

THE NUCLEAR NEWS INTERVIEW

# VanTassell and Smith: On having spare parts available quickly, efficiently, and at good value

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In February of this year, Paragon acquired Nuclear Logistics LLC to form a third-party supplier of equipment solely focused on the nuclear industry. Engineering, design, manufacturing, testing, and qualification are performed in Paragon's three facilities, located in Fort Worth, Texas, Oak Ridge, Tenn., and Schenectady, N.Y.

Paragon provides critical and safety-related equipment, including electrical, mechanical, instrumentation and control (I&C), HVAC, and specialty one-of-a-kind items; equipment maintenance; equipment qualification; and engineering services that include thermal aging, radiation testing, electromagnetic interference/radio-frequency interference testing, loss-of-coolant-accident testing, seismic testing, and software verification and validation.

Doug VanTassell is Paragon's president and chief executive officer and has more than 31 years of experience in the power generation industry. He received his master of business administration (MBA) degree from Queens

University in Charlotte, N.C. Prior to joining Paragon, VanTassell spent 25 years at AP Services, becoming owner and CEO in 2009. In 2012, Curtiss-Wright purchased AP Services, and VanTassell became the general manager for Nova and AP Services. In 2014, he joined ATC as president of its Nuclear Division. On August 30, 2017, VanTassell and Argosy Capital purchased ATC Nuclear and renamed it Paragon.

Tighe Smith is chief operating officer at Paragon. Smith has spent the past 17 years working in various roles in the commercial nuclear power industry. His experience includes nuclear business management, product development, and safety-related system sales and service. He has a bachelor of science degree in nuclear engineering and is a graduate of the University of Tennessee's MBA program. Smith served in the United States Army National Guard from 2001 to 2007.

VanTassell and Smith recently talked about supply chain issues with *Nuclear News* Editor-in-Chief Rick Michal.

Paragon recently completed an acquisition of Nuclear Logistics, another supplier of commercial-grade dedication, qualification, and I&C equipment. How does that acquisition fit into your nuclear supply chain strategy?

**VanTassell:** We're very happy to welcome the Nuclear Logistics team as a part of Paragon. Nuclear Logistics adds a trio of strengths to the mix with the addition of a talented group of seasoned nuclear professionals, a large catalog of nuclear solutions, and new capabilities such as custom design and an American Society of Mechanical Engineers [ASME] program. This ultimately means that our customers will find more innovative solutions through a single source. The acquisition also demonstrates Paragon's commitment to investing in the nuclear industry, something we are always proud to highlight.

*How do you see supply chains changing in the face of the COVID-19 pandemic and its effects on going to market and logistics?*

**Smith:** There are both short-term and longer-term effects from COVID-19. For the short term, there has been an impact, albeit minimal, on lead times and part availability. We've continued to operate our facilities at full capacity and feel fortunate that we have been able to service our customers in much the same way as we always have.

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In the long term, the pandemic will accelerate the trend toward remote work, and we will see an increase in the number and percentage of virtual meetings and digital collaboration. While these technologies have been available for many years, this is the first time we are all using them in the nuclear industry. Plants and suppliers will continue this trend and increase work conducted virtually even as the pandemic ends. We look at these changes as very positive for our business and the industry, as tapping into these technologies will drive down costs and improve efficiencies.



**VanTassell:** "Why should the experience of buying nuclear parts be any different from the online experience of buying household items? We all want to get what we need quickly, efficiently, and at a good value."

*Looking into the future, should a more impactful pandemic emerge, are there actions that utilities and suppliers can take now that will allow nuclear plant supply chain needs to be met, given an even more challenging situation?*

**Smith:** The pandemic environment puts a bigger focus on the accuracy and availability of critical parts, particularly parts that are SPVs [single-point vulnerabilities]. Does your nuclear plant supply chain know what part availability issues it may face? Is there a plan—and a backup plan—to source needed parts? If not, the plant could be at risk, and that risk is heightened when supply is disrupted during a pandemic or other crisis. Paragon helps plants address these issues by using data analytics coupled with highly knowledgeable nuclear supply chain professionals. Our team addresses part availability needs by reviewing SPVs and critical spares using our extensive PeAks application and industry knowledge. PeAks allows plants to assess the availability of parts *through multiple sources*, reducing the risk to the plant when an unexpected event disrupts your supply chain.

