Devising State Policy on Compact Fluorescent Lamps

Teaching Notes

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The purpose of this case study is to provide students with an opportunity to evaluate a complex and contemporarily relevant scenario involving the benefits and drawbacks of compact fluorescent lamps (CFLs) and to decide on the best course of action to prevent environmental and health harm. Students play the role of members of an Advisory Board, appointed by their state’s Department of Environmental and Natural Resources.

CFLs are significantly more energy efficient than traditional incandescent light bulbs and are thus being actively promoted as a better alternative for consumers. However, all CFLs contain small amounts of mercury, a known neurotoxin. While mercury can be released into the environment through natural processes, more problematic are human-caused, or anthropogenic releases. Coal-burning power plants producing electricity account for 99% of all anthropogenic mercury releases. For their part, the mercury in CFLs can become a human health problem through improper disposal, requiring specific recycling mechanisms to avoid leakage.

The case study provides an overview of the existing laws in the United States regarding CFL disposal. While federal law requires waste processors to take certain measures to prevent mercury release, several states have enacted more stringent regulations placing requirements on retailers and consumers. The laws of Vermont, Maine and Massachusetts are discussed. Several other regulatory options are also presented, such use of taxes and subsidies to incentivize certain behavior, along with private sector initiatives.

Opposing Views

Students are told of the drawbacks and benefits of CFLs before being asked to make recommendations. Proponents of mandatory CFL recycling make the following arguments:

- Compact fluorescent lamp recycling is necessary to protect human health — it prevents the environment from mercury contamination through improper disposal of CFLs.
- The existence of state laws in Maine, Massachusetts and Vermont demonstrate that establishing recycling mandates and the proper infrastructure is possible.
- Recycling CFLs is relatively easy for consumers, and because of CFLs’ long lifespan, consumers would not have to actually go through the process often.

In contrast, opponents cite these arguments against mandatory recycling of CFLs:

- The amount of mercury that recycling CFLs may keep out of the environment is small compared to other sources. Action on mercury should be focused elsewhere.
- State laws mandating CFL recycling are ineffective and have poor consumer uptake rates, as demonstrated in Massachusetts and Maine.
- It is unlikely that consumers will make the effort to recycle CFLs since it typically requires them to transport the dead bulbs to a [potentially inconvenient] location.

Policy Alternatives

Finally, students are asked to give their recommendations. Options include:

1. Do nothing.
2. Have the legislature release a resolution encouraging proactive behavior on the part of manufacturers and consumers.
3. Enact laws similar to those in Massachusetts, Vermont, etc. to require recycling of CFLs.
4. Encourage local municipalities to implement their own CFL recycling programs.
5. Establish tighter restrictions limiting the amount of mercury in CFLs available for sale in the state.
6. Employ a strategy of taxing and subsidizing.
7. Phase out CFLs for sale in the state.
8. Other option, or a combination of any of the above.

It is important that students remember that there is no “right” answer. The purpose of this case study is to prompt critical thinking and discussion of life-cycle changes that can be made to address this issue.

Each course of action has its own merits and drawbacks. Students should be encouraged to evaluate each alternative in light of the information given in the case study, and support their choice with relevant evidence. Creativity is also important, and students should feel comfortable devising a novel solution, even if it is not discussed in the case study itself.

Questions for Discussion

1. Setting up disposal systems, with drop-off recycling sites, has been one way to increase proper disposal of CFLs. How would such a system play out in less densely populated states? Would it be effective?
2. What is government’s role here? How involved should the government be in influencing technological advancement/progress?
3. Climate change is arguably the most pressing and urgent problem facing society. Why should we care about the mercury in CFLs (given how small of an amount it is) when CFLs are so energy-efficient?
4. Will consumers make the effort to store dead CFLs and take them to a separate drop-off site? Think of the lifespan of CFLs: would consumers take 1 CFL to a site? Or would they have to store them for years until a trip was worth taking?
5. How do you justify a tax, particularly in the current economic and political climate?
6. Compare and contrast the laws from Vermont, Maine and Massachusetts. What are the strengths and weaknesses of each?
7. If laws require consumers to separate and recycle CFLs, what are the appropriate penalties? And how will they be enforced? (i.e., who will monitor people’s trash?)
8. Do consumers have an ethical responsibility to recycle CFLs? Does anyone?

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