

**Humidity Control for Turbine Storage**

Turbines are indispensable for power generation and like work. It is necessary to maintain Turbines and other equipment in prime condition while in operation and during storage. This enables smooth running of the turbines and also ensures that they are capable of going 'on-line' immediately post storage.

**Effects of Uncontrolled Humidity**

Tobacco Moisture however plays havoc with Turbines, Power Generators, Boilers, Condensers etc. These equipment begin to rust and corrode while in storage or while in operation.

- Expensive metal parts like rotors, compressor parts, bearings, buckets and blades, gearbox parts corrode, non metallic parts deteriorate. This disables parts and components, necessitating frequent repair/replacement and maintenance costs. The downtime costs are exorbitantly high. Moisture Control is critical in off shore sites.
- Steel blades become brittle. Heat does not spread evenly on the corroded steel blades which results in unsatisfactory vibration.
- Rusting reduces the strength and the structural characteristics of materials. The capability to withstand stresses and temperature is decreased. This compromises safety as materials no longer have that the extra strength.
- Corrosion of electronic and electrical components result in serious malfunctions.
- Low pressure steam turbine disc cracks. This problem is common to rotors used in nuclear and fossil fuel power plants.
- Condensing type of turbines are evidently more affected by corrosion as large quantity of water is collected as condensate.
- When the relative humidity crosses 40% mark corrosion is further accelerated as industrial pollutants like Sulphur Dioxide also contribute to rusting / corrosion.

**Causes of Uncontrolled Humidity**

Presence of water bodies in the vicinity of the power plants( nuclear/thermal) and consumption for water for waste heat treatment and other process, leads to presence of high humidity.

**General Recommendation**

If the relative humidity of the area where expensive equipment is stored can be restricted below 40%, then all equipments like generator, turbines and their components can be maintained in well -preserved condition for immediate activation whenever required. Dehumidification prevents corrosion, mold and mildew growth and prevents deterioration of equipment.

### **Bry-Air Solution**

Bry-Air Bry-Air Dehumidifiers enable smooth operation of turbines; ensure that it goes 'on line' immediately by restricting relative humidity in the area where expensive equipment is stored.

Bry-Air Desiccant Dehumidifier are capable of maintaining a RH as low as 1% or even lower at constant level, regardless of ambient conditions and thus maintain the ideal environmental conditions for Turbine Storage / Power Plant Layup.

Bry-Air Dehumidifiers offer the simplest and most cost-effective solution to moisture/humidity problems during Turbine Storage/ Power Plant Layup thereby preventing costly repairs and emergency outage

### **Partial Reference List**

- Baroda Rayon Corporation Ltd., India
- Bharat Heavy Electricals Ltd. (BHEL), India
- Duke Power, USA
- Duquense Light, USA
- Gulf State Utilities, USA
- Jacksonville Electric Authority USA.