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At the Zarco 66 station in Lawrence, Kan., a revolution is being fueled. Alongside other blends of gasoline is E15, an ethanol and gasoline mix recently cleared by the EPA for commercial sale.

A mix of 15 percent ethanol and 85 percent gasoline, E15 jumps above E10 in the race to reach the Renewable Fuel Standard's alternative fuel goals. E15 proponents call it an accomplishment for American energy independence – green industry pros see it otherwise.

Even though the fuel burns

cleaner than E10 or straight gasoline, smoothing engine knocking, reports show it can damage off-road vehicles and small engines. It's approved for light-use vehicles from 2001 to the present, but the fuel could find its way into tanks and engines it's not made to power and do major damage.

READY OR NOT. E15 stems from the Renewable Fuel Standard, created under the Energy Policy Act in 2005, as a mandate that ethanol, advanced biofuels and cellulosic fuels be blended into gas at certain levels by goal years.

“The underlying assumption

of the Renewable Fuel Standard, gasoline usage will continue to increase forever, and the E85 flex fuel fleet would grow and expand just didn't happen,” says Kris Kiser, Outdoor Power Equipment Institute (OPEI) president.

Kiser's biggest concern isn't whether the goal is met, it's that the fuel was rushed to the market without enough testing on engines, light-duty vehicles and otherwise. “The two officially sanctioned tests were done by the Department of Energy and the National Renewable Energy Laboratory,” he says. “They tested 28 engines and four engine classes

of (OPEI's) 900 classes that are regulated. Everything failed. The Department of Energy tests on small engines – each of the 28 engines had either performance irregularity, failure, unintentional clutch engagement, it had some kind of problem.”

Scott Zaremba, president of Zarco 66, Inc., where E15 has made its debut, doesn't see the testing the same way. “The report I've seen was a large engine manufacturer testing auto engines,” he says. “They had failures with 15 percent, but what they forget to tell you is they also had failures on straight gasoline. When

What you need to know about the new ethanol blend.

By Kyle Brown



you look at the reports, they say 'could' or 'may.' There's nothing that says 'will.'"

Based on those reports, EPA determined the fuel safe for general use in some vehicles and moved forward on granting partial waivers for vehicles from 2001 and newer in 2011. Green industry pros, the oil industry and others questioned those waivers, and took the issue to the U.S. Court of Appeals.

"Our concern was that the language of the Clean Air Act says that when the EPA issues these waivers, the waiver needs to apply to the entire market," says Patrick Kelly, senior policy advisor for the American Petroleum Institute. "The Clean Air Act, as amended in 1990, is pretty clear that the EPA has the authority to issue a waiver of the CAA that says that 'This fuel blend is essentially deemed similar enough to the fuel that the vehicle was tested on for emissions that it's

acceptable for use in the marketplace.' But E15 potentially puts some cars over the limit in what they're able to tolerate. The fuel is not suitable for all engines in the fleet."

The U.S. Court of Appeals didn't directly disagree with that Aug. 17, but it did rule the associations didn't have the proper standing to raise the appeal in the first place, on question by Growth Energy, a representative of ethanol producers. The fuel would see the market.

MAKING THE BEST OF IT. With the waivers, the EPA cleared the fuel to reach consumers. It can be sold on its own at stations, or using blender pumps. "So for the consumer now, you've changed the fueling paradigm, which has existed in this country since the internal combustion engine was introduced," says Kiser.

However, the waivers didn't come without guidance for those

filling up – a Misfueling Mitigation Plan was reviewed by EPA in March, including a label to be posted at pumps listing restrictions for the fuel. "That's right on the dispenser," says Zaremba. "It says that E15 is only for 2001 and newer cars, trucks and SUVs. That's it. We make sure that it's prevalent so customers can see and understand that. Education is the No. 1 thing we try to do every day."

The label bars use in other vehicles, boats and gasoline-powered equipment, but buyers at the pump might not follow guidelines or be equipped to make that choice, says Kelly.

Though Zaremba tries to provide that education with the sale, he wants the manufacturers to help make the issue disappear in the future, he says.

"E15 is not approved to run in the small engines. We need to make sure today they are not using higher than an E10 blend. We

don't want them to put something in one of their engines that is not approved," he says.

LOOKING FOR OPPORTUNITY. Though it's raised questions for green industry dealers and consumers, like any market change, the introduction of E15 has also created products opportunities.

"Fuel treatments are springing up all over the place. We have two that just became members of OPEI," says Kiser. "Now you have a bunch of guys getting ready to put boutique fuel on the shelf, like Stihl and Briggs & Stratton. It's expensive, but it's safe – there may be a trend toward that."

