**Part Two of Illuminated, EPA’s Lighting Podcast**

Brittany - Hello and welcome to part two of Illuminated, EPA's lighting podcast. I'm Brittany Gordon-Williams and on behalf of the U.S. Environmental Protection Agency, I invite you to join us as we discuss the latest in energy efficient lighting options with some of the leaders in the field. Part one of our podcast explores trends on the current state of lighting in the U.S. and what new lighting technologies are on retailers’ shelves. For part two we will look at how attitudes on lighting are changing in the market, tips on buying bulbs, and ENERGY STAR's role in educating consumers about making lighting decisions that will help prevent future climate change. If you'd like to jump directly to a specific topic, at 5:21 we explore the different standards. We discuss the future of lighting at 16:52. Our guests today include Taylor Jantz-Sell here in Washington, DC with me, she’s ENERGY STAR’s lighting Program Manager. Noah Horowitz, Senior Scientist from the Natural Resources Defense Council, he’s joining us from Berkley, California. Naomi Miller, Lighting Designer and Senior Staff Scientist from Pacific Northwest National Laboratory, she’s joining us from Portland, Oregon. And Mark Voykovic, he is the National Light bulb Merchant from Home Depot, joining us from Atlanta, Georgia. Everyone, thank you for joining us.

Brittany - This question is for the entire panel. Tell us, how have you seen attitudes about lighting change over the last few years? Maybe we can start out with Noah.

Noah – Well first of all a lot of people were wed to their incandescent light and that was no bargain, that bulb cost $10 to operate per year even though it only cost a quarter. I think people are finally catching on that, whether it’s a CFL or an LED, those bulbs give off the same amount of light and save you a whole lot of money even though they cost a little more to buy up front. The other thing is, LED’s used to look like shower heads and the bulbs are starting to look a little more normal and I think that’s helping consumers become more comfortable making that first purchase of the LED.

Brittany – How about everybody else, how have you guys seen attitudes change over the past few years?

Mark – So Brittany, just from the Home Depot’s side, we’ve seen a lot of changes in regards to purchase habits of our customers. Let’s take LED’s in general, right. So, light bulb sales at Home Depot are up overall. And that LED’s continue to be the fastest growing segment of our light bulb business, in 2011, right, the LED category more than doubled and is more than 14% of our overall light bulb sales. Now we’ve seen over a 500% increase in sales of LED’s from 2010 to 2012. I mean, from my perspective you know, this clearly demonstrates that our customers are gravitating towards LED’s and their gravitating towards, you know, higher quality energy efficient lighting products and that even though they have a higher than average price point, we are still seeing folks towards the adoption because of the long-term life of LED’s as well as their efficiency. I think also that you know as Noah had mentioned, a lot of LED’s are now looking more similar to your traditional incandescent. And I think as consumers, when we have bulbs that look a lot similar to incandescents, we’ll see a lot more consumers purchase those bulbs in addition to the lower price point that is now happening in the marketplace. You know an example of that for us would be the introduction of our new pre-LED light bulbs. Our 40 watt LED light bulb or 40-watt equivalent retails for $9.97 in most stores in the U.S. And our 60 watt is $12.97, so that’s been a significant drop in retail prices over the last, you know, year or 18 months.

Brittany – Thank you, Mark. You know, speaking of all these developments that you guys have been seeing I think it would be really important to talk a little bit more about these new federal lighting standards. The Energy Independence and Security Act of 2007, that’s what ushered in these new federal lighting guidelines, they’re making energy-efficient bulbs the new standard. But this change has confused some people about how to buy the best bulbs for their home. Let’s start with Taylor. Taylor, how is ENERGY STAR working to help those consumers?

