

Solutions



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Dr Garry Felgate, Director of Delivery & External Relations - Carbon Trust.

ABB Engineering Services helps business deliver environmental improvements and energy savings.

We asked the Carbon Trust for their views on the current energy situation.

The Carbon Trust is an independent company set up by the UK Government in 2001 to help businesses and the public sector reduce their carbon emissions and lead the drive towards a low carbon economy. Here Dr Garry Felgate offers his views on how businesses can cut costs, while contributing to the fight against climate change.

Climate change is the biggest environmental threat currently facing the planet. Carbon emissions are one of the main causes of climate change and in the UK more than half are produced by business. The issue has recently been put into sharp focus by dramatic increases in energy prices, which are forcing all energy users to take a closer look at their costs. Businesses are increasingly realising that by improving energy efficiency and reducing carbon emissions they can both help mitigate the effects of climate change as well as make considerable savings to their operational costs.

The Carbon Trust estimates that most organisations can save up to 20 per cent of their energy bills through no or low cost energy saving measures that can be implemented immediately. For example turning off lights in empty rooms and corridors, especially at the end of the day can save up to 15 per cent on lighting bills, and setting the thermostat at 19°C makes savings as costs can rise by 8 per cent for every 1°C increase.

The Carbon Trust has been able to offer interest-free loans to encourage industry to take up energy efficient equipment. In many cases, the payback via energy savings has proved significant and certainly justifies the investment.

To identify energy-saving opportunities organisations should measure their energy use and develop a plan to achieve these savings. The Carbon Trust offers online energy plans that you can tailor for your business to help you get started. ►



Working with Monmeros Colombia

As part of their concerted drive towards world-class performance Colombian Chemical Company Monmeros commissioned ABB to review their current performance against world-class on the production site at Barranquilla on the Caribbean coast.

Turnaround management and organisation was a major gap. In June ABB spent a week auditing the existing Monmeros systems, and benchmarking them against the ABB Turnaround 'Model of Excellence'. Twenty-three improvements were recommended to make their Turnarounds more efficient. Monmeros were keen to adopt these recommendations because of the impending triennial Turnaround scheduled for November 2005.

Monmeros then commissioned ABB to spend a month at the Barranquilla Site implementing the main recommendations. Monmeros formed a Steering Group, appointed a Turnaround Manager and a Turnaround Management Team in line with ABB's recommendations. ABB formed a team from the UK and Colombia, and started work in mid July. This Team consisted of a Lead Consultant Tom Lenahan, and consultants Jim Miller and Fabio Abril from Colombia. Appointments of the key Monmeros Turnaround team members were finalised, the Steering Group was launched and intensive training sessions were started. These sessions introduced the ABB Turnaround Methodology and 'Model of Excellence' to the Monmeros staff. The following two weeks were spent carrying out detailed "challenge" planning, organising the Turnaround logistics, planning work out of the shutdown, preparing detailed craneage plans, coaching of individuals on their roles and responsibilities. By the end of the fourth week the Monmeros Team were conversant with the systems introduced by ABB and took control.

Cost benefits to Monmeros

The planned duration of Turnaround has been reduced from 25 days to 20 days with stretched target of 19 days. Much of the work normally carried out during the Monmeros Turnaround will now be carried out during the preparation phase and many jobs have been removed from the event. Both these factors will have a significant cost benefit to Monmeros. A further post Turnaround review by ABB and Monmeros is likely 1 month prior to the January 2006 Turnaround. Monmeros plan to adopt the ABB Methodology for all future Turnarounds.

We are also looking at reducing energy usage across the site, and ABB has completed an initial energy audit and have formulated an gain share approach to deliver significant savings. Delivery of these savings in currently being discussed.

Project Chrysalis

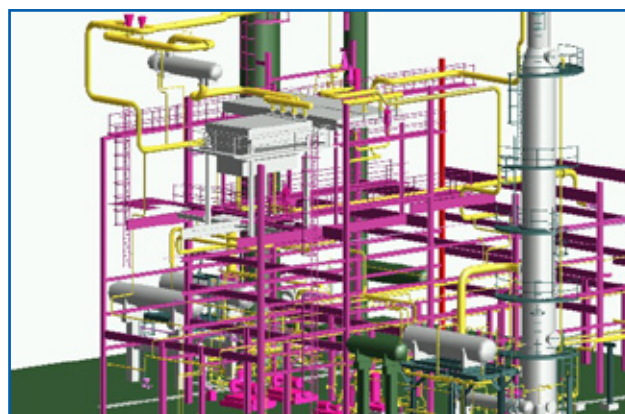


The Chrysalis project was a multi-million pound retrofit of an existing Aromatics plant at Huntsman Petrochemicals North Tees site. The project was delivered by a three-way alliance between Huntsman, ABB Engineering Services and Aker Kvaerner. ABB were responsible for the engineering and detailed design.