Beyond fuel treatments, Zaremba says there's the potential for future engine builds. "They're going to have to change some components in their engines to make sure they don't have any issues with ethanol fuels," he says. "They could em race what it's doing, and make sure what

Locally strong

When Troy Karlin, partner at All-N-1 Landscape in Lawrence, Kan., needs to refuel his Ford Ranger, he looks for a local Zarco 66 station, where he can find one of the few places in the U.S. that E15 blend gasoline is currently sold.

"We are huge fans of Zarco 66 and Scott Zaremba," says Karlin. "We'll use it every chance we get. I will personally go out of my way, and I've kind of instructed my guys to do it every chance we get on every piece of equipment."

Though he knows some equipment can be damaged by the ethanol-based fuel, he uses it where he's able, along with biodiesels for some of his fleet. A voided warranty isn't much of an issue to him, he says, since his equipment is already past that point, he says.

"We've looked into it and our warranties are already expired. So we don't care about the warranty," he says. "We don't have any brand-new equipment. So if the warranty's already past, we like the ecological benefits."

Karlin's All-N-1 has company goals that lean toward environmentally friendly practices, with green roofs, rain gardens and edible landscaping. But while

the cleaner-burning E15 comes closer to meeting that aim, there's a larger concept at work for him.

"For me, it's about strength in our community by relocalizing, and getting some fuel security in the community and for our local farmers," he says. "If we can develop a local market, they'll have options."

That goes along with one of the reasons Scott Zaremba is the first to market with E15 at his Zarco stations, he says.

"I've watched over the years as our country has been held hostage for the most part by transportation energy that comes from overseas," he says. "So I said, 'Why in the world would we not want to pursue products that one can be overall better for the environment and also be able to produce the jobs locally with locally based products?'"

E15 may not be the perfect fuel, and needs more testing to reach the broader market of vehicles and any small-engine use, but starting the movement to work with manufacturers to develop engines to better handle alternative fuel is part of that process, he says.

"We need to be thinking ahead and we need to be moving forward," says Zaremba. "It's not infinitum, and it's not going to be around and available always."

they're manufacturing will embrace whatever's coming down the pipeline, because we don't

know what we're going to be able to produce next as the price of oil stays high."

"Most everybody has a product that's warranted to E10," says Kiser. "In relatively short order,

you'll see people saying, 'We have an engine product that runs on E10 to E20. If you want to be safe in the marketplace, buy my product.' There's opportunity."

But dealing with E15 in the short-term and handling alternative fuels with the RFS in the future means an active role in working with the EPA and the government to make certain that the right tests and goals are set in place. "Talk to your congressman and your senator, tell them to clean this up. The underlying statute – tell them they've got to fix it," Kiser says. "EPA is essentially following the law, forcing into the marketplace this biofuel." **GCI**

Kyle Brown is assistant editor of GCI and editor of Green Industry Supply Chain Management.

3 Keys

When working with small engine equipment, here's what consumers need to know about how E15 can be used:

1 Read and follow the owner's manual. The hope is that dealers and distributors will draw folks' attention to it, that their machine is an E10-designed machine and its warranty would only cover up to E10. Any fuel above that may damage your equipment and void your warranty. The manual is crucial in preventing some unfortunate product testing. "What they need to know is what products can be used with that piece of equipment, and that information is going to come from the manufacturer," Zaremba says. "Right now, EPA has not said it's appropriate for those. But we don't want people to test it on their own. We want to test it in a lab and make sure there's not an issue."

2 Don't put any fuel containing more than 10 percent ethanol (E10) in small engine products, unless the machine is built to handle it. Don't assume that the fuel used for a vehicle is the same as the fuel used in a gasoline can. "The engines are very susceptible to ethanol," says Kiser. "It phase separates faster, it absorbs water, and it stales twice as fast. This is not something you can leave in your machine or even in your gas cans."

3 Check the gas pump to be sure that it is dispensing E10. Some gas pumps may offer both E10 and E15, or have blender pumps that dispense mid-level ethanol fuels for flex-fuel automobiles. "You potentially have somebody coming up with their car and what they've got on the trailer, and generally, people like to just slip their card once," says Kelly.

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Brian Vinchesi, the 2009 EPA WaterSense Irrigation Partner of the Year, is president of Irrigation Consulting Inc., a golf course irrigation design and consulting firm with offices in Pepperell, Mass., and Huntersville, N.C., that designs golf course irrigation systems throughout the world. Reach him at bvinchesi@irrigationconsulting.com.

TO PHASE OR NOT TO PHASE?

