

Encouraging Energy Efficiency: Product Labels Facilitate Temporal Tradeoffs

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The “Energy Paradox”



Price: \$0.97
Watts: 60
Lumens: 820



Price: \$17.99
Watts: 13
Lumens: 800
(Saves \$188 on energy over lifetime of the bulb)

Consumer don't know? Or don't care?

PHILIPS

EnergySaver
MINI TWISTER Compact Fluorescent Bulb

23w = 100w*

SOFT WHITE

Lasts 9 years*

non-dimmable

SAVE \$169.40 IN ENERGY COSTS* PER PACKAGE

Smaller Size
FITS MORE FIXTURES

LIGHT OUTPUT	ENERGY USED	LIFE
1,600 LUMENS	23 WATTS	10,000 HOURS

To save energy costs, find the bulbs with the light output you need, then choose the one with the lowest watts.

ENERGY STAR

2 MEDIUM BASE

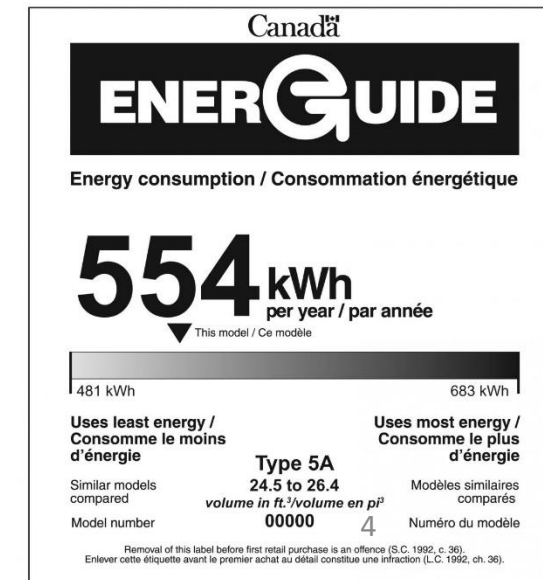
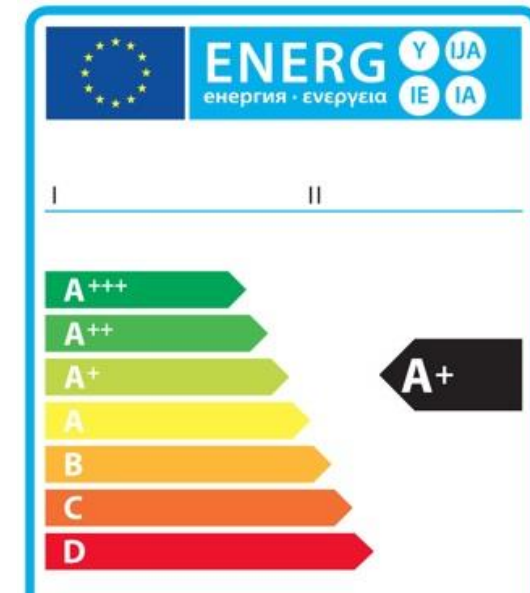
Previous Findings

- People don't know?

- Education changes knowledge, not choices (Abrahamse et. al 2005)
- Energy efficiency labeling changes attention, not choices (Kallbekken, Sælen, & Hermansen 2013; Waechter et al., 2015)
- ...but operational cost labeling DOES influence choices, especially if you scale up the metric (Camilleri & Larrick, 2014; Min et. al, 2014; Larrick & Soll 2008)

- People don't care?

- People “discount” the future (Frederick et. al, 2002)
- For real-world energy choices, too (Hausman, 1979)
 - Implied interest rates up to 90%
- ...but care about future losses more than future gains (Thaler, 1981; Hardisty & Weber 2009)



Our Nudge: 10-year energy cost



Our Nudge: 10-year energy cost



Our Nudge: 10-year energy cost



Why does it work?

