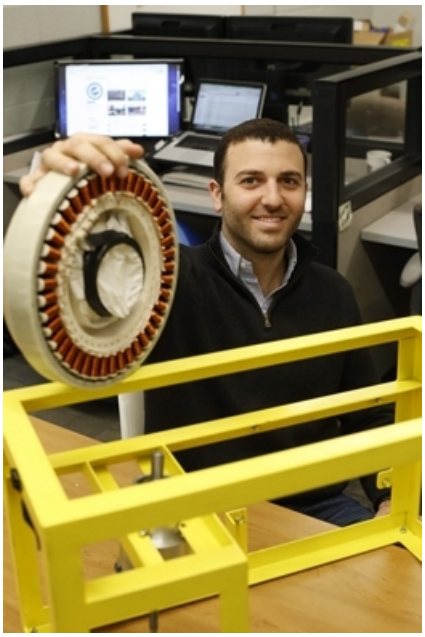
Monday September 26, 2016
The Buffalo News.com (/)

Business



Daniel Shani, founder and CEO of Energy Intelligence, a startup company developing a device which uses the energy of passing cars (as they drive over a pressure sensitive pad or series of pads on the road) to create electricity, in his workspace at 43 North, Wednesday, March 23, 2016. He's holding a generator used to power a prototype device and the frame used in testing and development. (Derek Gee/Buffalo News)

The latest thing in clean energy: power pads on the Peace Bridge

Energy Intelligence, a 43North winner, sets up at Peace Bridge

BY: David Robinson (mailto:drobinson@buffnews.com)

Published: September 18, 2016, 12:01 AM
Updated: September 18, 2016, 05:23 PM

For years, traffic at the Peace Bridge has been a constant source of frustration, from complaints about backups to air pollution.

But in the coming weeks, that same traffic could be put to good use – as a source of renewable energy.

A local startup and 43North prize winner, Energy Intelligence, is getting ready to install its power generation equipment in one lane of the Peace Bridge plaza as part of a test to see how the system works and how it can hold up in a high-traffic area.

Drivers crossing the Peace Bridge will be a key part of the test, even if they won't necessarily realize it. As they inch toward the customs booth, they will be generating electricity.

"We're focused on generating clean energy from truck traffic," said Daniel Shani, Energy Intelligence's founder and CEO.

Here's how it works:

Energy Intelligence will install a series of modules in one of the Peace Bridge lanes, most likely on the Canadian side, in a spot where vehicles are slowing as they approach customs. The modules lay nearly flat on the road, sticking up about two inches above the pavement, but each one has hydraulic systems inside. When a car or a truck drives over the module, it pushes down on the hydraulics inside, generating electricity that can be used to power nearby equipment.

While a single module doesn't generate a lot of electricity, the panels can be linked together, allowing several to be installed in a single lane. The steady bump-bump of vehicles driving over a patchwork of mats, if it was installed in all of the plaza's inspection lanes, could generate enough power to meet about half of the Peace Bridge's electricity needs, said Ron Rienas, the Peace Bridge's general manager.

"We're excited to see what it can do," Rienas said.

"The technology lends itself very well to the traffic patterns we have," he said. "If it's commercially viable, it has the potential to be a game changer for us."

The pilot program, which is expected to start as soon as next month, will be an important test in determining whether Energy Intelligence's system works as well as Shani thinks it can under real-life conditions.

The company, which won $500,000 as a runner-up in the 43North business plan competition in October 2014, has been eyeing the Peace Bridge as a test site almost from the moment Shani arrived in Buffalo. With its heavy traffic and choke points at the customs booths on both ends, the bridge was an ideal test environment for a product that needs a steady stream of cars and trucks to run over it.

Energy Intelligence was based in suburban Boston when it won its 43North prize, which mandated that Shani, 30, move to Buffalo for a year. Energy Intelligence, which now has an office near the Buffalo Niagara Medical Campus and a research office in the Hudson Valley, was one of a half dozen winners from the first year that have stayed in Buffalo after their one-year commitment ended. The company also won $50,000 in funding from AOL founder Steve Case's Rise of the Rest competition in Buffalo last year, along with another $50,000 from Buffalo technology incubator Z80 Labs.

The Peace Bridge pilot will be the second test for Energy Intelligence's modules. The company tested the modules, which weigh as much as 150 pounds, at an exit at a parking ramp on the Buffalo Niagara Medical Campus earlier this summer.

That test was mainly aimed at demonstrating how quickly the Energy Intelligence system could be installed and removed, Shani said, although it also showed how it would hold up at a site with 2,000 vehicles entering and exiting each day. Shani said it took about 40 minutes to install the six units that were set up in the parking ramp and less than three minutes to remove them.

"Energy Intelligence has made excellent progress in the refinement of its clean energy technology," said John Gavigan, 43North's executive director. "I'm excited by the idea of seeing it tested out on the Peace Bridge. This opportunity is yet another wonderful example of how the Western New York business community has embraced 43North's winning companies."

The details of the Peace Bridge pilot still are being worked out, but both company and bridge officials expect it to be centered around a single lane on the Canadian side that would have several Energy Intelligence modules lined up in a series. As each vehicle waiting in the customs line passed over the module, the weight of its tires would depress its inner workings and generate a small amount of electricity.

The heavier the vehicle, the more power the module can produce, so trucks typically generate more electricity than cars, Shani said. Each 10-foot by 4-foot module can generate between 250 and 2,000 watts of electricity.

The initial test this fall may involve "a handful of units for less than a month," Shani said. "We want to get the first test in before the first snowfall."

After the company has a chance to evaluate the results of that test and discuss it with Peace Bridge officials, Energy Intelligence hopes to be able to do a longer test in a truck lane, Shani said.

"It shows local collaboration with a company that's part of our 43North program and provides a perfect opportunity for a company to test its technology here," said Sam Hoyt, the chairman of the Peace Bridge Authority and the regional president of Empire State Development in Buffalo.

"Like any pilot, if it works, you find out where improvements need to be made," Hoyt said. "This would be for a prolonged period of time and would be testing it under more severe conditions – different weather conditions, high traffic and big trucks."

In the test, the modules will be attached to the pavement, allowing them to be removed with ease, Rienas said. If the Peace Bridge were to proceed with a more permanent installation, the modules likely would be installed into the pavement to keep it level and reduce the chance of damage from snowplows.

For Shani, the test is an important milestone in Energy Intelligence's development as it tries to take its idea and turn it into a viable commercial product. Shani already has made a presentation about the product to a border crossing trade group to generate awareness of Energy Intelligence's product. How the Peace Bridge test works out will go a long way toward showing whether the modules can be used to reduce electricity costs at other border crossings, as well as at parking ramps, toll booths and other sites with a lot of slow-moving vehicles.

"If it works out, it's green energy," Rienas said. "We'd actually be using trucks to create green energy."

email: drobinson@buffnews.com

David Robinson