The costs of a new or renovated irrigation system in today's day and age are substantial. Basic 18-hole systems easily start at \$2 million and rise rapidly from there.

That is a hefty number to finance, raise or assess and can cripple a facility's cash flow for years. Many courses can just not afford that kind of one-time expenditure.

One option most golf courses want to consider is a phased approach to the installation of an irrigation system that is spread out over several years. Management believes that by phasing an irrigation system installation, they can reduce financing and assessment costs by using capital funds and budgets spread over several years. Although phasing of the irrigation system is always discussed and considered, very few irrigation systems are actually installed in phases.

When considering the upgrading of an irrigation system there is, in most cases, a water supply/pumping component and an irrigation component. Although it may be convenient to install the two components at the same time, it is common to do the irrigation and water supply/pump system work in separate phases. This works well as they are usually different types of contractors installing this type work and interference with play on the water supply/pumping system end is minimal.

The biggest decision is whether to do the water supply/pump system work first or the irrigation system work first. That decision depends on the course, the age of the system, course politics and how much indiges-

tion one or the other is causing you.

Remember, water supply/pump system improvements are basically invisible to a membership. As such, they see their money being spent, but don't see the benefit. Doing the irrigation system first shows the membership the benefit, but then you run the risk of not ever getting to the water supply/pump system phase.

So what are the issues with irrigation system phasing?

First, it will cost more. It's hard enough to get a project approved

So when you start a project **phasing sounds like a good idea**, but when you delve into what will really happen, phasing becomes less attractive.

without the costs being higher. There are several reasons why the costs will increase. Material prices continue to climb despite the depressed economy and lack of golf course irrigation system sales.

Although the commodity items – such as wire and pipe – do not always increase, the hard goods – for example, the manufacturer specific Hunter, Rain Bird, Toro equipment – seem to increase every year. Unfortunately, once you start a phased irrigation project, you are also locked into the manufacturer for the future phases and you have lost the competitive bid advantage for those additional phases which can increase costs. Additionally, fittings and valves seem to increase in price annually.

Labor is a little more volatile and is

very dependent on the economy and the amount of irrigation installation work that is out there in a given year.

Labor costs have come down from the highs of the last decade, but they have started to creep back up over the last two years.

In addition, every contractor has mobilization and demobilization costs associated with every project – bringing equipment in and out, storage units, office trailers, dumpsters, and even portable restrooms. If the system is installed at one time, you incur

these costs only once. However, a two-phase project doubles mobilization costs and a three-phase project can triple that price. Mobilization costs are approximately 5 percent of the contract amount per phase, so phasing increases costs substantially.

Secondly, as time goes by irrigation system equipment evolves, improves and changes. Manufacturers come out with new and improved equipment just as various products are discontinued as technology advances. The more phases to an irrigation project, then the better chance these technology changes make existing equipment obsolete. Not only could you end up with a mishmash of sprinklers or unmatched controllers, but when the system is complete, it can be considered technically obsolete as the newer

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equipment has already out paced your existing system.

In fact, this scenario occurred with many systems installed in 1990 and 1991 as the systems were considered obsolete by 1992. It only took two years for the technology to turnover.

Lastly, the longer you spread out a project the more it interferes with play and a golfer or member's personality.

Memberships at private clubs and certainly players at public courses quickly tire of construction activities. The longer you draw out the construction period, the more it will impact play, reduce revenues and increase the amount of bitching and complaining from the membership.

If your course is under construction a certain number of people will just go play somewhere else. The last thing you want to do when you're spending this much money is to reduce revenues. If you spread the construction out long enough, then you run the risk that those members

will never come back.

If you have no choice but to phase the irrigation system installation there are a couple of key things to keep in mind.

The first is to develop a plan. It is important to know where you are going and what the future phases will look

equipment can escalate in any given year. For example, 3 percent to 5 percent a year would be a suggested percentage maximum increase.

So when you start a project phasing sounds like a good idea, but when you delve into what will really happen, phas-

Remember, water supply/pump system improvements are basically invisible to a membership. As such, they see their money being spent, but don't see the benefit.

like so you do not end up having to redo areas that may have just been installed a few short years ago. An irrigation master plan helps you from making expensive mistakes.

Contain the escalation of the hard goods by writing into the first-phase contract a maximum amount that the Hunter, Rain Bird, Toro or other named

ing becomes less attractive.

When phasing an installation make sure you include all of the costs that will be incurred to make educated decisions.

