# Renewable Energy Site Inspector

**CLEAN ENERGY**
**SECTOR**

*Fostering innovation and better skills match with the green and digital sectors through the integration of emerging technologies (drones, VR, AR) in VET*

Co-funded by the European Union

360 DRONES

## ✏️Short Description

*The solutions available on the market for drone equipment have expanded the capabilities and improved the accuracy and safety of renewable energy professionals.*

*The accuracy of wind turbine inspections has increased due to the optics available in drones, while the risks associated with working at height have been reduced. The ability to create high-resolution 3D models makes it possible to detect cracks that are invisible to the naked eye. The early detection of operational damage increases uptime and equipment efficiency.*

*Drones equipped with thermal imaging cameras are an invaluable tool for monitoring the operation of photovoltaic installations and farms. They can be used to detect faulty components of solar panels that overheat when they fail. This allows them to be replaced quickly, resulting in more energy being produced and preventing potential fires.*

*Major solar and wind energy companies are already looking for people with drone flying skills and knowledge of image capture and analysis.*

*Employers appreciate the improved quality and reduced risk associated with drone inspections.*

## 🎯Key Skills Required

🚁 **Drone piloting** – conducting aerial inspections of solar panels, wind turbines, and infrastructure

🌡️ **Thermal image analysis** – detecting faults, heat loss, and equipment inefficiencies

🌍 **Environmental monitoring** – assessing site impact on air, soil, and surrounding ecosystems

📊 **Data analysis interpreting** – sensor data to ensure compliance and performance

## 💡Future Trends & Market Opportunities

As solar energy farm grow more popular, such installations may require further monitoring and thermal imaging makes finding problematic panels far quicker and easier. Drones that are able to simply fly up and observe make inspecting wind turbines much easier and thus accessible.

## ✈️Drone Applications

🌡️ **Thermal Imaging:** Detect heat loss, equipment faults, and inefficiencies in renewable energy installations.
📝 **Inspection Documentation:** Record detailed findings and generate comprehensive inspection reports.
💦 **Aerial Surveillance:** Monitor large-scale renewable energy sites for maintenance and safety checks.
🗺️ **Heat Map Creation:** Develop visual heat distribution maps to analyze system performance and detect anomalies.

## Sector & Classification

🌍 Sector: Renewable Energy / Environmental Engineering / Site Inspection

🟦 ESCO Code: 3153, 2142

## External Sources

🌐 How to Inspect a Solar Farm with a Drone - DJI Matrice XT2

🌐 Automatic Drone Inspections for WTG / Wind Turbines | Aerones

---

[Review of Drone-Based Technologies for Wind Turbine Blade Inspection]

[Autonomous Inspection and Reliability of Renewable Energy Assets]

Co-funded by
the European Union