

Turbine Generator Fires

Risk of a Turbine Fire

- Although the likelihood of a fire involving a turbine generator is low, several such fires have caused property damages upwards of \$30 million with forced plant outages exceeding six months. In two cases permanent decommissioning of plants was necessary. The EPRI study concludes that based on a 30-year plant life there has been one fire in roughly 200 unit-years. This means that one out of seven turbine generators in operation will experience a fire. (0.5% probability)*

Damage Costs of a Turbine Fire

- When an inadequately designed and/or tested fire protection system fails during a fire, severe turbine and compartment damage can result, amounting to 35 to 45 percent of the installed unit cost. An LM5000 gas turbine system, for example, could incur losses up to \$5 million. If the plant does not belong to a lease pool or a spare is not available, it can take up to 6 months to restore the unit to operational condition. (Business interruption could mean another \$4-6 million in losses)**



Annual Risk Expense – Probability of Fire X Single Loss Occurrence

- 0.5% chance of turbine fire that causes substantial damage Est. cost \$5,000,000
- Average annual risk expense = (.005 X 5,000,000) = \$25,000**

**Video Fire & Smoke Detection
is the Solution!**



*Steam Turbine Fire Protection will Reduce Repair Costs, Dow Drewry – Power Engineering

**Gas Turbine Fire Protection, Dominique Dieken – Power Engineering

**COMBUSTION TURBINE
FIRES, 1971-1991**

Fire Location	Number of Fires	Number with fire suppression systems	Number with successful fire suppression	Number of fire systems that failed	Percent Failed
Turbine Compartment	40	23	14	9	39
Accessory Compartment	11	8	4	4	50
Load Tunnel	8	7	1	6	86
Generator	5	1	1	-	0
Total	64	39	20	19	49

Source: Edison Electric Institute