

Residential Lighting: How to Determine the Most Energy Efficient Technology for Your Needs

OSU Green Home Workshop 5-16-17

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Who has bought an efficient bulb they hated?



Incandescent



Halogen



CFL



LED



Flourescent

Who likes choosing an efficient light bulb?



Incandescent



Halogen



CFL



LED



Flourescent

Who likes changing light bulbs?



Incandescent



Halogen



CFL



LED



Flourescent

Who thinks bulbs burn out at convenient times?



Incandescent



Halogen



CFL



LED



Flourescent

Who likes getting on a ladder to change bulbs?



Incandescent



Halogen



CFL



LED



Flourescent

Efficiency Last.

Good light and long life are first.



Incandescent



Halogen



CFL

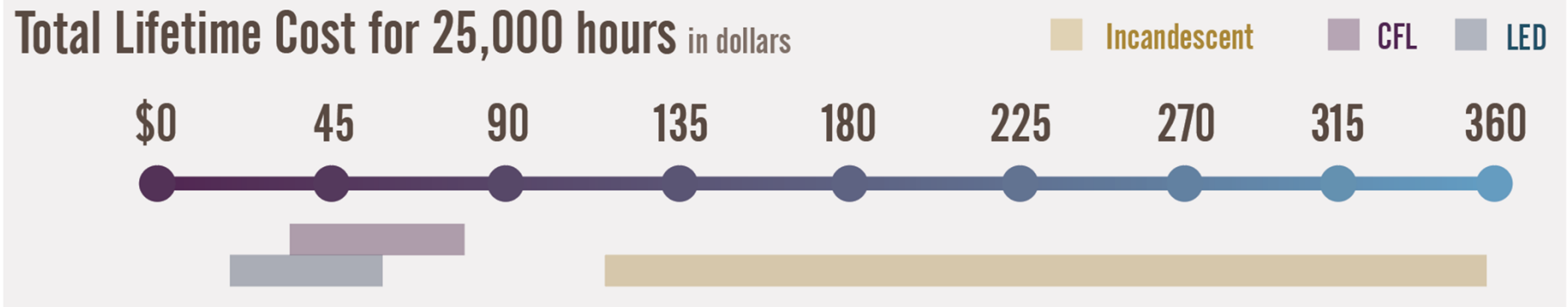


LED

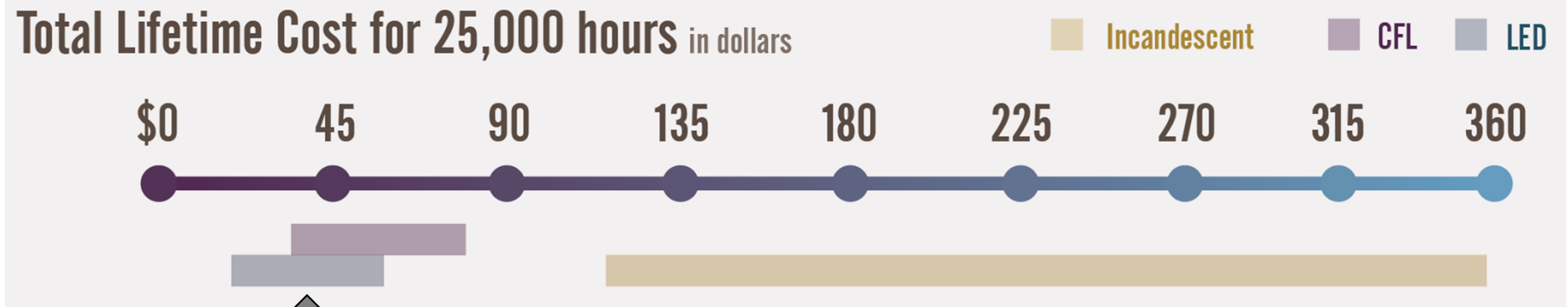


Flourescent

Let's Talk Turkey

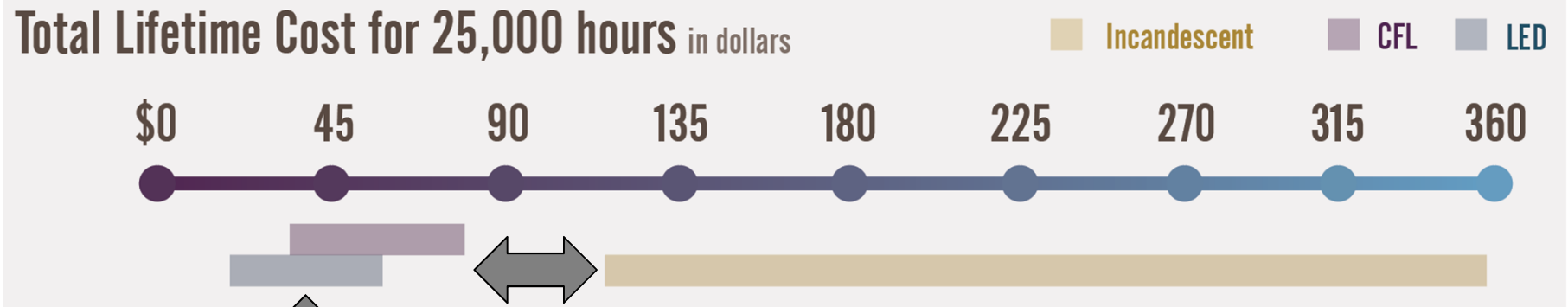


Let's Talk Turkey



LEDs win.

