Energy Performance (SEP) certifications, now it is time that we take our achievements to the next level – by focusing on the behavioral and operational aspects of energy saving opportunities.

Volvo Group
## Equipment and Machinery Labeling

<table>
<thead>
<tr>
<th>Skill Level</th>
<th>Description</th>
<th>Example</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Skill / everyone</td>
<td>Behaviors that can be intuitively adopted even without previous experience</td>
<td>Turn off fans, close doors, report air leaks, turn off TV</td>
<td>🟢</td>
</tr>
<tr>
<td>Low Skill / supervisor, trained operators</td>
<td>Need to look at/ask for instructions, but fairly easy to perform and repeat when needed</td>
<td>Turn off tools, motors, pumps</td>
<td>🟡</td>
</tr>
<tr>
<td>Medium Skill / maintenance</td>
<td>Individuals should carefully follow instructions. In addition, the performance of the behavior requires practical/physical skill, and in some cases the use of tools</td>
<td>Turn off exhaust fans, repair compressed air leaks</td>
<td>🟠</td>
</tr>
<tr>
<td>High Skill / engineer</td>
<td>Almost always need professional help</td>
<td>Modify paint booth set point temperature, operate on robots, CNC machines</td>
<td>🟣</td>
</tr>
</tbody>
</table>
Energy Facilitator

• Team-level, partial, voluntary role

• Could be either a permanent role or a quarterly/annually rotational role

• Energy facilitator Tools & Resources
  • Orientation Training & Continual Trainings
  • Departmental Energy Checklist
  • Reference group: Site Energy Go Team
Energy Facilitator

Volvo Employees

Four one-hour local training sessions
EF Toolkit

Weekly Energy Walk
Collect ideas
Highlight energy issues

Generate energy saving ideas
Participate in energy events and campaigns

Volvo Employees

One hour General Energy Awareness Training

Facility-level

Energy Manager

ISO 50001, SEP Training
VENNA activities & web resources

Lead EE at site
Coach/Mentor EFs in local teams

Team-level

Energy Facilitators

Four one-hour local training sessions
EF Toolkit

Individual-level

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Energy Kaizen Week

- A rapid improvement effort where a cross-functional group focuses and attacks operational energy efficiency as an area in need of improvement

- Focus on the operational aspect of energy efficiency, and the operators will be the major players

- Contestants will be provided a competition toolkit including: kickoff workshop, reference group, DOE cheat sheet, DOE opportunity sheet, DOE calculation sheet, proposal templates
Energy Program Implementation schedule

Energy Awareness Month

- June
- July
- August
- September
- October
- November
- December
- January
- February
- March
- April
- May

Earth Day

- Energy Survey
- Weekly Energy Corner
- Educational Brochure
- Energy Booth
- Energy Kaizen Week
- Earth Hour Campaign
- Earth Day Campaign
- Energy Facilitators
- Engagement
Program metrics

• Number of responses to the energy survey
• Survey Results (statistical information)
• Number of energy Kaizen submitted
• Energy savings from energy Kaizens
Human resources