- Normally, consumers aren't thinking about energy efficiency
- Latent goal to minimize long term **dollar costs**
- "10-year energy cost" labels activate this goal, and *makes it easy* to act on

Outline

- Test in a survey (Study 1) – BC Hydro
- Compare against alternatives (Studies 2-3) – Internet samples
- Test in the field (Study 4) – London Drugs

Study 1: Testing the Nudge



- Partnered with local electric utility, BC Hydro
“My Power Poll”
- Online survey of 147 residential energy customers in Vancouver
- Split survey takers into two groups:
 - “Control” information
vs
 - “10-year energy cost”
- 4 pairs of products: Light bulbs, furnaces, TVs, vacuums
- Measured: proportion of energy efficient choices

Study 1 methods



- Price: \$999.95
- Estimated Electricity Use (W): 121
- Standby energy consumption: 0.2w
- Brand: Samsung
- Size: 50"
- Resolution: 1080p



- Price: \$749.95
- Estimated Electricity Use (W): 181
- Standby energy consumption: 0.4w
- Brand: Samsung
- Size: 50"
- Resolution: 1080p

Study 1 methods

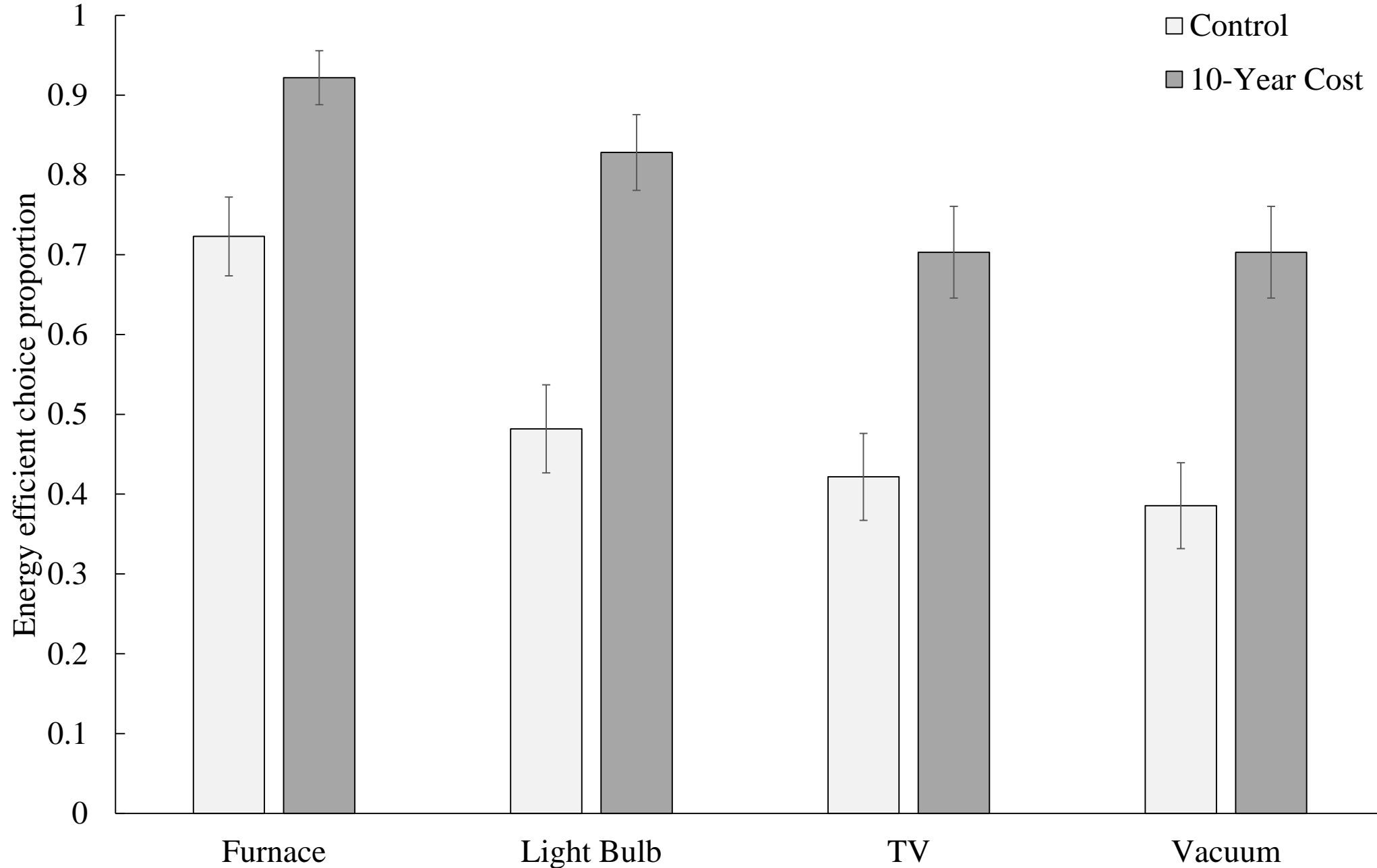


- Price: \$999.95
- 10-year energy cost: \$600
- Estimated Electricity Use (W): 121
- Standby energy consumption: 0.2w
- Brand: Samsung
- Size: 50"
- Resolution: 1080p



- Price: \$749.95
- 10-year energy cost: \$1,000
- Estimated Electricity Use (W): 181
- Standby energy consumption: 0.4w
- Brand: Samsung
- Size: 50"
- Resolution: 1080p

Study 1: Results



Study 1: Conclusion

- “10-year energy cost” label nudges people to choose energy efficient products

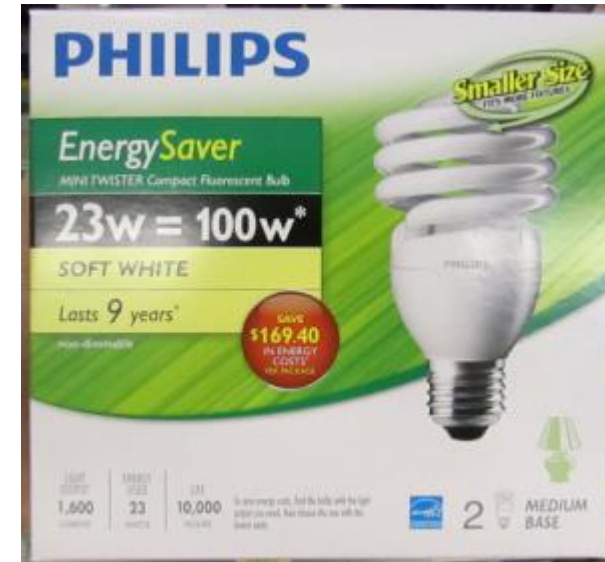
Study 2: Comparing Nudges

- Online sample of 1,155 U.S. Residents
- Lightbulbs only
- Compared 7 nudges

Study 2: Control



- Price: \$4.29
- Lumens: 1490
- Watts: 72
- Number of bulbs: 2

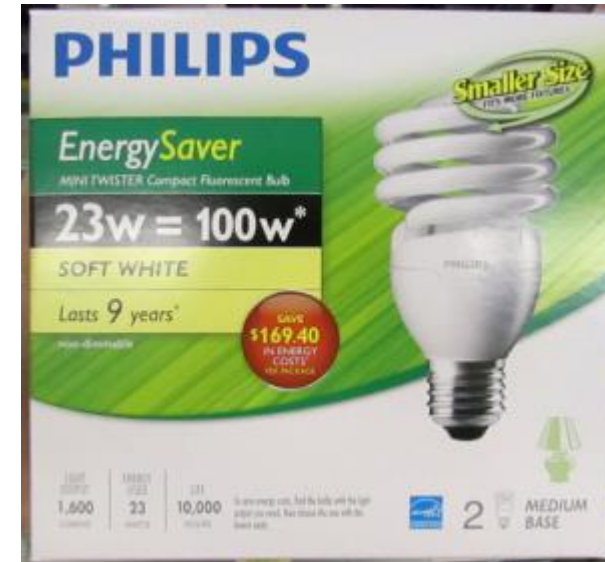


- Price: \$12.99
- Lumens: 1600
- Watts: 23
- Number of bulbs: 2

Study 2: 10-year dollar cost



- Price: \$4.29
- 10-year energy cost: \$207
- Lumens: 1490
- Watts: 72
- Number of bulbs: 2

