

COMPLETE SOLUTIONS

David Del Mastro, founder and president of Deltro Group of Companies, explains how their innovative solar battery technology will change lives around the world.



Deltro Group of Companies was established by David Del Mastro as Deltro Electric in 1987, and entered the renewables market approximately four years ago. Having gained traction within its home market of Ontario, Canada, Deltro was frequently drafted to fix problems on grid-scale electrical systems including solar technology that, during its early years, suffered from a host of issues resulting from integration

difficulties. Deltro soon began working directly with contractors and developers, building systems for them. From there it was only a small leap to become a systems developer themselves.

BATTERY POWERED

At the heart of Deltro's renewables portfolio is a battery storage system. The batteries are charged during off-peak hours, as well

as from the overbuild inherent in all solar panel arrays, and then discharged during peak hours, blackouts, or to mitigate spikes. Bi-directional inverters are used to redirect surplus energy into batteries rather than allowing it to clip.

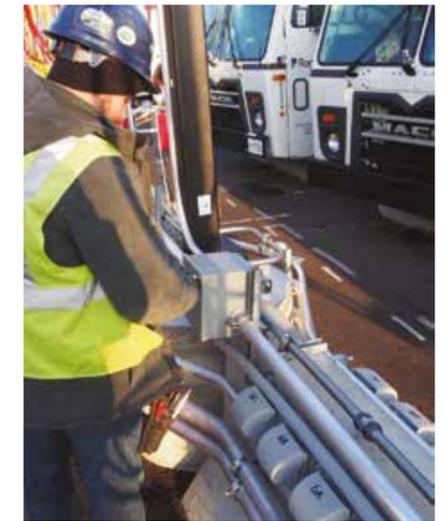
The most prominent demonstration of Deltro's storage technology is about to get underway with IESO, Ontario's electrical grid operator, when a 53 megawatt per



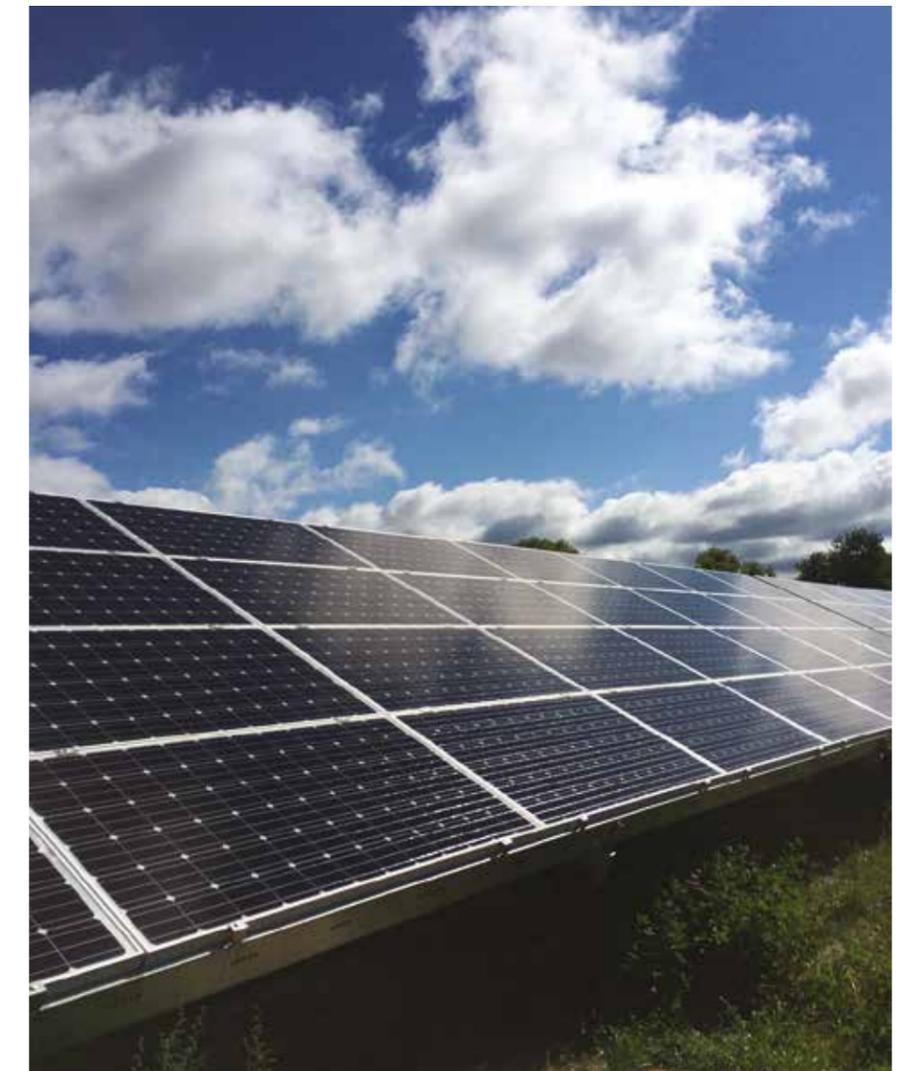
hour (MWH) system comes online in late 2016. As a province using a large - and growing - percentage of wind and solar power in its grid, the intermittent nature of generation is neutralized by the possibility of energy capture.