The project converts a heavy Aromatics stream into a higher value-added product through a licensed catalytic transalkylation process. It involved reconfiguring many existing assets across the site. Wherever possible redundant equipment was brought back into service in order to minimise the capital cost of the overall project. Approximately 9200m of new pipe-work and around 500 I/O were installed, although the main complexity was in the reconfiguration of the existing assets.

ABB was closely involved in the front end engineering as a flexible supplement to the client's limited resource. During the detailed design ABB were responsible for the process engineering, piping design, civil & structural design, I/E design, DCS configuration, vessels, machines and Fired Heater design. The detailed design was completed in 8 months, extremely demanding for such a complex project. The main mechanical design was done with the 3D PDMS system. This allowed for very efficient design, effective design reviews and outstanding accuracy - there were only a handful of site pipework modifications on the project.

The unit started up successfully in July, with steady operation achieved within 8 hours of first introducing chemicals. ■



3D Model view in PDMS system

Managing the long term integrity of offshore assets

Today, companies face many pressures to ensure the continued safe and economic operation of their assets. This is particularly relevant to operators of offshore assets.

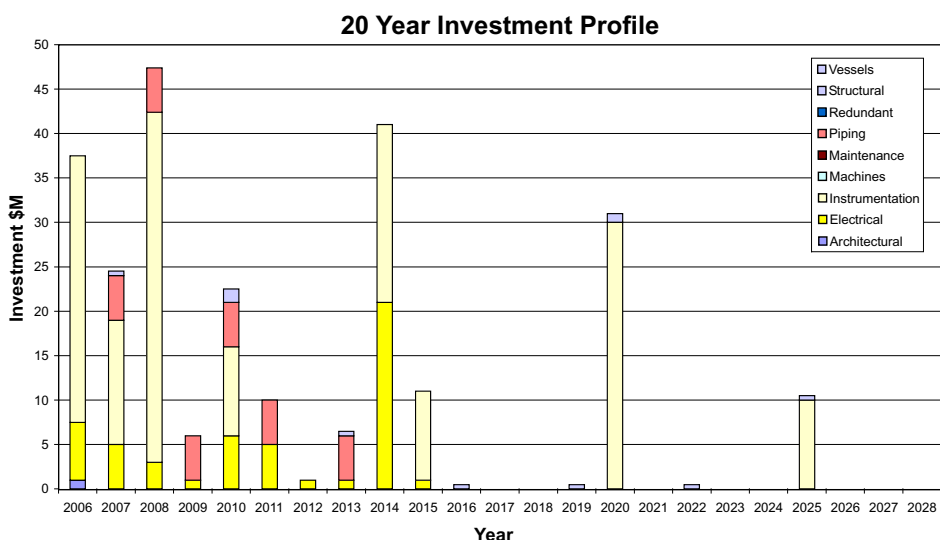
Businesses need to proactively assess the condition of their production facilities and put in place effective asset strategies that support the achievement of longer term business objectives. To meet these needs ABB Engineering Services have developed a structured approach to asset life extension - the "Asset Life Study". This methodology has been refined in over fifteen years of use and has been extended to cover a range of industries. The outcomes are key to asset life planning, balancing the immediate issues facing equipment and the cumulative effect of these operations over an extended period.

In one case study, an international operator needed to determine the suitability of a number of its offshore oil and gas platforms for continued twenty year production. The assets were operating past their original design life, and the company faced strategic decisions regarding investment in new or existing units. The starting point was the determination of the "base case" - what would be involved in maintaining the existing assets for the next twenty years. The company required an independent expert review of the technical options and associated costs in order to provide the basis for forward planning and budgeting. ABB Engineering Services' Asset Life Study approach was ideally suited to the task. A team of experienced engineers carried out a study of the whole platform topside structure and equipment, including vessels, piping, machines, electrical, control and instrumentation assets.



