

Watts Up!

by Paul Lewis, Facilities and Transportation Director
Reed City Area Public Schools

What is a kilowatt hour? When we buy diesel for the buses, they charge us by the gallon. When we buy electricity, they charge us by the *kilowatt-hour (kWh)*. When we use 1000 watts for one (1) hour, that's a kilowatt-hour.

When the number is low, we sometimes use **watt-hours (Wh)** instead of kWh. For example, we might say **500 watt-hours** instead of 0.5 kWh.

Watts and watt-hours:

Watts is the measure of the **rate** of electrical use **at any moment**. For example, a microwave uses about 1200 watts.

If your device lists amps instead of watts, then just multiply the amps times the voltage to get the watts. For example: **2.5 amps x 120 volts = 300 watts**

Understand the difference between *watts* and *watt-hours*:

Watts is the *rate* of use at *this instant*.

Watt-hours are the *total energy used over time*.

For Example:

The High School gym has (36) high-bay 400 watt light fixtures for the main gym floor and (19) fixtures for the balcony. That is a total of 14,400 watts for the main floor and 7,600 watts for the balcony, with all of the lights the total is 22,000 watts.

The formula to calculate electrical cost is:

Hours Used x Number of fixtures x Watts Per Fixture /1000 = kWh

kWh x \$/kWh = cost to operate.

To have the lights on in the gym for an 8 hour school day costs:

$8 \times 55 \times 400 / 1000 = 176 \text{ kWh}$

$176 \times 0.096 = \$16.90$ You say that's not bad, well times that by 180 school days and it is \$3,041.28, or if the lights are left on over the week end the cost would be \$101.38. Understand that these costs do not include after school practices or extra curricular activities that are held during the year.

To help reduce the electrical consumption, we have installed a lighting control panel in the High School gym, which now has 2 lighting levels – one for gym class and practice time and a second level for game days when all of the lights are needed. The balcony also has 2 lighting levels. The controller also shuts the lights off daily at a programmable time just in case some one happens to leave the lights on. This is one example of what the Facilities Department is doing to reduce the operational cost to the school district.