



**FLORIDA SOLAR ENERGY CENTER**

A Research Institute of the University of Central Florida

# ***Building Energy Efficiency and Public Policy***

Philip Fairey

2002 RESNET Conference

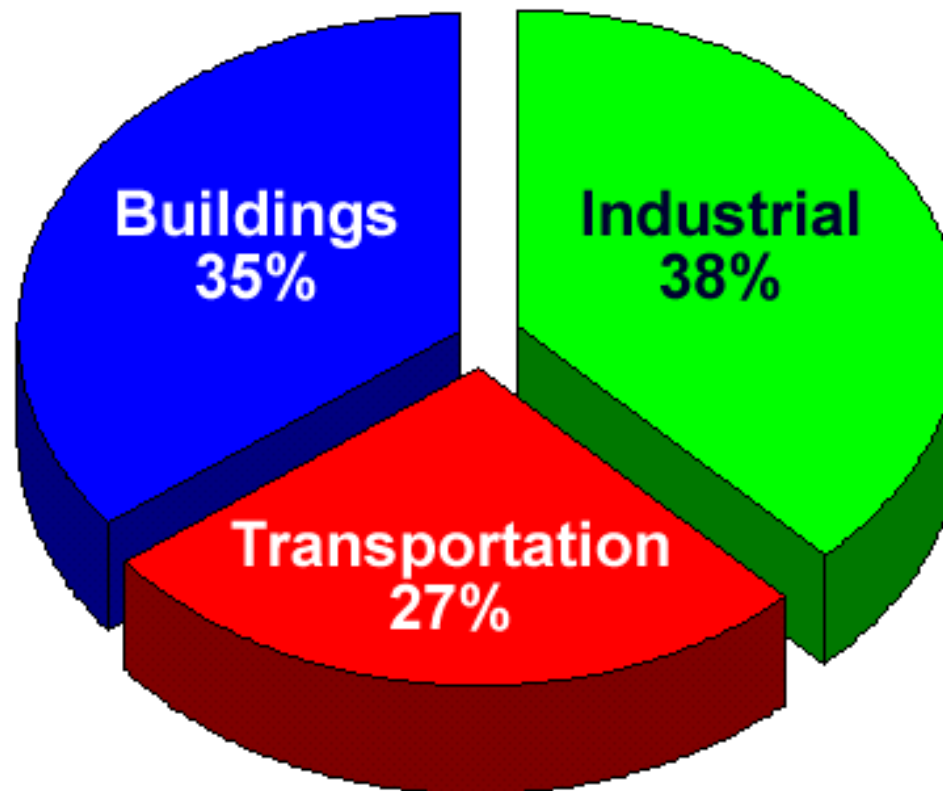
Cocoa, FL

March 4, 2002



# ***The U.S. Energy Budget***

---



**Distribution of U.S.  
Primary Energy Use, 1999**



# ***Building Energy Use***

---

- ✍ More than one-third (35%) of total U.S. primary energy used by buildings
- ✍ Building Energy-efficiency is often represents a “lost opportunity”
  - ✍ Relatively easy to build into new construction
  - ✍ Difficult to add to existing construction
- ✍ Off-the-shelf technology is 30-50% more efficient than current U.S. practice



# ***Public Policy Tools***

---

## **Insurmountable Opportunities?**

- ✍ Energy Codes & Standards
- ✍ Utility DSM Programs
- ✍ Public Benefits Funds
- ✍ Mortgage Financing
- ✍ Tax Incentives
- ✍ Information & Outreach
- ✍ Ratings and Labeling
- ✍ Emissions Trading



