

Advanced Modelling Informs Better Design

Most North Sea platforms were designed with passive Cathodic Protection (CP) systems using sacrificial zinc nodes. As these platforms reach and exceed their intended lives, these anodes are entirely depleted. New anodes are expensive and sizes are hard to estimate when the remaining operating life is unclear, but alternative Impressed Current Cathodic Protection (ICCP) systems are complex to design.

At MMI we have the expertise to use advanced Finite Element software to produce detailed evaluations of the alternatives. We can then generate scopes of supply, and undertake FEED stage work for replacement programmes.

Process

Most CP modelling systems use the Boundary Element Method (BEM), which was developed at a time when computers couldn't cope with the size of full FE models of the jacket, the seabed, and the surrounding water. We use the sophisticated CP-Master FE suite developed by Elsyca, which has the following capabilities:

- CAD import
- Seabed stratification model
- Detailed material property library
- ICCP control system simulation and specification

Unlike BEM, FE can model narrow water gaps (such as FPSO turrets) and multiply-connected domains (such as tie-backs and moorings).

Expertise

Of course, we have more than a great modelling tool. Our lead practitioner has nearly 30 years' experience of electrochemical engineering, and has investigated complex corrosion protection problems in sectors ranging from nuclear to offshore. Our design team can help with the development of clamps and sleds, power systems and installation tools. Finally, our safety experts can help you assure the final fit.

Helping Operators Worldwide

With offices in Aberdeen, London, Houston, Perth, and Kuala Lumpur, we have the global presence to help you with your CP replacement requirements, wherever you are.

