The client was a new start-up company planning to build a world scale bioethanol plant to meet the growing demand for blending bioethanol with petrol. It had limited internal resources to deliver a large project on this scale. The client’s project director was a seasoned project manager who had begun to develop a fixed price lump sum contract for the delivery of the project with an EPC contractor. However he realised he needed external project management and technical support from a company that could seamlessly help them establish a core project team, to ensure a contract was developed that met their requirements. They also required assistance to ensure the EPC contractor complied with the contract and delivered a plant that was in line with its scope, standards and specifications.

ABB, with its heritage as the engineering department for a large global chemical company, has a long track record of managing and specifying projects of this nature. It provided the client with the necessary support to develop technical and contractual documentation that met with its requirements, protecting them commercially and ensuring the technical standards and specifications were such that the finished plant produced reliably and to the right quality.

ABB also provided support to complete items that were outside of the EPC contractor’s scope such as permitting requirements and statutory approvals.

Solution
As the client began to develop its project to build a greenfield, world scale bioethanol plant using licensed process technology, it realised it requires assistance from a project management consultant to fill the gaps in its organisation’s technical experience and resources. As such it engaged ABB Consulting, who have a background in delivering projects as a client engineering department, to fill those gaps.

Initially ABB provided a full time project engineering manager, responding to the project director, to help develop the project contract documents and statutory applications in preparation for the negotiated lump sum EPC contract (IChemE red book). He brought experience from previous projects in order to best optimise the contract to protect the client’s interests.
ABB was involved in the project from the pre-financing stage to ‘takeover’ and beneficial operation. It also provided several functional specialist engineers to complete specific activities e.g. reviewing options on machinery and power supplies and completing a value analysis exercise.

As the project developed ABB provided increasing support to the client to a range of activities such as producing roles and responsibilities charts, identifying documentation requirements from the EPC contractor, participation in design and safety reviews, commenting on design documentation on behalf of the client, approvals of requests for dispensation etc.

Other resources were provided to meet the growing needs of the project including project engineers and construction superintendents. One project engineer was based in the EPC contractor’s home office providing continuous client representation whilst another was site based, primarily focussed on third party interfaces including; identifying road access and heavy lift routes, connection to utilities and support to the installation of a 9km export pipeline across third party operating facilities.

Functional specialist engineers, including civil & structural, piping, rotating and static equipment, electrical, control & instrumentation were all provided on a part-time basis to provide technical support to the client and represent its interests in these areas. These personnel attended meetings with the EPC contractor and suppliers, including performance and factory acceptance tests and reviewed and commented on submitted design information.

Specialist technical support, including water technologists, materials engineers and process safety engineers were provided on an ad-hoc basis to address specific issues as they arose throughout the project. ABB also supported the COMAH pre-construction paper and COMAH report preparation.

ABB filled the gaps in the client’s capabilities to create a seamless client project team that successfully delivered a world scale bioethanol plant to demanding programme and cost targets.

Benefits
- Successfully delivered a complex greenfield site project by filling specific knowledge and experience gaps in the client’s capabilities
- Developed a project contract that protected their interests both technically and commercially
- Provided advice on change management so that unjustified claims for additional costs could be identified and rejected, thus reducing overall project costs
- Provided technical expertise during the design phases of the project to ensure that the delivered plant was reliable, maintainable and easily operated
- Monitored the quality of the contractor design, identifying any deficiencies at an early stage, thus ensuring that on site quality and construction issues were minimised