The study team reviewed operating, inspection and maintenance practices as well as equipment "hardware" issues, such as reliability, obsolescence, and maintainability. The study was completed in one month, and included an overview visual inspection of the offshore assets, and discussions with offshore and shore-based operations and technical support teams. The study determined that in general the assets are well maintained and should run satisfactorily for a further twenty years with replacement of only a relatively small fraction of equipment. Even in this case of a well run and maintained plant the deterioration of particular equipment items will continue through corrosion and other age-related factors, and with the increasing production demands other items may be operating outside their design capability.

Sustaining plant operations beyond the original design life time requires a level of strategic reinvestment. Identifying the particular plant items which will need replacement or major repair allows the development of an Asset Life Plan and provides the framework for the determination of appropriate equipment and maintenance policies. ■



Sodium Hypochlorite Storage and Loading Facility **INEOS Chlor**

ABB Engineering Services project managed the front end & detailed design, procurement and construction of a new storage and high speed loading facility for Ineos Chlor. The whole project, from initial business idea and site selection to commissioning, was successfully completed in less than 12 months, utilizing ABB's expertise in delivering fast track projects in an operating chemical plant environment.

The project had an excellent Health Safety and Environmental (HSE) performance, with no accidents or incidents. Key factors in this achievement included safety and housekeeping audits being carried out by joint teams from Ineos Chlor, ABB and construction contractors. Another factor was the design approach to minimise working at height, which also resulted in significant savings in scaffolding costs. The amount of waste material produced was also minimised, reducing environmental impact as well as waste removal costs.



The fully operational Hypochlorite Storage and Loading Facility

The project met the programme and cost targets, helped by tight project control systems, appropriate to fast track projects. Strong risk management processes, put in place from day 1 and regularly reviewed were also key to keeping within the targets. Offsite fabrication of the storage tanks helped reduce project risk, but this created a challenge for the design team. They had to optimise the design to achieve maximum volume at minimum cost, whilst ensuring that the tanks could still be transported to site.

The project was delivered in a 'partnership' way of working with the Ineos Chlor team and Andy Whitfield, the Ineos Chlor project manager noted that, "The New Hypo Storage and Loading Facility Project is perceived as a success by the key stakeholders despite the tight constraints of a demanding programme and high engineering standards."

Spreadsheet Validation

David Harrison and Glenn Ellis have just completed a spreadsheet compliance assignment for life sciences company Allergan in Texas. The work was to bring Allergan into FDA compliance for control of their key spreadsheets. The scope included licensing of the DaCS™ software, installation on their systems, training, reconfiguration and validation of a suite of their key spreadsheets. Access Database validation was also carried out by ABB using a compliance tool from Ofni Systems (Ofni Systems - Part 11 Toolkit). Ty Mew of Ofni Systems said of the ABB team, "I have never seen anyone do as good a job on execution, validation, project management. I was very impressed with how everything was handled."

Alarm Management on Conoco-Phillips Judy Platform



A joint team from ABB Engineering Services and ABB Service carried out a major update to part of the offshore platform's control system to re-prioritise all the alarms configured within the system. The work carried out involved reviewing the alarm priorities on almost 50,000 points and changing them on over 32,000 points. The alarm system now complies with EEMUA guidelines covering steady state operations as well as process upsets and platform shutdowns.

Ten days were allowed for the work with a further three days allowed for operator training. The customer commented "This work has been completed safely and with no impact on production in only seven days due to the excellent pre-work, planning and professionalism of all involved." ■

Middle East Conference

ABB Engineering Services along with ABB US delivered a Computerised Maintenance Management Systems (CMMS) workshop in Dubai to customers from the Gulf region. The workshop supported end users in optimising the value gained from the CMMS and utilising the full capability of the CMMS as a reliability tool. It looked at datamining as a means of extracting data from CMMS such as MAXIMO and SAP to produce meaningful reliability measures. ABB is a leading global integrator of SAP and MAXIMO.

7th World Congress of Chemical Engineering

ABB Engineering Services recently sponsored the 7th World Congress of Chemical Engineering. The event featured over 150 papers covering 7 key themes for the chemical industries and was attended by over 1600 delegates. Keynote speakers from around the world presented the views of industry, government and academia. Several of our consultants presented well received papers on:

- Safety performance improvement through culture change
- Effective validation of calcium alginate fibre manufacturing process
- The drive for manufacturing excellence - the global challenge



The Putting Challenge - From left to right - Trevor Evans, Chief Executive, IChemE with Andrew Furlong, External Relations Manager, IChemE and Peter Hunt.

