

# ANORD FSD



Business  
is a  
Partnership





Anord Control Systems were established in 1969 and are the largest independent low

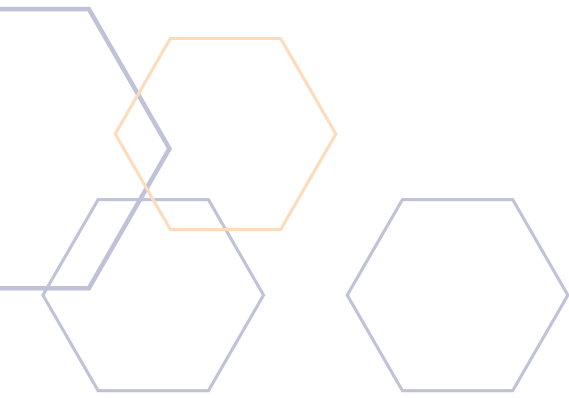
voltage switchgear company in Ireland, with a manufacturing capacity of €2.5 million per month, of which over 70% is exported to Europe and beyond. Anord have a strong track record in Infrastructure, Power, Tunnelling and Water and are specialists in MV / LV Unit substations and Intelligent Switchgear. For Anord, customer care and support is a fundamental principle in the delivery of the service, as is an open approach to sharing technical and commercial detail. By participation at design concept phase and through joint development, innovation and value engineering Anord are able to offer innovative and cost effective switchgear and control system solutions to their customers.



Field Systems Designs (FSD) are a specialist electrical engineering company engaged in the design, project management, installation and

commissioning of electrical process systems primarily in water, power, rail, tunnelling and transport sectors. FSD were established in 1994 from a MBO of Bristol Babcock (BBL). As a result the company has inherited many years of valuable experience across an expanse of disciplines. FSD's focus on safety, continual improvement, self investment and training provides an added value and totally professional electrical installation service. FSD's depth of experience provides the ability to respond both quickly and effectively to a wide and diverse range of technical demands using a closely integrated project team undertaking from major international projects to smaller more specialised schemes.





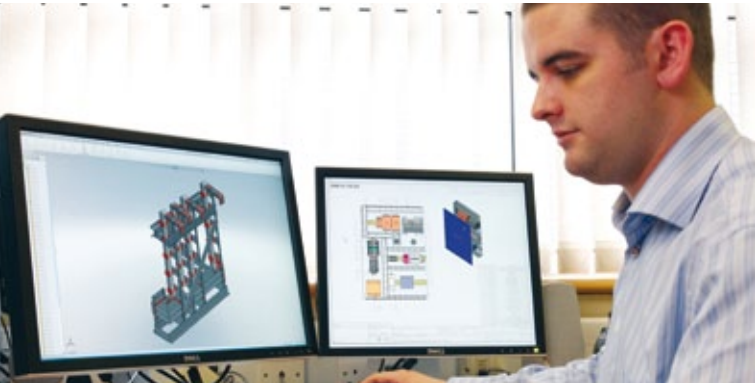
“Two companies, each expert in their own field, coming together to deliver technically excellent and innovative solutions. Working in partnership with FSD we aim to exceed customer service expectations and ultimately be recognised as our clients’ preferred Electrical Engineering Specialist.”

**Kevin Finegan, Managing Director  
Anord Control Systems**

“We are able to realise genuine advantages, both commercial and technical, by working in close partnership with Anord. As businesses, our ideals, principals and aspirations are closely aligned. This results in an improved project delivery experience for our customers.”

