

Drones



What's the Risk?

In energy generation, boilers produce high-pressured steam necessary to turn the turbine blades. Therefore, inspections and preventative maintenance are routinely carried out to ensure ongoing safety and quality.

In the past, many of these tasks were manually performed by employees. In the event of a leakage or inspection, the boiler would be shut down and cooled for 36 to 48 hours. Once safety parameters were met, workers could enter the container to test metal samples, assess the need for replacement tubing, make necessary repairs, etc. Exposure to confined spaces, high temperatures, and poor air quality made this work particularly hazardous. **Potential SIF events included:**

- Fatigue, heat stress, and dehydration
- Ergonomic injury
- Respiratory ailments
- Falls or other injuries from scaffolding



Impacts

AES has adopted several drone types to minimize the need for employees to enter the boilers, including aerial drones, unmanned vehicles, and Gecko Robotics' wall-climbing robots.

Notably, innovation and performance excellence primarily drive AES' adoption of technology, and this represents only one use-case example. Nonetheless, adoption of drones company-wide has contributed to **several operational, safety, and performance benefits**, including:

- Prevention of 60,000+ hours of high-risk work activity
- Improved productivity and reduction in overall job time
- Curation of strategic partnerships with technology vendors
- Estimated savings of at least \$10 million



Lessons Learned

AES is an industry leader in innovation, having expanded to a variety of drone-types across the company. **Lessons learned during this process** included:

- The necessity of regional "Drone Task Force" teams responsible for scaling up use of the technology
- The importance of vendor feedback and its role in tailoring technology for specific use-cases
- The impact of measuring safety impacts through man-hour exposure
- The versatility of technology as a means to improve operations, performance, and safety as a linked process

Employer



The AES Corporation

The AES Corporation is a Fortune 500 global energy company and a leading generator and distributor of electrical power worldwide. AES has more than 9,000 employees and 15,000 contractors across 14 countries.

Technology

GeckoRobotics

Gecko Robotics

Gecko Robotics is an industrial robotics and software company headquartered in Pittsburgh, PA. The company offers robotics technology for the use of industrial infrastructure inspections

