

# Lighting: Infinite Choices?

SASKATCHEWAN ENVIRONMENTAL SOCIETY

**A Better Planet** Begins with *You*





A non-profit organization and a registered charity

**Vision:**

**To support and encourage the creation of a global community in which all needs are met in sustainable ways.**



# 2008 Energy Efficiency Regulation

- 100 and 75 W bulbs manufactured on or after January 1, 2012, and
- 60 and 40 W bulbs manufactured on or after December 31, 2012



# What will be regulated?

- Prohibit the importation and interprovincial shipment of non-compliant products
- Provide for a number of alternatives to inefficient bulbs
- Where no alternatives exist, exemptions are made

Stockpiling by retailers  
and consumers allowed



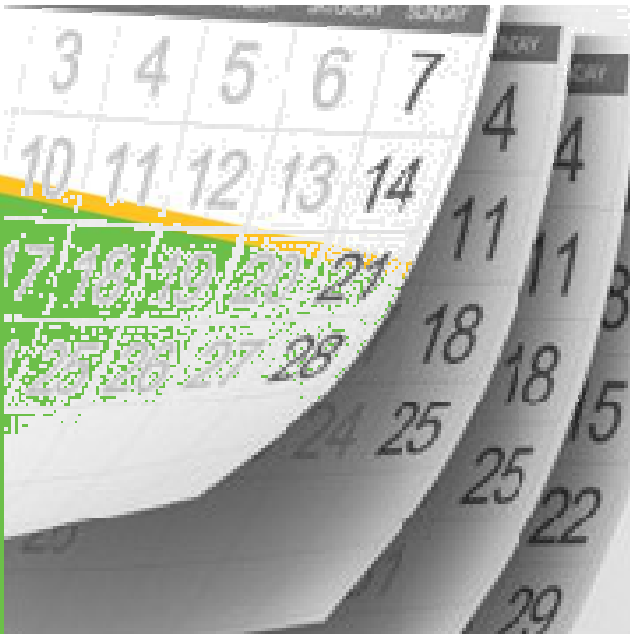
# “Delaying the date for compliance... is required in order to:”

- strengthen communication activities,
- to allow for technology innovations and
- to consider the concerns expressed about perceived health and mercury issues, including safe disposal CFLs



# Proposed Revision

- 75 and 100 watt bulbs manufactured on or after January 1, 2014, and for
- 40 and 60 watt bulbs manufactured on or after December 31, 2014



# Industry / Commercial Plans

- Manufacturers are phasing out manufacture of incandescent lighting
- Retailers are phasing out sale of incandescent lighting





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## Incandescent lamps

- Very inefficient
- High temperature and high heat output
- Short life (1000 hours): high maintenance
- Instant-on
- Excellent colour rendition
- Inexpensive bulbs
- Can be used outdoors
- May contain small amount of lead



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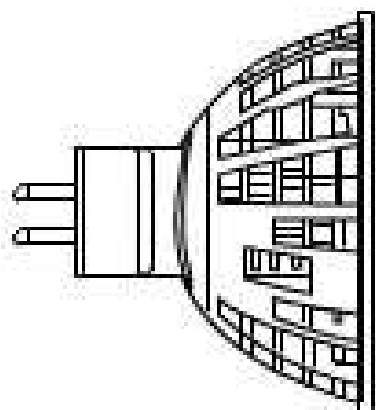
# Less than 10% of energy goes to producing light



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[candela = lumen / solid angle]