# ***Codes & Standards***

---

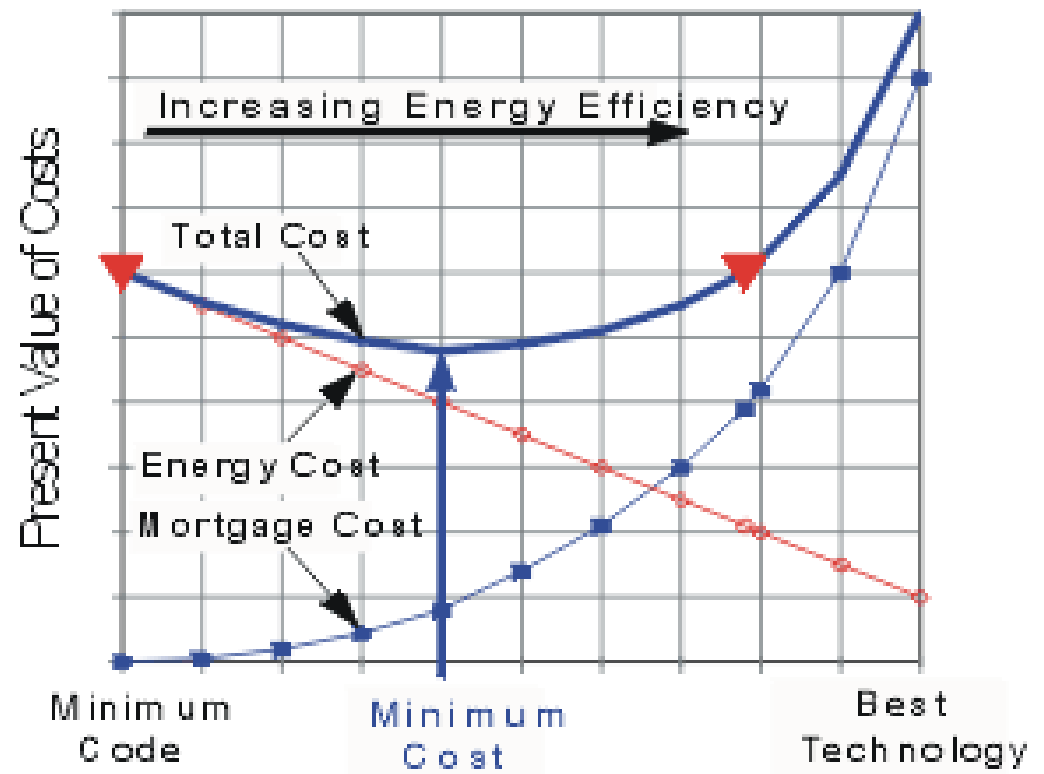
- ✍ Critically Important – they establish the basic minimum requirements
  - ✍ Building energy efficiency codes
    - ✍ Model codes (e.g. MEC, IECC)
    - ✍ Require local adoption
  - ✍ Appliance standards
    - ✍ Current SEER 13 battle
    - ✍ “Golden carrot” refrigerator example
- ✍ Usually difficult to enact and adopt – a contentious battle for market advantage
- ✍ Enforcement?



