Foreword - a candid interview with Rick Foran, Electrical Services Coordinator, Environmental Coordinator, AutoSystems, Div. of Magna Electronics

Rick - I'm the electrical services coordinator and environmental coordinator for 3 plants ... responsible for energy management. This is a real nice fit for my electrical background. I've being trying to push this, every application, for five years and have looked at every type of application with very little success at all, for 5 years to get an HID replacement. First it was CSC dealing with them for the Samsung LED for our automotive needs here at Magna and they brought it up that they had a replacement for the HIDs that they were working with ProTerra on the development of this HiBay fixture, and that is how I was introduced to John and ProTerra. Then it was back and forth between the two and now I am dealing with ProTerra. At the end of the day it's all about saving energy, getting the light levels we need, from a quality and longevity perspective also for kWh savings ... with this project if we do all 3 plants changing linear fluorescents retrofits and all the hibays to LED we will see in excess of 3 million kWh saved annually which is huge. That gets a lot of people excited. It works for our toxic waste, the elimination of mercury, no more mercury to contend with, no storage of fluorescents, no disposal. Its a huge undertaking in a plant that is working 24/7, I've done it before and we'll do it again. We want to make sure we do it once. I've been preaching to people don't go the fluorescents route anymore, I did the spreadsheet that shows that if we convert to LED we will save $ 67,000.00 in maintenance alone ... this is all on our bottom line, the cooling affect that we get from the LED, according to ASHRAE for every 3 kWh reduced in light we save 1 kWh in A/C costs in our offices. So it all adds up. CO2 reduction plans, RoHS reduction, its mandatory for us, it works with our plan, mercury reductions, disposal costs. Its (LED) also hi power factor, what a lot don't look at is that fluorescents are running at a 50% power factor, what you save on one end you are losing on the other. It's part of doing the right thing. We were willing to trial these products (ProTerra LED) to make sure that in a process environment, one of the best working environments (for trialing LEDS), we have assembly, tight quality control standards, manufacturing , moulding, assembly, warehousing, need to be able to see

very well, pick out details. With the LED retrofits that would give us all of it, we are dependent on the fluorescents, as you can see, the humming the fluorescents flickering, I put some (LED Linears) in my offices, I have colleagues in my office, no more fluorescents flickering, no more buzzing, pretty good paybacks, prices are still a bit high, I guess I'm the guinea pig for Magna and other facilities that want to do this but are afraid because of the capital costs, and I