a unit solid angle

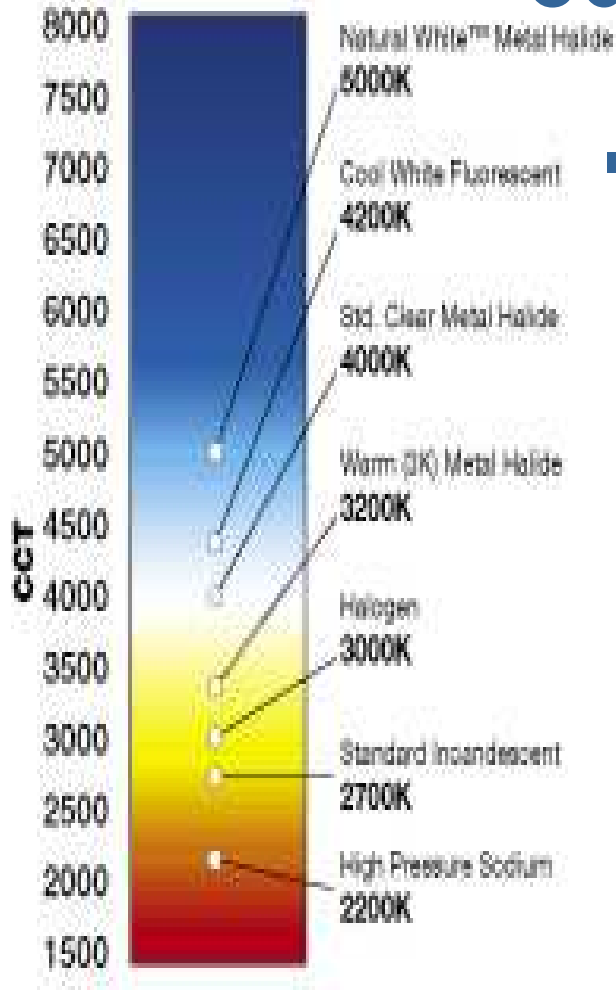
Luminous intensity

Unit: candela (cd)

[candela - lumen / solid angle]