# ***Building Energy Codes***

## **Understanding “Minimum Codes”?**

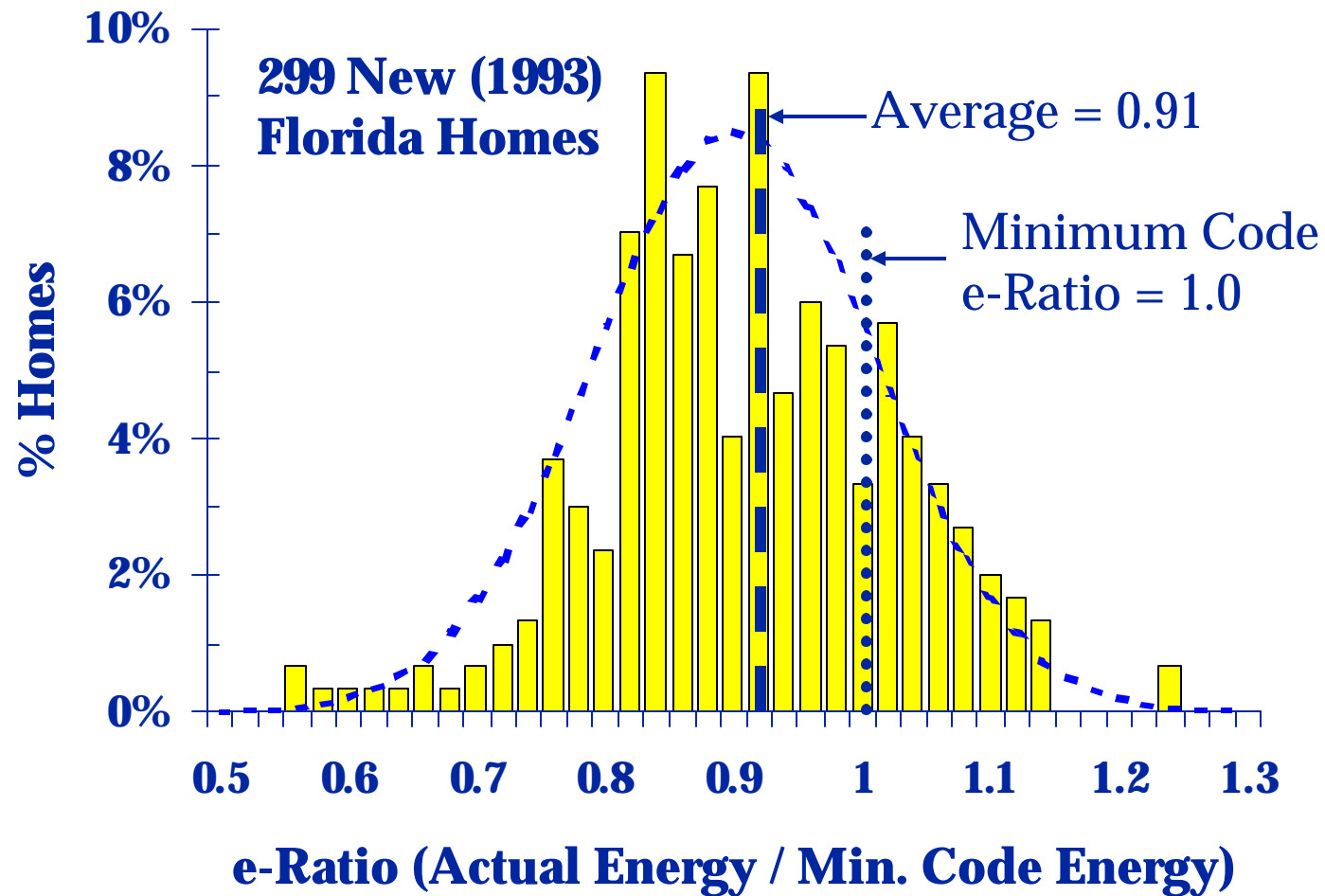
- ✍ Provide for “the worst buildings allowed by law”
- ✍ Considerable consumer dollars usually “left on the table”





