



FRONTIER LIGHTING NEWSLETTER

This newsletter is dedicated to providing you with helpful information on your lighting needs plus other items of interest.

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sales@FrontierLighting.com

www.FrontierLighting.com

Rare Earth Metals Shortage Rocks the Lighting World

While these rare earth elements are not actually “rare” in the environment, nor are they “earth”, the name dates to the 18th and 19th centuries, when the elements were first isolated out of actually rare minerals. “Rare earth” stuck, but the elements themselves turned out to be pretty common, mixed in small concentrations into rock the world over.

Periodic Table of the Elements

The image shows a standard periodic table of elements. Two red circles are drawn around the lanthanide and actinide series, which are the rare earth metals. The lanthanide series is located below the main table, starting with Lanthanum (La) and ending with Lutetium (Lu). The actinide series is located below the lanthanide series, starting with Actinium (Ac) and ending with Lawrencium (Lr).

Historically, unstable supply and demand and significant price fluctuations have been the norm in the rare earth elements market. The 1980’s saw a rapid increasing demand, followed by a substantial over supply in the early 1990’s. Until the early 1990’s most of the world’s supply of rare earth elements (or rare earth metals) were mined in the USA. China entered the market in the early 90’s and by the late 1990’s China’s low cost production had flooded the market and driven most US companies out of the rare earth mining business. China today produces more than 95% of the world’s rare earth metals supply. Over the last few years, China has started cutting the amount of

rare earth metals that they export each year, while global demand has been increasing annually, with the increased demand of rare earth metals used in everything from fluorescent light bulbs, wind turbines, telecommunications, defense technologies, magnets and more.

Rare earth phosphors are refined from rare earth ore and are a key component of general

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Contact us at . . .

Clearwater: 727-447-7676

Bradenton: 941-342-8801

Ft. Myers: 239-454-2852

Tampa: 813-386-0219

Lakeland: 863-583-0053

Orlando: 407-295-0091

sales@FrontierLighting.com

Fax: 727-447-7971



1-800-226-BULB (2852)



Scan the QR code above to go to
www.FrontierLighting.com



Frontier Lighting, Inc.

2090 Palmetto Street Clearwater, Florida 33765

www.FrontierLighting.com



Florida’s Number One Supplier of Lighting!



Did You Know?

- An elephant's tooth can weigh as much as 12 pounds.
- Salmon can jump as high as 6 feet. Sturgeon can also jump six feet out of the water and crash into unsuspecting boaters. Sturgeons can grow up to 8 feet and weigh up to 200 pounds.
- A baby octopus is about the size of a flea at birth.
- It was discovered on a space mission that a frog can throw up.
- If a Lobster loses an eye, it will grow another one.
- A cow gives nearly 200,000 glasses of milk in her lifetime.
- In Texas it's illegal to put graffiti on someone else's cow.



- Slugs have 4 noses.
- Some salamanders can grow up to five feet in length!



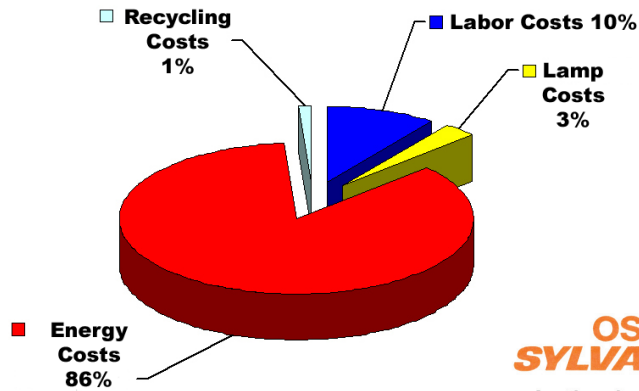
The Facts of Light

Light Saving, Sight Saving, Energy Saving

Cost of Light

When evaluating a new lighting system or reviewing an existing installation, keep in mind that the energy costs will be the single largest expenditure and that it is a recurring monthly cost.

Choosing energy efficient lamps, ballasts and fixtures can help keep that energy expense lower while providing quality light levels.



