

# *Major Elements of Housing Costs*

CONSTRUCTION

FINANCE

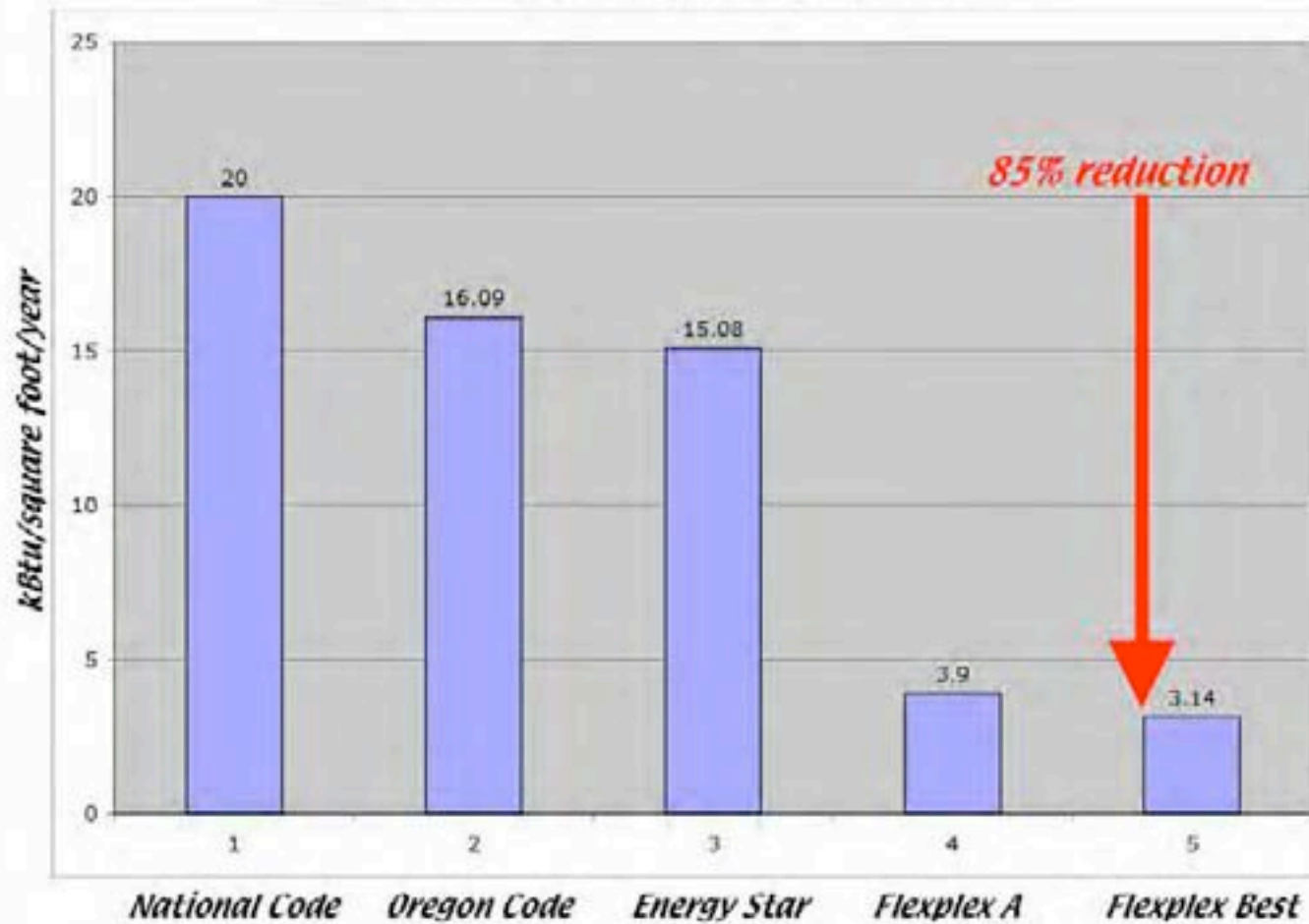
ENERGY

# ***NET-ZERO-ENERGY HOMES***

***NEAHCASA'S FLEXPLEX HOME DESIGNS  
CAN REDUCE BUILDING ENERGY USE BY  
90%,  
OVERALL HOME ENERGY USE BY 80%,  
AND PROVIDE THE REMAINING ENERGY  
ON-SITE***

***(Lifetime energy costs of normal homes  
equal or exceed their construction costs.)***

## Heating Load per Square Foot



# Well-designed homes don't need to be OVERSIZED

## From Modest to McMansion

The average square footage of a new single-family home

1950		983 sq. ft.
1970		1,500 sq. ft.
1990		2,080 sq. ft.
2004		2,349 sq. ft.

