

Gary Hoffman

Advanced Power Technologies



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Photo: Advanced Power Technologies

CEO at Advanced
Power Technologies

Interview with **Gary Hoffman**

Alan Ross: Hi, I'm Alan Ross. I'm here at the IEEE PES T&D conference. This is the 2020 version that is actually being held in 2022. We're conducting interviews with thought leaders on the future of the power industry.

My guest for this segment of the interview is Gary Hoffman, the CEO of Advanced Power Technologies. Gary, welcome. Thank you so much for joining us.

One of the first things we're asking about is the future. Look at the crystal ball. A lot of change is taking place in a lot of areas. But as it relates to the power industry, what do you see as the major trends, major changes taking place?

Gary Hoffman: Well, the significant area of actual improvement is the recognition of the importance of the grid itself and the reliability of the grid itself.

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AR That's a great thought. We recognize that when the power goes out, the lights go out, nothing works. Texas taught us that.

GH They did, didn't they? But on the other hand, it's spurring innovation because let's say everybody on a city block has an EV. But when a major utility in the Northeast has an issue with power delivery, all of a sudden, EVs can't be charged, people cannot go to work. There's a significant impact on the user community, because they don't have electricity. We're looking at the requirement, and what Advanced Power Technologies is doing in that respect is improving the type of monitoring done on power transformers, which are a major asset within the grid. If a power transformer fails, you could lose thousands and possibly tens of thousands of customers because of transformer failure. My business, Advanced Power Technologies, is mainly involved in asset management and the identification using expert system approach to be able to determine when that transformer is about to fail.

AR You mentioned two things when you talked about that. I want you

to go a little bit more in-depth with the data, because you got to have that data. If you're monitoring, you've got to be able to send this information somewhere, and you have to have interoperability so that it's got to work together and we're not in an interoperable state today. Talk about that a little bit, about the massive amounts of data that are going to be created by all these sensors.

GH Well, the interesting thing in my approach in starting Advanced Power Technologies and running it is to take that burden away from the electric utility. You can have the data, you need the data, but you have to look at all the data. The idea is to develop an expert system that uses known information about how power transformers operate and their potential failure modes to be able to predict when a transformer is about to have an issue, where it needs maintenance. As opposed to doing routine maintenance, you're doing condition-based maintenance. We're moving the industry to condition-based maintenance, even though they don't know it.

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AR I am a reliability expert. I'm the President of the Electric Power Reliability Alliance, a CMRP certified maintenance and Reliability Professional, Certified Reliability Leader. I have been screaming that for the last 20 years that what we've got to be able to stop doing time-based maintenance, which tends to create more problems than it resolves, and do a lot more condition-based maintenance. Now, going with condition-based maintenance, you need condition-based monitoring. That's what you guys do, right?

GH We specialize in that area and we hold, I believe, 13 US patents and foreign patents in the area of condition-based assessment. Advanced Power Technologies has been doing that for 22 years. We became an IEEE fellow in 2015 for transformer monitoring, and we have been a member of the transformer committee for years and years. That's been the exciting part of being involved in IEEE. What sucked me in was being involved in standards development. It's so interesting. You meet so

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ABOUT US

Advanced Power Technologies (APT) was founded in 1999 by Gary Hoffman and since inception has been developing unique product solutions for the transformer monitoring market. Our focus has always been to develop the best and most reliable technology at an affordable price.

As APT moves into its third decade we continue to build on our success by designing simple to use maintenance-free products that **never requires calibration**. We are also proud to be the only manufacturer of transformer monitoring products covered by a **Lifetime Warranty**.

Product Spotlight: Total ECLIPSE



- Up to 7 Temperature Probes
- Up to 16 Direct Fiber Winding Inputs
- Up to 16 Relay Outputs
- Up to 32 Analog Inputs



A Complete Transformer Monitoring Platform

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 - Patented Dual Algorithm OLTC Temperature Monitoring
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- Patented – Load Pickup Cooling
- Event and Data Logging
- 48 Point Built-In Annunciator
- DNP3/MODBUS/IEC61850 (GOOSE Messaging)
- IEC62439-3 PRP & HSR
- GIC Monitoring and GIC Core Saturation Detection
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many really smart people, knowledgeable people, and you develop a friendship with these people that will last years.

AR Okay, we're going to get more into IEEE. You love it, I can tell.

But I still want to talk about some of this change. You've been doing this long enough to have a voice in it. Demand has been flat for 10-12 years, power demand. Power demand is expected to go,

I've heard, from 30% higher to a double because of electrification and transportation. Because we're bringing a lot of data centers back onshore, because we're bit mining now here as opposed to relying on Chinese mines. There's just a lot of reasons that the North American demand is going up. How do you think that demand is going to impact what you do?

GH We're going to sell more product.

AR You're going to sell more product? Well, that's a great way to look at it. But specifically, in order to sell more product, what do you have to do, Gary?