Taylor – Well, like I said earlier, the ENERGY STAR helps guide people to the more efficient options. But we are also providing resources on our website to help address some of those challenges that Noah and Naomi mentioned earlier. We have an interactive guide that helps you look at different bulbs and identify the fixtures that they’re best used in and also reminds you about tips that if you have fixtures with certain features like a 3-way switch or a dimmer that you’ll need to look for those features on the light bulbs themselves. Certainly, reading the packaging, you know, spending a little bit more time of your light bulb purchase than you’re used to will help ensure that you have a good experience with that product. We do also have some basic information for those people that are kind of confused about what’s going on with the Federal standards. But I think the nice thing to know is that there are these really excellent, even more energy-saving choices out there.

Brittany – Thank you, Taylor. And I’ll open that up to the rest of the panel. You know, all you have to do is watch the news to see that there are some people who are confused about these new standards and how to buy a light bulb. What do you hope the takeaway is for those people when they go into the store and they start looking for light bulbs today?

Mark - So Brittany, just something to think about. So, a lot of consumers who come into Home Depot, to your point, are confused about what to buy and I think that a lot of it has to do with, you know, CFL’s have been out there for a period of time and you have some folks who really like CFL’s because of the energy savings and their still a portion of folks that don’t and for reasons in regards to the warm up time of the CFL’s, you know, or the light output. And I think that what we’re seeing, you know, is that when consumers can walk in, for example, if they walk through a Home Depot store I think that we try to help and take away some of that to demystify what their selections are. And Naomi had mentioned about the light temperature earlier and so, you know we have a display box in the stores that show the different light temperatures that are on there so, from the soft-white or you know, 2,700 kelvin, to our bright light at 3,000 or our daylight at 5,000. That will help consumers, you know, have a better idea of what the light color will look like. But you know, to Taylor’s point earlier, you know, there are two things. One is that consumers should feel very confident that retailers who sell, basically ENERGY STAR qualified or rated products should feel very confident in the output or performance of that product. So that’s probably one thing to continue to look for and then, you know, also consumers can also then, have opportunities to trade up in energy savings. We think a lot of consumers are going to move right into energy-efficient halogen or eco-incandescent bulbs just because they look very similar to an incandescent but again, you know you do have the LED products that are out there that will save you energy and as both Naomi and Taylor had mentioned, just take a look at the front of the package. Look at the energy savings that’s there and just take an incandescent and an LED and just think about that in a year and a half or less in some areas you will have paid back for one LED bulb and you’ll be able to put that savings back in your pocket for the next 20-25 years.

Taylor – Absolutely, and as Mark mentioned about in his store at Home Depot’s, you can actually experience the different light colors. That’s a key thing for people to notice about these light bulbs, I mean, you’ve got options. You can customize your space. What we have on our website is the guide to navigate the light bulb purchasing decisions and it’s the ABC’s of lighting. ‘A’ being appearance as it appears on the lighting facts label that Naomi mentioned earlier. What kind of color are you looking for, are you looking for a soft white, a more cool white, or like a daylight product. I mean, you can find all those options that are right for different rooms in your home and different décor and you can experience those in the store. That’s the beauty of that option and then ‘B’ is brightness. How much light do you need for your space and that’s where you look to the lumens now and luckily that information is right on the front of the package. And then ‘C’ is cost and again, that information is right on the front of the package so you can compare costs. How long is that product going to last and how is it going to save you money over the long-run, not just the upfront cost.

Naomi - Brittany, I’d like to add one suggestion for consumers if they’re shopping for light bulbs. They may be confused looking at the shelves and find a couple of different light bulbs and they don’t know which one is going to work best. See if the retailer will screw it into a socket for you so you can take a look at it and light it up. That will help make a confident decision but then also, if you take it home and you find out that one of the bulbs doesn’t look as good or doesn’t work as well as the other light bulb, go back to the store and return the bulb that didn’t work well and buy more of the bulb that did work well. So, what it means is I’m not going to make any friends with any retailers here but make sure you’re dealing with retailers who are willing to take back bulbs that don’t work and give you your money back and allow you to buy the bulbs that do work.

