

THE NUCLEAR NEWS INTERVIEW

Ken Sturtecky: Keys to outage success

FirstEnergy Generation's fleet outage director discusses prerequisites for effective outage management.

Ken Sturtecky, executive director of fleet outages for FirstEnergy Generation Corporation, is used to being a leader. Before joining FirstEnergy in April of last year, he was the fleet maintenance manager for Constellation Energy, and before that, its fleet production operations manager. He has also worked for Commonwealth Edison/Exelon in a variety of leadership positions, including outage manager at the Three Mile Island plant, reactor services site project manager at Braidwood, refuel floor manager at Quad Cities, and Pressurized Water Reactor Services group lead at Exelon's corporate office.

In his new position, Sturtecky manages outage activities not only for FirstEnergy's nuclear power plants, but for its fossil-fuel power facilities as well. He recently spoke about his position and FirstEnergy's outage management philosophy with *NN* Associate Editor Michael McQueen.



Sturtecky: "People really are our most important asset. FirstEnergy's investment in developing people is key to outage success."

Tell us a little bit about the job.

This is a new position for FirstEnergy. In addition to owning outages for both our nuclear and fossil plants, my group is also responsible for developing and maintaining alliances with the key vendors and maintenance contractors who assist us with modifications and outage work. This includes turbine work, for which we're establishing alliances that span both our nuclear and fossil plants.

The driver behind this strategy is our philosophy of "one fleet, one team." Looking at outages as a fleet initiative rather than "just nuclear" or "just fossil" will help us set high standards and improve behaviors and efficiency across the entire fleet.

Our vendors play an important role in our success. We want them to know our people, processes, and expectations. Then they can place the right people in their workforce and establish pipelines to support our outages and future needs.

Having the right workforce is critical to executing successful outages. Looking at the

nuclear and the fossil industries, a large number of experienced personnel are nearing the end of their careers, and their retirements will create a knowledge gap. To compensate for the experienced personnel who will be retiring, we're working to establish a workforce pipeline of new talent, both with our vendors and internally. The goal is to educate and train the next generation of outage workers now so that we have the right level of experience and ownership in place for future outages.

People really are our most important asset. FirstEnergy's investment in developing people is key to outage success. I can buy a replacement component. But I can't easily replace the individual who maintains it, who has 20 years of experience in the plant, and who has personal ownership and accountability for the equipment.

What defines a successful nuclear outage, whether for refueling or a major plant project?

Outage success is first and foremost defined by safe and event-free performance,

without any significant human performance issues. That begins with personal safety—is everyone safe, does everyone go home the same as they came to work that day? Equally as important, nuclear safety, radiological safety, and environmental safety also must be maintained.

Also important is implementing the planned outage scope—did we do the work that we said we were going to do? Did we return the plant in better condition than when we took it off line? Success means that we have completed our work scope while removing operator challenges such as control room deficiencies, operator work-arounds, and temporary modifications.

The last measure of success is meeting the business plan for outage duration and budget.

All these things are important to outage success, but safety is number one.

To what extent does a long-term fleet outage plan play a role in nuclear outage success?

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A long-term outage plan must guide outage philosophy and strategy to ensure that business goals are met. We're currently working on establishing a solid 10-year outage plan for FirstEnergy's fossil and nuclear plants that aligns our outage schedules with our business plan and ensures that we deliver consistent, predictable performance.

Part of developing this plan includes considering economic conditions to optimize outage durations. In the previous decade, the industry driver was to have sub-20-day outages in the merchant nuclear fleets. We would bring 700 to 900 people on site along with shared resources to execute the outage and meet this goal.

While nothing has changed from the standpoint of trying to minimize off-line hours, economic conditions dictate a closer look to determine optimal outage length. We must make an economic decision based on the average power price per day versus the number of outside workers we bring in to assist with outage work. The question becomes, what is the return on investment? Is it more effective to bring in a large number of people to complete the outage as quickly as possible, or to bring in fewer resources?

We must also consider the Nuclear Regulatory Commission's fatigue rules when determining how many workers we have for each nuclear outage.

Fatigue rule requirements dictate how many hours personnel with different roles can work to ensure that workers and plants remain safe.

Another key part of the long-term outage plan is scope. We must make sure that we have the right work planned

for the right outage. Our goal is to make our outages train-based. Our nuclear plants typically have two or more redundant, largely identical sets of equipment—called trains—to support safe operations. We target work on components in a single train each outage rather than taking out multiple pieces of equipment in each train, which would be less effective and potentially challenge operations.

Working on equipment in this fashion not only makes outage work more efficient but also drives strong plant equipment reliability. The more reliable our equipment is, the better the plant will run, which in turn reduces forced-loss rate. For 2012, FirstEnergy Nuclear Operating Company's fleet forced-loss rate was 1.02 percent, which ranked third out of all of the nuclear fleets in the country. Solid equipment reliability also means fewer challenges for plant operators, which directly supports our overrid-

ing goal of safe and event-free operations, both during outages and on line operations.

