Envisioning Energy Efficiency*

Behavior, Energy, and Climate Change
Harvey Sachs, Instigator.
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*Depicting the negawatt-hour?
Preliminaries:

- **Goal**: Find a “logo” or symbol for energy efficiency.
- **Background**: Need some symbol to carry the freight for the message.
- **Method**: Review some logos &c from other fields, laugh at what I’ve tried.
What is Energy Efficiency?

- Common sense: Reduced waste.
- Thermodynamic: (eyes glaze over)
- Esthetic: Elegance: using a better solution for the task at hand.
- Moral: Part of the prescription for preserving the Earth.
Some categories

- Abstract
- Symbolic
- Representational
- Graphic
- Personal
Radiation Warning
Radiation Emergency

CAUTION

RADIOACTIVE MATERIALS

No Eating, Drinking, Smoking in this room

Permit holder’s Name: ________________
Phone Number: ______________________

In case of a Radiation Emergency:
Monday-Friday 8:00 a.m. - 5:00 p.m. call 726-7273 or 726-8127
After hours: page 225-6751 or call 343-3130
On Holidays: call 911
Do you know this one?
Do you know this one?
Slow-moving vehicle
The canonical abstraction: Bowtie
Bright and Brighter Ideas
Recycling Elegance
Recycling, with Feeling
Pedagogic Recycling
The first one you learned?
I’m scared, are you?
Energy Star
Green Lights, too
Another great (symbolic) Logo
Do you know this one?
Solar, first principles
Representing What?
Are we late already?
An ambiguous symbol
A symbol of nice things
The infrastructure
The outgassing
The end result?
Inputs
Prepared for winter
Modern Solar creates jobs
Solar results
Solar, close-up
Less formal solar accumulator
Solar method...
Vehicular symbolism
In extremis
Green extremis
Conventional “Snapshot” Perspective on Cost of Efficiency

Cost – Efficiency Relationship

- Incremental Manufacturing Cost
- EER

Downstream Analyses

- Life-Cycle Cost and Payback Period
- National Impacts
- Manufacturer Impact Analysis
Typical Empirical Manufacturing “Learning Curve”
Cost of new delivered electricity

- 2007-08 industry estimates, Moody’s estimate of $7500/kWe: 25 ¢/kWh
- Keystone (June 2007)

2007 US¢ per delivered kWh:

- Credit for recovered and reused heat
- Fuel minus heat credit
- Transmission and Distribution
- Firming and integration
- Operation and Maintenance
- Capital

Comparison of 2007 costs for different types of power plants:
- Nuclear plant
- Coal plant
- Large combined-cycle gas plant
- Large wind farm
- Combined-cycle industrial cogen
- Building-scale cogen
- Recovered-heat industrial cogen
- End-use efficiency

Note: Credit for recovered and reused heat is subtracted from the fuel cost to determine the net cost of fuel. The remaining costs include transmission and distribution, firming and integration, operation and maintenance, capital, and end-use efficiency.
Efficiency: The Cheapest Resource

Cost of saved energy for 40 emerging energy-efficient technologies, in order of increasing CSE.
Lessons from McKinsey

U.S. Mid-Range Abatement Curve – 2030

Source: McKinsey analysis
Note: The McKinsey report only examines a scenario through 2030. NRDC recommends a goal of 80 percent emissions reductions by 2050.
Energy Efficiency’s Past Success

Avoided Supply = 70 Quads in 2005

If E/GDP had dropped 0.4% per year

Actual (E/GDP drops 2.1% per year)

Source: Art Rosenfeld, CEC
Some Jaws Slides “rock”
Smokey the Bear

If not you, who?
Rosie, the Post
Can we?

We Can Do It!
Our Inspiration & Spokesman
Another Approach, highly recommended:

E-Source Energy-Efficiency Video Contest

http://www.esource.com/videocontest
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