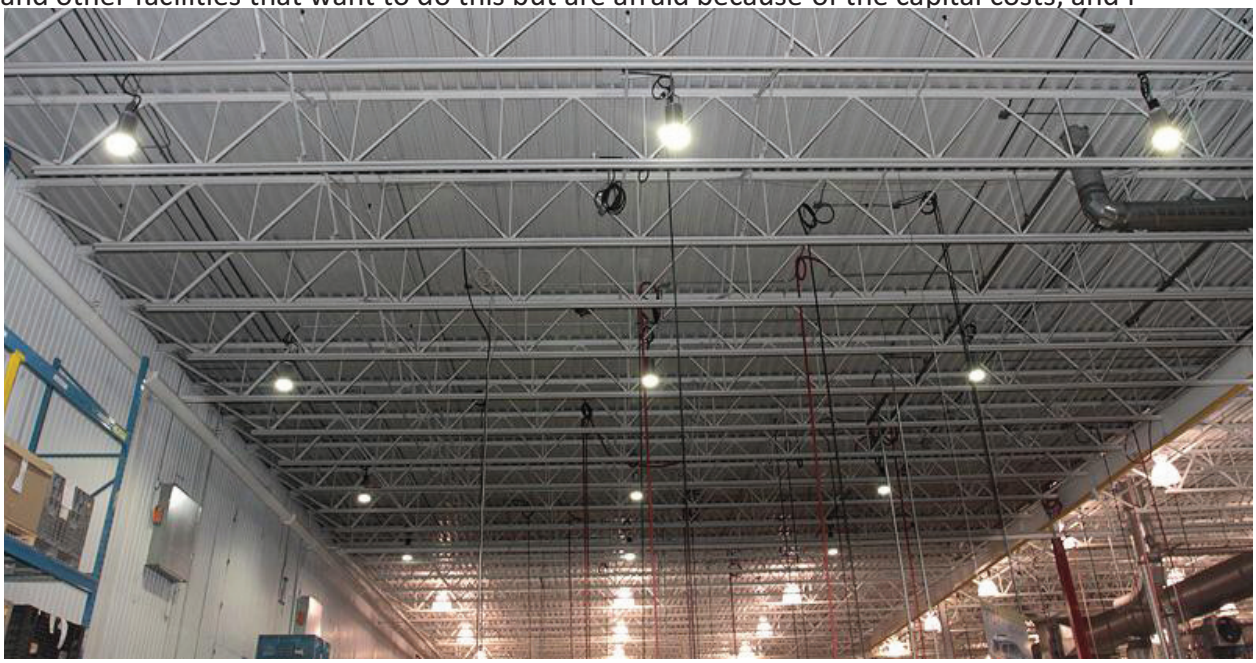

Figure 1 Magna AutoSystems 122watt LED HiBays

understand that because we were the same way, if this works and I think it will, this will open the doors for a lot of other facilities to start looking at doing the same. The heat that we will not be generating, it will not be affected winter or summer, losing power, they don't get affected like HIDS where you have to wait for them to restrike and if you get 2 or 3 restarts in a row you can lose 2 to 3% of your lighting, with LED you get immediate light, no wait time, not an issue. The longevity of the typical incandescent or anything else it progressively drops out, with the LED it just keeps going and doesn't drop. Another big thing that we really like about this is how it is being driven, it is being driven at 65 to 75% , the longevity should be ... a lot of the offshore LED product, they are being driven at 100%, your connections are going to have a lot of problems, your T-junction temperatures will be too high and you are going to have a lot of problems. Yes you get a nice punch, looks great but it doesn't last

Brian – going to burn that white phosphor off of that blue LED and just gone ...

Rick – absolutely, and we've seen it and I've had companies call me that have gone this route and now they are painting all LED manufacturers with the same brush because of it, once bitten twice shy and I don't blame them. Our own municipality is doing street lighting, at the exit and

entrance to the 401. Put it in and took it out the next month, just not getting the punch. There is a lot of pros and cons, met with our chief, he is concerned about the stop lights and street lights, not enough heat to melt the snow, he is really concerned. There is a lot of work to be done. There are a lot of people trying to jump on the band wagon too soon; I am trying to do that in my own company, people that I deal with. You don't want to go out and fail. If you fail they will not ever come back to you again. CSA approved, another huge issue, I'm an electrician by trade, there are a lot of Chinese and offshore companies that say they are approved but we get it in here and it isn't. There is also a lot of stuff made in the US and Canada that is brought in from offshore, all part of moving forward with technology ... I mean we have had failures in some of our headlights and taillights. We've learned from those failures. We have to go back and fix it. We are a headlight and taillight manufacture, we design our own, we do it all.

Brian - how long has Magna being using LEDS in their taillight and side light assemblies?

Rick – I don't know how long, it's been out there for a fair time, say 5 years

Brian – so in house you have intellectual property that relates to the understanding and implementation and longevity of LEDs

Rick – and we design our own LEDS as taillights, side markers, so we know what it takes, we've done the time, we've been burned, we know what it takes, and now we are in a position to make use of this as a very nice marketing tool, for us to show we believe in it enough to use it in our own facility.

Brian - the information we are getting here today is going to go out to 17,000 facility managers, manufacturers and exporters in Canada, these people are responsible or active in their environmental committees and HR issues, we would like to hear about any of the feedback you have received from the employees at Magna

Rick – the biggest feedback I have received is there is no more fluorescents flickering, there is a nice punch, good quality control as the punch is the light they are using to check the quality of the piece, they don't have to use a headset light, they don't have to squint, the light is good, it punches it out nice, we can see into cavities, some of the housings defects that we would not be able to see otherwise without using a high power incandescent fluorescents floodlight type that we don't want to do for economics and eye strain reasons it's not a good idea. Most of the people who work under this (LED) light go home at the end of the day feeling better, they don't have the headaches, the continuous photophobia is absent, after working under the LEDS they go home at the end of the day feeling better, they don't have the headaches, some people are really effected by High Intensity light, so this is not high intensity, it is good light. Just there, it's a constant. Not fluorescents flickering. The environmental side, its a win-win. On the

maintenance side, if I can reduce my maintenance costs by one person a year that is great. That is what this will do for us. At a facility this size, we are a huge facility, looking at doing all 3 facilities (with LEDS)

Brian – Magna International is concerned about it's GHG emissions, is that fair to say?

Rick – yes

Brian – is Magna monetizing GHG emissions and looking at the LED implementation as a strategy to reduce GHGs and create carbon credits?

Rick – I can't speak to that for all of Magna but absolutely that is what we are looking at here, anything that we can do, we al l know that for a every kWh saved, .7 KG of CO2 emissions are eliminated. For Magna people within the environmental side that is huge, we all live on this planet and we want it to keep going. It's a great thing on the environmental side, they are excited, we haven't committed to it, we are doing the trial and soon we will know.

Brian – to recap, you are using LED linears to illuminate the workstations in some of your cells,

Rick – yes and we have done some linears in my office, good light, no failures, health benefits are evident

Brian – how do you quantify the health benefits, it becomes very subjective

Rick – yes and there needs to be more study done in this area. When I see ERIP and other incentives out there offering money to put in HID Pulse Start, we are going to the next generation of lighting, we are jumping a whole generation, we can assist in the need NOT to build new generating stations, once it's done (implementing LEDs) it's done it's there. The application is being done, when we do the application, we have to capture the usage, reduction, etc. which I have in a spreadsheet.

Brian – on the energy savings what are you considering as incentives to change?

Rick - $ 400.00 a kWh saved is what ERIP is offering right now, it's all about kWh hours, its kWh saved on lighting, if we could get everyone to change over we would not need to build any more generating stations, we have to reduce globally GHG and emissions, this is the easiest point to reduce energy, lighting is the easiest, they're are lobbying for fluorescents but fluorescents still includes mercury, we have to do this, I've shown a lot of industry this and they are waiting for us to do this.