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Energy Solutions

Lighting is the one load that can be significantly altered to produce energy savings while maintaining or even improving current light levels. Energy Solutions:

- Replace T12 systems with energy efficient T8 or T5 systems
- Use high frequency electronic ballasts instead of magnetic ballasts
- Replace incandescent lamps with compact fluorescent or LED lamps
- Implement a lighting maintenance plan in your facility (group re-lamping and disposal)
- Install lighting controls (dimming instead of fixed light, occupancy sensors)



Some of the quality products available from FRONTIER LIGHTING

- | | | |
|---------------------------|------------------------|------------------------|
| ◆ Light Bulbs | ◆ Batteries | ◆ Stage/Studio |
| ◆ Ballasts | ◆ Flashlights | ◆ Black Light Bulbs |
| ◆ Fixtures | ◆ Track Lighting | ◆ Low Voltage |
| ◆ Photo Cells | ◆ Tube Guards | ◆ Landscaping Lighting |
| ◆ Outdoor Boxes & Covers | ◆ Lightning Protection | ◆ Security |
| ◆ Exit/Emergency Fixtures | ◆ Lenses/Globes | ◆ Wiring Devices |

MORE THAN 6,000 TYPES OF LIGHT BULBS IN STOCK FOR IMMEDIATE DELIVERY!



Ways To Optimize Battery Performance!

Charge your new battery overnight before using it. This is referred to as INITIALIZING and will enable you to obtain maximum battery capacity for:

- Nickel Cadmium or Nickel Metal Hydride: 14-16 hours.
- Lithium Ion: 1 to 2 additional hours after the charger light turns green.

In order to minimize capacity loss and cycle life reduction, new, NON-INITIALIZED batteries must be stored in well ventilated, cool and dry locations. Batteries stored in these conditions may be stored:

- Nickel Cadmium: up to 2 years.
- Nickel Metal Hydride: up to 18 months.
- Lithium Ion: up to 18 months.

A number of studies have shown that storing batteries in the freezer helps them retain their



charge longer. This is less true for alkaline batteries (freezing extends their shelf life by only about 5%) than it is for NiMH and Nicad batteries often used in electronics. Keeping NiMH batteries in the freezer can boost battery life by 90%.

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service fluorescent light bulbs. Within the fluorescent tubes, cathodes sealed at each end of the fluorescent tubes emit a flow of electrons that reacts with the mercury vapor already present inside the bulb. The reaction results in the emission of invisible ultraviolet (UV) radiation. To convert the UV radiation into visible light, light bulb manufacturers coat the inside of the tubes with powdered phosphors. (Phosphors

are elements that fluoresce (or glow) when struck by UV rays, generating visible light.)

While it is hard to account for exact market usage, a significant percentage of the rare earth phosphors refined are used in fluorescent light bulbs. The phosphors that are used in fluorescent bulbs are refined to a powdery texture similar in consistency to bread flour. The prices for some of the rare earth elements have increased about 3530% since January of 2010. The rare earth market will ultimately correct itself over time with new large scale mining operations planned in Canada and Western Australia. A mine in the Mojave



desert is restarting after a decade long shutdown, with a much more efficient extraction technology than they had 10 years ago, but these increased supplies may be some time off before the finished products reach the market. As Florida's Number One Supplier of Lighting, you can count on Frontier Lighting to keep your organization informed in these changing times.

Contact your Sales Representative if you have any questions.



Florida's Number One Supplier of Lighting!



FREE DELIVERY!

Clearwater: (727) 447-7676
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 Pasco: (727) 791-7003

Ft. Myers: (239) 454-2852
 Manatee: (941) 342-8801
 Sarasota: (941) 342-8801

Hernando: (727) 791-7003
 Orlando: (407) 295-0091
 Tampa: (813)-386-0219



Monday through Friday 7:30 am - 5:00 pm





Frontier Lighting, Inc.

2090 Palmetto Street
Clearwater, Florida 33765

Phone: **(727) 447-7676**

Fax: **(727) 447-7971**



Frontier Lighting, Inc.

6204 28th Street East
Bradenton, Florida 34203

Phone: **(941) 342-8801**

Fax: **(941) 827-0101**



Frontier Lighting, Inc.

6280 Topaz Court
Fort Myers, Florida 33966

Phone: **(239) 454-2852**

Fax: **(239) 541-2083**