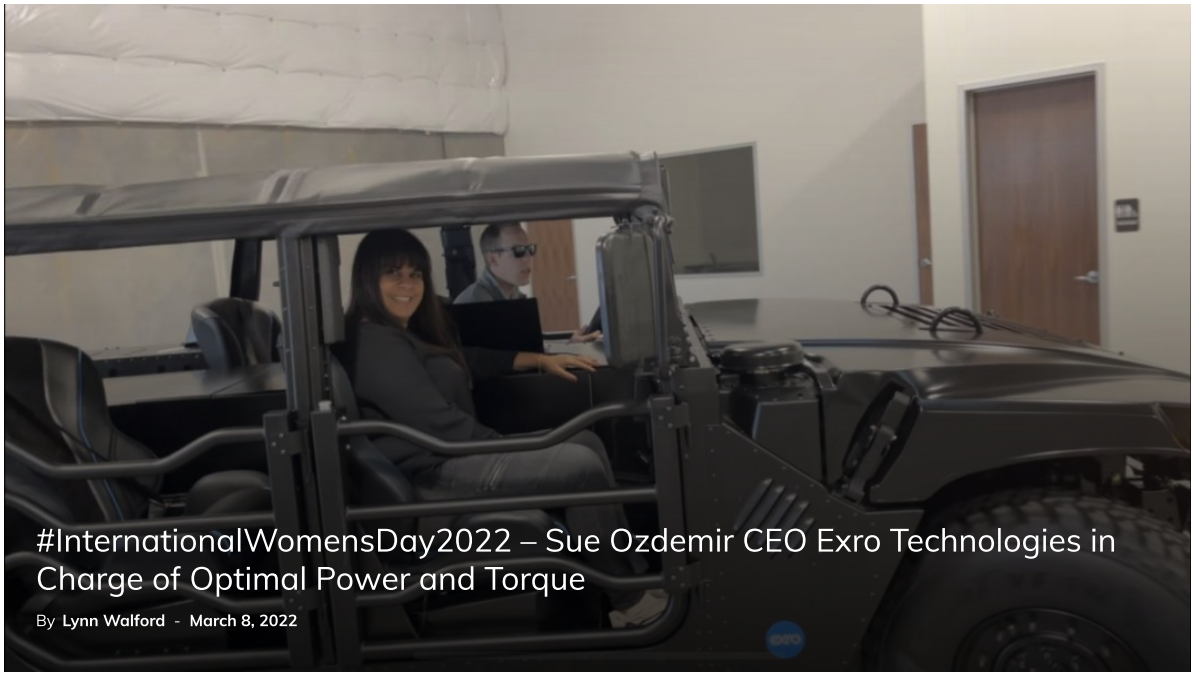

#InternationalWomensDay2022 – Sue Ozdemir CEO Exro Technologies in Charge of Optimal Power and Torque

By Lynn Walford - March 8, 2022

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Canada's Exro Technologies is bringing the power of electronics to electric motors. Its CEO, Sue Ozdemir, is leading the charge to improve electric motor efficiency and battery storage. She knows electric motors from the inside out.

Ozdemir tells Auto Futures how she plans to drive the company and mobility into a more efficient future. She is also one of the mobility leaders Auto Futures is profiling for our International Women's Day series.

Understanding Motors From the Inside Out

Ozdemir spent almost a decade at the small industrial motors division of General Electric. As chief executive officer, she scaled the division and oversaw its sale to Wolong Electric where she continued as CEO.

"I grew up in a family that had an industrial motor repair shop. My dad taught me when I was very young – no matter what the world did, no matter what shifts we saw in technology – electric motors would always be at the base of it," says Ozdemir.

The family dealt with industrial motors for paper factories, mining and other uses. Some electric motors were so big that she could stand inside them.

Ozdemir says being a woman did not affect her in the electric motor business. She never even thought about it.

She advises women, "Don't overthink it. Decide what you want to do. Own what you are. Then get set on your path. And surround yourself with good people."

About ten years ago, she noticed what was going on in the energy section. She realised she wanted to utilize energy in a cleaner way- to do more things with less power and less pollution.

“I love working in the next generation that will take innovation to electric motors,” says Ozdemir, who came to the company to scale the company from the first stage to products.

“We’ve got a lot of smart people. We share our vision on how we can change energy consumption,” she adds.

“We see an increase in speed and increase in torque of over 25%.”

Ozdemir is focusing on scaling two main product lines – the Exro Coil Driver for improving electric motor performance and battery systems.