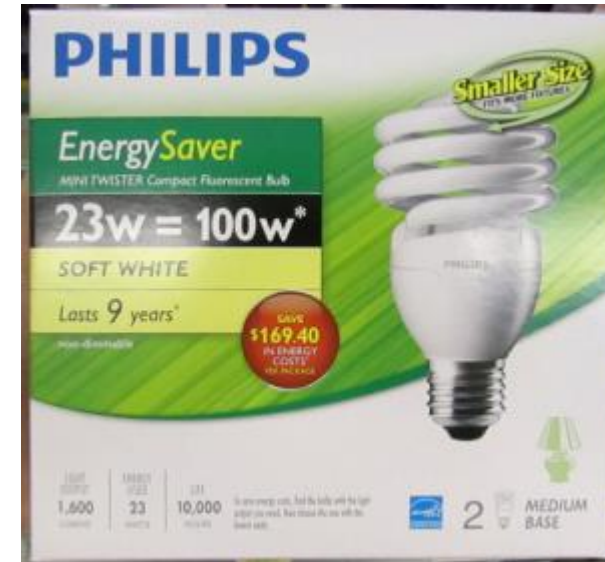


- Price: \$12.99
- 10-year energy cost: \$66
- Lumens: 1600
- Watts: 23
- Number of bulbs: 2

Study 2: 10-year dollars saved



- Price: \$4.29
- 10-year energy saved: \$81
- Lumens: 1490
- Watts: 72
- Number of bulbs: 2

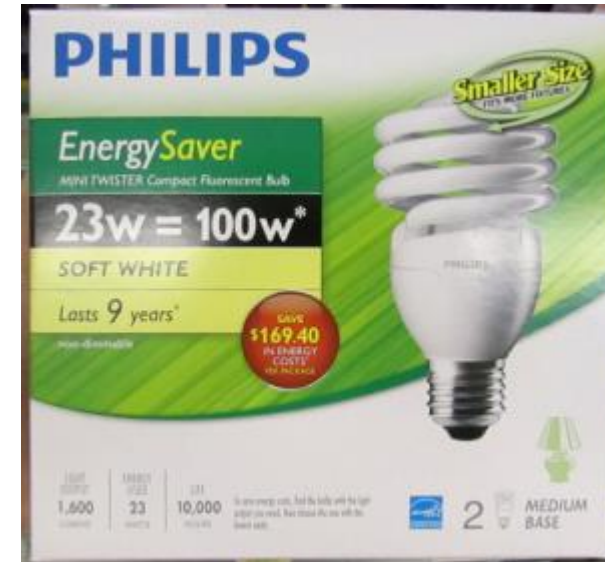


- Price: \$12.99
- 10-year energy saved: \$222
- Lumens: 1600
- Watts: 23
- Number of bulbs: 2

Study 2: 10-year energy cost

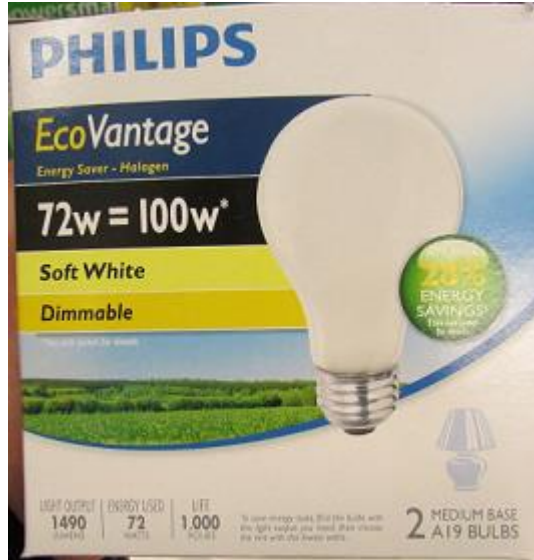


- Price: \$4.29
- 10-year energy cost: 1837 kWh
- Lumens: 1490
- Watts: 72
- Number of bulbs: 2

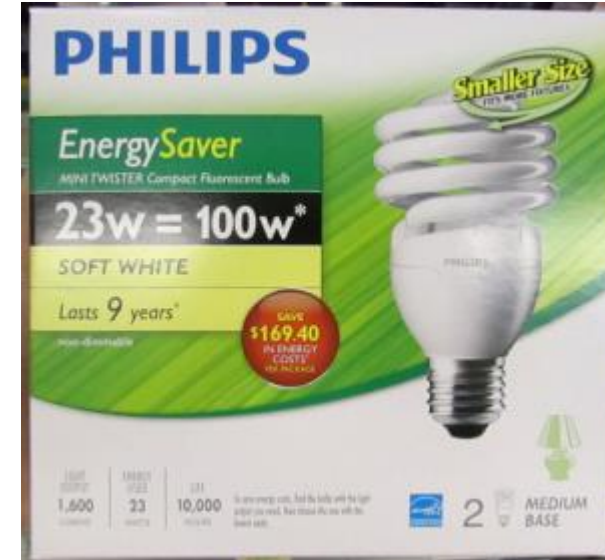


- Price: \$12.99
- 10-year energy cost: 586 kWh
- Lumens: 1600
- Watts: 23
- Number of bulbs: 2

