Incandescing Sources: Their Regulation and Their Future

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ONE QUESTION

TRUE or FALSE

By the year 2014, the Federal Government will have banned all incandescing light sources

FALSE

Federal legislation does not ban ANY incandescent light source, but it does set EFFICACY standards for some types

Energy Independence and Security Act of 2007 (EISA)

Signed into law on 12/19/07

EISA Summary for Incandescent Lamps

- Sets Efficacy standards for several different lamp types
  - "General Service" Incandescent Lamps
  - Reflector Lamps
- Rolling implementation for General Service
  - Starts in 2012
  - Complete in 2014
- Immediate application for Reflector lamps
  - Started in July 2008
  - Preempts state legislation that had been adopted
- Based on date lamps were MANUFACTURED, not sold or installed

What is a “General Service Incandescent Lamp”?

A “general service incandescent lamp”:

- Is either incandescent or halogen
- Is intended for general service applications
- Has a medium screw base (E26)
- Is in the lumen range of 310-2600 (40-100W in today’s wattages)
- Is capable of operating in range of 110-130V

A “general service incandescent lamp” is NOT:

- An appliance lamp, A blacklight lamp, A bug lamp, A colored lamp, An infrared lamp, A left-hand thread lamp, A marine lamp, A marine signal service lamp, A mine service lamp, A plant lamp, A reflector lamp, A rough service lamp, A shatter-resistant/shatter-proof/shatter-protected lamp, A sign service lamp, A silver bowl lamp, A showcase lamp, A 3-way lamp, A traffic signal lamp, A vibration service lamp, A G-shape with a diameter of 5 inches or more, A T-shape lamp of 40 watts or less or a length of >10 inches, A B, BA, CA, F, G16-1/2, G25, G30, S or M14 lamp of ≤ 40 watts

EISA Incandescent Lamps

Establishes maximum wattages for 4 specific lumen ranges, minimum rated life and CRI

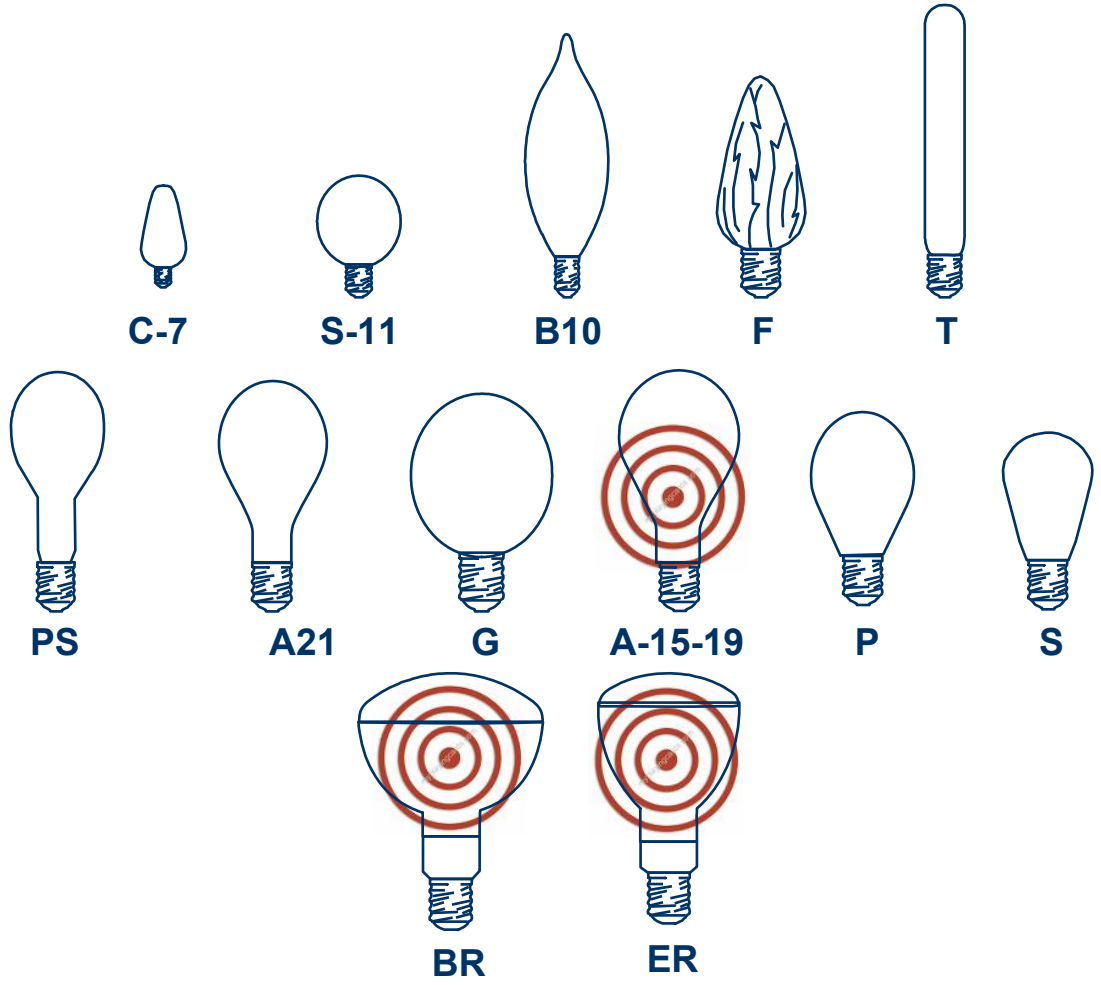
Caps candelabra-base lamps at 60W

Caps intermediate-base lamps at 40W

Establish a watch list of lamps types that may be regulated in the future

- Rough service, vibration service, 3-way, shatter-resistant and 2601-3300 lumen lamps (150W)