Source: National Association of Home Builders (Housing Facts, Figures and Trends for March 2006)

## SMALL IS BEAUTIFUL HOME:

Space cost: 1200 sq.ft. x \$150 = \$180,000

Lot, @30% = \$54,000

Finance cost, with same payments as for 2400 sq.ft. house: 9 years = \$75,700

Energy for space: \$180,000

Subtotal: \$489,700

Income tax on earnings to pay @25% = \$122,425

**Total cost: \$612,125**

## SUPERSIZED HOME:

Space cost: 2400 sq.ft. x \$150 = \$360,000

Lot, @30% = \$108,000

Finance cost: 30 years = 1.28 = \$599,040

Energy for space: \$360,000

Subtotal: \$1,427,040

Income tax on earnings to pay @25% = \$356,760

**Total cost: \$1,783,800**



Savings with "Small is Beautiful" homes are huge.

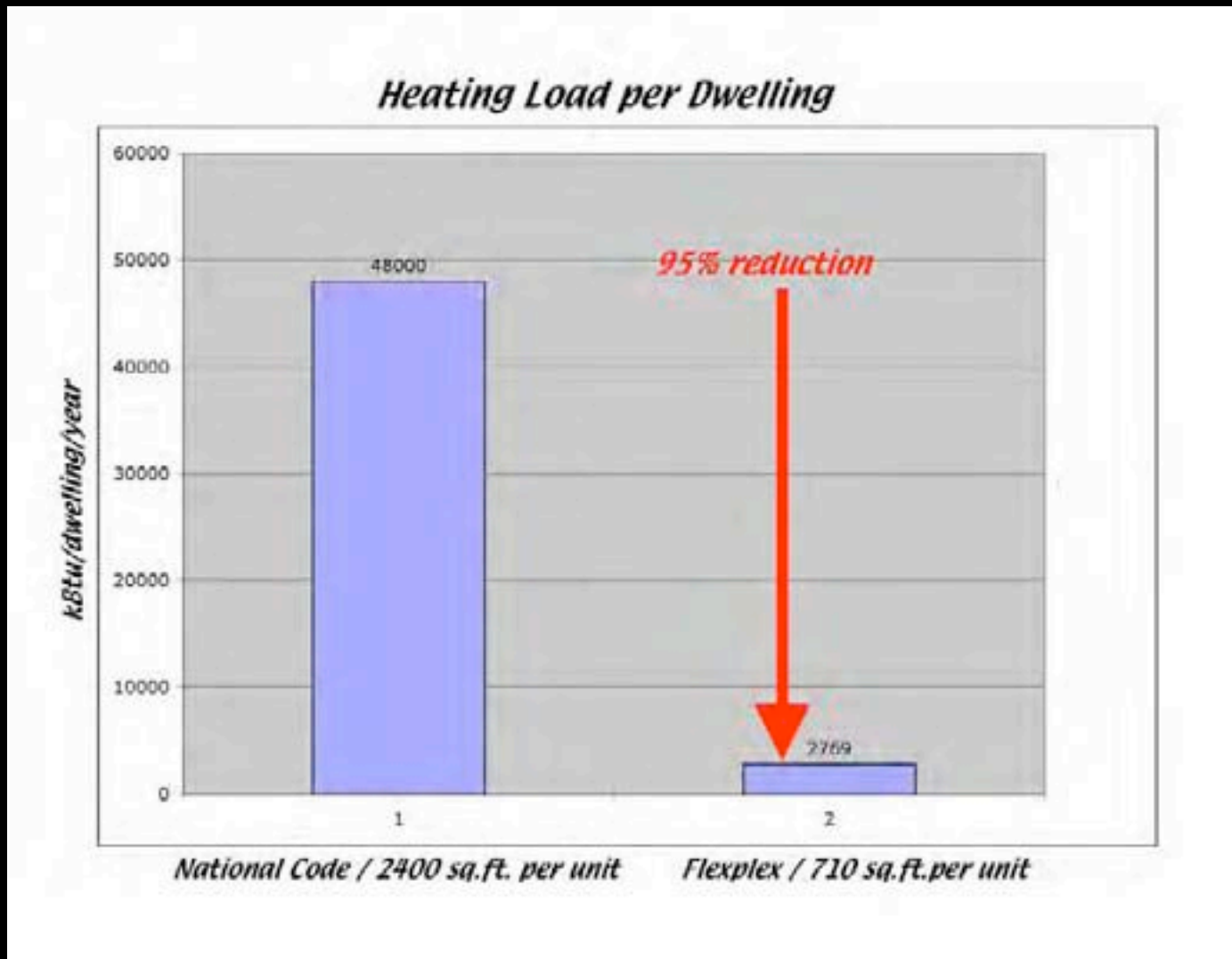
But cutting average house size in half is only a start.