# Colour Temperature

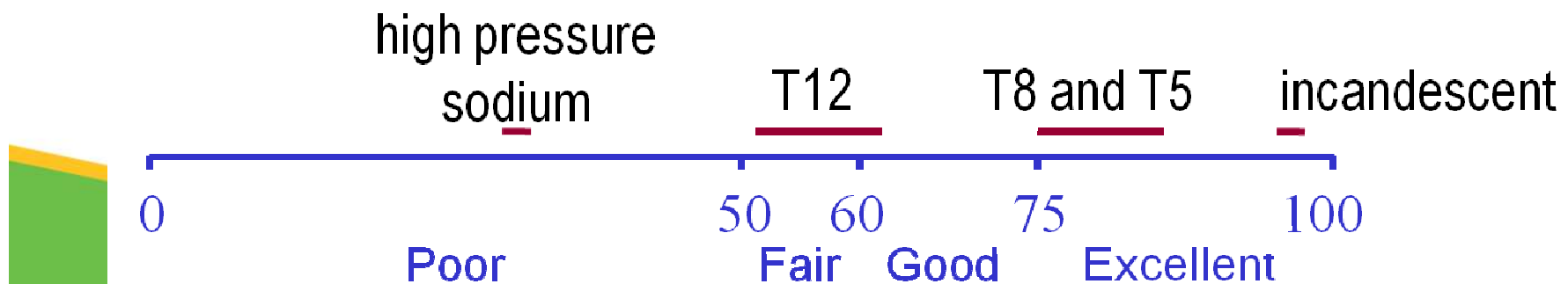


- Measure of the warmth or coolness of an artificial light source



# Colour Rendition Index (CRI rating)

- Measure of how accurately colors are perceived



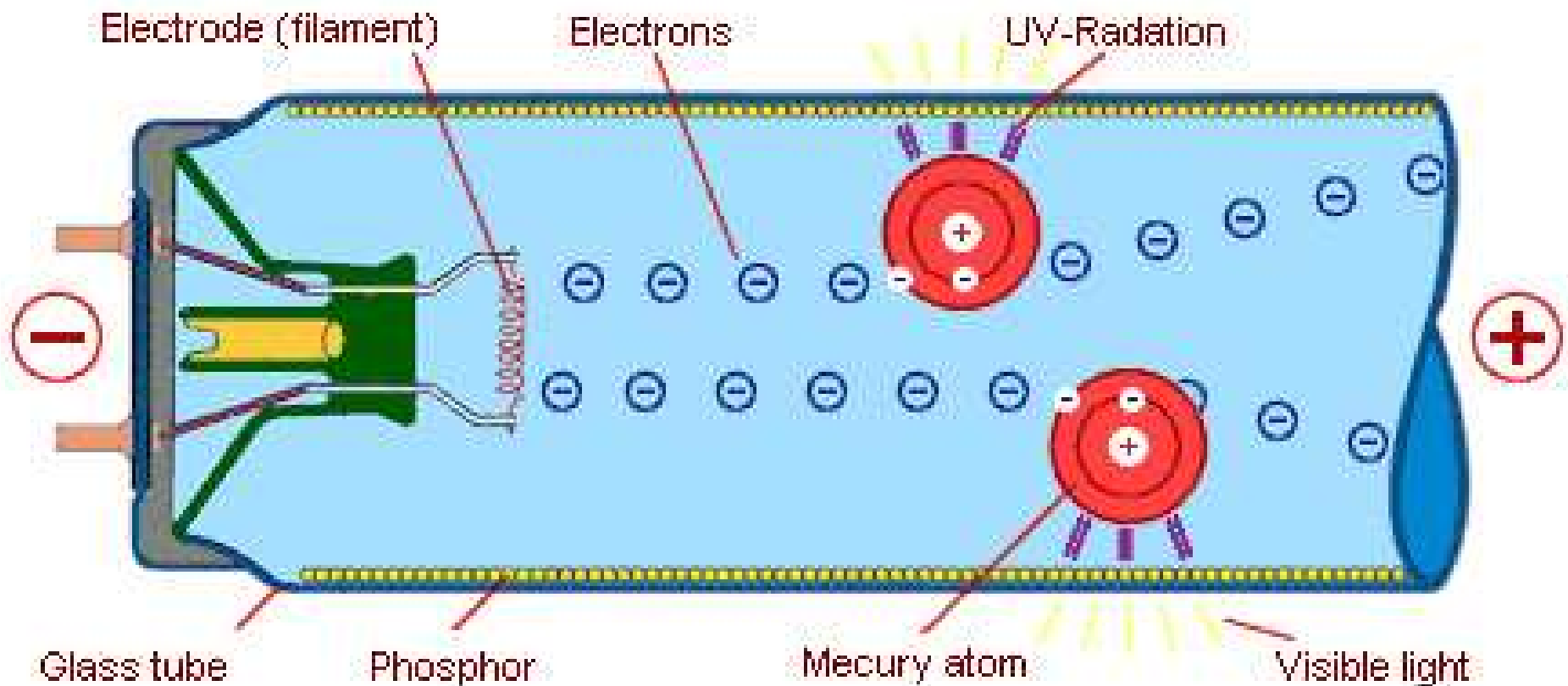


## Quartz halogen

- Modified incandescent
  - Slightly more efficient
    - Longer lasting
  - Similar characteristics
- High temperatures can be a fire hazard
- Outdoor lighting, construction and display lighting
- Somewhat dimmable



# Fluorescent Lamps



# T-8 fluorescent lighting

- Most common for general room lighting
- About 30% more efficient than T12
  - Electronic ballast





## Compact fluorescent

- Uses 75% less energy
  - High color rendition
    - Low heat output
- Lasts 10 times longer than incandescent

- Must choose a good brand name
- May not work in cold locations
- Contain mercury



# Compact Fluorescent Lamps

- Contain approximately 5 mg mercury per bulb
- Watch batteries contain approximately 25 mg mercury
  - Mercury in lamps in vapor form



ramé-hart instrument co.



# LED (light emitting diode)



- Directional
- Colors becoming suitable for room lighting
  - Very long life - fade over time
- Applications:
  - Recessed down lights
  - Street lighting
  - Retail display
  - Freezer case
  - Signage





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# ENERGY STAR®

- Simple way to identify energy- efficient products
  - Look for ENERGY STAR qualified:
    - Computers, fax machines, TVs
    - Large and small appliances,
      - Doors and Windows
  - PST waived on ENERGY STAR qualified major appliances



# ENERGY STAR qualified CFLs:

- Efficacy (light output/ energy input)
  - Color Rendering Index >80
- Correlated Color Temperature identified
- Short and Long term lumen maintenance
  - Power Factor
  - Starting time
- Mercury Content



# ENERGY STAR qualified LED



- Light Output
- Correlated Color Temperature
  - Color Spatial Uniformity
    - Color Maintenance
  - Color Rendering Index
  - Phantom load (zero)





# energy smart™

a smart way to save energy!™

# 60

## LASTS 8 YEARS\*

\* Limited Warranty: Guaranteed to last 8 years based on rated life at 4 hours consumer use per day at 120V. (Details on the inside of this package.)

\*\* Electricity cost savings based on using the bulb for 12,000 hr rated life at 10¢ per kilowatt hour compared to twelve 60 watt Soft White incandescent bulbs (rated life 1000 hrs).

SAVES **\$56** IN ENERGY\*\*

# 13 watt

light output:  
flux lumineux : **870 lumens**

energy used:  
consommation  
énergétique : **13 watts**

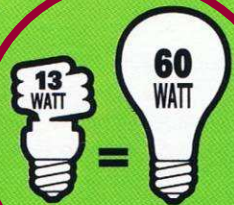
life:  
durée de vie : **12,000 hours**  
heures

contains:  
contient : **2 bulbs**  
ampoules (T2)

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

Pour économiser énergie et argent, choisir une ampoule en tenant d'abord compte du flux lumineux, puis en recherchant la plus basse consommation énergétique.

