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Case Study
Site Energy Optimisation

For the past 20 years Inspec's team including Chartered, graduate and experienced engineers and technicians have operated within highly regulated industries including top tier COMAH Sites, Pharmaceutical, Chemicals Oil and Gas.

Specialising in high integrity control automation and integration we have demonstrated our capabilities in the field of functional and machinery safety for applications where reliability is essential.

Guided by national and international standards we provide quality assured designs through rigorous processes including independent verification and validation .

Feasibility Study

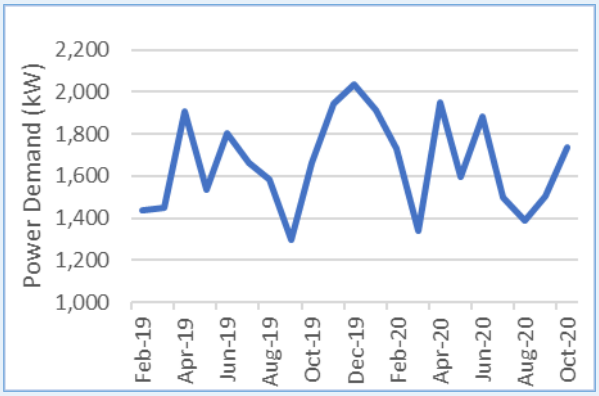
Inspec Systems were engaged to carry out the feasibility study to optimise the energy system on a top tier COMAH chemicals site in Norfolk.

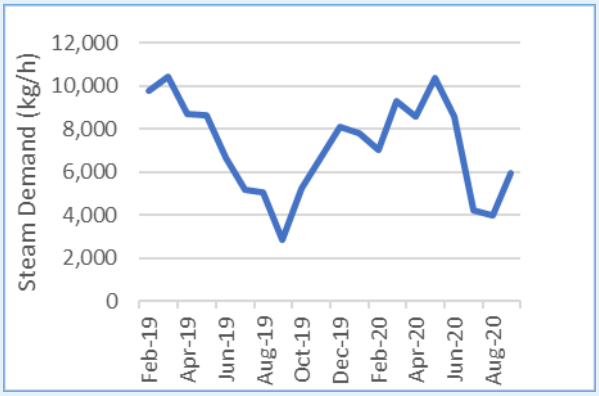
The embedded Generation and steam raising plant was inefficient and could not meet environmental consents with the upcoming Medium Combustion Plant Directive.

A needs assessment was carried out to determine site requirements for Electrical Power and Steam.

Budget quotations were obtained from vendors to produce a ±30% cost estimate for the project .

Approval of the selected solution led to a FEED study.





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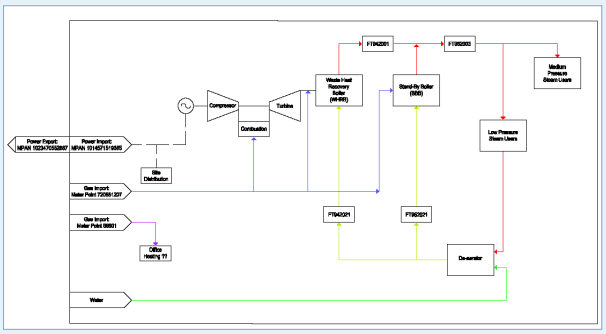
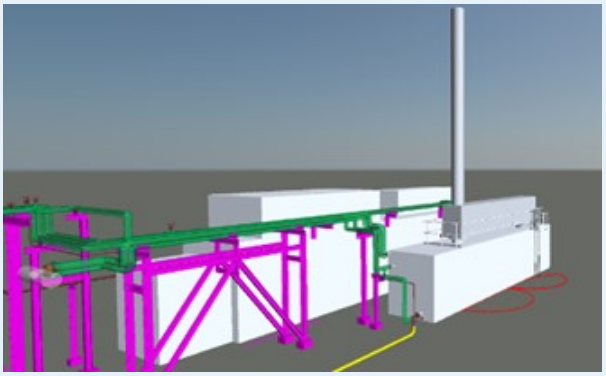
Front End Engineering Design (FEED) Study

A FEED study was carried out to further develop the system concept and firm up the cost estimate to ±15%.

The FEED process initially involved development of the system concept sufficiently to gain more accurate pricing from vendors. This included development of a concept piping cabling design, and process flow diagrams.

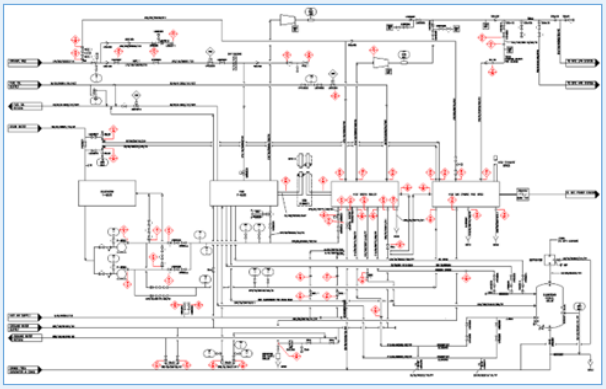




Procurement

The proposed design concepts were taken to multiple suppliers for competitive tender and a technical and commercial bid analysis process was undertaken. This allowed accurate prices to be determined for all elements of the project.

