

# A Lighting Conversion Case Study

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## Munroe Regional Medical Center Ocala, Florida

***“While we all agreed that we should revitalize our lighting system, some of the staff had serious concerns about power quality problems. We decided to look for a Green Lights L.M.C. Ally who understood the power quality business. We found one — UEA!”***

### ***Description:***

Munroe Regional Medical Center (MRMC) was founded in 1898. The 323 bed Acute Care Facility is “community owned” and provides a wonderful success story in a very competitive industry. The hospital’s total charitable care and community service contribution as of 1994 exceeded \$16.9 million. MRMC is the largest non-governmental employer in Marion County and its reputation within the Florida health care industry is impeccable. The MRMC staff had, for some time, been considering a lighting retrofit conversion of the facility’s 3,515 fluorescent fixtures which utilized standard electromagnetic ballasts and 40 watt cool-white T-12 lamps.

### ***Retrofit Goals:***

The primary goal of the lighting conversion was to lower energy costs as much as

possible while also improving light quality within the facility. Because of its commitment to the environmental contribution that this conversion would make, MRMC had earlier in the year signed a *Memorandum Of Understanding* with the EPA Green Lights Program in which the hospital had committed to reduce its lighting energy consumption by at least 30% over the next three years.

### ***Constraints:***

The major constraints of the project were the possible side effects such a lighting conversion might cause within the facility. Because MRMC’s staff was concerned about critical electrical loads, the selection of electronic ballast to be used required special attention, particularly with regard to EMI and RFI characteristics. The ballast selected for the MRMC project had to come with the manufacturer’s assurances that it would perform without producing power quality side effects and could, if necessary, be counted on to perform in conjunction with power line carrier systems. Another problem of concern, which could only be addressed by preliminary testing, was that of a high harmonic environment. Documented cases of poor ballast performance within facilities with high harmonic levels has also created caution on the part of facility managers as well as some lighting management companies.

### ***Solutions:***

Because of its exposure to the Green Lights Program, MRMC had already decided to follow the EPA recommendation of contracting with an approved Green Lights *Lighting Management Company (LMC) Ally* to design and perform its lighting retrofit conversion. While MRMC had concluded that employing a *Green Lights LMC Ally* would insure a professionally designed lighting system, it still left unsolved some nagging questions with regard to other power quality problems. What if, for example, MRMC did have high levels of harmonics? The hospital decided to employ United Energy Associates to perform its standard power quality analysis study and to design a suitable lighting conversion proposal.

### ***Results:***

While the results of the UEA power quality study determined that the MRMC facility *did not* have levels of harmonic distortion that would interfere with the proposed lighting retrofit, the study *did* substantiate that the facility had a serious grounding system problem which required correction immediately. Having thus cleared the way for the conversion to begin, the 3,515 fixture retrofit was installed in less than a month. This conversion has resulted in a dramatic improvement of the facility’s visual acuity.

The high CRI T8 lamps (5000 Kelvin in the nursery and 4100 Kelvin throughout the rest of the facility) have produced “astonishing color changes” within the facility’s interiors. Also, from a financial point of view, this conversion will save the hospital \$99,677 per year in just lighting energy costs alone. Total savings, which include reduced air conditioning and maintenance costs, are projected to pay back the project’s total investment cost in less than two years and produce a 54% annual return on investment.

### ***Environmental:***

Not only will this conversion save the hospital over \$730,000 during the next five years, but the Florida Department of Energy conversion figures confirm that this lighting retrofit will result in the annual elimination of over 2,450,000 lb. of carbon dioxide from atmospheric pollution. Today, MRMC has accomplished all of its Green Lights goals and in so doing is now recognized as one of only six hospitals within the state of Florida so totally committed to its environmental effort.

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