

POWER CASE STUDY - PREMIER POWER, NORTHERN IRELAND, UK

Better alarm performance delivers improved operation



ABB identifies half of alarms as redundant to improve alarm system performance at a power generator in Northern Ireland.

Premier Power Ltd is the largest independent generating company in Ireland. It operates Ballylumford Power Station, one of the largest generating sites in the country, providing over 50% of Northern Ireland's total generating capacity and 17% of the all-Ireland capacity.

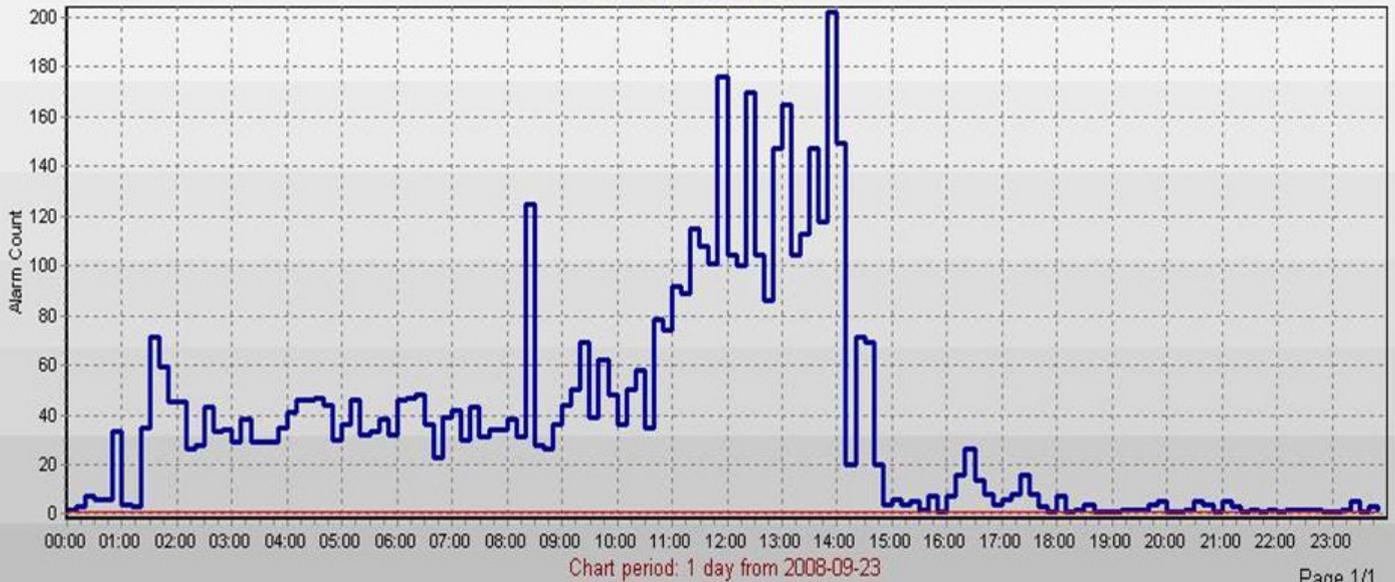
Premier Power knew that the existing alarm system at Ballylumford was not able to comply with the requirements of the standard and were seeking an independent, expert view on how to improve performance as efficiently as possible while also minimising operational impact from the work. ABB were approached following a recommendation from another operating asset in the group.

Solution

ABB are recognised globally as one of the leading consultancies in the area of alarm management and have been at the forefront of thinking on alarm management good practice since before EEMUA guide 191 was released in 1999.

The approach recommended by EEMUA 191 is independent of specific vendors, tools and technologies, and so is ours. We know what works from experience, and what does not work, helping to ensure that the execution of an alarm management strategy is delivered efficiently and remains aligned to business needs.

ABB carried out an initial assessment at C Station, Ballylumford based on our standard alarm management health check service.



This study includes a benchmark against recognised good practice (in this case EEMUA 191) to establish gaps and recommendations for action. Our report concluded that there were significant alarm management issues on C Station and proposed a phased plan of improvement as follows:

- **Phase 1**
 - Install an alarm logging and analysis capability, implement routine reporting of alarm system performance, author new documentation covering the design and management of the alarm system, update the station's written procedures covering alarm related issues such as change management
- **Phase 2**
 - Implement alarm suppression logic including time delays and hysteresis, alarm rationalisation and reprioritisation of all configured alarms, improved operator support through dynamic links from an alarm to the associated graphic. This phase also included operator training in alarm management good practice and the operational changes to the system
- **Phase 3**
 - Implement continuous improvement through root cause analysis of alarm issues, focussing on nuisance alarms, standing alarms and the alarm bursts occurring during trips and other run downs

We were subsequently engaged to mentor and lead this improvement plan.

The rationalisation work identified that nearly half of the 17000+ alarms configured were redundant. These alarms were demoted to events and do not announce as alarms. Alarm numbers are now considerably reduced and the alarms that do occur are more useful to operators. The figure shows the trend of alarms per 10 minutes on the day the rationalised database was re-loaded into the station's DCS.

Benefits

- Operators are able to manage alarms better as almost 8500 unnecessary alarms have been demoted to events and do not announce as alarms.
- The station is now much closer to group targets for alarm KPI's despite moving to two shift operations. Two shifting often results in higher alarm levels, especially during run up and run down.
- The alarm system design now follows the good practice guidance in EEMUA 191, meaning that 'high priority' really means 'high priority' in terms of response from operations.
- Premier Power have the tools to identify the root causes of nuisance alarm behaviour and correct the underlying problems