# Code Compliance

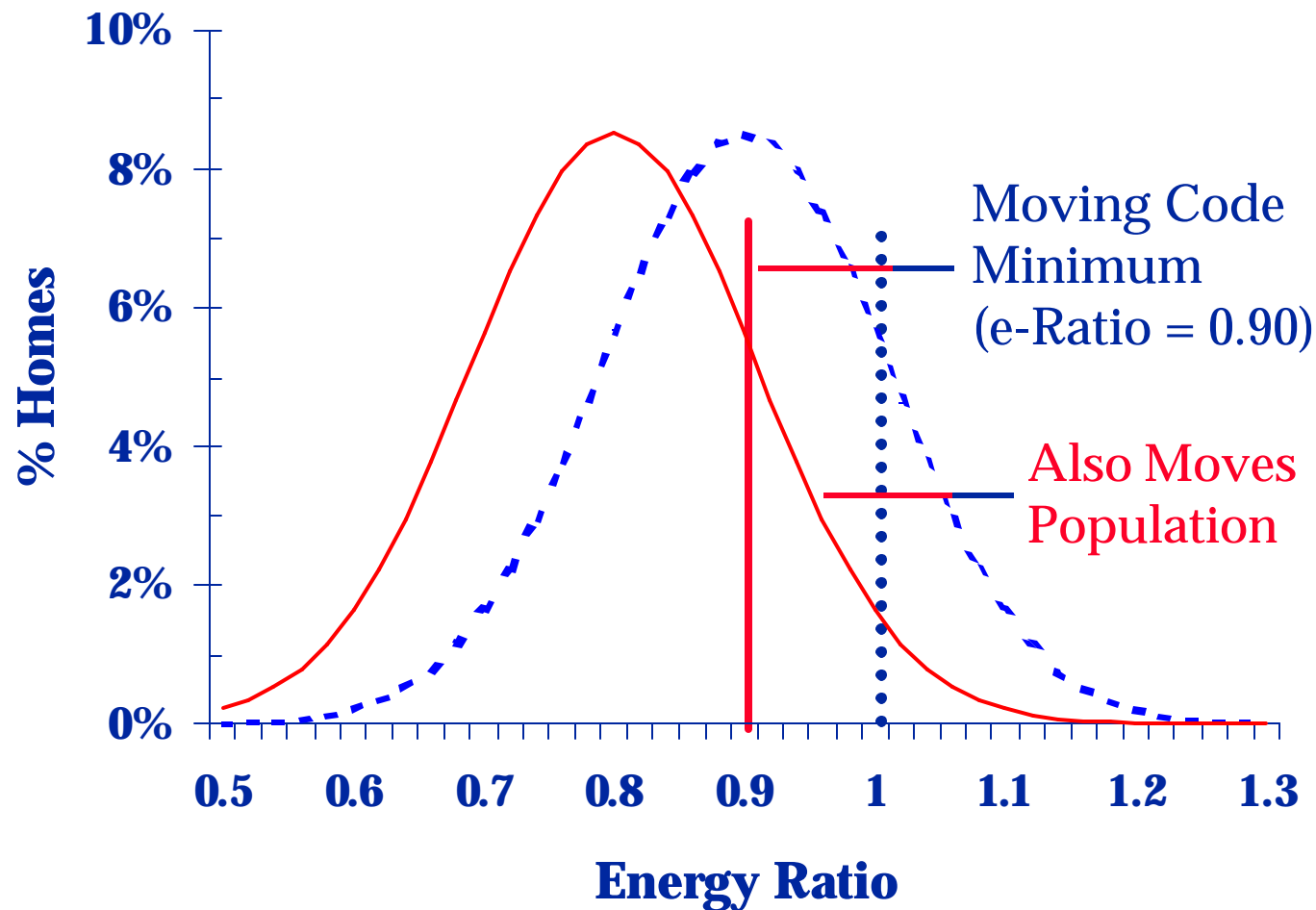
## What Florida Found in the Field?





# ***Code Theory***

## **Moving the Market Through Regulation**







# *Utility DSM Programs*

---

- ✍ 1<sup>st</sup> Rule – Utilities are profit making entities
- ✍ Investor economics: attempt to alter the relation between energy use and demand:
  - ✍ Reduce peak demand
  - ✍ But increase energy use
- ✍ Sometimes ignore highly energy-efficient, cost-effective technologies.
  - ✍ Residential lighting
  - ✍ Competing fuels
  - ✍ Solar water heating



# ***Public Benefits Funds***

---

Who's watching the store?

- ✍ 22 states have enacted some type of public benefits fund
- ✍ Each state fund uses different terminology and has different plans/purposes
- ✍ California has more energy efficiency and renewable energy \$ than the U.S. DOE!
- ✍ Concerns about “haves” vs. “have-nots”?
  - ✍ \$ attract more \$ (the rich get richer)
  - ✍ Government contracting cost-share requirements



# ***Mortgage Financing***

---

- ✍ Housing market one of the nation's most important economic drivers
- ✍ Secondary mortgage market is huge
- ✍ Primary market – What energy?
- ✍ Fannie Mae & Freddie Mac have been slow to embrace energy
  - ✍ Approach is changing
  - ✍ Mainstreaming is critical



# ***Tax Incentives***

- ✍ The Ideal: “Market Transformation”
  - ✍ “Buy down” the higher costs of emerging technologies (significant \$)
  - ✍ Create consumer “comfort” and demand and “product” supply
- ✍ Unintended Consequences!
  - ✍ Too much \$ = non-competitive markets
  - ✍ Performance-based vs. price-based



# ***Information & Outreach***

---

Sorting out the messages?

