

Module **REAA** Electrical Risk in Wind Turbines Advanced

Riesgo Eléctrico en Aerogeneradores Advanced
REAA (8 h)



Objective: To provide participants with the theoretical knowledge and practical skills essential to safely carry out work on low-voltage installations, transformer stations, substations, and lines associated with wind farms, minimizing electrical risk and complying with the requirements of Royal Decree 614/2001.

Upon completion of the course, **participants will be able to:**

- Identify electrical hazards and factors that aggravate them.
- Apply the 5 Golden Rules, the LOTO procedure, and safety distances in any type of work (de-energized, in proximity, or energized).
- Select and use PPE and measurement, testing, and verification equipment correctly.
- Differentiate between training levels (Authorized/Qualified) and the information required for each type of intervention.
- Plan and perform safe maneuvers in transformer stations, substations, high-voltage lines, and wind farm equipment.
- Incorporate preventive maintenance and grounding as pillars of operational safety.

Program: REAA (Electrical Risk in Wind Turbines Advanced)

1. Electrical Risk (Low Voltage Work)
 - 1.1. Specific Regulations (Royal Decree 614/2001, of June 8, on minimum provisions for the protection of workers' health and safety against electrical risk)
 - 1.2. Risk of Electrical Accidents
 - 1.3. Factors Involved in an Electrical Accident
 - 1.4. Electrical Contacts
 - 1.5. Protection Against Electrical Contacts
 - 1.6. Protection Against Indirect Contacts
 - 1.7. Electrical Work: 5 Golden Rules
 - 1.8. Training of Authorized and Qualified Workers
 - 1.9. Types of Work on Electrical Installations: Information and Required Qualifications
 - 1.10. De-energized Work: Concept of Protected Zone and Work Zone. Discharge Procedures and Roles of Participants
 - 1.11. Work in Proximity and Safe Distances
 - 1.12. Live-Line Work: Methods, Procedures, Processes, and Roles of Participants
 - 1.13. Measurements, Tests, and Verifications
 - 1.14. Work with Potential Presence of Hazardous Atmospheres
 - 1.15. Electrical Definitions
 - 1.16. Distances and Approach Limits to Unprotected Live Circuits or Components
 - 1.17. Lockout and Tagout (LOTO) Procedure
2. Risks in Wind Farm Installations
3. Transformer Stations
 - 3.1. Operations in Transformer Stations
 - 3.2. Switchgear
 - 3.3. Transformer
 - 3.4. Electrical Substations
4. Introduction, General Overview, and Function of Electrical Stations
5. Components of the Electrical Station
6. Operations in Substations
7. Preventive Maintenance
8. High Voltage Lines
9. Introduction
10. Functions
11. Characteristics and Conditions
12. Classification
13. Commissioning
14. Materials
15. Grounding (Earthing)

REAA (Electrical Risk in Wind Turbines Advanced)

Duration: 8 hours (1 day)
Certificate Validity: 3 years
Program: Sections 1 to 15
Maximum students: 12 persons per edition

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