**THINK EVEN SMALLER!**

IKEA presents demonstration living spaces in their stores to show that we can live comfortably – not in 1200 square feet but in 590, or 375, or even 235 square feet!



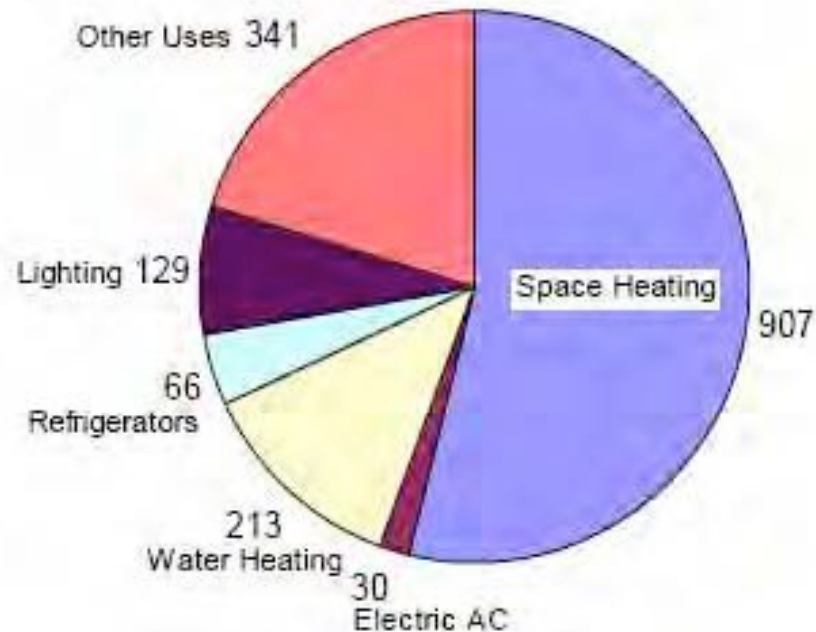
# ***SMALLER, FLEXPLEX HOMES: LESS WASTED SPACE, LESS ENERGY USE***



# OCCUPANT ENERGY IS HALF A NORMAL HOME'S ENERGY USE

## 2007 Oregon Household