"This is the largest battery storage system in the world," says David Del Mastro, founder and President of Deltro Group of Companies. "We will work with Toronto Hydro to find properties where we can connect and then integrate the storage system into IESO's transmission lines. The batteries will be charged when usage demand is low, then, as it rises and falls, we will discharge the batteries to smooth out the spikes that cause IESO and Toronto Hydro a lot of problems."

As the system designer, Deltro has chosen Greensmith Energy's GEMS software platform for operation, as well as batteries manufactured by Leclanché. The GEMS platform offers response times as low as 16



milliseconds, turning the batteries into a spinning reserve available for any situation. After three years with IESO, Deltro will then begin operating the batteries directly with ▶





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Toronto Hydro. The system itself is situated just outside the city of Toronto.

NEW WORLDS

Battery storage technology also has applications beyond large-scale urban centers. Deltro has recognized the potential for this technology to bring benefits to impoverished communities and struggling governments across the world.

At present, for example, Deltro GeneraSol is working with the government of Colombia to bring solar microgrids to villages and towns in the country. Communities that may not even have had electricity available previously, will receive an entire self-contained system of panels, batteries,

software, and transmission lines that do not require hooking up to the national grid system in order to provide electricity to their homes and businesses. "We firmly believe this is the new model for power generation throughout the entire world," states Mr. Del Mastro.

ISLAND SYSTEM

The microgrids model will receive a major boost after it is brought to another part of the world currently undergoing major power generation changes: The Caribbean. Deltro has set up Deltro Caribbean to handle all construction projects in the region and the company's task has been to set up a solar panel manufacturing facility in St. Michael,

Barbados. The \$26 million dollar project will in fact be retrofitting an existing plant using equipment brought from Deltro's own now-dismantled manufacturing warehouse in Phoenix, Arizona.

"We were looking for a new home for the facility and undertook market analysis that highlighted how the U.S. market is already saturated," Mr. Del Mastro explains. "There is, however, a need for local manufacturers somewhere in the Caribbean islands. Barbados was chosen for two reasons. First, they are a parliamentary democracy so laws there are very similar to our own, making it a very comfortable fit for us. Second, a suitable manufacturing plant was in place and the island already

