

Developments

Resource news in brief from around the region

Royal Flush

P.E.I. company gives wastewater treatment a makeover with solar-powered systems and poop-eater sensors

It's not a glamorous field and it certainly doesn't smell very good, but Patrick Kiely's vision for wastewater treatment is almost as large and as sprawling as the infrastructure he's hoping to revolutionize. The Ireland-born microbiologist and entrepreneur wants to make wastewater treatment more efficient and more effective all while reducing both its carbon footprint and its considerable pull on municipal purse strings. Now, after a major overhaul of his Prince Edward Island-based company, Island Water Technologies, he's ready and raring to go.

Traditionally, a municipal wastewater system involves vast networks of underground pipes and infrastructure that carry the sludgy mess flushed out of homes and businesses to a massive, central plant where it's cleaned. That subterranean superhighway is expensive to build, expensive to maintain and even more expensive to upgrade, Kiely says. "It has to go across the entire city and urban area and agricultural area around them."

Then, of course, there's the plant itself, whose typical structure involves a central holding tank in which millions of intentionally-placed microorganisms hungrily feed on all the organic material in the water. That's the poop.

Originally, Kiely set out to improve both of these components with one company, throwing in the carbon-reduction goal just to make things even more difficult for himself—and, of course, to make the world more livable for everyone else. He came up with a way to treat wastewater with small, modular systems that work in a much smaller network for a few hundred homes. And they were solar powered. They're the foundation on which he built Island Water Technologies seven years ago. But five years in, despite having a few key clients, he realized he didn't have a financially sustainable company on his hands. "The wastewater space is such a challenging industry," Kiely says. "People aren't ready, the industry isn't ready."

But the original idealism was still driving him. So he looked at the two most innovative aspects of what he'd come up with and made them the focus of two splinter companies. The solar-powered modular systems are now the focus of Regen. The units are targeted toward military operations, disaster relief efforts and small, remote communities. They've sold four commercial systems so far and are focusing their efforts on one specific client in Saudi Arabia that has been particularly receptive, Kiely



says. He's hoping their work with that client will translate into five or 10 more by the end of the year.

Sentry, Regen's sister company, is focused on the innovative sensor Kiely built that can measure the health of those tiny, goo-gobbling organisms in the big tanks in the main water treatment facilities. Often, operators don't have any way of checking in on these little fellas, he says. "So, essentially, we developed a heart-rate monitor for wastewater treatment plants," he says.

The idea netted the company a spot with Imagine H2O, a renowned non-profit accelerator in Silicon Valley supporting companies using technology to address global water challenges and the sensor was launched as part of the Imagine H2O program. Now Sentry is focusing on its network of clients in the U.K. and California. "By the end of that year, 2018, we had 20 installed. And by the end of 2019, we had 50 installed," he says. "This year, we're certainly shooting for 100, if not 150, new installations."

Kiely doesn't mince words when asked if the decision to bifurcate his company was a tough one. "Necessity breeds invention. You look at payroll, you look at your burn rate, you look at what's happening and you're like, 'Fuck. I need to do something here,'" he says. "Because of that decision, both [Sentry and Regen] are moving on to success in their own right. I think the biggest thing was making that pivot and really being laser-focused on working with clients that valued what we did."