



Operating flexibly – Didcot A makes
over 750 starts in one year

CASE STUDY

RWE transformed its 4x500MW coal-fired Didcot A power station into a flexible plant that made over 750 starts in one year. This was achieved by conducting a fundamental review of existing modes of operation and implementing the recommendations.



The need for our expertise

Didcot A entered service in the early 1970s and was designed to operate at base load, burning coal supplied from mines a relatively short distance away. Since then the power station has had to adapt to dramatic changes in the UK energy market, including: new nuclear plants coming on-line, the liberalisation of the electricity market in England and Wales, the decline of the UK coal industry, and more demanding environmental constraints. Didcot A has survived these upheavals by achieving levels of flexibility previously unheard of with this type of plant.

Putting our expertise into action

Didcot A's fuel diet has been widened to burn coals sourced from around the world. A unique combustion test facility at the station evaluates the impact of different fuels on the boiler, especially important now that the units are equipped with low NO_x burners. Three of the four units have also been converted for dual-fuel firing with natural

gas, in order to extract maximum value from the gas, coal and electricity markets.

At the heart of Didcot A's flexible operations is a unique control and information system developed by RWE engineers and IT specialists. This 'soft-desk' operation includes on-line data gathering and analysis, integrated load control, start-up management and chemical diagnostics.

The data from these systems also link into RWE's electricity trading system, allowing power station operators and energy traders to share real-time technical and financial data. Traders are in a position to manage the market risk and operators manage the economics of technical risk.

Equipment modifications were made at Didcot A to increase operating flexibility without compromising safety, emissions and other performance factors. These included SO₃ injection systems to maintain precipitator efficiency with low-sulphur

coals, steam turbines fitted with new low-pressure blading and upgraded diaphragms, new boiler steam headers to improve the flexibility of the steam system and high performance classifiers and primary air fans on the pulverisers to maintain boiler performance under strict NO_x and particulate emissions rules. On and Off Line plant analysis and Engineering Risk Assessment Programmes enabled flexibility to be maximised without detriment to availability and reliability.

The difference we made

The figures for Didcot A's performance underline how successful our drive for flexibility has been. The station has averaged over 600 starts per year since 1980. This has been achieved while staffing levels have been reduced by two thirds. During 2000, the plant managed 750 starts and achieved a load factor between 60% and 70%. Whilst other power stations of this style and vintage have shut down or been mothballed, Didcot A continues to be a competitive player within RWE's plant portfolio.

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