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TUESDAY, OCTOBER 23, 2018

Ontario's first solar-powered electric tractor is at work

It uses 12 four-volt batteries and one charge lasts six hours, or four hours if you're working it hard. Additionally, as it coasts down a hill or brakes, it recharges itself



BY SUZANNE ATKINSON
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Wheelbarrow Farm business partners Tony Neale and Debbie Kinoshita with the Solectrac, Ontario's first solar-powered, electric tractor (Missing is Garrett Maxfield).

Gone is the iconic putt-putt of the motor.

Gone too is the roar of the engine, the smell of diesel exhaust, exorbitant fuel costs, and oh joy, most of the repair bills.

At least that's the hope of Tony Neale who last week unveiled his Solectrac tractor, a solar-powered electric tractor which is working on his ten-acre Wheelbarrow Farm.

It's a start he says; the first solar powered tractor to work in Canada. This little 48-volt tractor is the equivalent of about 30 horsepower.

Neale says while working on his farm one hot day last summer he began to muse about the idea of a solar-powered tractor. His research yielded one which was basically market-ready, in California.

By November he was in talks with Solectrac founder Steve Heckeroth. By February he was in California helping to build his tractor. In August it

arrived at the farm here north of Oshawa.

"There is significant risk when you're an early adopter," he admits. But as such, his role is to "help move the industry forward and to help figure things out that will make these more viable in the future."

Neale says he's not a tinkerer and "a mechanic would have no idea what to do with this. An electrical engineer would be the person I could call on," if it needed repair.

Neale lifts the hood and points out the one moving part. It's a battery, motor controller and a fan, he says, and if he runs into problems he will "liaise," with the company, "but I would probably hire an electrical engineer."

"I'm not yet confident enough that I want to just start taking things off. If I have to change a fuse I can do that," he said.

It has lithium batteries, an electric motor and the bearings

are rated for 100 years. The motor was designed for low speed, high torque, he says. "So they couldn't take the motor for a Tesla or something and put it here." It uses 12 four-volt batteries and one charge lasts six hours, or four hours if you're working it hard. Additionally, as it coasts down a hill or brakes, it recharges itself.

"You're using momentum to put charge back in the battery," Neale says.

So just what can it do?

Neale admits that with harvest underway, "I haven't really tried to max it out yet. That's what I'm going to do in a month." He has done some cultivating and "everyday we're using the wagon."

He has a written warranty from the company that anything that breaks in the first two years will be replaced free of charge.

He says it has been tested and

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Under the hood of the Soletract.

CASE IH TRACTORS

(W) CIH Puma 115, 2009, 3502 hrs, 480/80R42.....	CALL
(W) CIH 400 Steiger, 2014, 2700 hrs, deluxe cab, 710R42 duals, hitch and PTO.....	\$239,900
(N) CIH Magnum 310, 2015, 647 hrs, CVT 50KM, Luxury Performance Cab, compression brake.....	\$239,900
(S) CIH Magnum 370, 2014, 2300 hrs, luxury cab, leather 900 single tires, front cast, air brakes.....	\$239,900
(N) CIH 400 Steiger, 2012, 2281 hrs, 620/70R42 duals, 4 remotes, PTO.....	\$229,900
(L) CIH Magnum 310, 2014, 1200 hrs, Powershift, 50km, guidance complete, 520/80R46 duals.....	\$229,900
(S) CIH Magnum 250, 2015, 597 hrs, MFD, 40km, powershift, RTK guidance, 540/1000 pto, duals.....	\$224,900
(S) CIH Magnum 235, 2014, 575 hrs, 540/1000, 40km, powershift, 480/80R50 duals, RTK guidance.....	\$214,900
(N) CIH Magnum 340, 2014, 2515 hrs, 50 km trans, 700 pro, full guidance, HID lights, leather.....	\$209,900
(N) CIH Magnum 250, 2014, 1453 hrs, PS, 50km, Luxury Cab, Electric Adjust Ext Rearview mirror.....	\$199,500
(S) CIH Puma 240, 2015, 650 hrs, 710/70R38 rear, 600/65R28 front, CVT 50 km trans.....	\$197,900
(N) CIH Magnum 260, 2014, 2197 hrs, 520/85R46 rear duals, 480/70R34 front duals, CVT 50KM.....	\$189,900
(N) CIH Magnum 235, 2013, 3600 hrs, MFD, L795 loader, 620R70x42 tires, 5 remotes, powershift.....	\$159,900
(S) CIH Puma 170, 2011, 1300 hrs, loader, CVT, 50 km.....	\$149,900
(L) CIH Magnum 210, 2013, 2800 hrs, CVT, 50KM trans, 710/70R42 singles, leather seat, weights.....	\$146,900
(N) CIH Puma 240, 2015, 4471 hrs, CVT, 710/70R38 tires, front hitch PTO, 50km trans, leather.....	\$144,900
(L) CIH 185 Puma, 155 HP, 2012, 3050 hrs, CVT, 50KM, 4 remotes, new stoll loader.....	\$135,900
(N) CIH Magnum 180, 2013, 1852 hrs, Power shift, 380/85R34, rear duals 480/80R46.....	\$134,900
(L) CIH Puma 145, 2013, 885 hrs, CVT, 3 remotes, Michelin 380/90R46, outback autosteer.....	\$124,900
(S) CIH Puma 145, 2013, 3027 hrs, 460/85R38 tires, bar axle, 3 remotes, 50km, CVT.....	\$119,900
(N) CIH Magnum 290, 2013, 5617 hrs, 520/85R46 duals, 480/70R34 duals, 5 remotes, 50KM PS trans.....	\$114,900
(S) CIH Puma 210, 180 HP, 2009, 4211 hrs, CVT, 50km trans, leather, 650 tires, loader, rear cast.....	\$99,500
(L) CIH Puma 185, 2011, 4300 hrs, 50 KM, CVT, leather seating, New 520R42 tires, 420R30 fronts.....	\$94,900
(L) CIH 8920, 1997, 6250 hrs, Magnum, 4WD, 18.4x42 duals, 3 remotes nice condition.....	\$69,900
(L) CIH 9280, 1991, 2800 hrs on new engine Cummins QSX15, powershit, 3PT, cons.....	\$55,900
(L) CIH 7110, 1992, 7081 hrs, Magnum, MFD, CIH 710 loader, 20.8xR38, 16.9xR28.....	\$47,900
(L) CIH MX135, 1998, 8000 hrs, ALO loader, 4WD, cab 4 speed powershift.....	\$46,900
(N) CIH 75C, 2014, 1750 hrs, loader, MFD, canopy, new tires.....	\$44,900
(S) INT 584, 2wd, alo loader, 15.5x38 tires.....	\$9,900

