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The Maxeff Motor by Adventech: The Evolution of Drive Motors



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CEOCFO: *Mr. Ballman, what is the overall vision behind Adventech, LLC?*

Mr. Ballman: Adventech’s business is to provide the world with industrial efficiency solutions by creating innovative technology. Our mission is to present the world with more efficient opportunities. We are facing climate crisis, energy shortfalls and excessive waste. Adventech’s technology is one of the many layers of solutions.

CEOCFO: *Would you explain what the technology is and how it will help?*

Mr. Ballman: Over 50% of the worlds power is consumed by electric drive motors, electric drive motors are also inherently wasteful (reactive power). The waste factor root cause is something that has just not really been addressed. In laymen’s terms, a conventional induction drive motor will call all the power that it needs to produce torque, yet the reactive energy once it is utilized in creating a magnetic field is wasted. Therefore, anywhere from 15% to 30%, sometimes even higher, of the power being called by a conventional electric motor is just wasted.

It is really a call to action to try and find a way to resolve this issue. What our motor technology does is it captures this reactive energy and reconverts it into leading inductive energy, and it is either A, utilized within the motor itself so that it does not have to call so much power from the grid and/or B it creates enough power to feed external inductive resources.

CEOCFO: *How are you able to capture that energy?*

Mr. Ballman: Our proprietary technology has a second internal circuit the works like a generator that works in conjunction with a conventional winding circuit. As the reactive energy tries to leave the motor it is captured by our regenerative circuit which reconverts it into leading

induction power. A conventional motor has a single set of windings converts electricity into mechanical energy.

CEOCFO: *Why do you think this has been an overlooked area?*

Mr. Ballman: There were several attempted technologies over the last forty or so years that were similar in design, which have made attempts at developing something similar and failed. I cannot really expand on why they failed as their designs were different in many ways, as well as the intention of their designs were for desaturation and not regeneration. Gerald Goche is the inventor of this technology, his vision for this technology was simple, resolve the power factor (waste) issue. There are 12, 15 years of research and development in this product and we have motors in service right now that have been in service for going on a decade.

As we have gone through this process of incorporating back in 2019, up to that point this technology has gone through multiple iterations. Therefore, multiple different patents have been issued to cover our technology therefore the IPO is safe. It took someone from outside of the motor industry, which was not entrenched in dogma to figure out how to develop such a disruptive technology.

CEOCFO: *MAXEFF™ motor. Does that stand for "maximum efficiency?"*

Mr. Ballman: Yes, MAXEFF™ does stand for "maximum efficiency."

CEOCFO: *Who is using MAXEFF? Who should be and for what applications?*

Mr. Ballman: We have many great partners that include Coca Cola, PepsiCo, Anheuser Busch, Miller, Coors, North American Lighting as well as Berkshire Hathaway currently uses our technology in a couple of their locations right now.

As for applications, 90% of induction drive motors that are in service right now drive a pump of some sort, water, hydraulic, vacuum pumps, etc. Our sales have followed the same trend. However, we have motors that are in multiple diverse types of applications. Anything that you need an induction motor attached to, whether it be a fan, a vacuum pump, driving a production line, etc., this is a great fit.

CEOCFO: *What is involved with setting up the motor and maintenance?*

Mr. Ballman: That is a great question! Our technology has a standard IEC/NEMA footprint. Is it plug and play? From a footprint perspective, when you walk up to our motor it looks like any other motor from a design perspective. If you tell us, you need a certain frame with a certain flange, it is plug and play for us. The ease of adoption of our technology is as easy as just replacing the motor.

From a maintenance perspective, it is just like taking care of any other electric motor. Just standard PM processes, and we provide a user's manual that indicates the type of maintenance program that best fits the application.