Mark - So Naomi, with that, the Home Depot is very customer first for our customers who walk in the door. I would agree with Naomi, going to the stores, talk to an associate, have them walk you through the different types of bulbs that are on the shelf. In our lighting department where we have our interior hanging lights, we do have some lights that are lit by LED bulbs and there are some that are lit by CFL’s. So that can give you a great opportunity to look and see how these bulbs are lit in fixtures and give you an idea how they would look if you are looking at them from the floor looking up into the fixture or if it was a wall light. Hopefully you should be able to feel a lot more confident in the selection of the product that you are going to take home with you.

Noah – This is Noah, I’d like to talk a little bit about the standards. There’s a whole lot of misinformation and fear that’s being thrown out there. These standards are technology neutral and do not ban the incandescent. The standard merely requires all bulbs to be more efficient. Whether you’re an incandescent, a CFL, LED those can be made as long as they meet the efficiency requirements. So you can still go out there and buy an incandescent as Mark said it’s really a form of halogen that gets kind of wonky. The incandescents that are out there are new and improved, they used about 28% less energy, which is a lot better than today’s incandescent, although as all these speakers have pointed out, they still use two or more times energy than the better choices of CFL’s and LED’s. But this standard caused the old 125 year old incandescent to finally be retired and there’s a three year phase in for the standards so the transition has been gradual and leading manufacturers like Phillips, GE, OSRAM, and others have all bought in to the standards so things going very well and I’m hoping we can clear up that confusion that might be out there with some of the listeners.

Mark – Noah, there’s also just something to think about too is that there’s a reason why there’s an incandescent light bulb in the easy bake oven. When you look at incandescent bulbs and how inefficient they are, if you take a 100-watt incandescent, about 90 or so watts of that isn’t energy, heat. And the balance of that is light. So, you know, the light output of that bulb didn’t bake the cookies, it was the heat from the bulb.

Naomi - And I can give you another example and that’s a lava lamp. You can’t put a CFL in a lava lamp and expect it to work because it doesn’t emit enough heat to melt the wax.

Brittany - Those are great visual examples that you guys have shared, thank you. I wanted to talk a little bit about the ENERGY STAR label and what it has done in this space. The label is now recognized by over 85% of Americans and how many of them, lighting was their first interaction with the ENERGY STAR program. How has ENERGY STAR helped in educating consumers and pointing them in the right direction when it comes to energy efficient lighting?

Taylor – Some of the things that Naomi mentioned earlier. CRI, it’s the color rendering, how does that light render colors. And 80 is a good place to start. Luckily, we’ve already kind of taken care of that with the ENERGY STAR standards. So you can’t earn the ENERGY STAR label unless you have the minimum CRI of 80. That’s just one example. We’ve created requirements that are beyond energy efficiency to make sure that people have the better experience with these products. So one other example is for the reflector bulbs that are going in your recess cans, the floodlights, the spotlights. The ENERGY STAR specifications require those products to be tested in a higher heat environment to simulate the intended use of those products. You know, we also have requirements that help keep the color consistent. Ensure that the color is going to match another 2,700 kelvin bulb that you want to put in the same room. We have more than 20 separate industry standards and tests that these products are evaluated against to ensure that they are really going to live up to their claims. It helps give that extra confidence in your purchase, especially when it’s a higher cost purchase. But also, all the ENERGY STAR bulbs have to come with the minimum warranty as well. So the manufacturer has to back the ENERGY STAR certified products for a minimum of two years for CFL’s and three years for LED bulbs so you have that confidence you can hang on to those receipts. Our latest specifications have gone on further to address the environmental aspects beyond energy for these products. So we’re now introducing unprecedented low levels for mercury in CFL’s, for example. And limiting other toxic materials like cadmium and lead for these products that are selling with the ENERGY STAR. So those are just a couple of the things but it helps when you have certain bar to hit for sure. You know, these products are cycled, their tested for hours and thousands of hours and if the claims on the packaging, if you’re going to claim that you’re going to replace a 60-watt light bulb, you need to put out about 800 lumens and it helps to have that recognition of lumen to watt for everyone’s, you know as we go through this transitional period where people are trying to learn how to buy light bulbs based on lumens which is challenging and its new so we have that guidance so when you see a 60-watt claim you can expect about 800 lumens.

