



# Glass Manufacturers Reach for the Stars

**Manufacturers Discuss  
the New ENERGY STAR  
Rating for their Facilities**  
by Megan Headley

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closed with several surprises from the Energy Star program. In September the U.S. Environmental Protection Agency (EPA) and the Department of Energy (DOE) announced that they would begin working together and, as part of this partnership, the ENERGY STAR program will now fall under the work of the EPA. As part of the announcement, the groups said that EPA will be establishing a Super Star tier of its program as well.

While the transition garnered a number of questions from members of the glass industry, there was another announcement issued in October regarding glass: a new ENERGY STAR rating is being offered for flat and container glass manufacturers. According to an EPA news release, the new facility energy performance indicators (EPIs), upon which the rating is based, are the first of their kind for these industries.

The agency stated that the U.S. glass industry spends more than \$2 billion annually on energy. The rating is not exclusive to glass; an EPI also was created for the food-processing sector, which is said to spend nearly \$7 billion per year. Improving the energy effi-

ciencies of these two industries by 10 percent, EPA says, would save nearly \$900 million in energy costs and more than 150 trillion Btu, while reducing greenhouse gas emissions equal to those from the electricity use of more than 1 million homes for a year.

The new ENERGY STAR EPI for glass, developed in partnership with members of the industry, is intended to help companies objectively assess energy performance, set competitive goals for improvement and, over time, shift the energy performance of the entire industry.

## The EPI Explained

ENERGY STAR has been working for some time with the glass industry via a "Glass Manufacturing Focus," as EPA calls its partnership between ENERGY STAR and glass manufacturing companies to improve energy efficiency. But the EPI is a step in a new direction.

"It can be used to look at your relative energy performance and, if you're in the upper 25 percent of factories in your category, such as a float glass plant, you can qualify for ENERGY STAR status," explains Jeff Yigdall, director of engineering and international business of PPG - Glass Business & Discovery Center in

Cheswick, Pa.

"It's an industrial ENERGY STAR rating. A number of companies have done that in other industries."

The EPI has been a focus of the manufacturing group for some time. "The rating has been part of the discussions since we joined the ENERGY STAR program in 2006," says Brad Runda, energy manager for Saint-Gobain North America. "... It took a couple of years to get everything in place, and actually develop the EPI."

Yigdall has been involved with the EPA's focus group for about two years now.

"Much of the discussion there has been on energy-saving ideas," he says. "Actually, we've combined a number of focus groups together so we've gotten a cross-industry discussion on energy savings and ideas."

According to information from the EPA website, to be eligible for ENERGY STAR recognition, more than 50 percent of the production of the benchmarked plant must be comprised of the appropriate products (in this case, glass). If fabrication is performed at the plant, all

# Reach for the Stars continued

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**The glass industry and the food-processing sector together spend nearly \$7 billion per year.**

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Source: EPA

glass subject to fabrication activities must have been produced in that plant.

To use the EPI, the plant must submit annual energy purchases or transfers for the current year for each energy source and fuel type, and the total amount of glass sand in short tons used for production in the plant. Plants must account for the energy used to produce compressed air, steam and chilled water.

“The intent of the EPA was to come up with a model that has some level of statistical validation,” Yigdall explains.

EPIs are based on available, and verifiable, statistics for usage of raw materials, such as sand. “In float glass [production], the sand is generally about 72 percent of the total glass so the sand is a good alias for the glass that you’re producing,” Yigdall explains. He adds, “If we did bring in external cullet, for instance, that also would be added as a raw material.”

That data is combined with the usage information for Btus of natural gas used and kilowatt hours of electricity, which together define the plant’s energy footprint and relative energy performance. If found eligible for a rating, the data is then verified, both internally and externally.

A professional engineer is required to sign off on the verified and validated data. “That does have significance; there’s a PE putting his or her license on the line in signing off on the data,” Yigdall says. “Then there’s a follow-up annually to see that you’re maintaining that.”

The rating is awarded for a specific year, so a facility that has earned the ENERGY STAR becomes eligible to reapPLY one year after the date of the last energy data submitted.

## Taking Action

The ENERGY STAR rating seems to be

just one more motivational tool for glass manufacturers working toward “greener” plants.

“We have a number of things in place,” Runda hints without going into additional details about how Saint Gobain is improving its energy efficiency.

Yigdall is slightly more forthcoming about how PPG is working to improve its plants. For starters, with its new energy management program in place, PPG has set an energy intensity goal for glass manufacturing, as well as a corporate-wide goal, to reduce energy intensity by 2.5 percent per year over the next 10 years.

There are a variety of ways the company is considering doing just that. As Yigdall elaborates, “If we’re improving our process yields, we’re getting out more sellable glass for the same gross input; by virtue of doing that we’re improving our energy intensity. That’s one route; the other route is to improve the efficiency of the process itself. As we rebuild furnaces, we improve furnace design, and since the furnace uses the bulk of the energy in the process, improving furnace design—going to oxy-fuel, for instance, is an energy-efficiency boost—is the other form of energy savings.”

Waste heat recovery is yet another area for energy savings.

“As efficient as our processes are, there’s still a lot of energy that ultimately goes up the stack, and we’re looking at various ways of recovering that energy because that’s just a direct deficiency. Even to the point of taking energy that’s in the hot end of the process and transferring it to the warehouse end of the process that would otherwise need to be heated in the wintertime.”

