

Energy efficient lighting: Prospects for the future

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Change of stock



Path dependence

- How fast?
 - Scrapping determines replacement
 - Lifetime of units determines scrapping
- What direction?
 - Fittings can limit choices
 - Quality of light, with reference to the old
 - Costs, learning curves
 - Nordic lighting culture

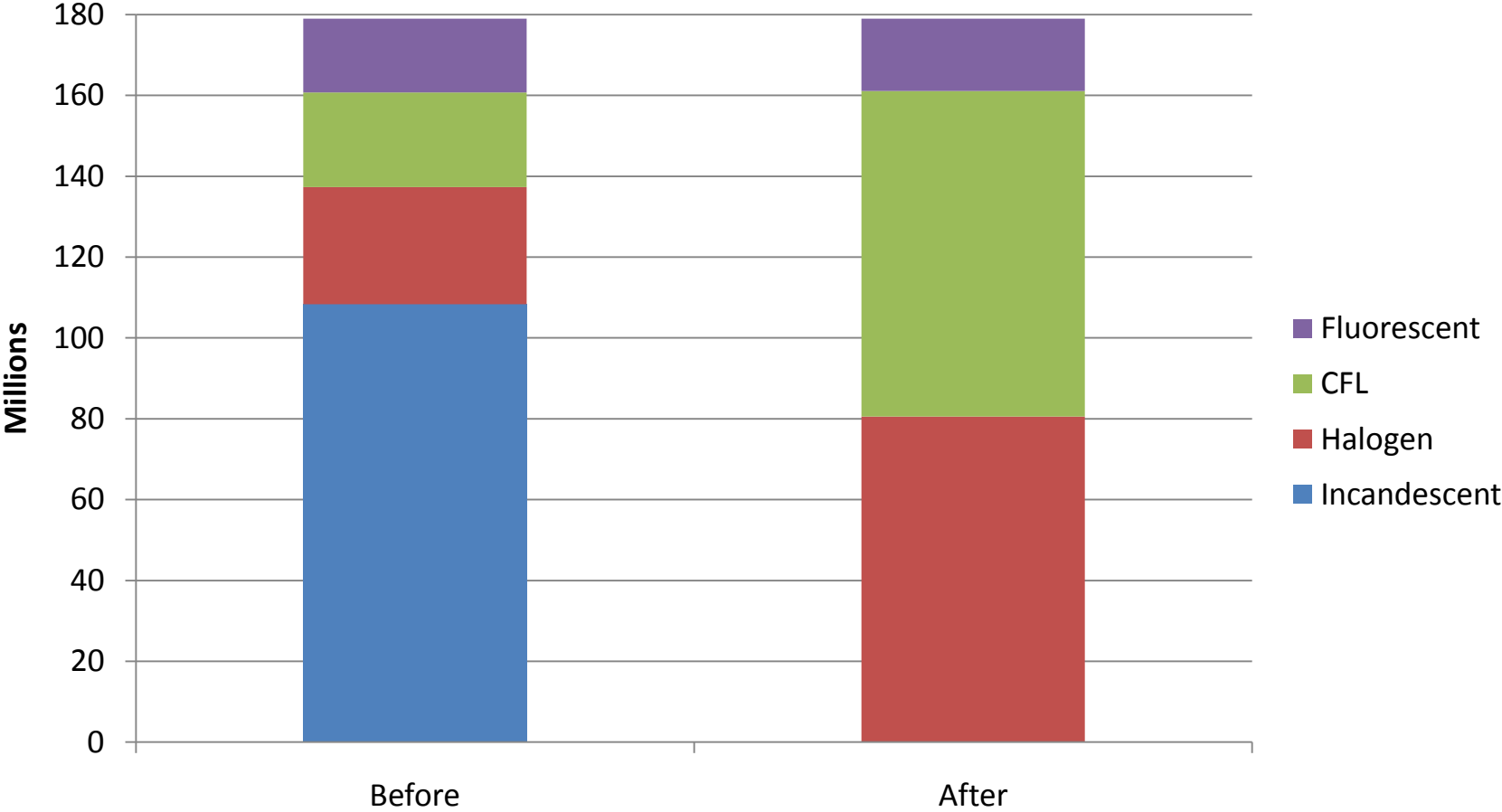
Dominant design

- The incandescent light bulb
- Low manufacturing costs
- CFL: imitating the bulb-shape and screw socket, getting closer in colour rendering
- LED the same way (?)
- The phase-out directs choices in favour of CFL and LED, a mild form of forced change