OTHER TRACTORS

(L) JD 6310, 2001, 6033 hrs, 4WD, cab, 640 loader, 18.4x38 tires.....	\$47,900
(S) NH TG210, 2003, 4400 hrs, MFD, 20.8x46 duals, supersteer.....	\$79,900
(S) McCormick XTX185, 2011.....	\$69,900
(S) McCormick MC120, 1586 hrs.....	\$54,900
(S) MF 175, 2WD, open, 540 PTO 3PT hitch.....	\$6,995

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SOLAR

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the PTO has proven capable of handling multiple small implements in California.

“Before it came here he plowed up... an acre. He put it through all those trials,” Neale said.

“Before I start using it for real next year I want to test everything; be very methodical.” He “likes low gear three charge monitor. It’s recommended to run at between 25 per cent and 85 per cent battery. You can go lower than that, he says, but if you drain it to zero percent, the batteries are cooked.

So his battery charge system is set to shut off at 85 percent and a yellow light alerts him at 25 percent. Additionally it has

to be kept above -30 C.

“There’s enough warnings. I know where the charge is at every time I turn it on. He says that when it hits 25 per cent, “I still have an hour and a half to use it.”

“I worried about that when I got, but then when I got using it I realized you’d have to be a damn fool to actually take it to zero.”

Neale said he has the first Soletract working in the field. Two others have been built which are trialed at universities as requested or taken to conferences.

Soletract’s website explains the company “is in the process of optimizing a low speed, high torque motor specifically for electric tractors, and a Battery Management System (BMS) for low voltage high amperage lithium battery packs. Soletract

expects to produce 10 tractors in 2018 and increase production by a factor of 10 in subsequent years.”

The best part, says Neale is that the “user experience is phenomenal.” No ear plugs are required. There’s no exhaust fumes, he can use it at any hour without bothering his neighbors and there will be no more trips in the car to pick up diesel fuel.

“The best part is to be able to plug it in and get the power from the sun,” he says.

Where you would put in \$20 worth of diesel, he says, the Soletract requires \$10 in electricity. “But because we’re producing our own energy that brings it down even further.” He estimates he’ll operate for \$250 annually. Plus there’s no oil.

“In theory the maintenance for this is almost zero. We’ll see if that’s true.”

Weather Summary

Location	Oct 10 - 16, 2018	Temperature (°C)		Rainfall (mm)	Heat Units CHU	Total Since May 1	
		Max	Min			Rain	CHU
Outdoor Farm Show	2018	14.4	2.2	4.6	-	544.0	3295.8
	30 Yr. Avg.	14.5	4.8	18.6	-	472.4	3161.4
Windsor	2018	15.2	6.8	5.4	-	552.2	3829.4
	30 Yr. Avg.	16.0	6.1	15.4	-	433.2	3460.1
Trenton	2018	15.4	5.3	8.9	-	422.8	3453.7
	30 Yr. Avg.	13.9	3.8	18.0	-	443.1	3037.4
Mount Forest	2018	13.1	4.3	4.8	-	473.4	3226.4
	30 Yr. Avg.	13.8	4.1	20.4	-	484.5	2931.8
London	2018	14.5	4.9	3.0	-	429.6	3561.0
	30 Yr. Avg.	14.8	5.0	19.5	-	474.4	3202.1
Hamilton	2018	16.3	5.5	1.9	-	351.2	3468.7
	30 Yr. Avg.	14.5	4.9	15.6	-	434.0	3219.5
Ottawa	2018	13.4	5.3	7.8	-	446.1	3447.7
	30 Yr. Avg.	13.9	4.0	18.6	-	482.9	3121.8
Elora	2018	13.7	3.5	6.9	-	317.9	3199.7
	30 Yr. Avg.	14.0	4.0	17.7	-	466.1	3006.6
Peterborough	2018	14.9	4.1	6.3	-	376.8	3268.0
	30 Yr. Avg.	13.7	3.6	18.3	-	445.9	2977.3
Thunder Bay	2018	4.7	-1.4	42.9	-	470.5	2503.0
	30 Yr. Avg.	11.5	1.0	15.6	-	451.1	2461.0
New Liskeard	2018	7.4	0.3	61.3	-	511.9	2687.0
	30 Yr. Avg.	11.5	1.3	18.4	-	474.2	2487.0
Kapuskasing	2018	3.0	-0.9	63.2	-	396.1	2410.0
	30 Yr. Avg.	10.5	0.7	16.9	-	455.3	2297.0

Table Updated Daily at
www.weatherinnovations.com/weeklyweather.cfm
This Report includes data from WIN and Environment Canada