**Philip Haines, Managing Director  
Field Systems Designs**



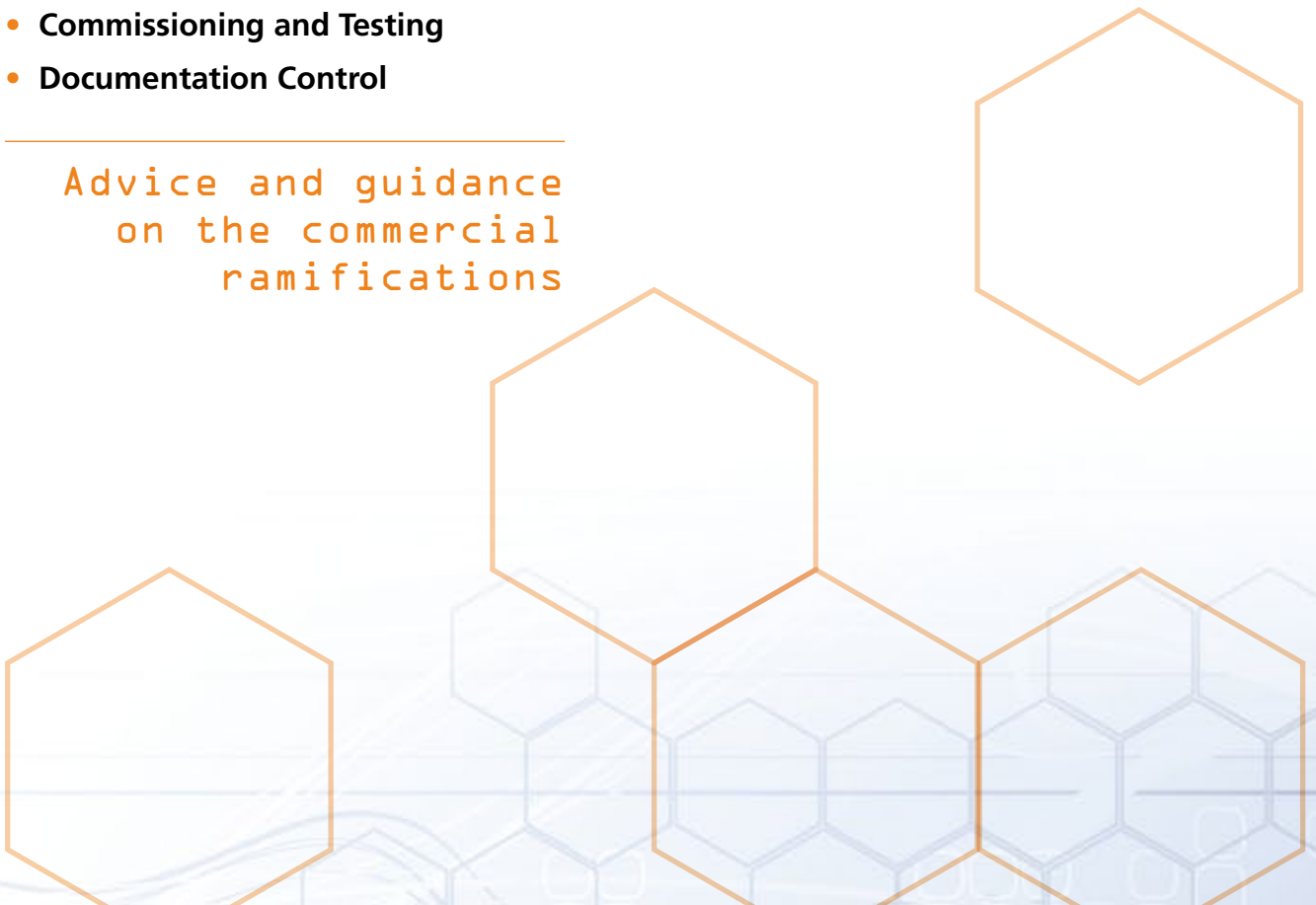


Where the partnership is engaged at an early stage of the project timescale, we will jointly review the client's requirements and provide alternative solutions regarding number and location of MCCs, potential for remote VSDs, remote I/O, use of Busbars in place of cables for incomers, and so on. The cable design (size and quantity) would be taken into account when designing the MCCs to ensure no interface issues occur once the project moves to the installation phase.

The partnership provides advice and guidance on the commercial ramifications of the various solutions enabling the client to select the most cost effective solution for the overall project, encompassing all aspects from the size of the building structures to the most effective environmental solution. During the project design implementation phase the partnership's engineers work closely together making each other aware of any changes that may affect their individual specialist area. This minimises all aspects of change.

- **Site-wide Electrical Design**
- **Total E & I Project Management**
- **MV/LV Package Substations**
- **Cable Management Planning**
- **Outdoor Substations**
- **Onsite Installation**
- **Power Distribution using Busduct or Cable systems**
- **Intelligent MCCs**
- **Systems Integration**
- **Commissioning and Testing**
- **Documentation Control**

Advice and guidance  
on the commercial  
ramifications



# Project Management

The partnership provides a Project Manager (PM) that is the single point of contact that manages the interface between all interested parties. The PM utilises standard project management processes that have been further developed over the period that the partnership has been formed.