*How has the "Amazon effect" of multiple warehousing locations with parts stored for just-in-time delivery impacted the nuclear industry?*



**Smith:** "We look at these changes as very positive for our business and the industry, as tapping into these technologies will drive down costs and improve efficiencies."

**VanTassell:** The Amazon effect continues to transform supply chains and customer buying habits across all industries. At Paragon, we have found that the effect has a profound impact on customer expectations for service, speed, and convenience. In many ways, this customer experience gap drove us to create PeAks, the online tool that is recognized as the most convenient way to locate and buy nuclear parts. Let's think about it—why should the experience of buying nuclear parts be any different from the online experience of buying household items? We all want to get what we need quickly, efficiently, and at a good value.

Paragon introduced PeAks five years ago as the company transitioned from a human knowledge-based method to a digital nuclear parts marketplace that still taps into the human intellectual component. In the PeAks marketplace, parts and intellectual property from utility inventory and suppliers are organized in a way that is easy and intuitive for a user to search and purchase.

As an example, let's say a utility is searching for a difficult-to-find part. PeAks streamlines the entire parts search and purchase process with a centralized hub that brings all nuclear parts together in one virtual marketplace. It's truly an Amazon-like experience specifically created for nuclear parts, bringing a tremendous selection of parts available and in stock for nuclear power plants and suppliers across the world (9 million parts and counting). Like Amazon, PeAks is free to use, is available 24/7, and doesn't require a log-in or subscription to conduct a search.

*Continued*



An example of medium voltage switchgear ready to ship to the customer.



EMI/RFI Testing Lab in Fort Worth, Texas.



Bench testing of equipment at the Paragon facility in Fort Worth.

*What are the top most beneficial changes on either the supplier side or the utility side to come out of the “Delivering the Nuclear Promise” (DNP) initiative?*

**VanTassell:** The DNP initiative brought major cost savings to nuclear plants. By implementing DNP Efficiency Bulletin 16-30 (EB16-30), nuclear supply chains changed their procurement process to look at alternative sources of parts, including repair, reverse engineering, and commercial-grade dedication, instead of buying parts from the original manufacturer. This change has led to an enormous, quantifiable cost savings. As one example, the Utilities Service Alliance realized more than \$30 million in savings over a three-year period. The Nuclear Energy Institute recently reported that the cost per megawatt-hour was lower in 2019 than for any period since reliable measurements began. This demonstrates that the DNP initiative is successful in lowering the cost of operations.

*Are there significant cost/execution challenges that still need utilities and suppliers engaged together to find solutions that help our industry become more cost-efficient?*

**Smith:** Absolutely, the strategies defined by DNP EB16-30 are only partially implemented at utilities, and there are more material cost reductions possible. In response to this, Paragon hosted an MCR (Material Cost Reduction) meeting in August 2019 that was attended by every U.S. nuclear utility to benchmark the implementation of DNP EB16-30, discuss best practices, highlight success stories, and address challenges. The meeting revealed that there is a large opportunity for additional savings by executing all facets of DNP EB16-30, including repair-vs.-replace strategies for circuit cards, commercial-grade dedication, reverse engineering, and proactive alternate sourcing methods.

*There is heightened interest in plants either already pursuing or desiring to pursue license extensions from 60 years to 80 years. With many additional major safety-related or quality-related components possibly experiencing a higher probability of degradation or failure, how does the supply chain need to evolve to address subsequent license renewal demands?*

**Smith:** This is an excellent question and one that we deal with daily for both short-term bridging strategies and long-term life extension for our nuclear plant customers. The challenge is how to balance capital budgets while extending plant life. Supply chains need to look at all the options, including reverse engineering, alternate sourcing, and repair. This is crucial since many of the OEMs [original equipment manufacturers] that built the original equipment are either no longer

