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Disrupting the pipeline business

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It takes, by Glen Perry's calculation, roughly \$20 to defeat the law of gravity.

It works like this: Grab a flyback transformer out of an old colour TV. Attach two wires to it, and arrange them on either side of a piece of balsa wood.

Then, plug it in. And watch. Twenty thousand volts sizzle through the wires, which crackle like an overhead power line. Suddenly, "the thing starts rising in the air," Perry says. And nobody knows why.

It's called a lifter. And for Perry, it is about as perfect a toy as you could imagine. He is a man who likes to build things that disrupt seemingly impregnable systems. With the lifters, it's gravity that gets defied. In Perry's professional life, it's corporate Calgary. He is best known for hatching the idea of building the \$4.5-billion (U.S.) Alliance natural gas pipeline from British Columbia and Alberta to Chicago, which broke an effective monopoly that pipeline giant TransCanada held on moving gas in and out of Alberta.

Today, it's the other pipeline heavyweight that Perry has in his sights: Enbridge, which runs the world's biggest network of oil pipelines. Perry is attempting to keep crude from filling those lines by building a network of loading sites to deliver crude by train. And it's not just pipeline companies he's after. He has the entire oil industry in his sights, with a patented technology that promises to fill highways with cars that don't burn any crude at all. He's pretty sure he can put an end to war in the process.

It may sound crazy. But Perry has made a career of undermining the energy establishment. And if he's right, tomorrow's energy industry won't look much like today's.

Perry is, in the words of those who have worked with him, a "real good thinker," a "creative outside-the-box, not-following-the-establishment" type. Jay Godfrey, a friend and colleague, says Perry "puts together points on a graph that nobody else sees. At Alliance, everyone kept comparing him to Bill Gates. He was the kind of guy that would come up with ideas, and then drive people to achieve."

Yet Perry, who is 62, remains an outsider in Calgary. He doesn't belong to the Petroleum Club. He works out of a small office in a downtown tower, where his daughter counts among his slim roster of employees. Even among the CEOs whose lunch he has tried to eat, Perry and his notions barely come up on the radar; they're too out of the box.

Perry thinks, for example, that multibillion-dollar plans to export natural gas to Asia are a "fool's game," given the likelihood that China will find supplies domestically. He is convinced the best way to get Canadian crude to Asia is not by sending it across B.C.—watching native groups protest Enbridge's proposed Northern Gateway pipeline "made me almost want to cry"—but to build a railroad to Valdez, Alaska, and load it onto tankers there.

He doesn't much care what other people think, nor that most of his ideas will never go beyond paper. He has, after all, failed more times than he's succeeded. "If you had 10 ideas and all 10 of them went ahead, you're not taking enough risk," he says. Besides, the two or three big projects that he has helped to build "were \$5- and \$6-billion. They were paradigm-changing things."

It is math, more than moxie, that underlies Perry's willingness to take on just about anybody. If he can crunch the numbers, and they look better than the other guy's, it doesn't take faith to call his concept better. It's just logic. "You have to have an idea you believe in," he says. "But everything comes down to math in the end. Everything."

Perry's first job after university, in 1974, was at Foothills Pipe Lines, where he was the second hire on a project that would foreshadow the rest of his career. Foothills was built with a specific goal: to stick a finger in the eye of Canadian Arctic Gas Pipeline Ltd., a consortium of giant companies including Shell and Exxon that wanted to build a pipeline to bring Alaska natural gas down the Mackenzie River valley. Foothills offered an alternative intended to appeal to aboriginal voices that had stridently opposed the Canadian Arctic route. Although neither pipe was built, only Foothills received regulatory approval.

When that project wound down in 1979, Perry took work at Dome Petroleum, then Calgary's brashest company. He found himself in its business development office, at the heart of its ideas-manufacturing operation. "I became intimately involved with 40 megaprojects"—everything from billion-dollar refineries to liquefied natural gas export plants. "It was the greatest experience of my life," Perry says. He travelled more than a dozen times to Japan in a bid to sell B.C. gas there. It was an idea far ahead of its time: Only now are West Coast gas exports coming close to reality.

In 1984, Perry was hired at Unocal, which had found itself in a jam with the coal mine it had opened just outside of Jasper, Alberta. The company was selling coal in Ontario at \$55 a tonne. Its rail freight costs were \$40.

Perry knew coal could be mixed with water and transported through pipelines. And he knew Alberta's oil pipelines had spare capacity. He wondered: "Can you mix coal and oil?" Turns out, you can. Unocal spent three years on the idea, and Perry's name is on the patent it secured, although the project was never built. But seeds had been sown. Perry saw the potential of moving energy in novel ways.

That potential would soon come back to the fore, after he joined Direct Energy in 1989. Focused on natural-gas sales, it didn't take him long to figure out something was very wrong. Alberta's natural gas sold at a deep discount compared to sources from the rest of North America. In five years of working there, "gas prices I don't think ever went above \$1 [per million BTUs]," Perry says. So one day, he began to ponder what he could do about that.

Perry admits he had a beer or two in him when the doodling began. It was 1994 and he was talking to a friend about the low gas prices. "We decided we needed a honking big pipeline," Perry says—a pipe that could end a supply constraint that had been killing Alberta gas. He grabbed a paper napkin and started sketching a 3,719-kilometre straight line from the gas fields of northeastern British Columbia all the way to Chicago. A direct line would open new capacity to the best natural gas market on the continent. He figured the idea would lift prices across Western Canada. Plus, he and a partner had a patent-worthy plan for mixing the gas with valuable liquids—propane, ethane and the like—that he figured would boost the economic attractiveness of the project, by carrying those goods to a new market.