- ✍ A confused customer does not close
- ✍ Lots of competing claims
  - ✍ Manufacturers & vendors
  - ✍ Utilities & experts
  - ✍ Your neighbor & urban myth
- ✍ Energy myth versus energy fact
- ✍ Credibility and consistency are key



# ***Ratings & Labeling***

---

- ✍ The consumer's “yardstick”
- ✍ Rating systems
  - ✍ Quality energy design expertise
  - ✍ Commissioning & testing
  - ✍ Quality construction
- ✍ National and regional “credentialing”
  - ✍ Energy Star & Building America
  - ✍ Utility programs



# ***Emissions Trading***

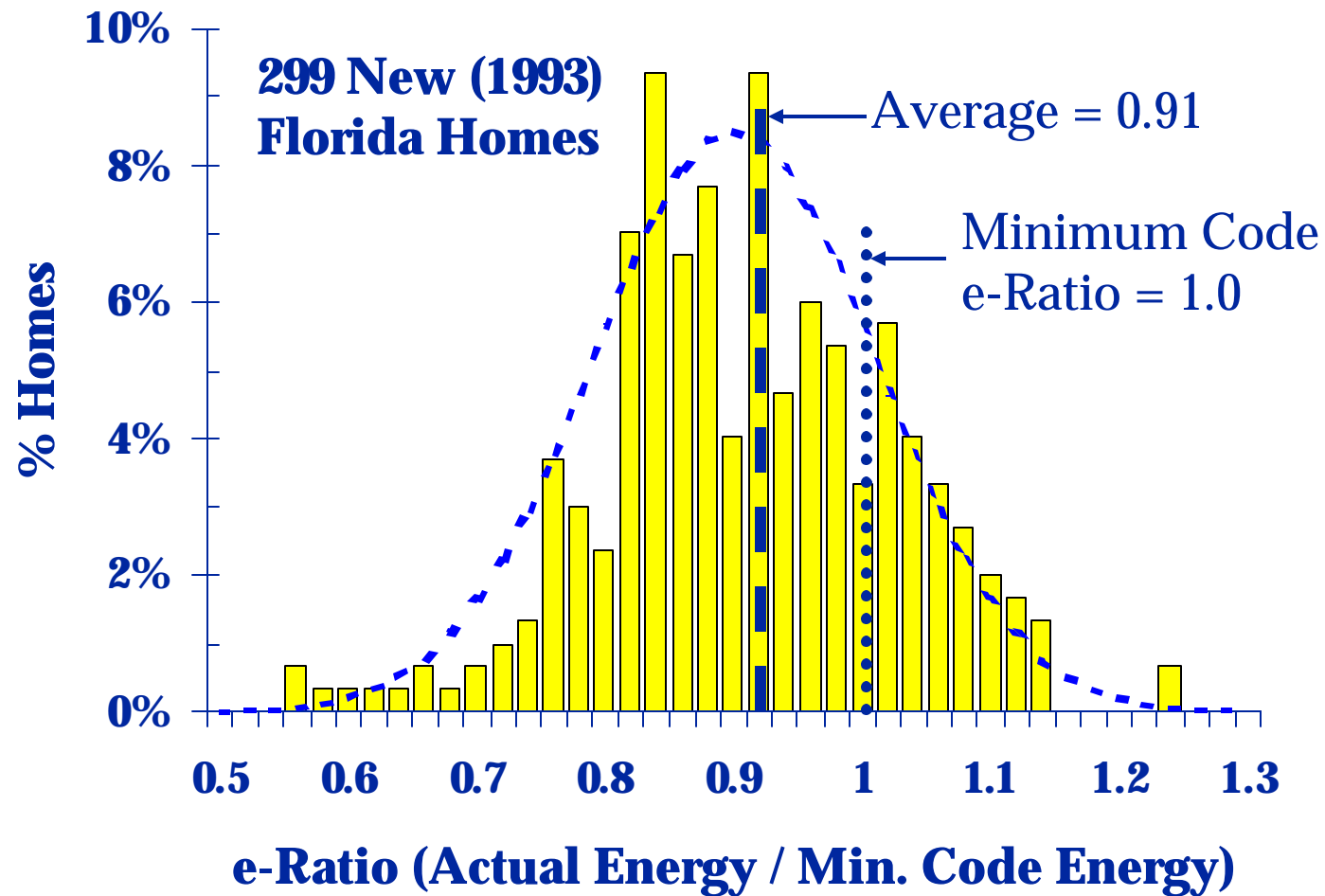
---

- ✍ U.S. industry already serious about SO<sub>x</sub> and NO<sub>x</sub>
- ✍ International market takes Rio and Kyoto seriously
- ✍ Carbon is next emission to be monetized
- ✍ U.S. market will ultimately want to play in the emissions trade