Let's Talk Turkey



The cost spectrums don't even cross!

LEDs win again.

Conclusion:

It's actually kind of dumb to keep using incandescents.

Math behind the 25,000 hour charts

	Watts	Bulb Cost	Bulbs Needed	Total Bulb Cost	KWh	KWh Cost	TOTAL COST
Incandescent	60	\$1-5	25	\$25-125	1075	\$86-215	\$111-340
CFL	13	\$2-10	2.5	\$5-25	325	\$26-65	\$31-83
LED	7	\$3-20	1	\$3-20	175	\$14-35	\$17-55



LEDs win.



LEDs are still
getting
cheaper.
\$0.66/bulb on
clearance

Objection:

You can't get LEDs for weird fixtures.



Track lighting



Halogen fixtures

You *can* get them for weird fixtures.



Track lighting



You *can* get them for weird fixtures.



Halogen fixtures



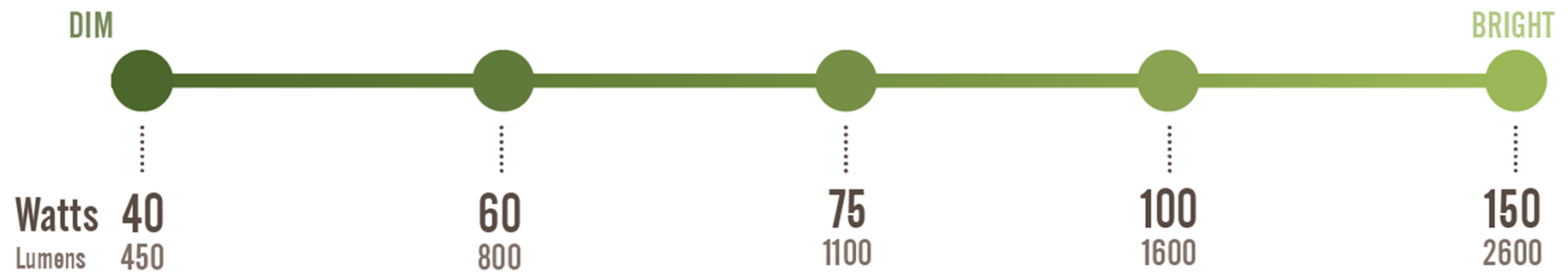


LED

Understanding Efficient Bulbs

How Bright?

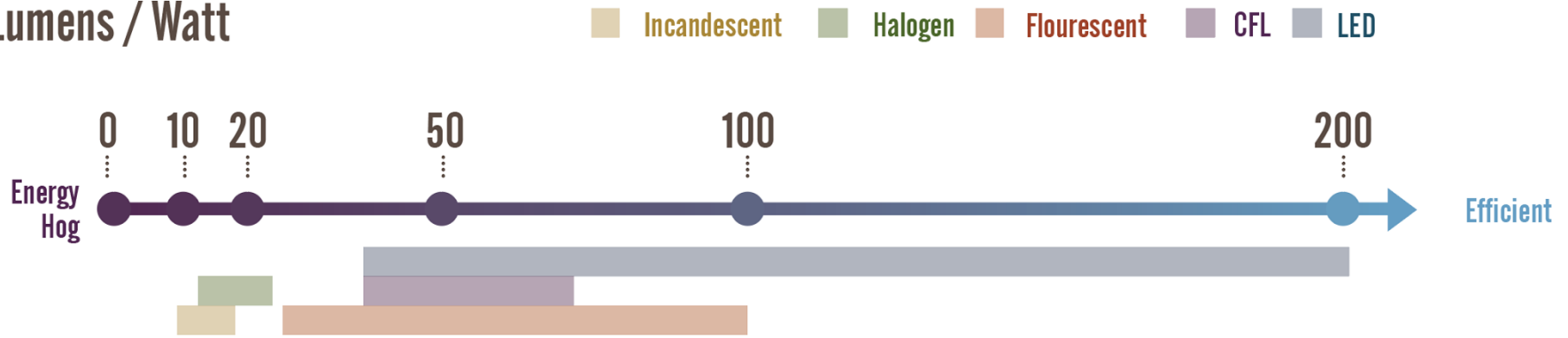
Lumens and Brightness



You don't need to know this.
(Most boxes tell you what they are equivalent to.)

Efficiency

Lumens / Watt



LED bulbs consistently win this one.

How long do they last?

Bulb Life in 1,000s of hours



How long do they last?

Bulb Life in 1,000s of hours



LEDs win again.
Failure = 70% brightness



LED

Two Numbers: Buying a Bulb You Actually Like

2700K

90+ CRI

2700K

Color Temperature

in degrees Kelvin





2200
Candle

2700
Incandescent

5000
Work Light

6500
Outdoors

2700K

Color Temperature

in degrees Kelvin



90+ CRI

Color Rendering Index
Percentage



Poor CRI = Sickly Skin Tones

90+ CRI

Color Rendering Index Percentage



No CRI on the package?
It's probably lousy.

Really Nice Label





LED

Two Numbers

2700K

90+ CRI

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