Understanding outage scope helps reduce radiation dose goals, another key piece of the long-term outage plan for our nuclear plants. And planning for how much dose our workers will be exposed to during each outage directly ties back to safety.

Like the rest of the industry, we always strive to implement industry best practices into our outage schedules. Utilizing industry operating experience ensures that we're not incrementally learning, site to site, or from within our fleet. We're learning from all of the fleets and all of the nuclear plants in the industry.

How does FirstEnergy apply lessons learned from outages in its fossil fleet to outages in its nuclear fleet, and vice versa?

As I noted earlier, our philosophy is one fleet, one team. We're incorporating lessons learned from our fossil outages into nuclear, and nuclear into fossil.

The nuclear industry is built around process and rigor. The fossil plants, which have fewer people, are streamlined and always looking for faster, safer, and more cost-effective options. With the fleet approach, we're implementing lessons learned on process and rigor from the nuclear side to im-

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prove predictability on the fossil side, while implementing lessons learned on streamlining from the fossil side to the nuclear side to ensure that we're not making the process unnecessarily complicated.

After every fossil or nuclear outage, we perform a post-outage critique to identify what went well, what didn't go well, and why. These lessons learned are compiled from a site perspective, and then reviewed from a common fleet perspective to identify items that can be beneficial to other plants.

One key area of improvement is work order preparation, which greatly affects worker productivity. Our goal is to have work packages that are completely ready to execute before the outage begins, with workers who demonstrate ownership and accountability for the task at hand.

This is accomplished by implementing a “ready-ready” process for work orders.

Crews review the work order ahead of the outage, incorporate improvement opportunities into the work package, obtain permits, stage parts, and hold pre-job briefs. Once the outage begins, crews simply must make sure that they have the proper clearances signed in with operations so that they can go to work, rather than beginning the preparation process at that time.

With the U.S. nuclear workforce aging and many retirements occurring, do you see an impact on outage talent? Further, how are you managing workforce challenges, both internally and with contractors?

Economic impacts of the past couple of

We plan to share nuclear personnel with the fossil side as well.

FirstEnergy is concentrating on developing people with the right talents, standards, and behaviors to make sure that we have the right leadership and workforce to maintain our plants well into the future.

Speaking of the future, what areas will you focus on to further drive improved nuclear outage performance?

Long-term outage plans are one of my key objectives: making sure that we're optimizing our outage plans and ensuring that we have the right work at the right time in the right outage. This will minimize operation

challenges and minimize risk, both in outages and on-line operations.

The other piece of the long-term outage plan is optimizing outage durations. As I said earlier, the industry drive for merchant utilities was sub-20-day outages. We need to ensure that we understand the return on investment when we set the scope and

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years have somewhat delayed the inevitable retirements of our seasoned workforce. The age to draw Social Security benefits has gone up, also driving individuals to work longer. However, we will definitely see an impact from this in the future when those people retire. We're taking action across FirstEnergy now to manage these challenges to develop our people and attract industry talent. We have established programs with technical and trades colleges to train and qualify individuals in a number of areas, including instrumentation and controls.

In addition, like many other utilities, we utilize co-op engineering students, both when the plants are on line and during outages. These students get the opportunity to work with our personnel while studying for their degrees and technical vocations. Some of these students rotate around to various divisions. They might begin at a nuclear station, move to a fossil station, and then work in the corporate office. We're providing real-world learning opportunities for them, along with being able to help shape some of that talent that we're looking to hire in the future. We often host these programs with local colleges so that we attract people with local ties who are looking to stay in the area.

We're also increasing resource sharing between our nuclear and fossil plants. Primarily, we share our fossil workers with our nuclear plants, and we have been increasing the number of fossil workers who are qualified to perform work in our nuclear plants.

duration of our outages.

Beyond the long-term outage plans, we must improve outage readiness. That involves work package quality and making sure that our personnel, vendors, and other outage support personnel are ready to execute. That's a big one. If you want predictability, being ready for the outage is imperative.

Related to that is worker productivity. In addition to streamlining work processes, we're evaluating electronic work packages with automated schedule updates—such as work progress and status. Though we currently use barcodes on our work orders to provide some automation to the process, there are still many opportunities to improve worker productivity using technology.

We continue to focus on resources, including optimizing resource sharing across the fleet. My group is working very closely with our maintenance contractors and trades to develop the resource pool and talent that can take on the challenges of the future.

Of course, our first-line supervisors will continue to play a significant role in outage success. Engaged first-line supervisors who work well with the teams they supervise are one of the most significant factors to outage success.

Success lies in people being on board with the plan, believing in the plan, and owning the plan. When everybody believes and is part of the plan—and part of the solution—we can achieve our vision safely. **NW**