# Code Compliance

## What Florida Found in the Field?

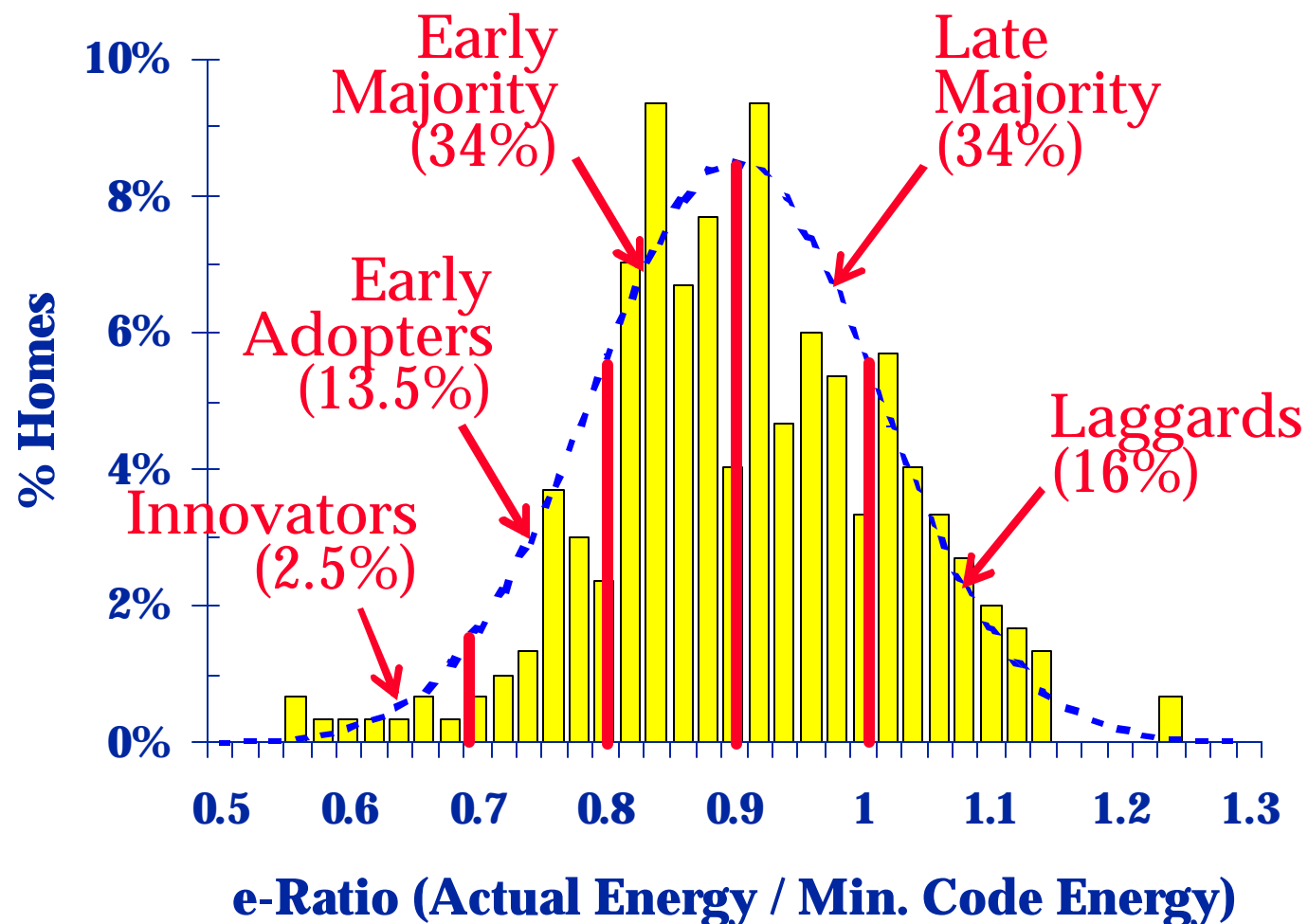






# ***Diffusion of Innovation***

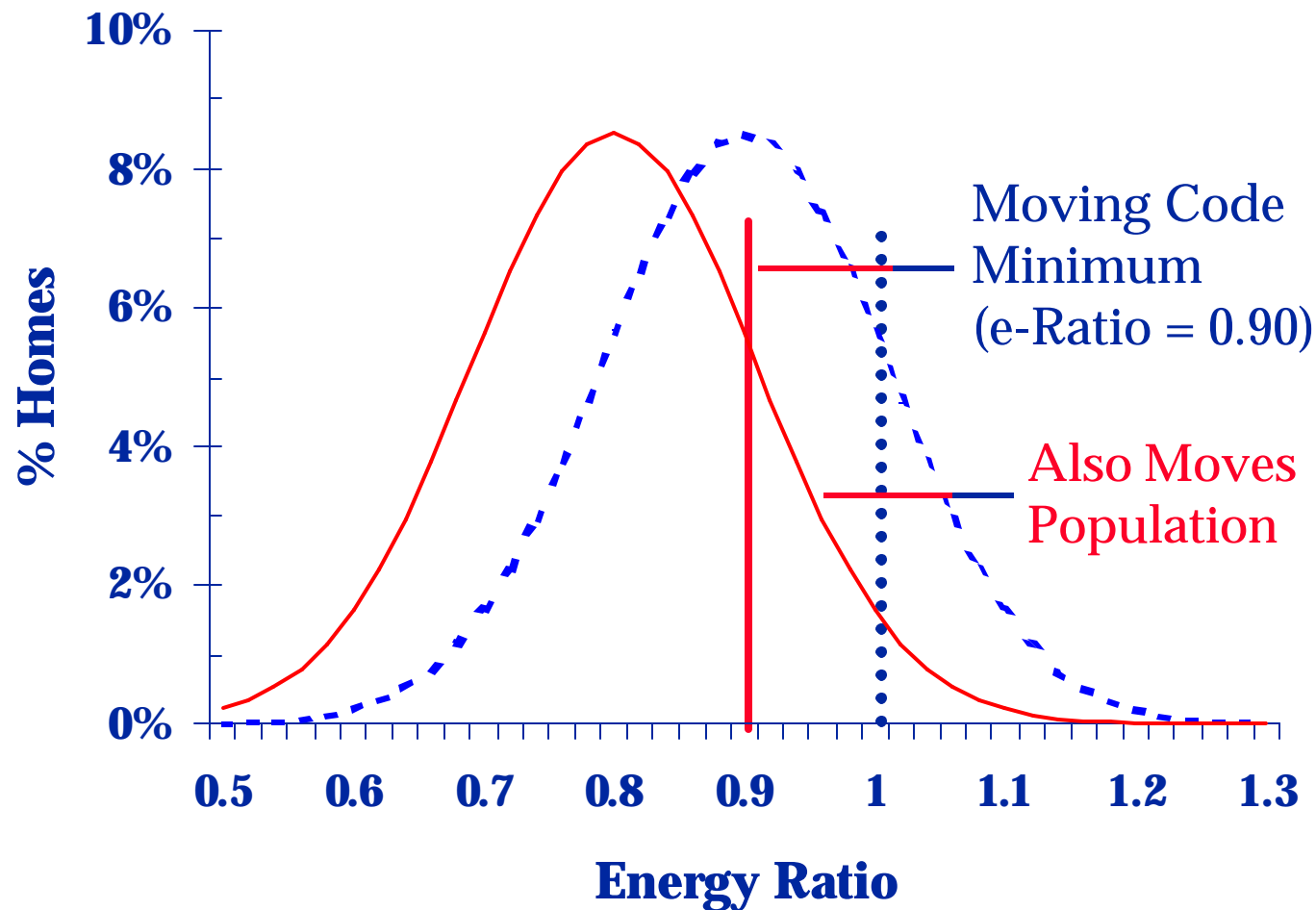
**It's really only a matter of time.**





# ***Moving “the Bar”***

**It takes political consensus!**





# ***A Matter of Time?***

- ✍ Public policy tools: complementary or confounding?
- ✍ Complementary –
  - ✍ Increases rate of innovation diffusion
  - ✍ Moves the bar more quickly
- ✍ Confounding –
  - ✍ Confuses the consumer
  - ✍ Retards innovation acceptance
  - ✍ Slows rate of efficiency increase



# FLORIDA SOLAR ENERGY CENTER

A Research Institute of the University of Central Florida

Thank  
You!