“Phase-out” in one blow

- One family of 2, Nordic
- 24 out of 53 (24: 15 CFL and 9 LED)
- Reduced wattage 30%
- Reduced electricity consumption 49%
- New light acceptable, no switch back
- LED: limited lumen range
- CFL: more mature, easier to get

EU phase-out



Economics of the phase-out

	Before	After
Replacement rate %	43	14
Power per lamp, W	28	18
Electricity for residential lighting, TWh	3.2	2.1
Lamp sales, € (millions)	113	119
Electricity sales, € (millions)	483	308

Prospects for LED

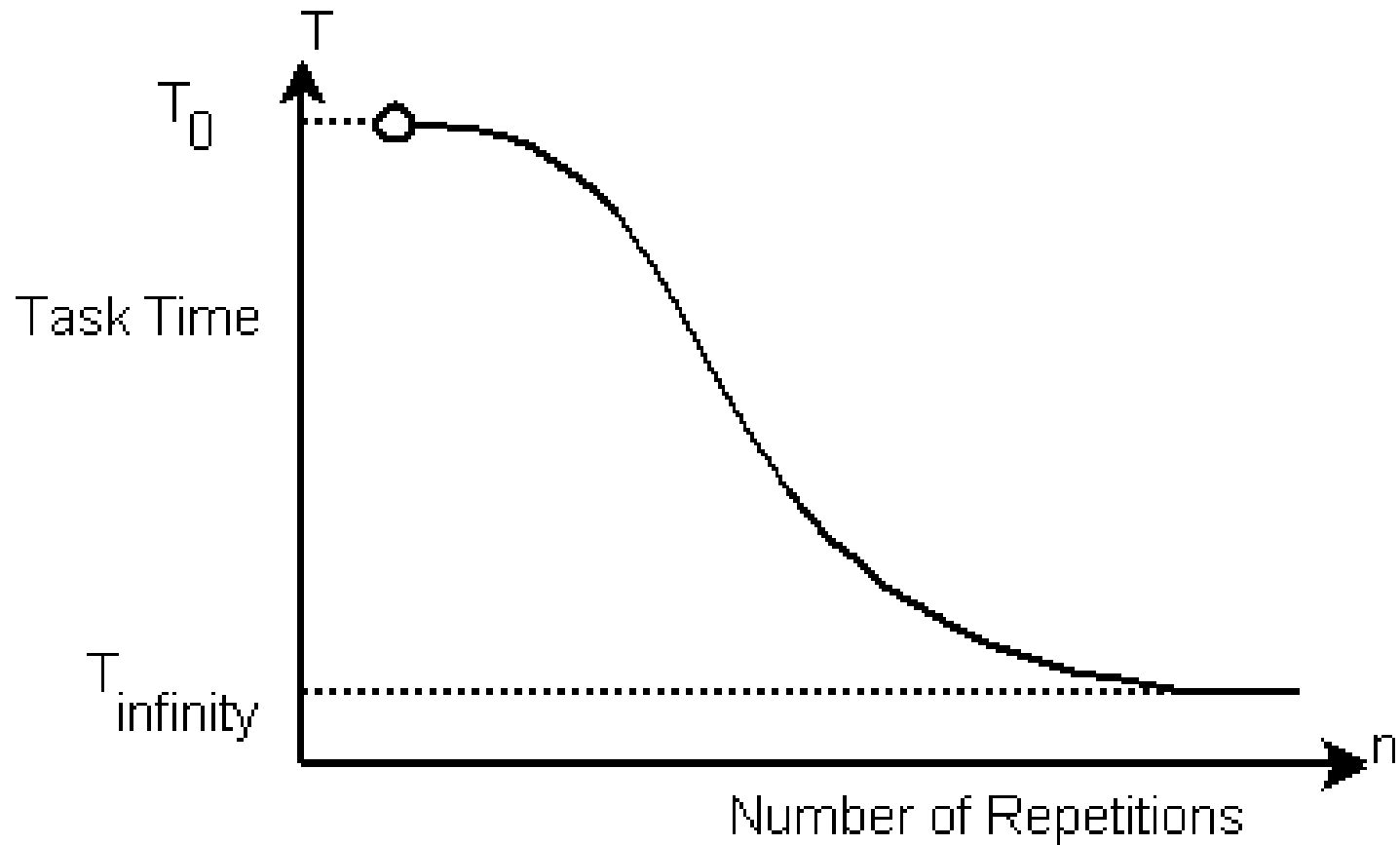
- CFL and halogen the new standard
- LED will have time to be developed (quality of light, price, distribution)
- Must compete without regulatory support and with slow-changing stock
- Extended use, beside CFL and halogen? That is not energy efficiency.

Thank You!

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Learning curve

Figure 1: A learning curve



Carbon and metal filament lamps

