

Improving Energy Efficiency and Energy Intensity

for Small Businesses

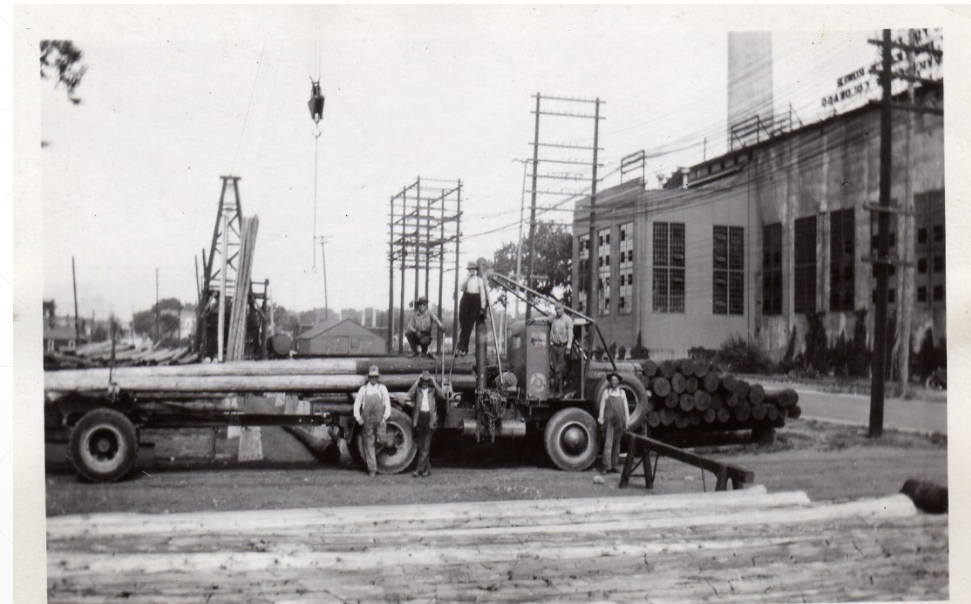
Introduction

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Small Business

Definition (for this presentation)

- a No dedicated Energy Manager
- a Less than 50 employees
- a Energy expenses less than \$100,000 annually

BUT, this method can apply to any size of business.

Some of the challenges

- a Low energy cost in the Pacific Northwest
- a Energy expense is pretty far down the P&L statement
- a The business case for energy projects alone is not good
- a The utility bill is not a very good indicator of success
- a Don't have the skill set or technology to do the tracking

Some of the solutions

- a Couple energy efficiency with process efficiency
- a Measure energy efficiency in terms of Energy Intensity
 - a The data for the calculation is already there

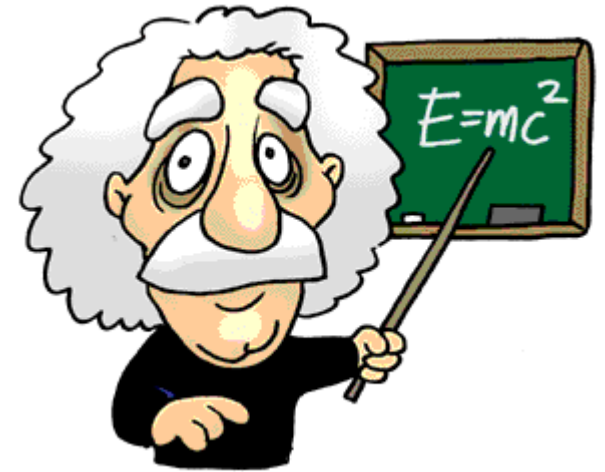
Let's look at the math

Energy Intensity =

Energy (KWh, Therms, etc.)

divided by

Production Unit (eaches, pounds, feet, etc.)



Discussion Example

Baseline

1,200,000 kWh (annually)

divided by

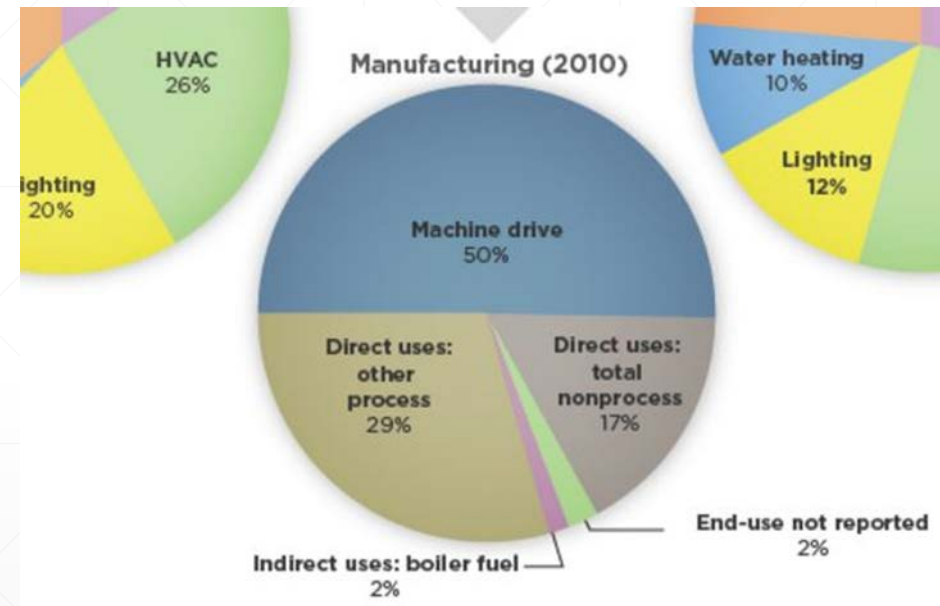
250,000 cases (annually)

Energy Intensity = 4.8 kWh per case

How can we affect the equation?

