

## HIFs: Twice the Light & Half the Operating Cost

**A** lit incandescent bulb has been the cartoon symbol of a good idea for at least a century. But that does not mean that its kind of light actually is a good idea any longer. As a matter of fact, the incandescent bulb is very likely on the way out.

The same goes for the high-intensity discharge (HID) type of lighting often used in school and hospital auditoriums, gyms, cafeterias or larger, high-ceilinged rooms. As a pretty reliable rule of thumb, HIDs (metal halide, high-pressure sodium and mercury vapor lighting types) are 30%-50% more expensive just to operate than the modern high-intensity fluorescent (HIF) type.

A 50% savings incentive would probably cut heavily into the popularity of these types of lighting on its own, but there is an added reason to switch: you can get paid to do it. There are many grants and/or rebates available that help cover the cost of the project. These can come from a variety of sources.

For just one example, many states have organizations comparable to Wisconsin Focus on Energy. Focus is a public-private sector partnership that offers energy information and services to residential, business and industrial customers throughout that state, including grants for energy-saving projects such as retrofitting from HID lighting to HIF. In addition, many utilities offer substantial rebates for energy-saving projects such as this, and it is not unusual to see 25% of the project cost covered this way.

On a higher governmental level, the U.S. Department of Energy awards many grants through its State Energy



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Program (<http://www.eere.energy.gov>). If you are in a smaller city or rural area, it is worth looking into the U.S. Department of Energy's Rural Development Grants website at <http://www.rurdev.usda.gov>.

Having someone help finance a project that ultimately saves you money is just one reason to consider upgrading your lighting; it is worth doing anyway, with or without outside help.

There are three main reasons to consider a retrofit, although favorable economics usually outweighs the other three by a wide margin:

### 1) Improved Economy Through Energy Efficiency

The rule of thumb is simple to state: replace high-intensity discharge (HID) lights with high-intensity T8 or T5 fluorescents and you will receive up to twice the light (and a better quality of light, at that) for about half the operating cost.

Additional cost savings may come from these facts:

- High-intensity fluorescents operate 1,000 degrees F cooler than HID's. This means lower air-conditioning expenses, and where there is no air conditioning, warm-weather ventilation is more effective.
- Fluorescent tubes cost quite a bit less and have a longer effective life than HID's, which adds up to lower maintenance costs.

- The better lighting and better diffusion of HIF lighting usually makes it possible to eliminate much, if not all, supplemental lighting.
- The HIFs overall lower current draw will free capacity on existing electrical panels and/or delay installation of more panels.

The last item reflects the fact that organizations tend to add equipment over the years, with total power usage migrating upward.

Oddly, the cost of the new fixtures themselves is not terribly important in overall cost calculations. In a typical installation, 86% of the total lighting cost over the fixture lifetime comes from the electric bill. Another 11% comes from replacement lamps and the labor of changing them. That means that just 3% is due to the cost of the fixtures themselves. Payback will be between 18 and 36 months.

## 2) Enhancements to the Interior Environment

When evaluating possible lighting improvements for your facility, keep these in mind:

- HID lights do not provide the best color rendering to begin with and their color shifts with age, often within just a few months, playing havoc with their color-rendering ability. They also lose about half their light-emitting power over their lifetimes.
- T8 or T5 HIFs maintain their true, full-spectrum light (often compared to sunlight at noon) over their entire lifetimes. They lose less than 10% of their light-emitting power over that span.

- A considerable body of anecdotal evidence suggests students and workers do better under full-spectrum light.
- Full-spectrum light has an anti-depressant character; it is a recognized medical treatment for the winter blah-like Seasonal Affective Disorder (SAD).
- The T8s and T5s have instant off-on capability. There are no five- to 10-minute delays after power outages.



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## 3) Safety and Health Benefits

Most schools and hospitals are already pretty safe, but increasing the level and quality of light in a professional manner is an obvious benefit to safety and helps reduce the chance of accidents. Moreover, poor lighting can affect eyesight and cause eyestrain.

Finally, there is a simple attractiveness to the full-spectrum lighting of T8s or T5s that must be experienced directly. Most people describe the light as "excellent," "clean" or "crisp." They like being in it. One person said that going into an area lit by T8s seemed to

give him a "Vitamin D rush."

So, take a close look at energy-efficient T8s or T5s and for grants that may be available in your area. Your students, workforce, maintenance crew will be just as pleased with it as the bean-counters. That's because it is a truly good idea. +

*Orion Energy Systems manufactures and markets energy efficient lighting solutions for the manufacturing, distribution center, warehousing, commercial, school, institutional and gymnasium markets. Based in Plymouth, Wisconsin, Orion provides capacity displacement solutions for supply side management, transmission management, and demand side management for the electricity industry. For more information, and to view the NBR segment, visit [www.oriones.com](http://www.oriones.com) or contact Linda Diedrich, director of corporate communications at [ljd@oes1.com](mailto:ljd@oes1.com) or 920.482.1988.*