IMechE ATEX and DSEAR Regulations - The Implications for Fluid Machinery Conference

Jeremy Lewis presented a paper entitled, 'Assessment of Existing Mechanical Equipment in Classified Areas', described a structured approach to completing risk assessments of existing equipment in areas that may contain an explosive atmosphere. The approach can rapidly identify equipment of concern, allowing more detailed review of such equipment.

Offshore Europe 2005 Aberdeen.

ABB exhibited at the event with Engineering Services as part of the team. Offshore Europe was first held in 1973. Since then, it has been staged biennially, regularly attracting over 25,000 from 100+ countries and developing in terms of conference topics and exhibition features to meet the ever evolving needs of the global offshore oil and gas industry.

IMechE Safety Critical Control Systems Seminar

Jeremy Lewis presented a paper entitled 'Assessment of Safety Critical Machines and Rotating Equipment' describing how machinery and rotating equipment working in a high hazard installations introduces additional hazards to the operating facility. Many of these hazards are inherently hidden due to the design or function of the equipment with the risks poorly understood. The paper reported how the qualitative assessment process developed within the process chemical industry has evolved to meet the requirements of changing legislation for more quantifiable assessment of risk.

IChemE Awards Dinner 2005

ABB Engineering Services hosted a table at this years IChemE Awards Dinner, which was held at the Royal Courts of Justice, London. We had customers from a number of companies including: Kemira, PPG, Centrica, Dow, Rohm and Haas. There were over four hundred attendees and as part of the awards program, Neil Blackhall along with the host for the night Boris Johnson MP, presented the ABB Engineering Services Environment Award with first prize going to Madison Filter. Astra Zeneca and Itronics were highly commended for their entries. Bob Hudson acted as the judge for ABB Engineering Services on the IChemE Judging panel.



Left to right - Boris Johnson MP, Neil Blackhall ABB Engineering Services, and the winners of the environment award from Madison Filter.

ISPE Continuing Education Conference, Prague

Gerry Brennan and Jennifer Methfessel both presented papers. Gerry's talk covered some of the major safety legislation and standards that will affect EU accession countries, including Seveso 2, ATEX and IEC 61508. Jennifer described the a practical application of the new GAMP Good Practice Guide for Laboratory Systems to show how the guide should be applied to small laboratory systems and the kind of documentation that should be produced.



From left to right - Jennifer Methfessel, ABB Engineering Services - Jiri Uncovsky, ABB S.R.O. - Gerry Brennan, ABB Engineering Services - Ulli Mueller, ABB Automation.

Process Industry Maintenance Conference 2005, Brussels

ABB Engineering Services were a key sponsor again at this event for the 3rd year running. The event attracted over 200 delegates from around the world. Jonathan Cook, ABB Engineering Services, presented a joint paper with Nick Faase, Lucite International titled 'A risk based approach to achieving turnaround excellence'.

12th European Fine Chemicals Conference, Manchester

ABB Engineering Services was a key sponsor of this event. Paul Jackson presented a paper titled 'The theatre of dreams or a nightmare - The future regulatory Environment'

EuroLIMS 2005, Cambridge

Alison Harrington-Page presented at the EuroLIMS conference in Cambridge. The major theme was how to gain business efficiency through interfacing LIMS to instrumentation and ERPs. Alison presented on risk analysis to balance the cost of validation to achieve a return on this investment more quickly. Her paper included an overview of compliance requirements for LIMS, a regulatory update including the new Good Practice Guides from GAMP and a guide to preparation for regulatory inspections.

ABB International Safety Conference, Manchester

The inaugural ABB International Safety Conference attracted over 130 delegates from 24 countries to discuss and learn about safety technology and safety standards including IEC 61508 and alarm management.

The 2nd conference will be held in Singapore 30th & 31st May 2006.

The Chemical Engineering Show, Harrogate

We exhibited at this key regional show as well as presenting a number of papers, one of the papers was presented by Paul Jackson ABB Engineering Services jointly with Victrex This joint ABB / Victrex presentation demonstrated an outstanding example of the success of RBI to define inspection plans for items with little or no history. The RBI process was initially used at the Victrex Fleetwood plant resulting in savings of over \$10million without any negative impact on Health Safety or Environmental performance.

Annual Golf Day

The ABB Engineering Services Annual golf day took place in September at Moor Allerton Golf club in Leeds. The course was in excellent condition and challenging, but very enjoyable for everyone. The winning team was Neil Moody (Terra), Mike Sellers (Lucite), Kevin Doherty (Accordis) and Steve Robson (ABB). The winning individual was Michael Carter (Huntsman). The longest drive and nearest the hole prizes went to Mike Barber (Fircroft) and Brian Collett (Uniqema).