He didn't know it then, but he was right. What he did know was that he was throwing stones at Goliath: Nova Corp., which ran 22,000 kilometres of gas pipeline in Alberta and moved 80% of Canada's natural gas. Nova had the clout of a monopoly, and it wasn't likely to be pleased with his idea.

Indeed, first Nova, then TransCanada after the two companies merged, worked hard to defeat the project, even launching rival plans.

For Perry, there was something pleasingly subversive about taking on the giant. The Alliance pipeline started as the Northern Area Transportation Study, or NATS. Godfrey recalls, "it was an acronym that Glen actually thought was quite funny because he said, 'we're going to be these little gnats flying around the heads of these guys.' "

Perry, Jack Crawford and another colleague presented their plan 150 different times to producers. The audience was initially skeptical. Perry "thinks so fast and he talks so fast that in a lot of cases I think there was an inherent suspicion: Can anybody who talks that fast really be on the straight up?" Crawford says. "But after he said things quickly two or three times, it did make sense."

Perry had the math right. People signed on, in a trickle that became a torrent and enveloped much of the oil patch. With funding eventually secured, the huge 90-centimetre pipe went into the ground.

Canadian gas prices surged and fortunes were made—Perry takes some credit for building Encana into the powerhouse it has become. At \$1 gas, the growth of Encana and other gas producers would have been stunted. But after Alliance, Encana no longer had to deal with \$1 gas.

An ideas man not interested in running a pipe, Perry left Alliance to sojourn on Pender Island, play with lifters and write about the solar system. But he also spotted a need for another honking

big pipeline. This one would carry Alberta's burgeoning oil sands output directly to the Gulf Coast. It was long before Keystone XL, the proposed TransCanada pipe that would travel much the same route, was bruited. But to Perry it made sense: Connect the fastest-growing oil play on the continent with its biggest refining complex.

But the Alberta-Texas pipe, or Altex, as he called his company, was no Alliance. Thanks to the economic crisis, multibillion-dollar oil sands projects were halted, half-built. The pipeline was shelved.

The downturn got Perry thinking. The cost to build a major new pipeline had roughly doubled since Alliance. So why not skip burying steel altogether? Why not load oil onto trains instead? He ran the numbers. Trains, he figured, offered more flexibility and avoided the environmental scrutiny bogging down pipeline projects. And they could open markets that pipes could never touch.

Thus, in 2008, Altex became a rail company. It started near Lloydminster, Sask., with a loading terminal on a siding next to a seed-cleaning operation. Today, it ships 15,000 barrels a day. That's barely a rounding error relative to the Enbridge system that can carry 2.5 million barrels a day. But it's growing fast: By year's end, Perry intends to quadruple the company's capacity. More than 20 producers are signing on, including such major firms as Husky and Canadian Natural Resources Ltd. Perry is working to build four more loading facilities across Canada. Enbridge and TransCanada are just starting discussions on how to pipe oil to Eastern Canada. Altex is already sending oil all across the continent.

Perry is quickly discovering the power in cutting out a middleman. In pipelines, heavy oil can only flow if it's diluted. In railcars, it is shipped undiluted—and one shipper observed that undiluted crude is a lot like Bunker C, the sludgy fuel that is used to power ocean-going ships. So now small volumes of heavy crude are being loaded directly into those vessels, skipping refineries altogether. Perry relishes the disruption: "We don't have to sell this heavy oil to refineries," he says. Railcars are already "breaking open the market."

The road ahead isn't easy—most oil sands operations are so tightly interwoven with pipelines that they cannot place oil onto trains. Enbridge and TransCanada are fierce competitors, too, pushing their own plans to send oil east, west and south, to the places railcars are now serving. Not only that, but shipping by rail can be expensive.

But Perry figures 10% of oil sands crude will one day flow on tracks. In early June, he ran the math for an oil sands company. He found that it could make more than twice as much revenue—an extra \$30 (U.S.) a barrel—if it sent its crude by train. In total, he estimates Western Canada could, some day, pump a few hundred thousand barrels a day by train. That's enough to replace one major new oil pipeline.

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The most disruptive idea of Perry's involves nothing less than dismantling much of the world's oil establishment.

In 2003, he filed for a patent for “Zedgas,” a new method for storing compressed natural gas. Using his system, which involves chilling the gas to minus 40 degrees and adding other substances to help make it more dense, he can store four times more gas than current technologies, and at the same pressure.

The implications are vast. Storage is a critical issue with natural gas, particularly when it comes to powering cars and trucks. Today’s compressed natural gas technology doesn’t allow for big enough tanks, so cars can’t travel far between fill-ups. And liquefied natural gas requires such low temperatures that it can only be stored in huge insulated tanks that are heavy and impossible to use in cars.

Pack more gas into a smaller space, while retaining a light container vessel, and those problems fade away. Suddenly, natural gas becomes a viable option on the world’s highways and railroads. “The numbers I’ve run tell me we can take every car on the planet off oil and run them on gas. Buses, railroads, too—if you just have a decent storage technology,” he says. “Probably 50% of our economy depends on oil. And what I’m saying is you don’t have to do it. Just stop. Shut all that down. Use gas.”

He is suggesting nothing less than a rethink of the entire global system of automotive manufacture and energy production. “In 20 years, you can replace 90% of the oil consumption on the planet with natural gas. That’s my real long-term goal,” he says. “That’s where you stop the oil wars. I was talking to one guy. He said, ‘You want to have world peace, then?’

“To which I say: So what’s wrong with having world peace as a goal?”