Brittany – I’d like to open this up for the rest of the panel. You know, how much weight does seeing that ENERGY STAR on a package have for people when they’re going to buy lighting. Mark, maybe if you can give us an idea from your experience with the Home Depot.

Mark – Sure, so from my perspective, my role at Home Depot is to basically purchase the bulbs that go on our shelves in all U.S. stores. So I work directly with the manufacturers for LED light bulbs and from my end we utilize the ENERGY STAR standards as a basically as an entry into the business is that if they’re going to be providing us with light bulbs or LED bulbs for review that we’re most interested once they pass the ENERGY STAR standards. And then with that, we can have confidence that what we have on the shelf is quality and so when you look at, for example on our website, we do have a large number of clicks of customers who will sort out or filter our LED bulbs by clicking the ENERGY STAR certified box to go ahead and limit the number of LED bulbs that are only ENERGY STAR rated. We’re seeing that as being a positive. We also get feedback from customers that that rating provides confidence with them that what they’re purchasing is a good purchasing decision. I think a lot of this has come through from appliances who have utilized ENERGY STAR ratings in the past and that now has transferred down into LED lighting and light bulbs.

Brittany – Thank you, Mark. Well, you know as Taylor noted earlier, there are still a lot of inefficient bulbs out there and plenty of room for improvement. What gets you guys excited about the future for greater use of energy-efficient bulbs?

Naomi – This is Naomi, can I respond to that? I’d like to point out that there are not just replacement LED bulbs on the market but there are also light fixtures coming on the market that are dedicated LED, which means they were never born as an incandescent fixture. They were born right as LED’s and those fixtures are going to be seen installed in homes more and more. And it includes things like puck lights that you might use underneath the cabinets in your kitchen, track lighting, or outdoor wall light fixtures. And these products not only save energy but they look great and they’re easy to control and if you do your homework, they’re also to dim so there’s a lot of potential out there. So, I do have to mention dimming. There are some bulbs that work well on dimmers although that’s not universally true. So, it is important if you are putting an LED bulb into a socket that you expect to dim to make sure that you check the compatibility of your dimmer with the light bulb that you’re dimming. And one nice thing is that if you go to a store, there may be a label on the box that tells you a website to go to that might tell you about the compatibility of that LED bulb with your particular dimmer. Now we’re not worried about safety issues, we’re mostly worried about whether that LED is going to dim down as low as you expect it to go or whether it may have some jitter as its dimming. You can always buy an LED bulb, put it into the socket and test it on the dimmer and see if it works. So, dimming is one of those things that’s getting better with time but you can anticipate that you may have some dimmers that won’t work with every light bulb.

Noah - So I’m one of the lighting nerds on the call and I do think about this at night. And what is exciting here is that the LED’s are getting brighter every day, it used to be you couldn’t get an LED that was brighter than the old 60-watt. Now we have those that give off as much light as the old 100-watt light bulb. And that means we have the most efficient for every socket now which is great. The price is coming down dramatically and if we close our eyes and wake up two years from now we might even see a five dollar LED and continuing down, which is great for consumers and the environment. And hopefully when we wake up from this dream we’ll be even closer of hitting our goal of an energy-efficient bulb in every socket, that means 100 million tons of CO2 will no longer be emitted into the atmosphere. In a way more of us might be able to understand, that’s as much electricity each year as all the homes in Texas use. I think we’re onto a great thing here and I look forward to more progress.

Brittany – Thank you, Noah. We are almost done with this podcast but I really quick just wanted to ask, what pool of innovations do you guys see on the horizon? We’ve talked about a few throughout the podcast but is there anything that anybody really wants to talk about that they think we’ll all be talking about in the next few years?

