Plug it in, plug it in

HC site of cutting edge technology test

By Shari Held

It's not Glade® Plug-ins® we're talking about. We're in Indiana, after all, and we're talking about cars—electric cars. In fact, that Toyota Prius you see on Hamilton County roads may be participating in the latest phase of Project Plug-IN, a groundbreaking Central Indiana-based pilot program that's preparing the region for the growing trend and garnering some national attention to Hamilton County to boot.

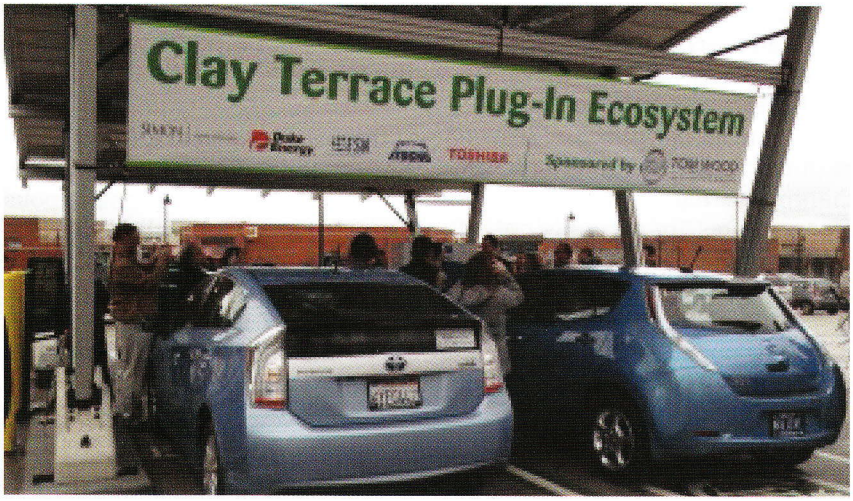
The electric vehicle charging system at Clay Terrace Mall is the most sophisticated storage and charging station demonstration project in the world. The system is unique because it combines traditional chargers, a quick charger, solar panels, and power storage all connected to the electrical grid in a shopping mall parking lot. The combination of this equipment, the technology, and its location make this system the first of its kind. The charger is located behind Whole Foods and is free. Quick charges typically take 15-30 minutes. Level 2 (traditional) charges take 2-6 hours.

Project Plug-IN, an initiative of Energy Systems Network (ESN), was launched in 2009 in partnership with Duke Energy, Simon Property Group and other Indiana companies interested in electric vehicles. It had a lofty goal.

"We wanted to look at ways that we could make Indianapolis and the Central Indiana region a leader in the deployment of plug-in electric vehicle technology," says Paul Mitchell, ESN's president and CEO. "This is a way for us to not only make good decisions in terms the environment and being more energy-efficient, but also to support economic development within the region."

ESN and Duke Energy have been working together since day one. James Rogers, chairman, president and CEO of Duke Energy, is a founding board member of ESN and a founding member of Project Plug-IN.

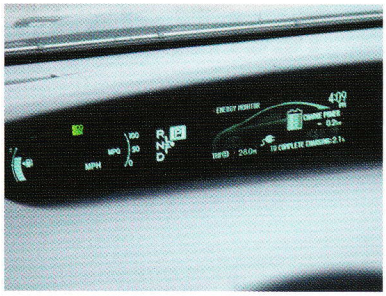
"Duke Energy believes in the future of electric-powered transportation," says Lew Middleton, company spokesman.

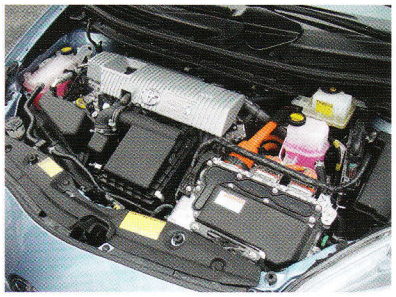


"It's an exciting opportunity to expand the ways in which we power our vehicles. And it seems to be the direction where the future of transportation is headed. Duke Energy wants to be on the front-end of that. As an electric utility, we want to learn what it's going to take to prepare for that."

Getting a head start

Armed with a $6.4M grant from the U.S. Department of Energy, Project Plug-IN installed public charging stations—including those in Clay Terrace and Hamilton Town Center—and residential charging stations for early adopters. It also provided rebates for people purchasing electric vehicles manufactured in Indiana and subsidized the purchase of nearly 125 Think City vehicles for



use by individual consumers and fleet operators such as MISO, headquartered in Carmel.

Nine Duke Energy employees participated in this first-phase pilot program, driving the cars for about a year, and reporting their experiences.

"Project Plug-IN helps us understand at the local level what it means to have electric vehicles plug in to our grid," Middleton says. "It also gives us a chance to measure and evaluate a number of factors."

Those factors include observing charging patterns, evaluating the effectiveness of incentives for charging vehicles during off-peak times and determining how electric car usage impacts our electric infrastructure, substations and circuits.

Mitchell says data has revealed that the majority of charging occurs in customer's homes, indicating the need for public charging stations might not be as extensive as anticipated. Another find: electric car owners include a broad mix of people—from environmentalists to techno-geeks who appreciate the technology running the latest crop of electric cars.

"Duke Energy has been a terrific partner throughout this pilot process," Mitchell says. "They've been dedicated to finding the right mix of technologies and the right policies and programs for their customers, so, in the long run, they can come up with solutions that work for all their customers."

Taking it further

Now that the infrastructure's in place, the focus is on plug-in technologies involving smart-grid integration.

The Toyota Prius Plug-in Hybrid is the star of the latest phase of Project Plug-IN, which adds a new communication technology component. The car's "Smart Center" technology links owners, homes, vehicles and electric power companies to integrate control of energy consumption. It works like this: once drivers get home they plug the car into its charger, then use an app on their iPad to schedule charging of their vehicle. They will have the option, via email alerts, to take advantage of offers of financial incentives or reduced prices (time-of-use rates) if they schedule charging during off-peak hours. Time-of-use rates are currently not available in Indiana, but depending on the test results, may be considered.

Currently five Duke Energy employees are participating in this program, but in June, the keys and iPads will be turned over to five lucky non-employee customers. "We want to get an understanding about customers' expectations and experiences," says Middleton, who now drives one of the cars. "There's nothing like living through it and having the day-to-day experience to gather real-world data."

On January 30, solar-powered charging stations were introduced to Clay Terrace as part of Project Plug-IN's "Plug-In Ecosystem" initiative. It was featured in the New York Times 'Wheels' blog.

The Indianapolis area has approximately 100 public charging stations.

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> — Paul Mitchell
> ESN's president and CEO

Being prepared is vital since new plug-in cars are arriving in the marketplace every year. The current crop includes Chevy Volt, Nissan Leaf, Ford Focus Electric, Tesla Model S sports car and the soon to be out Ford C-MAX.

"I think it's important for people to understand that we've laid a strong foundation here in the Indianapolis area so that as these cars enter the marketplace Hoosiers, and particularly those living in Hamilton County, should feel that they can make that choice, that transition to go electric very easily," Mitchell says. HCBM