- a Energy efficiency projects
 - a Will make a difference, but usually only move the needle a little bit.

An EPA case study indicates that a relighting project will save 15% per year. Using the chart on the right, 15% of 17%, the total non-process use, equals 2.6% reduction in the total electricity usage.



Electricity Consumption by Sector (2013): Commercial, Industrial, and Residential

Discussion Example

Lighting upgrade

1,200,000 kWh – 31,200 kWh (annually)

divided by

250,000 cases (annually)

Energy Intensity 4.675 kWh per case

.125 kWh per case improvement

How can we affect the equation?

- a Increase production
 - a Will make a difference, but energy consumption usually mirrors production.

Let's assume that by adding one line on swing shift a company can increase production 10%, but electricity use increases by 8% (production use stays the same and office support decreases).



Discussion Example

Add Swing shift

1,200,000 kWh + 96,000 kWh (annually)

divided by

275,000 cases (annually)

Energy Intensity 4.713 kWh per case

.087 kWh per case improvement

Let's look at doing both

A combined approach is better

Energy efficiency project

AND

Production **efficiency** projects

How do you do it?

- a Leadership commitment
- a Awareness
- a Empower and engage everyone
- a Metrics
- a Lean tools
- a Celebrate!

Case Study: Packaging Specialties Inc. of Idaho



Packaging Specialties, Inc.

- a Located in Burley, Idaho
- a 26,248 square foot facility
- a 50 employees
- a No dedicated Energy Manager
- a Produces printed packaging films for the food and beverage industry



Case Study: Packaging Specialties Inc. of Idaho



How they did it

a Leadership set the vision

“Our vision at PSI-ID is to efficiently and responsibly manage all current and future resources, assets, and influence to bring beneficial products to our customers, community, and our environment.”

a Empowered and engaged everyone

a Lean Bootcamp training for every level of leadership

a Lean projects and energy projects became everyone’s responsibility

a Opportunity of Improvement Board

Case Study: Packaging Specialties Inc. of Idaho



Packaging Specialties, Inc.

How they did it

a Metrics

- a Overall Equipment Effectiveness (OEE)
- a Energy Intensity
- a Change-overs
- a Production output

a Celebrate!

- a Daily recognition of improvement projects and a Project of the Year award to the team with the best project.



Case Study: Packaging Specialties Inc. of Idaho



Packaging Specialties, Inc.

Some specific projects

- a Lighting and lighting controls
- a Reduced press change over times by 40%
- a Dock seal upgrades
- a Improved process of ink delivery to presses
- a Improved lid and spout cleaning process
- a Evaluating compressor upgrades

Opportunity of Improvement
**"Tell Me And I Will Forget,
 Show Me and I May Remember,
 Involve Me And I Will Understand"**
 Chinese Proverb

PROJECT TITLE	DESCRIPTION	PROJECT ORIGINATOR	FOLLOW UP	DATE OF ACTION	PROJECT FORMAT	SELECTED GROUP MEMBERS	DATE
#44	Find a way to prevent waste to packaging press	JOHN CASSEY KODY TAYLOR	PAID BENCOSE	1-1-15	KAIZEN/5S	DAVID, KODY, JOHN	6-30-15
#52	Reduce change over times by 40%	RYAN WATKINS	PAID BENCOSE	2-6-15	KAIZEN RITZ	RYAN, PAVID	6-30-15
#53	Improve dock seal process	SEYLA SEPEL	SEAN RANDALL	2-6-15	KAIZEN	TRIG, SEAN, SEYLA, CARY PARIS	6-30-15
#54	Use ink in a way to not waste ink and reduce change over times	SEYLA SEPEL	BOB GIBSON	2-4-15	KAIZEN		6-30-15
#55	Reduce workover times on press	MATT DESIND	TIM STOKERS	3-8-15	NO PRO	JECT FORMED	
#56	Find a way to not waste ink and reduce change over times	TRIG JONES	MONTY HAD	3-2-15	KAIZEN	TRIG, MONTY, CHUCK SKYLER	6-30-15
#57	Find a way to not waste ink and reduce change over times	RUPY SALINAS	ROY NEJAREZ				
#58	Find a way to not waste ink and reduce change over times	TRIG JONES	JUSTY MANSION	4-13-16	KAIZEN	JUSTY, TREVOR, CHUCK, MATT	6-30-15

Case Study: Packaging Specialties Inc. of Idaho



Accomplishments

- a 15.58% improvement in Energy Intensity
- a 10.8% reduction in Energy consumption
- a Recognition
 - a 2014 Idaho Awards for Excellence in Industrial Energy Efficiency (One of six plants recognized)
 - a 2014 Idaho Spirit of Continuous Innovation Award



Thoughts?