Energy Expenditures (\$)

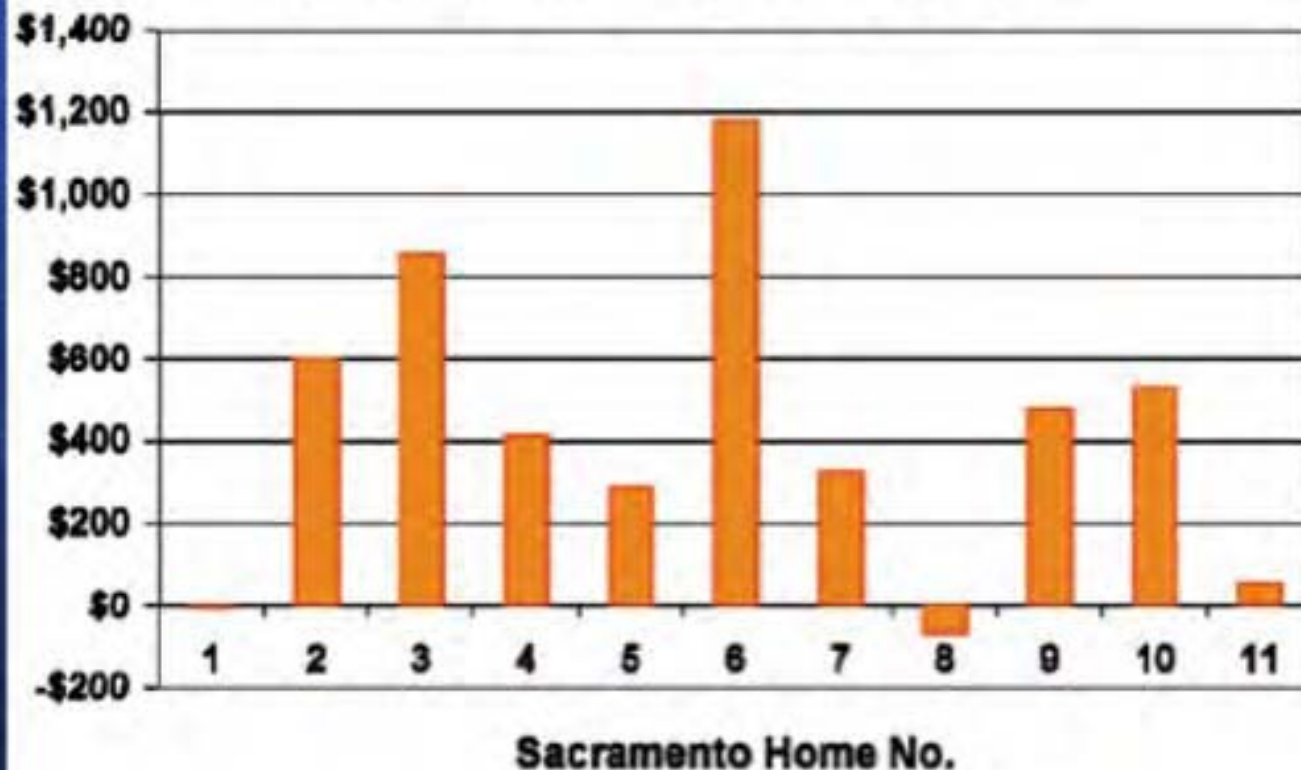
*Alliance to Save Energy, 2007*



# Occupants Matter!

*Variation in measured energy use  
in IDENTICAL homes:*

**2004 Electric Bills for 11 Beazer Homes  
in Sacramento, CA (from SMUD)**



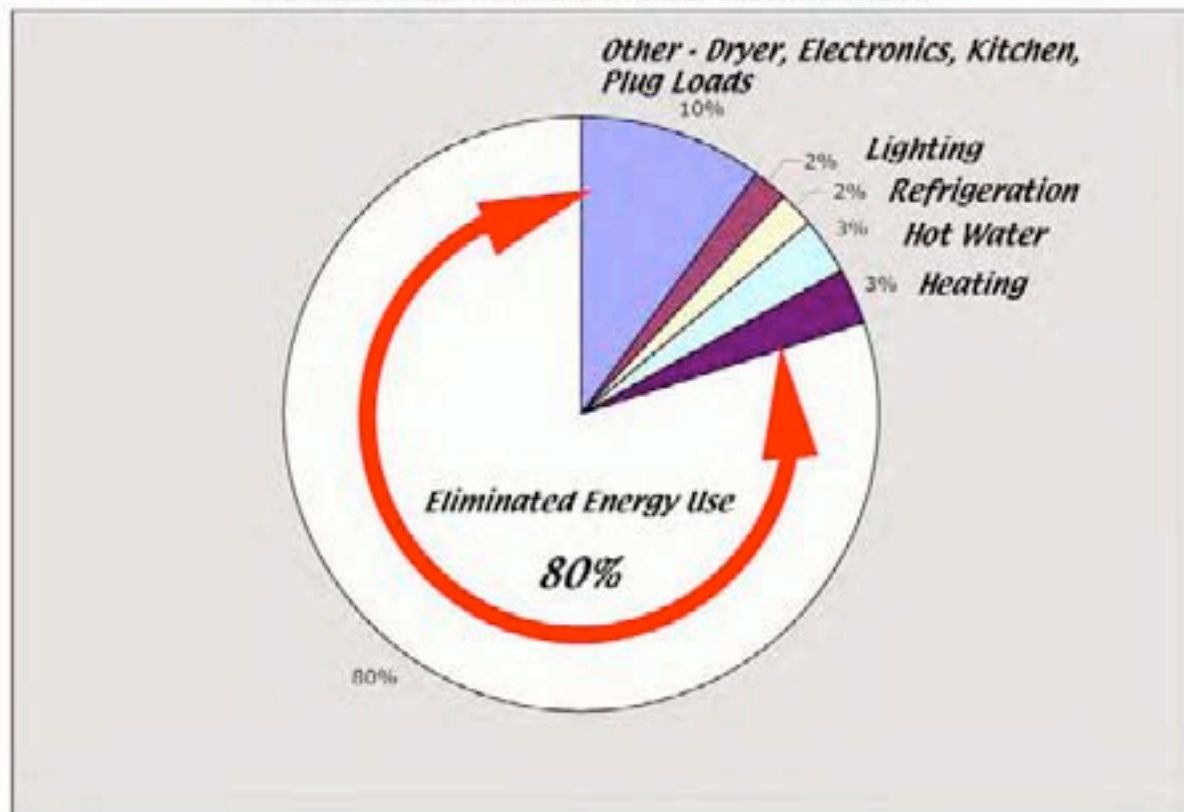


# *Major savings are possible in occupant energy use:*

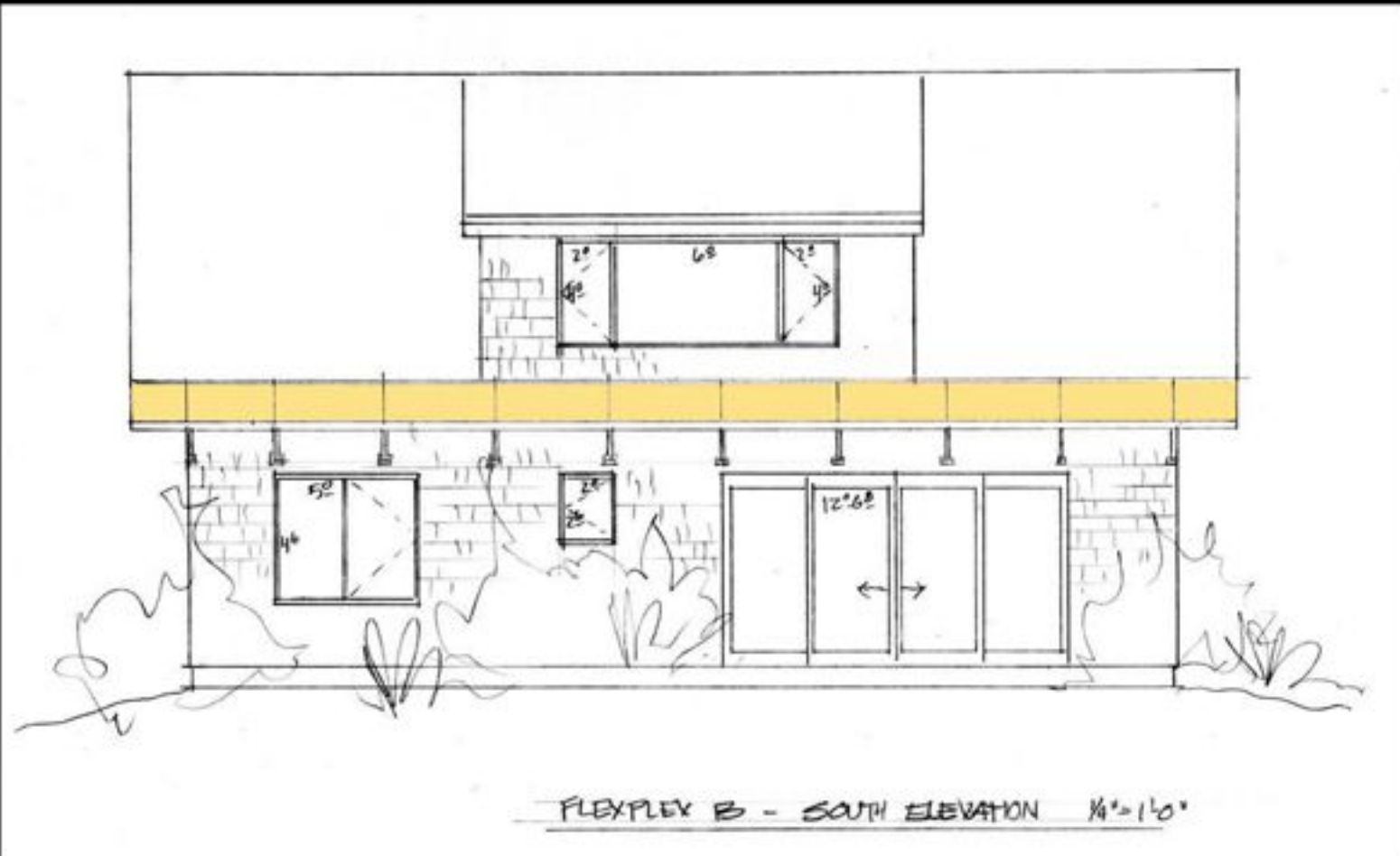
- *Solar or heat-pump water heaters can reduce hot water energy use by 75%*
- *CFL lighting can reduce lighting loads by 75%*
- *High-speed spin washers and clotheslines can reduce dryer energy use by 50%*
- *Cool Boxes and Energy Star refrigeration can reduce refrigeration energy use by 50%*
- *Efficient electronics, kitchen and other plugloads can reduce 50%*