The project management processes employed are clearly structured and provide a method for managing projects within a clearly defined framework. Each process is specified with its key inputs and outputs and with specific goals. The various management roles and responsibilities involved in a project are fully described and are adaptable to suit the complexity of the project and skills of the organisation. The processes are subject to regular review taking into account lessons learnt.

The key focus of the appointed Project Manager is to deliver the project in a manner that matches or improves the customer's expectations.

We aim to deliver technically excellent and innovative products and solutions that exceed customer expectations in value and service. We pride ourselves on being flexible to ever-changing programmes and responsive to emergencies. We care about our customers.

We have implemented systems to elicit feedback from our clients on the quality of our tender submissions and carry out regular benchmarking studies to ensure we are meeting customer needs and to identify areas for improvement.

**We pride ourselves on being flexible to ever-changing programmes**



- **Single point of contact thus reducing management time in co-ordination during project implementation.**
- **Two specialist contractors working together at the lowest possible price – in other words, no markup on markup.**
- **Turnkey electrical design to provide the optimum commercial and technical solution Reduced risk to client in terms of programme and interface issues.**
- **Value engineering opportunities through early involvement at design concept phase of the project.**

## Market Sectors

- Rail
- Energy from Waste
- Power & Generation
- Tunnelling
- Infrastructure
- Water
- Transport
- Data Centres

Our aim is to provide  
a positive customer  
experience

Anord-FSD have experience across a wide range of market sectors, with particular strengths in the Rail, Energy from Waste and Power sectors.

We have an ongoing commitment to ethical conduct in our business and servicing the needs of our clients by forming close collaborative relationships with clients, suppliers and end users. Our aim is to provide a positive customer experience with every interaction and be recognised as our clients' preferred "Electrical Engineering Specialist".

We aim to deliver technically excellent and innovative products and solutions that exceed customer expectations in value and service. We pride ourselves on being flexible to ever-changing programmes and responsive to emergencies.



# Case Study

The Lower Lee Valley Cable Tunnel (LLVCT) project involved the provision of two cable tunnels for 132KV High Voltage cables, one for EDFe and one for NGT. The tunnels were required as part of the Olympic build programme, to replace the existing overhead lines which crossed the Olympic site.

The scope included the provision of two off intelligent MCCs at each of the 8 Headhouse shafts plus associated UPS, together with the full site cabling package from REC supply point to final points. The largest drives on the project were 375KW VSDs.

The AnordFSD project team worked closely to co-ordinate the design and on site activities. In particular space constraints meant that the design and layout of the switchboards had to be carefully considered.

Due to specification ambiguities and problems associated with modelling of the ventilation system, the JV Project Manager was heavily involved in the main contract design process and was able to confirm the effects of various solutions discussed on both the MCC design and the site cabling scope.

The site operation was complicated by the issues associated with a multi-site project in the heart of London, with multi disciplines working within a limited space.

**Anord and FSD teams worked closely to co-ordinate the design and on site activities**

## Lower Lee Valley Cable Tunnel (Olympic Tunnel)



<b>Project Value</b>	£2.5m
<b>Client</b>	J Murphy & Sons Ltd
<b>End User</b>	EDF Energy and National Grid Transmission

## Beckton Desalination Project



<b>Project Value</b>	£11million
<b>Client</b>	Acciona SA (Pridesa)
<b>End User</b>	Thames Water Utilities Ltd

The output from this exercise resulted in savings of 12.5% on the Initial Target Cost of the project

Anord-FSD prepared a joint tender for this 150Mld Desalination plant which abstracts water from the river Thames and via a four stage three stream process consisting of Intake, Pre-treatment, Reverse Osmosis and Post Treatment provides water into the London Water Ring Main.

Anord-FSD competitively tendered for the work following which a value engineering exercise was completed in conjunction with the main contractor and end user. The output from this exercise resulted in savings of 12.5% on the Initial Target Cost of the project. The key areas that delivered the saving were:

- Change to water cooled drives for large VSDs – reduction in panel size (30% saving) with resultant saving in building footprint etc and air conditioning costs
- Use of packaged sub-stations where practical
- Use of Busbar in place of cables from transformers to MCC
- Use remote I/O for instrumentation and valves
- Change of protection device type – MCCBs to fuses
- Use of Intelligent MCCs as opposed to conventional
- Change of sub-distribution cabling from 33KV to 11KV
- Use of Profibus cabling for instruments

During the detailed design phase Anord-FSD worked closely with the client's engineers. There was a significant level of change during the design phase, which required collaborative working between all parties to ensure that the resultant product was tailored to meet all the client's demands.