Study 2: 10-year energy saved



- Price: \$4.29
- 10-year energy saved: 718 kWh
- Lumens: 1490
- Watts: 72
- Number of bulbs: 2

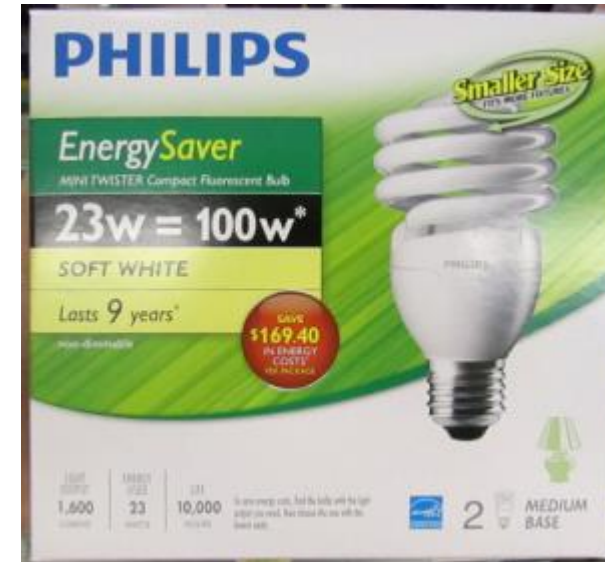


- Price: \$12.99
- 10-year energy saved: 1969 kWh
- Lumens: 1600
- Watts: 23
- Number of bulbs: 2

Study 2: 10-year % cost



- Price: \$4.29
- 10-year energy cost: 28% less
- Lumens: 1490
- Watts: 72
- Number of bulbs: 2

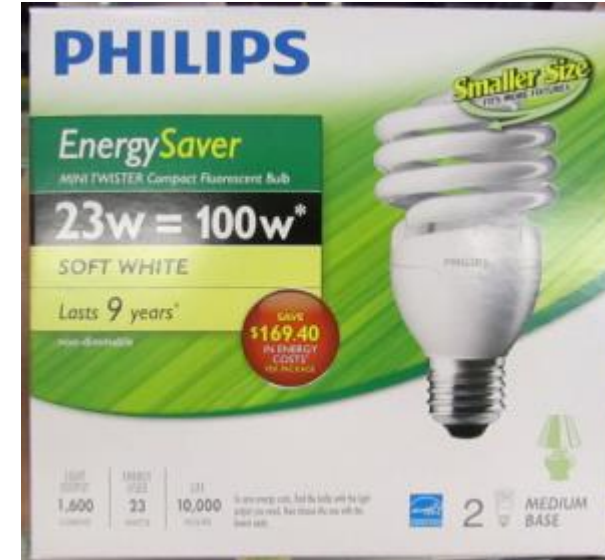


- Price: \$12.99
- 10-year energy cost: 77% less
- Lumens: 1600
- Watts: 23
- Number of bulbs: 2