GH Well, we have to make sure we can deliver product. We all heard of the issues of the supply chain, and they're real. Supply chain issues have created such problems in North America and throughout the world that electronics manufacturers are struggling to solve. We actually

manufacture our own products here in the US. We don't outsource anything. We manufacture even the temperature probes that go into the transformer, but we manufacture them ourselves. The problem is the electronic components, the microcontrollers, the memory chips that are needed, they're in short supply. What we've learned to do when we saw parts just disappear overnight was that we should cover the lead time. Now lead times are more than one year. Instead of just-in-time inventory, we've gone to strategic inventory.



AR I love that. Okay. Talk about that.

GH Okay, so strategic inventory means you live to fight another day. You think about it before you just say, *I'm out*, right? Our director of operations does nothing but watches the parts and makes sure that, as the parts are becoming scarcer and scarcer, he pulls the trigger in time because if we don't pull the trigger now, we won't have parts to deliver our monitors a year from now. We're having to do that and we're spending a lot of cash in order to do that. But it's important to the industry because, in order to continue to provide the product when it's needed, you have to have the material. It's very interesting.

Well, we have to make sure we can deliver product. We all heard of the issues of the supply chain, and they're real.

AR For most CEOs, the two things that I bring up that immediately get them sparked are supply chain management and labor shortages. What is that doing to your business?

GH Labor shortages is not a problem. We have our own people. They're local people that know how to build electronics, so that's fine. We have production assembly equipment in-house. They're robotic in nature, so they're less dependent on people. Even though people are really important to make sure the process runs as it should, we have automatic optical inspection equipment to inspect everything. It's not like figuring out, *Where's Waldo?* Where's the defect? It'll spot it right away because it's using an intelligence system to look at the circuit card as it's assembled to ensure that all the components are assembled correctly. We have in place all of the automation tools that we need. We have the people, skilled individuals. We just rock and roll with what we have to do.

I just know I've been fortunate to do a lot of stuff in my career. One of those was as VP of Operations at a major electronics company, where I ran engineering. I ran the factory too, and restructured it entirely. I had this experience. When I started Advanced Power Technologies, it was really simple for me to be able to roll into doing this in a way that made a lot of sense.

AR That is a great background to have. Let's go to IEEE again. You obviously expressed a love for IEEE. You were the past chairman of the Standards Board?

GH In IEEE, we have an organization. We call it an organization unit, OU, and it's called the Standards Association. The Standards Association is responsible for the entire standards development process used by many societies and councils. It turns out PES is the biggest when it comes to IEEE standards. We have in PES more IEEE standards than any other society or council. I was with Jessica Bien today who's IEEE PES President, and we were just talking about that today. This isn't great. We have the most standards than anybody else, even the computer society.

AR That's surprising. I know that you've been involved in many committees. You have people within the company involved in committees. What's the value of them not just coming here, but getting them involved with IEEE on a regular basis?

[Involvement with IEEE] enriches [my employees] professionally. They will meet people that will help them. They will find resources that they never knew existed.

GH It enriches them professionally. To me, I'm an engineer first and foremost. I run and own a business, but on the other hand, there's an ethical part of what I do. Being an engineer, I believe the profession is of great value. It's almost at the same level as a doctor or a teacher. It's really, to me, a treasured profession that I want to see honored, and I don't want to disrespect my employees by saying they can't be involved in this. They need to be involved; they need to participate. It's really important to me that our people get involved. It helps them do their job better, but also, they can contribute to standards in the way that they think best, not because of their affiliation.

AR This is very important. You mentioned the operating units, the Smart Grid. I'm on the Smart Grid committee, and we have 14 different operating units that actually help promote the program when the program was developed. We are now trying to re-engage many



of those people because many of them just stop working. Once the standards were done, there was an idea that the smart grid is finished, and it really isn't. We're starting to do things. Next year in April in San Diego, IEEE PES will be doing the first Grid Edge conference, which will rival what we do here for T&D at the Grid Edge. It's going to be unique because there's so much change taking place at the Grid Edge. But I'm sure you all will be there.

Last question that I've got for you. From an IEEE perspective, why should a young person come into this industry? Why become part of IEEE when your boss hasn't necessarily said to join, or your company isn't sponsoring it? Why personally should you get involved in it?

GH They will meet people in their career. That's really what it comes down to.

AR It's a career maker.

GH Yes, it's a career maker. They will meet people that will help them. They will

find resources that they never knew existed. If they get into a problem in a design, if they're working on something, hardware or software, or they're working in the field in the utility, they'll have some friends that they can call up and say they having this issue, and maybe that person has had this problem five years ago. It's enlightening. Just the camaraderie of being involved in the organization is just wonderful. I would recommend to all young engineers that they should be involved in IEEE at an early age, but continue to be involved. There are so many student members of IEEE that just disappear.

AR Yeah, that's true. We have to do more to encourage them to stay involved. We need their affiliates to say they need to be involved, because it's important. We need their bosses to understand this is not taking time away from the work. This is the work.

But anyway, that's great. Gary Hoffman, this has been great. Thank you so much for being here.

GH Thank you.