Naomi – This is Naomi, and I want to talk about color-changing bulbs. There are some products coming on the market that allow you to shift color from pink to blue to green with your light bulbs and some of them can be programmed with your smart phone, for example. So, if you want to tune your living room lights to orange for a Halloween party, you can do that. So that’s just a bit of fun but more importantly, these light bulbs can also be offered with occupancy sensors and photo sensors built into them or wireless controls that will allow you to program lights to come on and off with your smart phone of your pc.

Mark – Brittany, I think you know also is that we’ll also see in the future is not just the color changing bulbs but bulbs that you can control with you iPhones and that’s going to be a great innovation that we’ll see shortly. If you can imagine that you can program certain bulbs that can be programmed in groups for like when you want to wake up in the morning or when you want to go to bed at night. If you are away from the house and you are going to be home later to be able to turn on the outdoor lights or indoor lights. I think that will be a great option we’re going to see shortly. An example also is in home theatres, if you have a certain scene you want to set for your home that you can have the bulbs dim down to a certain percent to give you that ambiance that you can just do off of your iPhone by just pressing that scene selector. So that’s what’s nice and innovating. But you know, getting back to one of the things that Naomi had mentioned about the dimming part of it. I would just recommend to our listeners that, as Naomi had mentioned we do have a lot of innovative LED bulbs that can be dimmed down a lot lower, getting down to the levels of LED light bulbs. And when you go home and you try those LED bulbs, if you do have any issues the first thing, that Naomi had mentioned, was that there are on, you know, Home Depot for example, on the shelves today there are CFL and LED qualified or qualified dimmers that you would want to make sure that you purchase when you buy your LED’s and take them home. If you have any issues at all, we have great partners that you can work with from the dimmer manufacturer so at Home Depot we sell both Lutron and Leviton dimmers. They have a great customer service number that can help you walk through or trouble shoot some of the issues. And just to give more confidence for consumers, so when we put LED bulbs on the shelf, one of the steps that we go through is to ensure that those bulbs are tested, for example at Home Depot, with both Lutron and Leviton. Just to make sure that the dimmers we sell on the shelf that are LED specific, that the LED bulbs that we sell will work with them. I think that will help bring more confidence for consumers who want to dim down their LED’s.

Taylor - Absolutely, and with our new specification for a light bulbs we have introduced some dimming testing for ENERGY STAR so you will have added confidence for those bulbs that are marked dimmable. And you can’t have a conversation about lighting today without getting carried away about LED and it’s very exciting and it really ushered in a whole new way of looking at lighting and it’s exciting because LED’s, with their form factor, allow you to provide light where and when exactly you need it. And as in Naomi pointed out, there’s all sorts of ways you can take LED’s and integrate, you can even integrate them into furniture. There’s just so much flexibility and options and I’ll just point out that we do award the ENERGY STAR for light fixtures as well that use LED. So it’s a very exciting time and we have a lot to look forward to cause there are a lot of exciting developments in energy-efficient lighting.

Mark - If I can add something in closing, I think we’re going to see all these new innovations, many we can’t even dream of because these are really electronic devices at the end of the day so it opens up all sorts of opportunity. And in speaking to Mark before the call I guess two of the simplest things we can tell listeners is bring your old bulb with you to the store, that way the person at the store, the clerk, can help you figure out which bulb to buy and then once you’ve figured out which kind of bulb you’ll buy, buy the one with the ENERGY STAR label that way you can be confident it will work well for a long period of time.

Taylor – And don’t be afraid to try, experiment, it’s fun.

Brittany – That’s it for part two of Illuminated, EPA’s lighting podcast. Thank you everyone, you guys provided some excellent advice and this was an informative discussion on lighting in this country. And thank you for listening, if you want to learn more about ENERGY STAR certified lighting and lighting trends, head to our website, ENERGYSTAR.gov/lighting there you’ll find the latest lighting information along with tools and other resources to help you save energy and protect the environment.