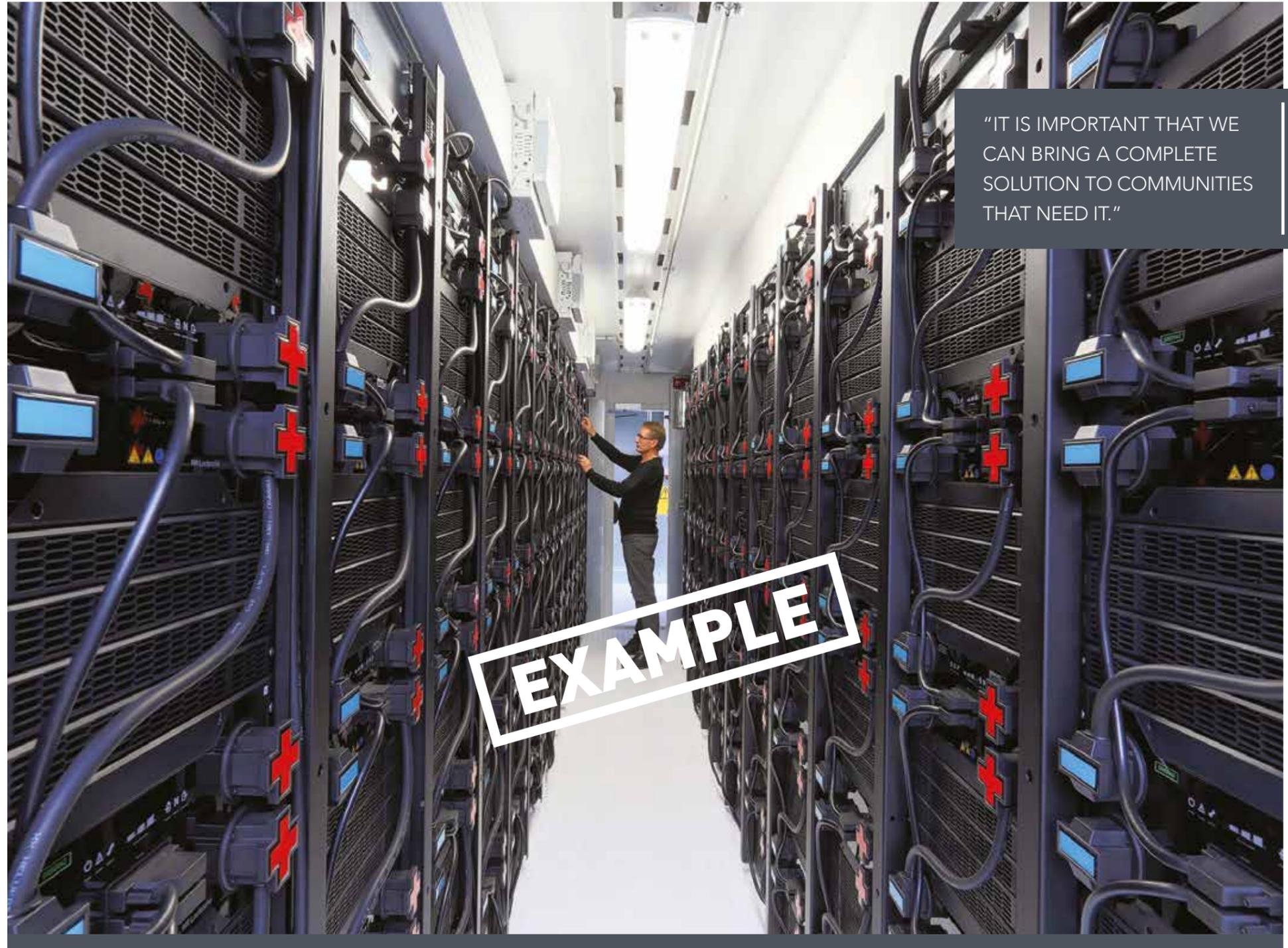
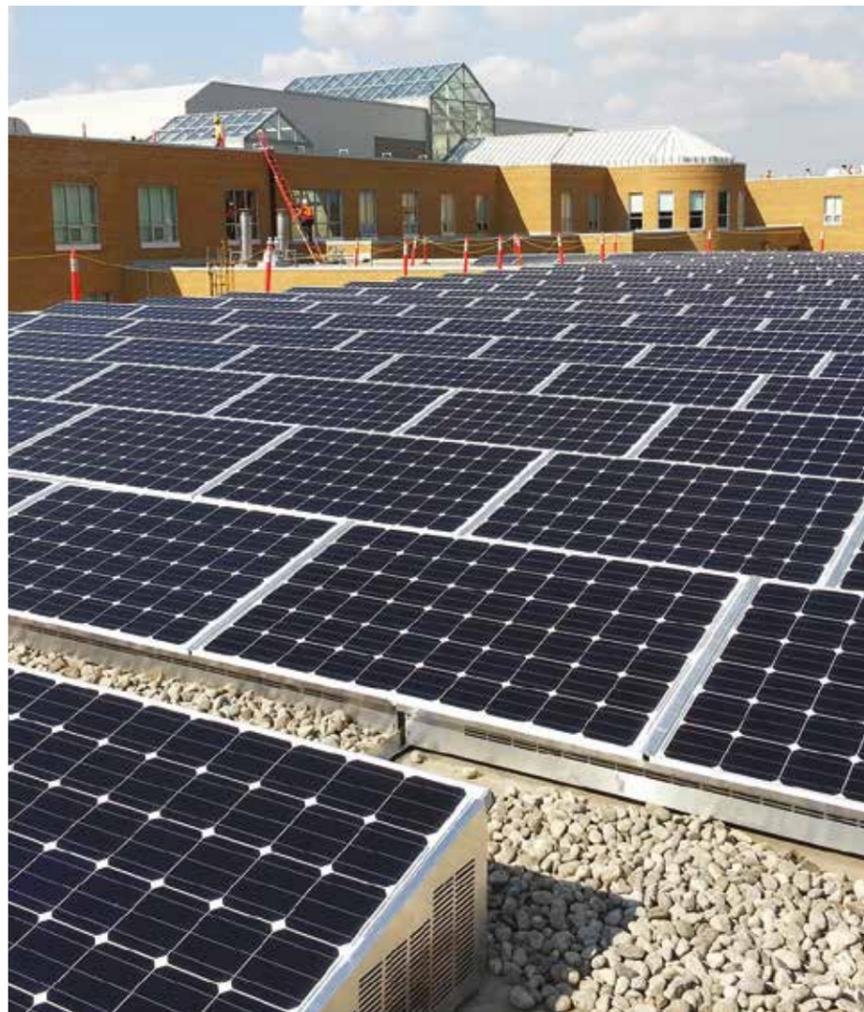
had legislation for the sector so it was an easy transition. In the first year we will employ approximately 150 local people at the plant, before eventually growing to 500 employees." The facility is expected to be fully operational sometime in Q1 of 2016. ▶