**NEW**  
**SMALLER SIZE!**  
FITS MORE FIXTURES!



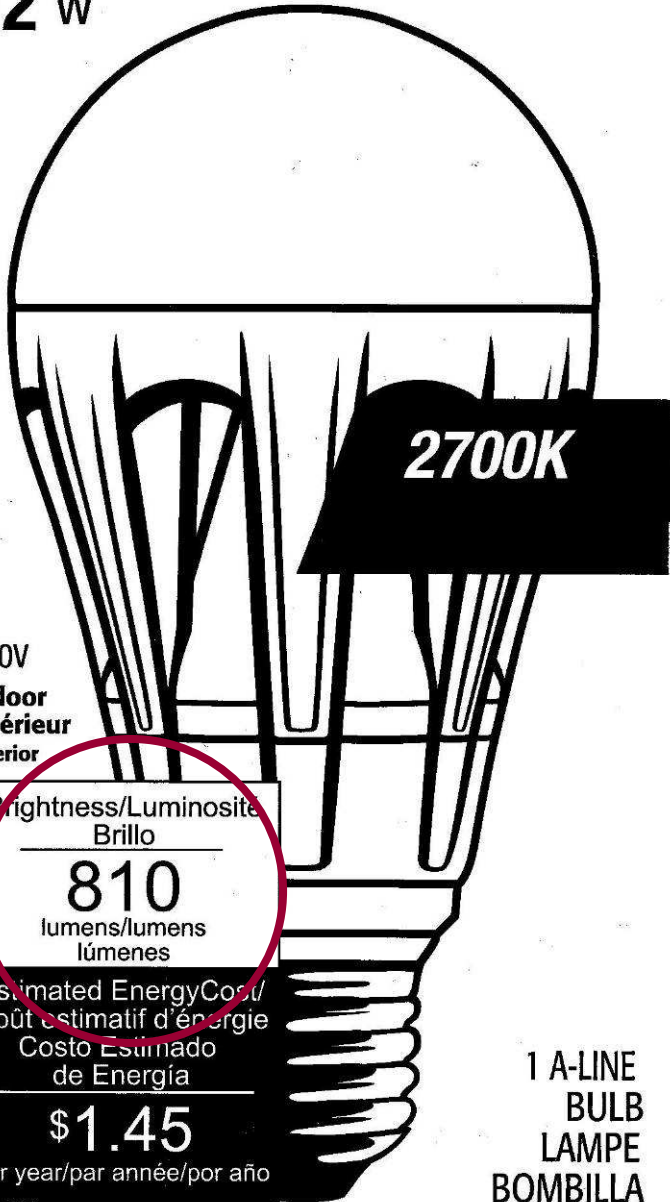
**WARNING**  
SAFETY NOTICES  
ON INSIDE

**Hg - LAMP CONTAINS MERCURY**  
Manage in Accord with Disposal Laws  
See: [www.lamprecycle.org](http://www.lamprecycle.org) or 1-800-435-4448



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# SYLVANIA ULTRA LED A-Line 12 W



1 A-LINE  
BULB  
LAMPE  
BOMBILLA

## Lighting Facts/Faits relatifs à l'éclairage/Datos de Iluminación

Per Bulb/Par lampes/Por Bombilla

Brightness/Luminosité/Brillo	810 lumens/lúmenes
Estimated Yearly Energy Cost/Coût estimatif d'énergie/Costo Anual Estimado	\$1.45
Based on 3 hrs/day, 11¢/kWh. Cost depends on rates and use./Calculées à 3 h/jour, 11 cents par kWh. Le coût dépend des taux et de l'utilisation Basado en 3 hrs/día, 11¢/kWh. Costo depende del índice y uso.	
Life/Durée de vie/Duración*	23 years/ans/años
Based on 3 hrs/day/calculées à lumière/Basado en 3 hrs/día	
Light Appearance/Aspect de la lumière/Apariencia de Iluminación	Cool/Froid/Frío
Energy Used/ Énergie consommée/Usó de Energía	12 watts/watts/vatios

Compare	LED	Incandescent
	DEL LED	Incandescence Incandescente
	12W LED A19	60W A19
Light Output Lumens	810	850
Life * Hours	25,000	1,500

X19164



# Questions



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