ABB helps to raise over £6,000 in annual bike ride

ABB Engineering Services has recently sponsored Rohm & Haas in their 9th annual bike ride in aid of NECCR (North East Children's Cancer Research).



The team safely back home.

The eighteen riders who took part, sporting their ABB t-shirts, set off from Walney Island on the West Cumbrian coast and 3 days and 175 miles later, turned up at the Jarrow plant after following a scenic and strenuous route through the Lake District and Pennines. Colin Board, a member of the project team said "We are delighted to be able to support R&H in this type of fund raising activity for such a worthy cause." ■

Seminars are focused on industry 'hot topics' and include inputs from external speakers.

Seminar programme - January to July 2006

26th January	Complying with the ATEX Directive	Manchester Airport
2nd February	Protecting Your Plant	Manchester Airport
21st February	Technical Briefings*	Middlesbrough
28th February	Alarm Management in Practice	London
21st March	Technical Briefings*	Aberdeen
4th April	Pipework Integrity	Edinburgh
2nd May	Technical Briefings*	Grimsby
3rd May	Experience of Implementing IEC 61508 / 61511	Cardiff
11th May	Alarm Management in Practice	Aberdeen
23rd May	Protecting Your Plant	Edinburgh
6th June	Technical Briefings*	Cardiff
13th June	Pipework Integrity	Middlesbrough
27th June	Technical Briefings*	Grangemouth
4th July	Alarm Management in Practice	Manchester Airport



*Technical briefings give an overview of several 'hot topics' including: Occupied buildings, Living with your PPC permit, Human factors, Alarm management, SIL assessment, Integrity management. Each overview covers main issues, key points of legislation and provides an insight into learning and experiences of the topic.

Technical training

Training courses provide in-depth knowledge on key subjects as part of an engineer's professional development.

Technical training courses - March to July 2006

1/2nd March	Essentials of Pressure Systems	Leeds
8/9th March	Design & Operations of Piping Systems	Edinburgh
14-16th March	Pressure Relief*	Warrington
15-16th March	IEC 61508 / 61511 SIL Determination*	Warrington
4/5th April	Delivering Energy Savings*	Chester
11/12th April	Area Classification	York
18th April	Electrostatic Hazards*	Edinburgh
24-28th April	Hazard Study Leaders	Warrington
9th May	Hazard Study Awareness*	Warrington
15-19th May	Hazard Assessment*	Warrington
14/15th June	IEC 61508 / 61511 SIL Determination*	Aberdeen
5th July	Hazard Study Awareness*	Aberdeen



* IChemE approved course.

For more information on:

Seminars please contact: Debby Law on +44 (0)1642 372029 or e-mail: seminars@gb.abb.com

Training courses please contact: Jackie Kendall on +44 (0)1642 372121 or e-mail: jackie.kendall@gb.abb.com

Esso Petrol Station Demolition and Remediation

Have you noticed how many petrol stations are being demolished and remediated for other uses? ABB Engineering Services is the Managing Contractor for the demolition and remediation of Esso petrol filling stations in the UK and Ireland. The project was started in July 2003 and is part of Esso's global strategy to improve its base of petrol stations and to release the land value locked up in less profitable petrol filling stations.

There are well over 400 petrol filling stations in the programme and 227 has been completed by the end of September 2005. Further sites are expected to be added to the programme by Esso in January.

Esso have openly stated that they are very impressed by ABB's performance on the contract. ABB Engineering Services are seen as the benchmark for good practice to which the other contractors in Europe should aspire. Esso take their audit processes very seriously. This is particularly so for Business Controls and for Safety (OIMS in Esso terminology). The ABB Petrol Station D&R Management contract was audited in September as part of Esso's 3 yearly global OIMS audit of their GR (Global Remediation) function. The verbal feedback was excellent with phrases such as "...one of the best projects I have ever audited..."

Getting to the top is one thing and now the project team are working hard to stay there. We have alignment days for the whole project team every 6 months. The most recent included reviewing the updated Belbin profiles for the team and identifying ways to keep improving as a balanced team. ■

ABB Engineering Services is part of ABB's Automation Technologies division serving customers in the chemicals, oil & gas, consumer, life sciences, manufacturing, metals, paper, petroleum and utility industries.

UK locations

Warrington
Teesside
East Kilbride
Derby

International locations

Americas
Asia
Europe
Middle East



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