

# Power Generation

Protecting power supply from the threat of fire is a key priority of any power generation plant:

Nuclear

Fossil Fuels - Oil, Coal, Gas

Hydroelectric

Geothermal

Biomass

Cogeneration

Solar Power

Wind Power



## Protecting energy supply from the threat of fire

The constant generation and supply of electricity is critical to all sectors of the community. Industrial, commercial and domestic dependency on a continuous source of power cannot be compromised by the risk of fire.

### Expensive consequences

A fire in a power generation facility will:

- Cause enormous damage to equipment and buildings.
- Disrupt the supply of electricity that is central to the lives of millions of commercial and residential customers.
- Potentially affect the health and welfare of communities and employees.
- Have long-term implications on the environment.

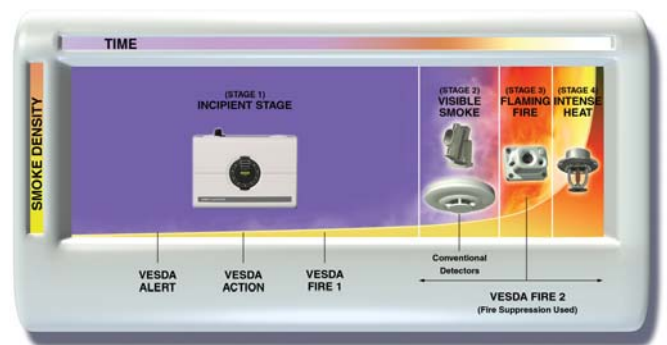
*A fire originating from a ruptured seal in the bearings of a turbine can result in damages of up to 25 percent of the turbine generator's cost. Fire damage to even a small area of cable can cause extensive disruption to electricity supply.*

### The Risks and Challenges

- The dusty environment in a coal bunker makes it difficult to detect smoke and may lead to the contamination of traditional detectors, resulting in false alarms and reduced sensitivity.
- The large open spaces in generator and nuclear spent fuel halls causes smoke dilution, limiting the effectiveness of traditional detection systems.
- Remote facilities with minimal staff can increase the time it would take for a fire to be controlled.
- Smoke originating from within electrical equipment or mechanical systems is difficult to detect and can cause extensive damage.
- The large quantity of stored fuel and combustible materials are catalysts for the rapid spread of an undetected fire.

### How do you overcome these risks and challenges?

Use an Air-sampling Smoke Detector (ASD) that provides flexibility in sampling hole location, multiple configurable pre-alarms and a wide sensitivity range for a performance-based design approach to fire protection.



VESDA smoke detectors can be configured to detect a fire at the earliest stage. The multiple alarm levels can be configured to initiate an appropriate response.

### Why use an VESDA ASD system?

VESDA detectors buy time. Time to respond to a fire threat, minimizing damage and business downtime. The key advantages are:

- Superior performance in harsh or toxic environments and a high resistance to contamination through the use of a unique clean air barrier technology that protects the detection chamber.
- The ability to locate sampling holes where smoke will travel and to position the detector in a location that is easily accessible for maintenance.
- Multiple configurable pre-alarms to provide, for example, very early warning for investigation and subsequent warnings to initiate automated fire department notification, evacuation and suppression.
- Remote monitoring and configuration of detectors in unmanned sites.
- The installation of sampling points in or near critical equipment, providing the earliest possible warning of a threat.
- The wide sensitivity range of a VESDA detector ensures the earliest possible warning of a fire caused by an electrical fault.

## Examples of areas that can be protected by a VESDA system.



### Hydroelectricity Generators

The windings, rotor, turbine and other mechanical parts can be protected by positioning VESDA sampling pipe around the exhaust vents of the generator, with the VESDA detector located in an area providing for easy maintenance.



### Nuclear and Coal Generators

When equipment should not be penetrated, VESDA sampling pipe can be positioned on or near the equipment to ensure the earliest detection of smoke.

### Central Monitoring

The VESDA System Monitoring (VSM) software can be used in the control room to monitor and control devices across the entire VESDA network and from remote locations.



### Control and Switch Rooms

VESDA sampling points can be installed inside or above equipment cabinets. Pipework can also be located in the ceiling void, floor void and at the return air grille of the Air Handling Unit.



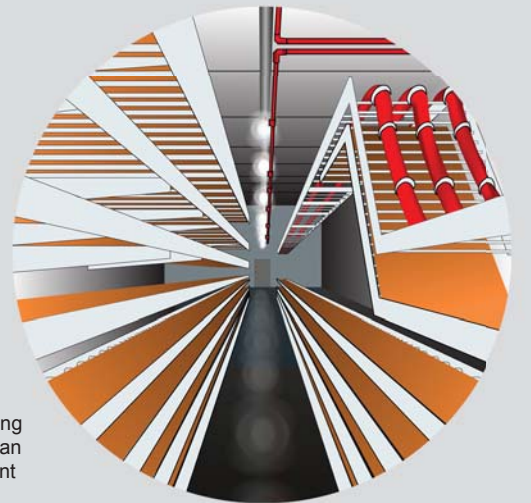
### Nuclear Spent Fuel Pools

VESDA sampling pipes can be placed across the high ceilings of the Spent Fuel Pool and the VESDA detector can be positioned in an area that is accessible for maintenance.



### Cable Tunnels and Chambers

VESDA sampling pipe is installed above cable trays or along the ceiling of tunnels. The VESDA detectors can be installed at a central service point for easy access.



Other areas that can be protected by VESDA are salt-spray rooms, reactor water clean-up rooms and training simulator rooms.



Xtralis' global network of offices and representatives means that help is soon at hand

## Power generation facilities that are protected by VESDA smoke detectors

Loy Yang A & B	Vastar Resources	Berkeley Nuclear Power Station
Hume Weir Power Station	Taiwan Power Company	Lower Colorado River Authority
Hazelwood Power Station	Enron	Bukit Indah Power Station
EEL – Energy Electric	Southern Hydroelectricity	Sellafield Nuclear Power Station
Elsam Power Station	Ontario Power	National Power Corporation
Heysham Nuclear Station	Savannah River Power	Malaysian Natural Gas Project
Illinois Department of Nuclear Safety	Snowy Mountains Hydroelectric Authority	
Bruce Power Nuclear Station	Baywater Power Station	

## Global Approvals



## Need more information?

VESDA detectors are also used to protect Wind Power Generation plants and Power Transmission facilities. Call the Xtralis office closest to you or visit [www.xtralis.com](http://www.xtralis.com) for more information on the complete VESDA smoke detector product range.

[www.xtralis.com](http://www.xtralis.com)

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