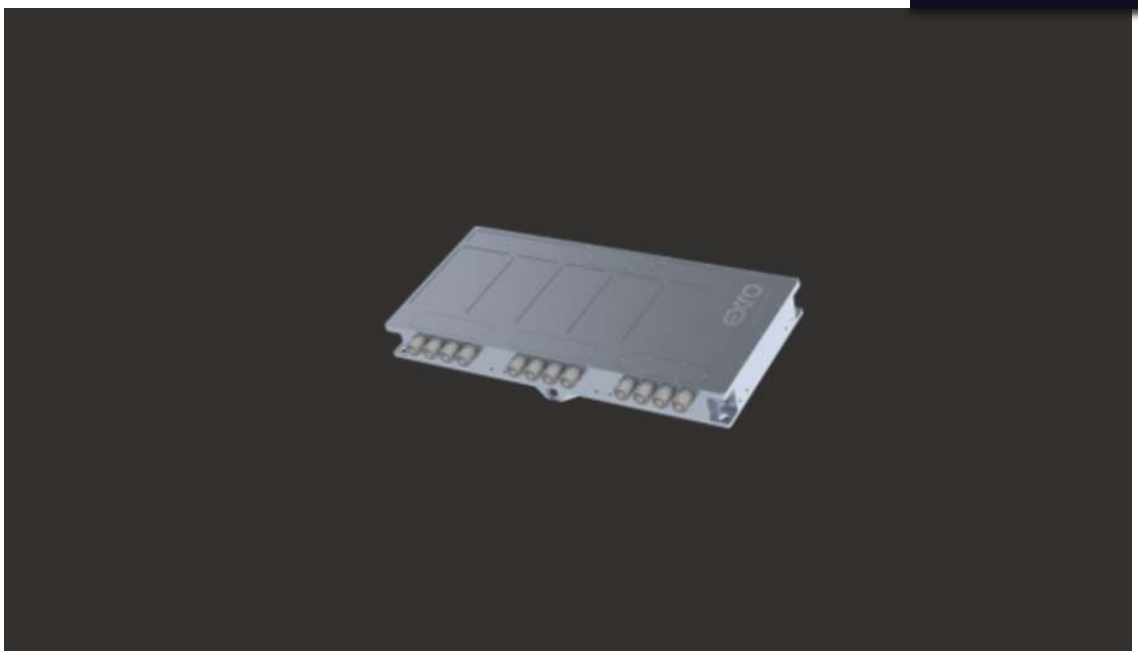
“We are developing solutions that use minimum energy to provide maximum results,” says Ozdemir.

EVs’ need for torque and speed can be delivered efficiently by the Exro Coil Driver.

In the powertrain of an electric vehicle, there is either the need for torque or speed. Most manufacturers do one of three things to create that. They put in more motors. So, you see things like vehicles with or with motors in the back and motors in the front. The other way to combat that is to put in another heavy gearbox. The third way to do that is to add expensive and heavy batteries, Ozdemir explains.

“We overcome all of that by utilizing the power electronics. We use the controls to complete that need for speed and torque,” she says. “To achieve that 100% utilization of that power that comes out of the battery and feeds it to the motor. The Exro Coil Driver switches seamlessly, dynamically and on the fly so that one motor essentially gets the results of multiple motors. It can achieve about a 40% size reduction when the motor size is optimised. We see an increase in speed and increase in torque of over 25%.”

Exro can offer cost reductions upwards of 20% by reducing the heavy components requirements while maintaining performance requirements, says Ozdemir.



Saving the Power of Batteries for Future Use

Exro's Energy Storage System (ESS) can recapture an electric vehicle battery for stationary storage. Exro's Battery Control System (BCS) controls the batteries at the cell level which means it's a greater depth of control and better for an afterlife of automotive batteries, says Ozdemir.

Electrifying Partnerships

Odzemir has been busy since she started at Exro in the fall of 2019, forging alliances and partnerships. The company partnered with Tier One supplier Linamar on a medium-duty e-axel to work with the Exro Coil Driver. Exro and Potencia Industrial partnered to accelerate commercial fleet and government vehicle electrification. Exro installed its 100V Coil Driver in Potencia EVs late last year.

Exro partnered with Untitled Motorcycles, Zero Motorcycles and LAND Electric Motorcycles to improve e-motor performance. An XP Zero motorcycle with Exro 100V Coil Drive system was on display at CES this year. The Coil Driver increased top speed by 13.6%, max power by 25% and max torque by 15%. During CES, the company also showed a Polaris UTV with an Exro. 100V Coil Driver.

The big demo is a massive military-grade formerly gas-powered 1994 Humvee retrofitted with an Exro 800V Coil Driver. Exro's electric HUMVEE has four times the torque of a Tesla Semi Class 8 truck and GM Hummer all from a single motor. Tesla uses two motors and GM uses three.

Challenging the Status Quo

“My greatest success is my family,” says Ozdemir, who has two adult sons. She tells them to have good character and to challenge the status quo. She is also challenging the status quo in electric vehicles.

“I hope in the future of electric mobility will find a way to accelerate adoption. The way to do that is to bridge the gap with cost and effectiveness. There is no one solution for everybody. Some people may be fine with just around town electric cars. Some people may need 600 miles through a hybrid. It’s a balance we do a lot in the commercial space. We can help fleets, municipalities and other types of mobility become cost-effective.”

It’s what’s inside that vehicle that’s going to bring about EV adoption because to truly transition to electric vehicles we have to bring down the cost and maintain that performance – so what can happen then is you can have a Humvee that drives like a Camaro, says Ozdemir.

This summer Exro is planning an open house at its Arizona headquarters where visitors can drive the Exro retrofitted Humvee and feel its power and torque. Ozdemir describes driving the Exro electrified Humvee as “awesome.”

Lynn Walford

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