Also keep in mind that if you have to manage the irrigation upgrade project, then doing it all at once is going to be a whole lot easier and that's worth something, too. **GCI**

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SCORCHING SUMMER

Scottsdale, Ariz. is a Mecca for "snowbirds." These mostly-retired folks flock to the upscale desert community to enjoy the warmth of the bright sunshine during the dark days of winter. But in the summertime, Scottsdale sizzles under relentless heat with temperatures regularly reaching well above 110 degrees.

To shade golfers from the winter sun, golf course architect Jerry Nelson specified a multitude of eucalyptus trees when Pinnacle Peak Country Club was built in 1976. Today, the trees tower 50 feet or more over the course. "Trees this large are uncommon in Phoenix," says Steve Garner, superintendent at the course for the past 10 years.

As the population in the Southwest grew, night temperatures rose and water became more and more scarce – to the point that some of the thirsty trees declined and died. So far, so good as far as the bentgrass and greens and Bermudagrass tees, fairways and roughs go, but water issues are a part of life in the desert.

"The Water Wise 2014 program will be coming out soon," Garner says. "One thing for sure – they

probably won't be giving us more water."

Adding to Garner's challenges are the small tees. "The course was remodeled in 1996, and tees were undersized or just not built right, so we have been renovating them a few at a time each year," Garner says.

Of course, renovations and major projects are usually confined during the hottest time of the year after the snowbirds fly home. Garner is always looking for ways to speed up turf establishment during the scorching summer.

One of his suppliers offered him a sample of Performance

Nutrition's Z.One T&O 250. LidoChem, the parent company, manufactures this Clinoptilolite zeolite product in several formulations. T&O 250 is enhanced with three KaPre products, which offer humic substances, amino acids, organic extracts and beneficial microbes.



In summer, Scottsdale sizzles under relentless heat with temperatures reaching well above 110 degrees.

"He asked me to use the Z.One on half the tee so I could see how it worked," Garner says. The combination of water retention and soil nutrients did the trick. "The turf rooted three or four days earlier on the treated half. It turned out great." Garner used it at a rate of 250 pounds per acre and raked it into the sand under the sod when rebuilding the tee.

Garner was so pleased with the results that he incorporated Z. One T&O 250 into another turf project.

"I redid the collars around the greens; the Tifdwarf tends to decline after annual overseeding. So we resodded and will just paint them in wintertime," he explains. "The quicker you get sod established, the better it will be."

TOUGH CONDITIONS

While the recession pummeled the golf course industry hard across the country, Florida was especially hammered. A report released June, 2012 led by Yale University professor Jacob Hacker found that Florida suffered some of the worst economic losses in the nation.

Juliette Falls Golf Course in Dunnellon, Fla., was designed as an amenity for a luxurious community of dazzling, spacious homes. Steve Keller came on board in 2005 for early construction and grow-in and opened the course in 2007. Designed by John Sanford, this Certified Sliver Audubon International Signature

Sanctuary was named one of Golf Digest magazine's best new courses in 2008.

Then the luxury home market collapsed, and the cost to maintain the magnificent course became prohibitive.

The course owner asked Keller to cut back further and further – as close to zero input as possible. Overseeding the Jones dwarf Bermudagrass on the 12 acres of greens, tees and collars and the 419 Bermuda roughs and fairway ceased. The budget for fertilizers and pesticides was gutted.

Rhizoctonia zeae struck the course with vengeance. Clemson University research indicates the

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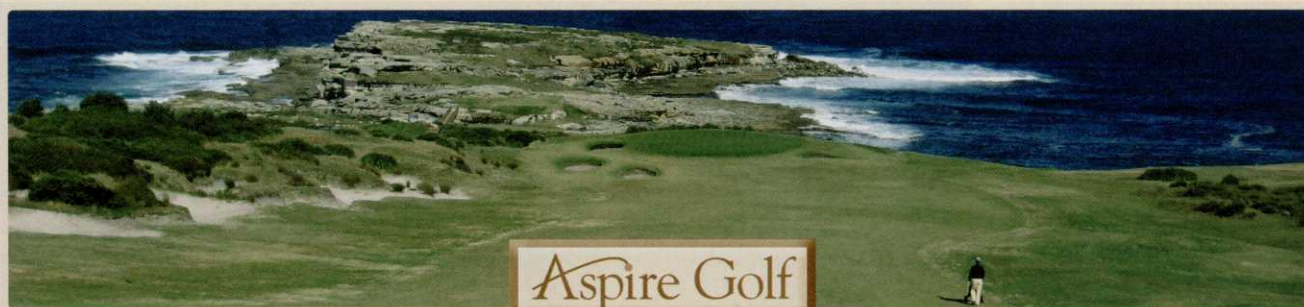
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