Energy dog at Wien Energie

Introducing robotics and AI in the energy sector

Wien Energie is Austria's largest regional energy service provider and a subsidiary of Wiener Stadtwerke. The company reliably and sustainably supplies two million customers with electricity, heating, cooling, e-mobility, and telecommunications. Ongoing digitalization and the measures needed to manage the energy transition are also reshaping job profiles in the energy sector. With the help of new technologies, employees can be relieved of routine tasks, allowing the freed-up resources to be used for more complex work and problem-solving. Automation is also making its way into the power plant sector. The intelligent robot dog "Energy Dog" supports employees during their inspection rounds at Austria's largest power plant. However, Energy Dog does not replace employees. On the contrary, it serves as high-tech support for them.

Quick Facts

- Solution area: **Technological innovation**
- Administrative level: **Federation**
- Solution process: **Digitization and technology, Energy, Regional development and infrastructure, Science and research, Security and defense, Smart City**
- Technology: **Artificial Intelligence, Automation and robotics, Internet of Things, Sensor technology**

How it works

To ensure power plants operate reliably and safely, all systems must be meticulously inspected several times a day. Until recently, Wien Energie employees carried out this crucial task. Thanks to their years of experience, the experts could immediately see, smell, or hear when something was wrong — such as an unusual noise from a pump or liquid dripping from a pipe. Now, they are supported by Energy Dog at the Wien-Simmering power plant. Equipped with specially developed sensor technology — including a thermographic camera for measuring temperature, an acoustic sensor for detecting unusual sounds, and a multi-gas detector for identifying different gases — the robot is the perfect assistant. At predefined points in the power plant, the robot collects data, which is then analyzed by AI for irregularities. The AI has also been trained with the knowledge of the shift workers.

Since spring 2023, Energy Dog has been in continuous operation around the clock. One inspection round takes about an hour, after which it recharges for another hour. If an unusual event is detected, Energy Dog automatically alerts the responsible shift worker, who can then use the robot's camera to assess the issue and take immediate action.

The Big Picture

The consolidated expertise of a large number of employees with decades of experience, channeled through an autonomously moving robot, represents a significant step toward preserving valuable knowledge. Even when employees change jobs or retire, the company continues to benefit from their extensive know-how in the long term. In addition, a well-trained and highly advanced robotic AI can detect potential hazards at an early stage, helping to prevent unplanned downtime and ensuring the reliable supply of energy to millions of citizens. A robot can also access areas that may be dangerous for humans at certain times, thereby making a substantial contribution to improving workplace safety. Finally, the natural fluctuation in the workforce can be offset, while remaining employees are relieved of repetitive tasks such as facility walkthroughs and the multiple daily checks of the same statistics. This allows them to dedicate their time more productively to other important responsibilities.

aed – Agency for Economic Cooperation and Development
Ferdinandstraße 4,
1020 Vienna, Austria

+43 (1) 448 00 55 10
office@aed.or.at