Study 2: 10-year % saved

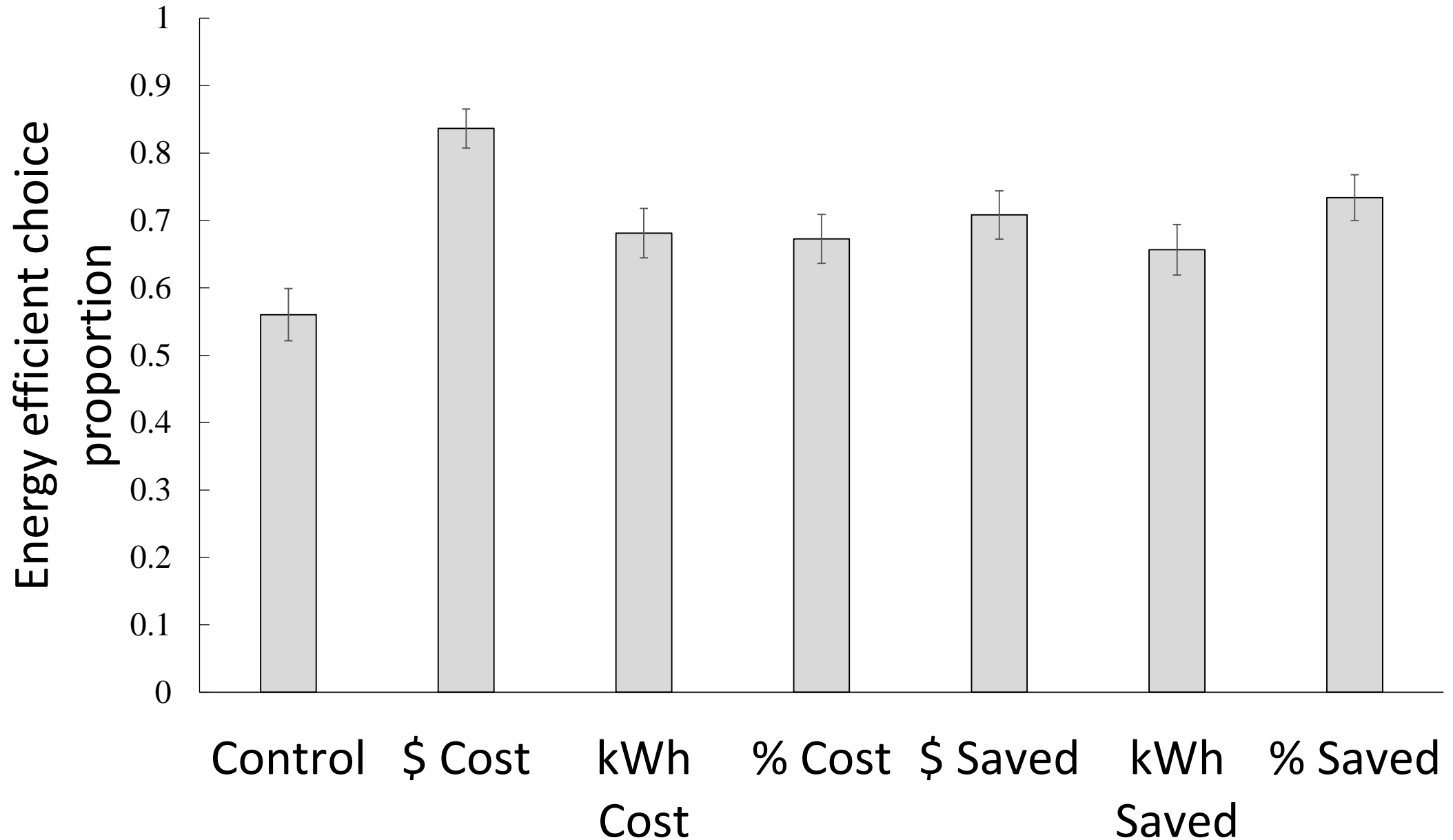


- Price: \$4.29
- 10-year energy saved: 28% more
- Lumens: 1490
- Watts: 72
- Number of bulbs: 2



- Price: \$12.99
- 10-year energy saved: 77% more
- Lumens: 1600
- Watts: 23
- Number of bulbs: 2