# Case Study

Following our success on the first phase of the Channel Tunnel Rail Link (CTRL) scheme, we were awarded a further contract for 22 substations by Birse, working on sites stretching from Kent to St. Pancras.

The contract included the following works at each site:

- Supply and installation of all Medium Voltage (MV) cabling and connections between the MV substations and the switchgear
- Design, supply and installation of manual emergency tripping systems
- Design, supply and installation of building services
- Design, supply and installation of fire alarm systems
- Design, supply and installation of intruder systems
- Design, supply and installation of busbar systems ranging from 1600A to 6300A
- Design, supply and installation of Telemetry Marshalling Panels (EMMIS) and all inter-connecting cabling to enable remote control and monitoring

Working in five teams consisting of Technicians, Electricians and Specialist Cable Installers, these works were completed during 2007.

## Channel Tunnel Rail Link – Substations



<b>Project Value</b>	£4m
<b>Client</b>	Balfour Beatty (formerly Birse)
<b>End User</b>	Union Rail

We were awarded a further contract for 22 substations by Birse



**Riverside Resource Recovery**



Riverside Resource Recovery is an Energy from Waste facility at Belvedere, London, designed with an annual capacity of 585,000 tonnes of waste and producing an output of 50MW. The waste is delivered using the River Thames, thus keeping 100,000 HGVs off London’s congested roads each year.

FSD were contracted by Swiss company AE&E Inova to design, supply and install the LV Distribution System including cabling and all of the Process Control & Instrumentation cabling, FSD were assisted by their JV partners Anord in the successful delivery of this complex project.

The design of the cable support system required detailed planning due to the congested nature of the installation, and to ensure no clashes it was detailed on the overall site 3D model.

Circa 180km of cable and 20km of cable containment was installed, with a peak labour force in excess of 70 operatives.

<b>Project Value</b>	£6m
<b>Client</b>	Cory Environmental
<b>End User</b>	AE&E Inova

Circa 180km of cable  
and 20km of cable  
containment was  
installed



# Overseas Experience

The partnership personnel have considerable experience working overseas.

## **Azerbaijan Pumping Stations –**

**Weir Pumps** This project was for the major electrical refurbishment on 26 Water Treatment plants in the Baku area. This included the supply and installation of HV / LV switchgear, refurbishment of Oil Circuit Breakers, installation of new cabling, refurbishment of building services and production of documentation.

## **Aguas Tenidas Copper Mine, Huelva,**

**Spain** This project consisted of the supply and installation of fourteen 11kV/415V Package Substations and Motor Control Systems which provided the power and control required to operate the plant associated with the mining process.

## **Sudan Sugar Plants – Thorne Boilers**

Installation of boiler control systems at 3 sugar plants in remote areas in Sudan. We were responsible for the cabling and pneumatic installation; all three boilers were completed ahead of schedule.

## **Doha West Power & Desalination Plant**

The scope involved the replacement of the control room which housed the control panels that operate all of the electrical equipment associated with the boilers, generating sets, desalination plant and ancillary plant, the original building having been destroyed as a result of the Iraqi invasion.

**DataSpace Partners Moscow** This was a major Data Centre project, consisting of the complete electrical switchgear distribution requirements, including Transformers, Main LV Distribution, Sub Distribution, PDUs and Energy Management Systems.



**Az Zour** The project involved the completion of the construction of two gas scrubber and pressure reducing stations, one for the 8 x 300MW generating sets and the other for the gas turbine plant. The mechanical installation was substantially complete prior to the Iraqi invasion and the project involved the completion of civil and mechanical works prior to moving on to the following electrical works.

**Costa Rica Sugar Plants** We supplied, installed and commissioned the switchgear and generator control systems associated with the generation of electricity from the sugar cane biomass.



# ANORD FSD

Anord-FSD Partnership  
 Spring Court  
 Station Road  
 Dorking  
 Surrey  
 RH4 1EB

Tel: +44 (0)1306 879426  
 Fax: +44 (0)1306 882922  
 Email: [sales@anordfsd.com](mailto:sales@anordfsd.com)  
 Web: [www.anordfsd.com](http://www.anordfsd.com)