Apart from the plant itself, the project includes a solar farm that will generate power for the residents and businesses of Barbados. This 20MWH array offers full microgrid services, including battery storage, which will replace an annual diesel consumption of 12 million liters, reducing

the country's dependence on fossil fuels and reducing the cost of electricity for its citizens. Deltro has instituted a 100 year fixed-price proposal with the Barbadian government that will help money stay on the island and promote economic growth. The ultimate aim of this partnership is to



"IT IS IMPORTANT THAT WE CAN BRING A COMPLETE SOLUTION TO COMMUNITIES THAT NEED IT."



stimulate moves towards a self-sustainable future not only for Barbados, but the rest of the Caribbean as well.

CLEAN WATER, CLEAR FUTURE

It would not have been possible for Deltro to grow from a traditional power contractor to a pioneering international renewables developer within just a few years, were it not for a committed and dedicated team. Mr. Del Mastro emphasizes the difficulty of design-

ing, developing, and constructing advanced technology such as solar storage microgrids, and the speed with which they are able to achieve such projects is testament to the skill of everyone involved. The philanthropic motivations behind a number of Deltro's decisions provide a breath of fresh air in an industry that can quickly become trapped solely within economics. It is because of this foundation that Deltro's vision for their own future should come as no surprise. Mr.

Del Mastro explains that they are branching beyond power generation and into other amenities: "We are working right now with a developer engineer on a water purification plant. It is important that we can bring a complete solution to communities that need it; providing clean water as well as power and communications. That will be our next big task and it should be ready for release in the second quarter of 2016 under the company name Deltro Hydro." □