CEOCFO: *When someone from Adventech is speaking with a potential customer do they understand immediately? Why is every motor today not a MAXEFF™ motor?*

Mr. Ballman: When we host engineering lunch and learns with companies, our engineers get involved and they talk shop. Normally, there are many questions, our technology is disruptive and contrary to conventional engineering training. There has been a fair share of skeptics, again, skepticism is just part of the process. Honestly, the lunch and learns that we host, whether it be via Zoom or live in our facility, has the tendency to provide clarity that results in buy in. Proof is always in the data.

There are a couple of major obstacles that you must overcome when you are disruptive technology. One, acceptance in the market is easiest when you have an established name and an established reputation. If we were an established motor manufacturer, and we came out with this type of technology, people would be quick to adopt it because we have an established name and reputation. The other thing is, we incorporated 2 years ago and through that process there comes a lot of rigorous testing, validation process and certifications such as UL, CE, CSA regarding assurance of safety, reliability, and repetitive quality processes. The other critical process that had not been executed during the development process was engaging third party NVLAP testing laboratories to provide unbiased pure data that indicates performance levels. The testing process is a standardized process that all new drive motor technologies must endure. The third-party testing processes provided us with the data necessary for validation.

Why are there not 10 million MAXEFF motors out there? First, we do not currently have the facility to put ten million motors out. What we have is a facility that allows us to continue to slowly scale our technology to the point where we can find the right partnership, whether it be a JV (joint venture) or a licensing deal. Our view is that the world does not really need another motor manufacturer, they just need a better motor. We would like to be able to potentially find the right partnership that allows us to focus our resources on continuing to develop our next line of technology, such as our EV motor, Electric Vehicle motor, that we are currently developing.

CEOCFO: *How does cost verses return on investment fit in? How are you able to show that easily to a perspective client?*

Mr. Ballman: The first question being how do we validate ROI? Adventech's customer service team has an ROI model that calculates ROI during the quoting process. All the data used in our model is provided by the client, therefore the data can be easily reconciled on their end. Typically, payback is 3 to 9-months on motors that are being installed and ran for 24 hours a day, 7 days a week. How do we validate that? Obviously, kilowatt hour consumption reduced and power factor improvements.

Validation of ROI can also be measured post installation as there are measuring devices available that can be installed. We have a couple of different technologies we use. We can isolate the measuring device on a motor which is a conventional, common, digital read-out that shows

what the motor is consuming and then what it is generating back to the grid. Adventech has also developed a remote monitoring system and it is called Advent-View. The Advent-View product is a cloud-based monitoring system that allows you to trend data. You can look at it from any smart device or from your computer, and you can see how that asset has been performing. From a preventive and predictive maintenance perspective it tells you vibration, temperature, angularity etc., but it will also measure power consumption and power generated. In summary, we use data from the client to create the ROI and then we also provide the opportunity to put devices in your facility that will validate it for you, with minimal effort.

CEOCFO: *Are you seeking funding, investment, or partners right now?*

Mr. Ballman: We are funded right now with through private equity; we have a small group of partners. We started, right before the pandemic. We had some good traction going and the pandemic was an obstacle that impacted our business just as many others. This is the type of technology that you need to put in front of people which requires face to face interaction. It surely has been difficult to overcome. We are excited about the commercial traction we are starting to realize. We are starting to see aggressive pick up in our backlog growth.

We are working with investment banking groups to assist us with finding the right type of partnership.

CEOCFO: *How do you deal with some of the frustration in knowing Adventech has something that is important and yet it is a very arduous journey to get it to common acceptance?*

Mr. Ballman: The frustration from this process tends to be quelled by staying focused on the mission. Ultimately, Adventech believes that the technology will speak for itself, we have done our due diligence and provided all the necessary data (both third party and customer testimonial), and we have an established commercial partnership with many reputable customers that have experienced the Adventech advantage. Our mission from a conventional business perspective is the same as any other business, growth, profitability, happy shareholders, and new product development.

The other side of our business is our core values. We want to see the world have a better product. We want to see people benefit from the savings that we generate, improved standard of living for the eight hundred million people globally that still do not have access to stable power, all realized from the reduction of waste, finally Adventech wants to be part of the solutions that impact the reduction of carbon emissions.