# OVERALL FLEXPLEX ENERGY USE REDUCTION

## HOUSEHOLD ENERGY USE REDUCTION

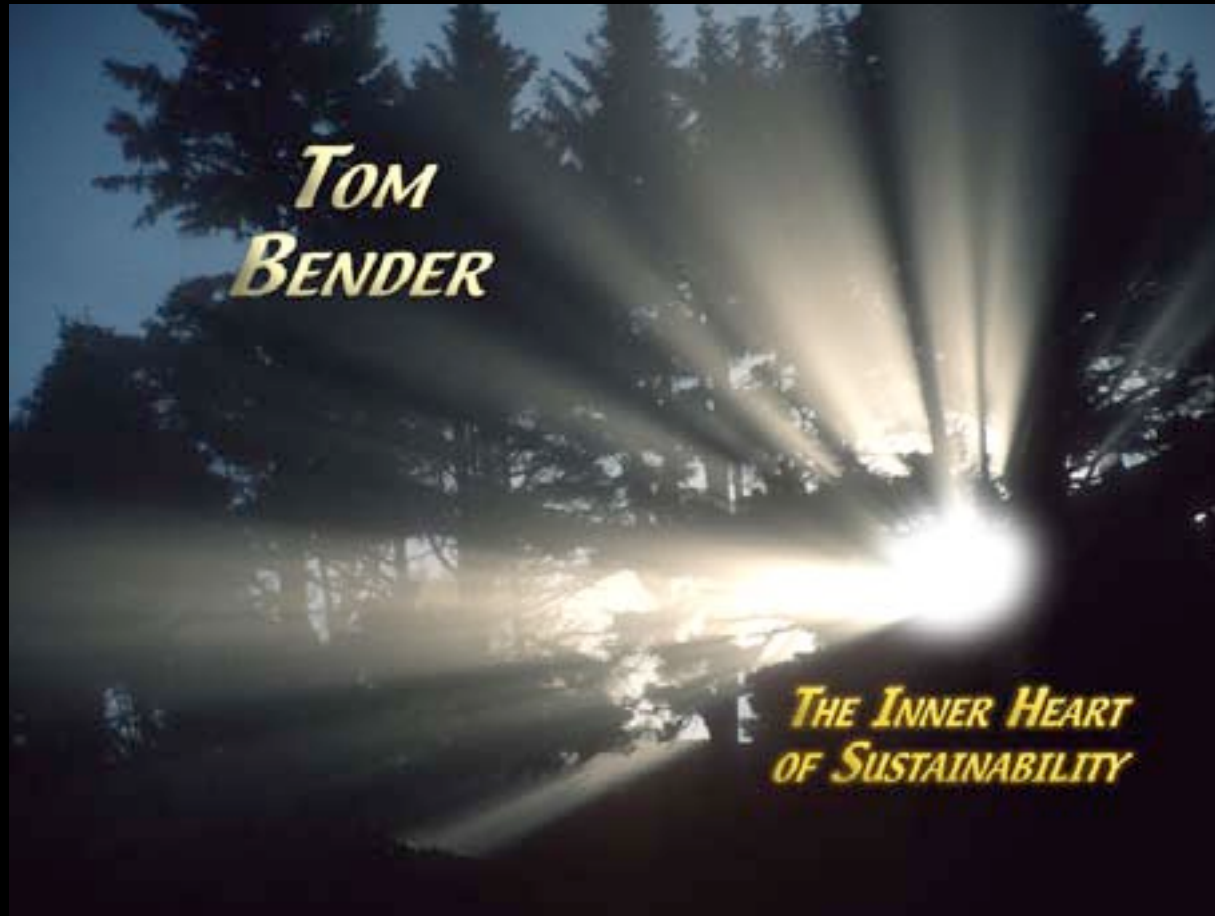


# SOLAR PV INSTALLATION ON THE SOUTH OVERHANG OF A FLEXPLEX









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