Yigdall points to other factors for manufacturer (and, for that matter, fabricators) to consider, including considering automatic motion detectors for lights in certain plant areas and more efficient lighting systems in other areas; updating compressed air systems; taking care of leaks on air on steam systems; de-energizing sections of the glass handling equipment not being used at the time; and other “behavioral”

## A New Tier for ENERGY STAR

With its takeover of the ENERGY STAR program, the Environmental Protection Agency (EPA) announced that products in the top 25 percent of this rating program will qualify as ENERGY STAR while those in the top 5 percent will qualify as “Super Star.” Though the EPA and Department of Energy (DOE) currently have named the new program Super Star, they note, “the name and look of this higher tier will be developed through market research.”

EPA will handle the marketing, outreach, monitoring and verification and setting the performance levels for the programs; however, the announcement notes that “performance levels will be set using established and consistent principles for the ENERGY STAR brand.”

The DOE will continue to support this program as well, “by increasing its efforts in monitoring and verifying test procedure compliance and the development of federal test procedures and metrics.”

The EPA will maintain the database of ENERGY STAR and Super Star products and test results, and will develop the list of new products to be added to the program.

## What to Expect from EPA's ENERGY STAR

Both the industry and the associations involved are waiting to resolve questions over the new partnership between U.S. Environmental Protection Agency (EPA) and the Department of Energy (DOE).

EPA says once it takes over the ENERGY STAR program, a governing council will be formed to oversee this partnership. The Council will include the EPA assistant administrator for air and radiation and the DOE's assistant secretary for energy efficiency and renewable energy. They will work together to ensure that work programs between DOE and EPA are complementary and not duplicative, and will "leverage federal dollars to achieve maximum energy efficiency." They also will hold meetings twice annually with program stakeholders, according to the announcement.

Ann Bailey, director of ENERGY STAR product labeling for the EPA, spoke with USGlass magazine about the changes and advised that no staff will move from DOE to EPA, and that she was unsure of what title Rich Karney (who has been known as program

manager for ENERGY STAR under DOE) will hold in the future—or his involvement with the program.

"There won't be any shifts of staff between the EPA and the DOE," Bailey said. She added, "The EPA and DOE will be working very closely. I don't know exactly how they intend to staff the program."

Karney was not available for comment at press time.

As for the door, window and skylight criteria and the impending criteria changes, Bailey said EPA currently has no plans to change this.

"We have no immediate plans to change the criteria," Bailey said. "As part of the transition we'll be looking at all of the specifications and making sure they remain consistent with our ENERGY STAR principles."

She also addressed the reason for the move.

"We've been looking for ways to clarify the roles and responsibilities between the two agencies and, with the new political management, it was a high priority for the success of the program," added Bailey.

The industry is still waiting to see how the move might affect the program, as Brandon Tinianov, Ph.D., chief technology officer for Serious Materials in Sunnyvale, Calif., commented to USGlass.

"As an industry professional I have really mixed feelings about the announcement," said Tinianov. "I'm excited about the class for an ENERGY STAR and an Energy Super Star and in talking to some of my industry peers that seems to be the consensus."

Still, he said, the idea of working with new representatives on a program like this one could have its drawbacks.

"We're very familiar with the players at the DOE," Tinianov said. "They've worked with the window manufacturers and the housing manufacturers and everybody for decades ... and there's a lot of expertise there and that's one of the areas of concern that I think everybody has expressed or felt—and that is that there's no building experts at the EPA. I'm not even specifically referring to the window experts—there [are] just no building experts and building scientists."

considerations.

"So some things are fairly simple; others are much more complicated," Yigdall says.

## The Glass Half Full

With the benefits for glass manufacturers to make their facilities more efficient, is there value in this recognition?

"It's something we think is valuable, it's something that we've contributed a lot of time and effort in working to help them out," Runda says. As he explains, "I think the real value is being able to gauge our energy consumption against the industry in general. We benchmark our own plants, we have an idea of which plants are good and which plants are 'less good' within the company—but this gives us a feeling of how we're doing compared with the rest of the industry."

The data does lag, Yigdall cautions, because "there's no real-time system for knowing what everyone's using." As he points out, most manufacturers are reluctant to share with their peers what

processes are leading to increased productivity, so data from census reports is used in some instances.

Still, the ENERGY STAR brand is highly recognized by consumers and this certification could be one more way to let designers know that glass can be a highly energy-efficient component in a building.

Rob Struble, manager of branding and communications for PPG's Performance Glazings, sees the program's value on two levels. "One is the production level—it's an opportunity to benchmark yourself against your competitive set to be sure that you're always on the leading edge, if you use this index tool to rate your own plants. Whether you seek certification or just want to see how you're performing, it will give you some indicator as to how well you're doing.

"On the marketing side, I think any of us in the commercial market segment understand the value that LEED has brought and the growing sensitivity to-

ward environmental stewardship and seeking products and companies who not only manufacture products that are low-E and that provide some level of energy performance but that also are committed to processes that are less environmentally disruptive," Struble says.

And, as word slowly gets out, Yigdall says customers are responding.

"We've recently had an inquiry from one of our customers [in another industry] asking about what we have in place in terms of an energy management system," Yigdall says. He suspects glass-related customers will soon be asking these same questions. "The need is there and we're able to honestly respond and demonstrate that we're on board." ■

## the author



**Megan Headley**  
is the editor of USGlass.