Study 2: Results

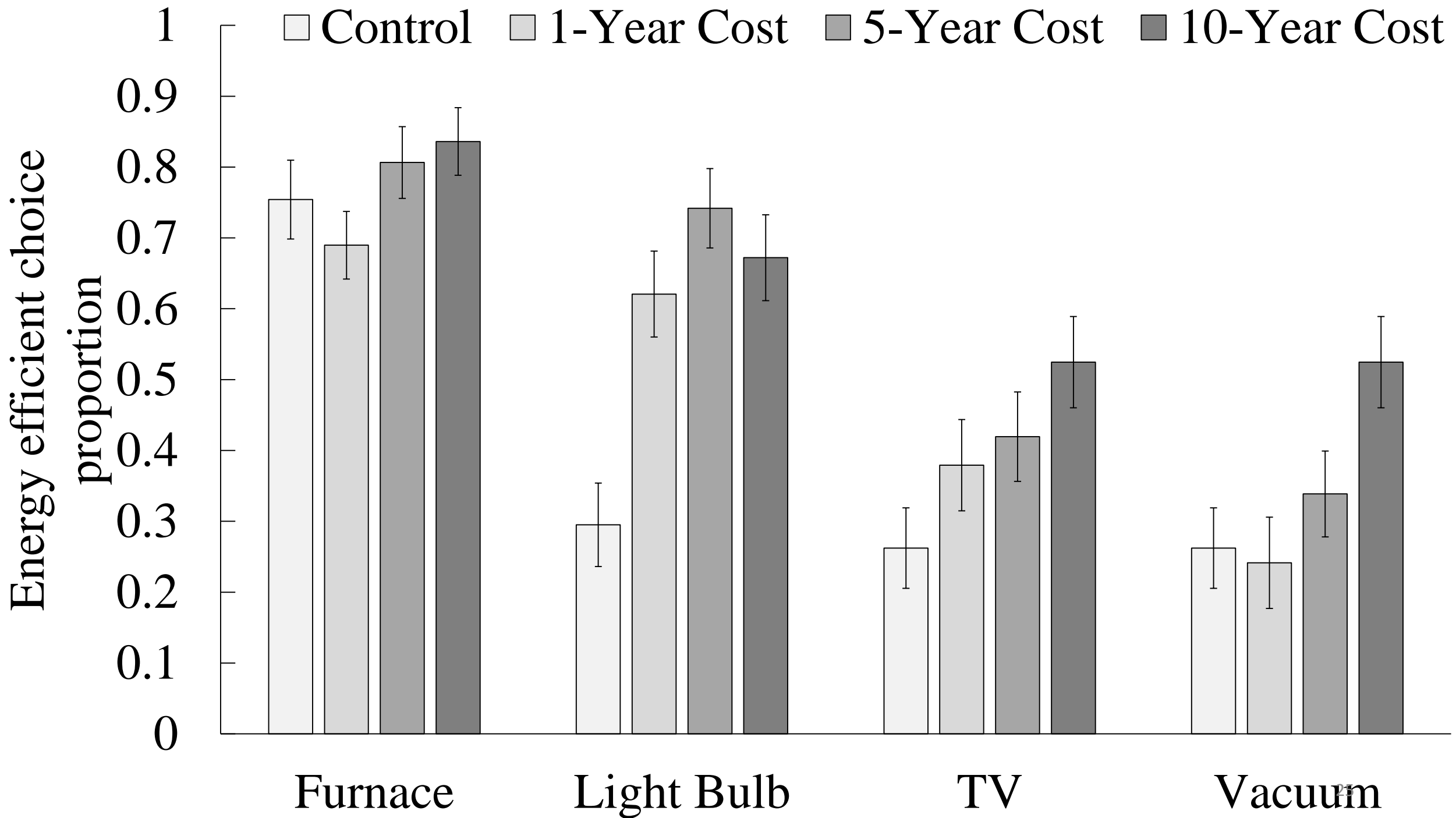


Study 2: Conclusion

- Future **dollar costs** more effective than other frames

Study 3

- Is “10-year” important?
- Compare:
 - Control
 - 1-year cost
 - 5-year cost
 - 10-year cost
- Online sample: 242 U.S. Residents



Study 3: Conclusion

- “10-year” cost more effective than other time frames

Study 4: Field Study



Study 4: Methods

- Run in 5 drug stores over 6 weeks
- Two types of lightbulbs on store endcaps:
 - 72w Halogen bulb (2-pack) for \$4.29
 - 23w CFL bulb (2-pack) for \$12.99
- Labels switched once per week, counterbalanced across stores
- DV: proportion of CFLs purchased



Study 4: Results



12%
chose efficient option
(n = 26)



48%
chose efficient option
(n = 29)

Conclusions

- **10-year energy cost labelling:**
 - Effective
 - Low-cost
- Activates the goal and makes it easy
- Win-win
- Easy to scale up



Thank You!