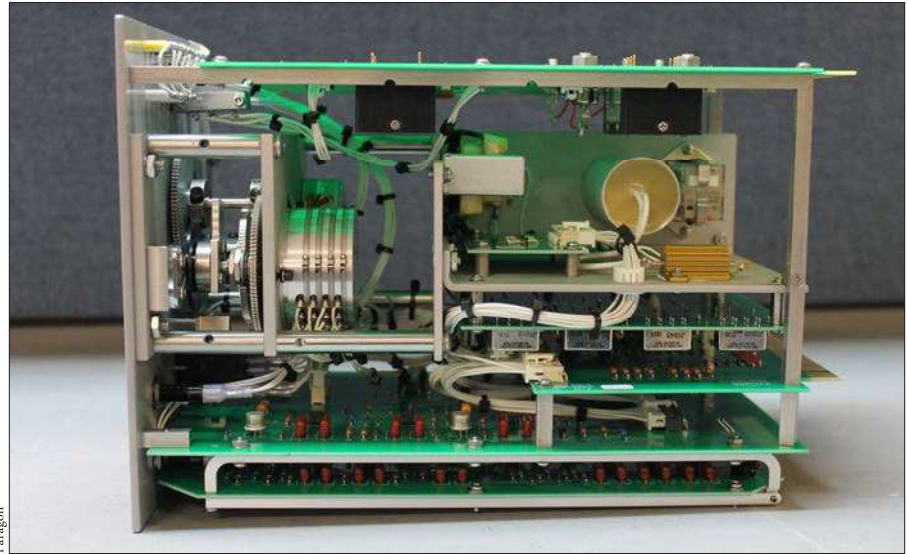
in business or have moved on to modern designs, presenting a challenge for nuclear power plant installations.

In addition, nuclear suppliers need to be aware of upcoming projects very early in the design cycle to help craft and prepare alternate solutions that are cost-effective and will perform within the original design basis. Reviewing long-term asset management plans with key suppliers has been a great strategy for utilities, such as the Utilities Service Alliance, as the planning enables plants to avoid large capital spend and expensive plant modifications.

A good example of this strategy is its use for the Woodward governor controls, which are high on obsolescence rankings at plants that use this equipment. The digital upgrade has a price tag of more than \$4 million, while the reverse engineered version costs less than \$100,000. The latter solution, in addition to its obvious cost benefit, doesn't require a plant modification, has no cybersecurity risk, and is a proven design that has been rigorously tested to uphold OEM standards.

*Most plants are unique regarding their component qualification requirements, so economies of scale regarding replacement parts are difficult to achieve. What are some innovative ways that suppliers and/or plants can lower the burden of individual qualification costs?*

**VanTassell:** At Paragon we have great partners, such as Contech Inc., that work with our team to develop strategic solutions to eliminate or reduce qualification



An example of a complex component that was reverse engineered by Paragon. The component required a custom mechanical gear assembly alongside more typical analog circuit cards.

requirements. Paragon recently partnered with Contech on a project that eliminated 75 percent of the qualified parts used in a system, which resulted in a tremendous cost savings.

In another example, Paragon worked with a utility that had identical components used throughout their fleet in similar applications, yet with different seismic qualification requirements. Multiple catalog items for these seismically rugged parts were consolidated into a single catalog number under the highest qualification requirements. This consolidation

effort allows a fleet to use one catalog number to be shared across all the plants that use that component.

*Do you believe that the focus on more exclusive and larger supply chain alliance partnerships to bring down the cost of service may unintentionally result in a further reduction of newer, smaller suppliers that focus on bringing innovation to the industry?*

**Smith:** There is a massive barrier to entry for small, innovative suppliers to bring solutions to plant decision makers. The best approach is for the larger supply companies to seek out small, innovative suppliers and work with them under the approved suppliers' program and alliance contracts.

In addition, utilities should challenge exclusive supply chain alliances. Paragon's partnerships with utilities are nonexclusive, allowing the utility to find the best "athlete" for the solution. Of course, the utilities must balance this flexibility with the expense of managing a large qualified vendor list, so there are some tradeoffs.

*What changes would you foresee in the delivery/logistics chain with the automation of trucks with Tesla and self-driving vehicles?*

**VanTassell:** Automation is certainly something that has impacted and will continue to impact our lives. Specifically, we believe the automation of transportation will continue to decrease the cost and time needed to ship goods from point A to point B. This is a good example of how technology and transportation improvements together will work to help plants adopt a just-in-time approach for material availability and enable them to move away from having extra parts on hand via the more expensive "just-in-case" model. **NW**



An example of a switch gear panel going through IEEE 344 seismic qualification on a triaxial seismic table.