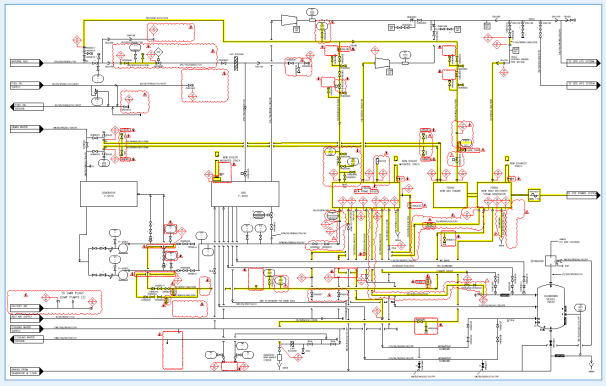
Vendor selection was carried out ensuring capability, competency and health and safety performance was fully assessed.



Detailed Design

The FEED study was developed in sufficient detail to achieve project sanction and Inspec were engaged to progress to the detailed design phase. Managing and co-ordinating all aspects of the project, specialist designers were engaged to provide final designs including:

- Piping System Design
- Civil Engineering
- Ventilation
- 11 kV Design
- SCADA
- EC&I



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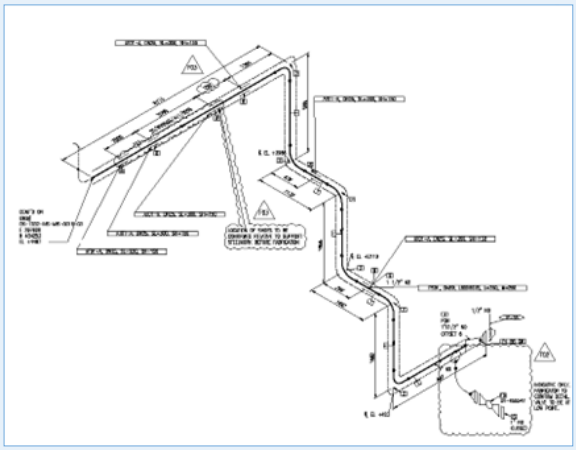
We Design

Piping System Design

Working with client and international standards, the detailed piping design considered pressure systems, human factors and operability and was completed using the latest laser scanning technology to inform more traditional design techniques.



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Point Cloud Scan

3D Modelling

Stress Analysis

Support System Design

Isometrics

We Integrate

Civil Engineering

Detailed topographical, borehole trials and underground surveys were carried out to assess the location. The detailed design considered all aspects including drainage, walkways and load bearing foundations.

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Ventilation

A new ventilation system was designed and implemented to ensure sufficient combustion air and air change requirements were achieved.

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11KV – G99

A full site study was undertaken to assess fault levels, harmonics, load flow and network stability. This allowed detailed design of the new 11 kV system with due consideration to G99 requirements and integration to the existing site.

SCADA

Inspec undertook the full systems integration of the new plant and equipment with consideration to cyber security.

EC&I

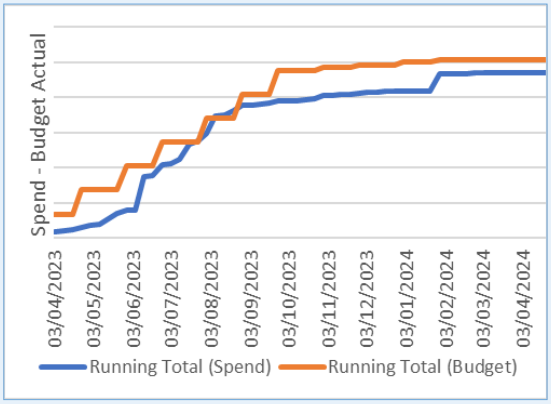
Inspec undertook all aspects of the EC&I design including power supplies, motor control, instrumentation and functional safety.

Project Management, Planning and Co-Ordination

The project was effectively managed using traditional tools ensuring good communications between all stakeholders.

The Project was delivered under NEC 4 contract terms.

Cost control was closely managed ensuring there were no surprises and decisions could be made on a predictive basis.



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Project Delivery

Inspec were nominated as Principal Designers and Principal Contractors and effectively delivered the project under CDM. The project was notified under F10 arrangements and there were no serious accidents or incidents.

Output

The project was delivered Safely, On Time, and Within Budget allowing commissioning to progress.

Contact Us

From concept to completion or at any stage we have the skills, capability, judgement and drive to support your projects.

Call us now to find out what we've been up to and how you can take benefit from our lessons learned over the past 20 years.

Contact Us

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