EISA main targets by lamp shape



General Service Incandescent Lamps

Current Wattage	Rated Lumen Ranges	Maximum Rated Wattage	Minimum Rated Lifetime	Effective Date (Manufactured on or after)
100	1490-2600	72	1,000 hours	1/1/2012
75	1050-1489	53	1,000 hours	1/1/2013
60	750-1049	43	1,000 hours	1/1/2014
40	310-749	29	1,000 hours	1/1/2014

Modified spectrum (*Daylight*™, *Reveal* ™, *Natural* ™) lamp lumen ranges are 25% lower

Minimum of 80 CRI except for modified spectrum, which have a minimum of 75 CRI

General Service Incandescent Lamps

State Preemption for General Service Lamps

California and Nevada

- California's Title 20 standards effective 1/1/2008 remain in effect until the Federal standards become effective
  - 40→38; 60→57; 75→71; 100→95 (5% energy savings)
- Nevada adopted legislation that called for all "general purpose lights" sold in the state to be 25 LPW by 1/1/2012
- California and Nevada may adopt the Federal standards no more than one year earlier than the Federal effective dates
  - Phase-in schedule must be maintained – starts in 2011 and ends in 2013 instead of starting in 2012 and ending in 2014

All other states are preempted

Incandescent Reflector Lamps

LPW Standards

- Same as those established in 1992 for R & PAR lamps >2.75 inches (22/8) in diameter →

Wattage Range	Minimum LPW
40-50W	10.5
51-66W	11.0
67-85W	12.5
86-115W	14.0
116-155W	14.5
156-205W	15.0

EISA Added

- BR, ER and BPAR (OPAR) lamps, and
- Reflector lamps > 2.25 (18/8) through 2.75 (22/8) inches in diameter

EISA Exempted

- BR30, BR40 & ER40 lamps rated at 65W
- ER30, BR30, BR40 & ER40 lamps rated at ≤ 50W
- R20 lamps rated at ≤ 45W

EISA Effective dates

- 180 days after enactment – June 16, 2008

State laws with earlier effective dates remained in effect until these Federal standards became effective

Incandescent Reflector Lamps

Effect of this is to allow the continued sale of 65BR30 lamps as well as reduced wattage R20, BR40 and ER40 lamps

- **All wattages K19:** replace with Halogen PAR16 or PAR20
- **50W R20 lamps:** replace with new 45W R20 or any wattage Halogen PAR20
- **BR40 lamps > 65W and < 205W**: replace with 65W BR40 or Halogen PAR38

Sale of all non-colored, white light OPAR (one-piece) lamps will end

Incandescent Reflector Lamp Replacements

Affected Type	Incandescent Replacement	Halogen Replacement
150W OPAR (BR38)		120PAR38/HAL
100W OPAR (BR38)		75PAR38/HAL
75W OPAR (BR38)		50PAR38/HAL
120W BR40		100PAR38/HAL, 75PAR38/HAL
100W BR40		75PAR38/HAL
75W BR40	65BR40	50PAR38/HAL
120W ER40		100PAR38/HAL, 75PAR38/HAL
75W ER30	50ER30	50PAR30/LN
75R20		50PAR20/HAL
50R20	45R20	35PAR20/HAL

2008 Incandescent Reflector and General Service Lamp Legislation Summary

California Only	January 1, 2008 Manufacturing Date	Reduced Wattage Versions ex. 60W A19 becomes 57W Maximum Double Life Not Possible, use XTRA Life
Federal	Beginning 1/1/2012 CA & NV maybe 20111	Eliminates popular wattages of 100, 75, 60 & 40
CA, OR, WA, MA RI, VT	January 1, 2008 All are Manufacturing Date	Reduced Wattage Versions ex. 75W BR40 becomes 65W BR40 ex. 50W R20 becomes 45W R20
Federal	January 1, 2008 for R20, BR30, BR40, ER30 & ER40 & June 16, 2008 for 2.25-2.75" diameter lamps Manufacturing date	100/120W BR40 and OPAR: Replace with Halogen 65W BR30: No Change

So what comes next?

New and newer Technologies

Several technologies offer the opportunity to continue to provide incandescing general service sources that meet the new legislation

- Soft glass envelope halogen lamps
  - Single or double ended quartz lamp in familiar incandescent shapes
- Hard glass envelope halogen lamps
  - Typically single ended hard glass halogen capsules in thick walled A19 shapes
- New filament technologies (still in R&D)
  - Selective emitters
    - Nano structures of tungsten have been shown to absorb IR radiation in laboratory experiments
  - Ceramic Filaments

QUESTIONS