

COST/RISK OPTIMISATION CASE STUDY

REF:	003
INDUSTRY:	Transport
PROJECT:	Predictive/condition monitoring
DECISION TYPE:	Inspection & CM intervals; CM cost/benefit justification; CM methods & performance; function testing intervals; Failure finding inspections
CLIENT	UK rail company
TASK:	Determine the optimum maintenance strategy for a national population of changeover panel switchgear.

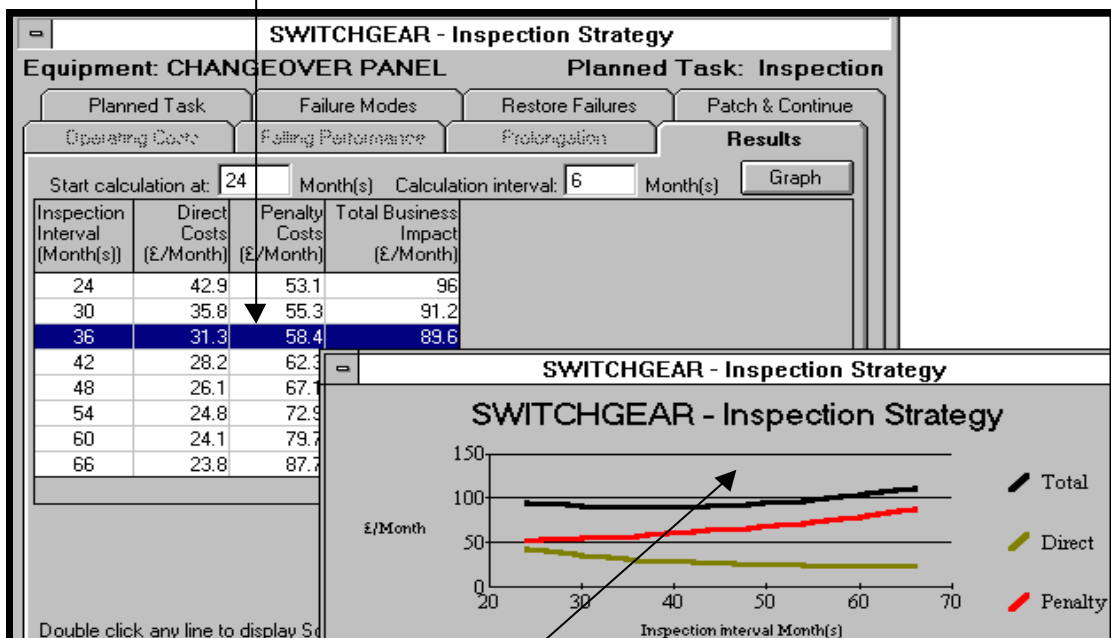
RESULTS

A study was undertaken to assess the optimum maintenance strategy for a national population of changeover panel switchgear. This study included analysis using APT-INSPECTION.

It was found that switching from a 24 month to a 30-36 month inspection interval would result in the client saving £10,000 annually without a reduction in the risk of failure.

This represents a potential 25-33% reduction in planned maintenance without risk impact.

Optimum interval



Analysis of the total business impact and direct and penalty costs associated with various inspection strategies.

DEMONSTRATES

- The strong link between maintenance decisions and performance objectives
- The margin of error – and associated costs – possible when using subjective judgments on inspection decisions instead of APT-INSPECTION
- The opportunity to make viable decisions based on incomplete data when using APT-INSPECTION
- The substantial cost savings that can be achieved using APT-INSPECTION

DETAILS

There are between 800 and 1000 Changeover Panel Switchgear units in operation in the UK. The existing strategy of two-yearly inspections costs £200 per panel, per year, creating a total cost of between £160,000 and

£200,000. The client estimated that the penalty cost of panel failures lay in the sensitivity range of £20,000 to £200,000 per occasion.

APT-INSPECTION

The above data was analysed using APT-INSPECTION, including the range estimate for penalty costs. The estimated data was tested for sensitivity. Consequently, the client was able to settle on a viable low risk inspection strategy, with slightly shorter intervals than the optimum suggested by APT-INSPECTION, to reflect the uncertainty of particular data.

The client conducted this assessment as part of a comprehensive feasibility study of the MACRO system, of which APT-INSPECTION is one tool, to determine its suitability. The study formed part of a wider process to assess the most appropriate techniques for connecting maintenance strategy to performance objectives.

APT-INSPECTION is a flexible software tool that helps asset managers plan optimum inspection strategies for all types of assets. It provides solutions based on fact and scientific calculation rather than subjective judgment. It will optimise the associated costs and risks, using incomplete data if necessary, and range-estimates can be used to test data sensitivity.

APT-INSPECTION will compare current policy against optimum policy and provide a financial measure of the Total Business Impact of each strategy. During this process it will highlight the often vast disparity in costs between optimum strategies based on calculation and existing policies based on subjective judgment or supplier recommendations. The software has the versatility to cope with any inspection task individually or as a 'bundle' of activities.

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